

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
PROJECT REPORT**

FOR

**THE PROPOSED EXPLORATORY OIL WELL DRILLING IN BLOCK
10BA, TURKANA CENTRAL AND NORTH DISTRICTS BY TULLOW
KENYA B.V.**



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We the undersigned, confirm that the contents of this report are a true representation of the Environmental and Social Impact Assessment project report of the proposed exploratory well drilling in Block 10BA, in Turkana Central and North Districts by Tullow Kenya B.V.

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NON-TECHNICAL SUMMARY

Introduction

This Environmental and Social Impact Assessment (ESIA) Report has been prepared for Tullow Kenya B.V. (hereafter referred to as Tullow) for the proposed exploratory drilling on Block 10BA in Turkana Central and Turkana North districts, Kenya. Tullow (PIN P051340553U) is a subsidiary company of Tullow Oil plc, and is one of the largest independent oil and gas exploration companies, and a FTSE100 company. The group has over 80 licences in more than 20 countries, with operations in Africa, Europe, South Asia and South America. This ESIA Report has been prepared by Earthview Geoconsultants Limited.

Project description

The locations of the exploratory wells have not been determined. Tullow has, however, identified an area of interest for the proposed project. The proposed drilling sites will incorporate: the drilling rig pad, working area, accommodation facilities, waste management facilities, water reservoirs, kitchen facilities, power generation facilities, fuel storage facilities, a garage area, parking bays, a lay-down area for storage of bulk mud and cement, dry process materials, pipe rack, machinery, and secondary operations such as welding, painting and machining.

The exploratory drilling project activities will entail: preparation of access route, drilling site and rig camp, mobilising drilling rig and rig crew, operating the drilling rig, well testing and suspension and abandonment and decommissioning.

The ESIA Process

A detailed field-based environmental and social impact assessment preceded by extensive desk study was undertaken from 30th July to 28th August 2013. The ESIA process is used to assess the potential environmental and social impacts (both positive and negative) of the exploratory drilling; facilitate management and control of the potential environmental and social impacts associated with the drilling; assess compliance with relevant statutory and regulatory requirements and raise awareness of and commitment to environmental and social policies by project staff, the community and other concerned parties through public meetings. The environmental parameters assessed during the present ESIA include:

- physiography,
- geology and geological setting
- soils and soil characteristics
- climatology and air quality
- surface and ground water potential and quality
- flora and fauna
- land resources
- visual aesthetics
- noise and vibrations
- solid wastes and effluents
- socio-economic and health and safety issues.

Earthview conducted public awareness through local radio broadcasts and the daily newspapers inviting all interested parties to air their views and concerns. The public meeting consultations were extensive, and included formal and informal interviews with the community and the stakeholders, through intensive public barazas (meetings) as well as completion of questionnaires. The information gathered provides details of the current

environmental and socio-economic baseline situation and is critical for development of the Environmental and Social Management Plan (ESMP).

Regulations, guidelines and standards

The policy and legislative framework upon which this ESIA survey for the proposed project was based on includes Kenyan and International legislation and Tullow policies but was not limited to the National Energy Policy (2012); Environment and Development Policy; Land Policy; Kenya Health Policy; Environmental Management Coordination Act (EMCA) 1999; Devolved Government Legislation, International Standards and procedures including: International Association of Oil and Gas Producers (OGP) Guidelines; World Bank Group Environmental, Health and Safety (EHS) Guidelines (2007) and International Finance Corporation (IFC) Sustainability Performance Standards (2012) and Guidelines (2007) and Tullow Policies and procedures.

Baseline Overview

Turkana County is situated in North Western Kenya. It borders West Pokot and Baringo Counties to the south, Samburu County to the South East, and Marsabit County to the East. Internationally it borders South Sudan to the north, Uganda to the west and Ethiopia to the north east. The County shares Lake Turkana with Marsabit County. The total area of the county is 68,680.3 Km² and lies between Longitudes 34⁰ 30' and 36⁰ 40' East and between Latitudes 1⁰ 30' and 5⁰ 30' North.

The project area has scarce rainfall with an annual average of 117 mm and experiences an average maximum temperature¹ of 38°C and an average minimum of 25°C. Most of the year, the Low Turkana Jet Stream prevails and is particularly strong near the lakeshore especially in the project area and around Todonyang.

The physiography of the project area is varied, allowing for a rugged scenic beauty that comprises of open plains with dunes, mountain ranges and hills, the emerald Lake Turkana with its three volcanic islands that are important natural heritage sites, and rivers, including mostly sand rivers (luggas). The main mountain ranges are Songot and Suguta in the North and Loima and Lorengippi in the South of Block 10BA. The ranges support economic activities such as honey production, grazing during dry season, water catchment areas, wood and charcoal production.

The tourism potential is quite high due to these aesthetic features, but is today still underexploited on account of the poor infrastructure of this remote area.

Surface water sources in the project area include Lake Turkana, influent rivers (Omo, Turkwel and Kerio) and luggas, and a few small dams and water pans. The groundwater in the project area is exploited mainly through boreholes and shallow wells excavated in luggas, and springs. They tend to have widely variable quality, from human-potable and livestock-potable to saline and non-potable. In the project area, water is readily obtainable from shallow wells dug in the riverbeds. During the rainy season the locals also dig holes in luggas to obtain water. The groundwater is sensitive to rainfall fluctuations, and during the dry season the water level in these wells falls rapidly.

The vegetation of the project area belongs to the Somali-Masai eco-region, comprising of deciduous bushland and thicket, semi-desert grassland and bushland with *Acacia* spp., *Commiphora africana*, *Balanites aegyptiaca*, *Euphorbiaceae*, and abundant dryland taxa. The area, especially in the market centres such as Kalokol and Lokitaung', is dominated by the alien shrub known as *Prosopis juliflora*. Faunal species in the area include: Silver-

¹Source: <http://www.lodwar.org/climate-time.htm> (data recorded for 2011)

backed jackals (*Canis mesomelas*), Spotted hyenas (*Crocuta crocuta*), small mammals such as Ground squirrels, African hares and Dwarf mongoose, reptiles including: Groove-crowned Bullfrog (*Haplobatrachus occipitalis*), Mascarene Rocket frog (*Ptychadena mascariensis*) and Cryptic sand frog (*Tomoptrena cryptotis*) and reptilian species such as Kenyan dwarf gecko (*Lygodactylus keniensis*), Short-necked skink (*Mabuya brevicollis*), and Semi-ornate snake (*Meizodon semiornatus*) and birdlife majority of which are water birds and Palaearctic migrants like the yellow wagtail observed at the shores of Lake Turkana within the bird breeding site in Namakat area.

The major source of livelihood in the project area is primarily from livestock and fishing in that the majority of the community members are pastoralists and fishermen. They also engage in other livelihood activities such as weaving, charcoal burning, petty trade and some engage in farming along river Turkwel. Land in the project area is communally owned although people live where their ancestors used to live. The decision on how this communal land is used by the community members is made by the local leaders. The proposed project area is rich in cultural and archaeological sites such as Turkana boy site in Nariokotome, Namortunga site along Kalokol-Lodwar road and Kenyatta Line cell in Lokitaung.

Transport and communication infrastructure in the area is not well developed. Transport facilities mainly consist of road and air. The roads are not tarmacked and cut across luggas which makes them impassable during rainy season. In addition, the vehicles get stuck in the sand along the luggas during the dry seasons. Motorbikes are not widely used especially in the interior parts of the proposed project area since they are expensive and are not used for long distances. There are a number of airstrips in the project area such as Kalokol, Kataboi and Eliye springs among others, which have runways that are non-tarmacked except the Lodwar airstrip. On the communication sector, mobile network connectivity is poor in the project area. The most widely used mobile network is Safaricom which has erected communication masts in major towns such as Kalokol and Lokitaung.

Several development agencies are operating in the project area such as Diocese of Lodwar, Oxfam, Child Fund Kenya and International Organization for Migration. Most of them focus on development of livelihoods, health issues and peace building initiatives. Insecurity was repeatedly mentioned as a major challenge to the development initiatives in the area by the locals during the assessment and also the other key stakeholders consulted. This was common especially along the borders such as Todonyang where conflicts are frequently experienced between the Turkana community and the Merille from Ethiopia.

Culture is the way of life of a people, their behaviours, beliefs systems, values, and symbols that they accept and that are passed on by communication and imitation from one generation to another. Culture exists in tangible and intangible forms. Tangible forms of culture consist of immovable heritage sites such as burial and memorial places and places of worship. The intangible forms of culture on the other hand are manifested in oral traditions and expressions including social practices, rituals and festive events.

Stakeholder Consultation

Consultations were conducted with various groups in Turkana Central and Turkana North. During the ESIA study, meetings, interviews and discussions were held with local communities, the leaders, government officials and the NGO officials. The following areas were covered; Lodwar, Kalokol, Lobolo, Loyoro Lomopus, Eliye Springs, Kataboi, Kalimapus, Katiko, Lomekwi, Kang'aki, Nachukui, Narengewoi, Lowarengak and Lokitaung. Interviews were also held with officials from National Museums of Kenya, Ministry of Energy and Petroleum and other key stakeholders in Nairobi.

A summary of concerns raised are as follows:

- Tullow activities in the area may be erratic hence this may interfere with the grazing patterns and water points.
- The project leading to environmental degradation.
- Tullow has absorbed the few security personnel in the area for their (Tullow) project to secure their campsites. This has left the community prone to attacks without defence.
- Effect on water aquifers will leave the community more vulnerable and susceptible to prolonged drought and famine.
- Noise pollution and air pollution likely to arise from the rig operations may disrupt the existing state of tranquillity and low levels of air pollution.
- Influx of immigrants and rig workers to the area will lead to social disorder; introduction of prostitution; intermarriages; exploitation of local community members and school dropout cases in search of employment.

Impacts Assessment

Aspects of the proposed and unplanned activities that are likely to affect baseline conditions in the project area include:

- the project footprint (access road, accommodation facilities and rig camp);
- the area within which dust may settle;
- the area in which air quality may be degraded as a result of a well test;
- the area within which noise may be audible;
- communities close to the drilling locations;
- the areas into which grazing herds may be displaced as a result of the basecamp or access roads;
- groundwater resources which may be degraded as a result of drilling or uncontained spillage;
- soils which may be degraded due to compaction and uncontained spillage; and
- the road network where construction traffic may result in a noticeable increase in traffic levels

Project operations will affect air quality on a micro-scale, and in a transient manner, through exhaust emissions from vehicles and machinery as well as fugitive emissions (such as from leaking pipes and tubing, valves, connections, pump seals, compressor seals, pressure relief valves, tanks or open pits/containments, hydrocarbon loading and unloading operations, and poorly managed waste disposal and sanitary facilities).

There are several potential point and non-point sources of pollutants that can be generated during the life cycle of the project and that can lead to contamination of surface and ground water at site-specific and local scales. During construction of the access road(s), campsite and drill pad areas, fluid leakages (e.g. accidental spillage of fuel, and lubricants from vehicles and other machinery being used in the construction process) may occur, and could eventually contaminate surface and groundwater.

The proposed exploratory well drilling project shall involve mobilisation and transportation of equipment and machineries to the project site, an activity that will generate noise. Construction activities shall also generate noise. During drilling operations, the noise sources will be the rig, auxiliary equipment, and power generators, which shall all be within the rig site perimeter.

As a result of the proposed project, it is expected that different forms of wastes will be generated. Wastes would emanate from the drill rig site as well as the base camp. Wastes expected at the rig site include drill cuttings and drilling fluids.

The activities of the proposed project are feared by the community to lead to disturbance of gravesites, cutting down of special trees for initiation and other ceremonies and eroding the culture of the community due to influx of people from other areas. Tullow should consult local elders in the project area so that they can help locate grave sites and initiation places so that they are not interfered with in any way. The specific archaeological sites may not be interfered with since Tullow has incorporated the fossil avoidance procedure which addresses the possibility of archaeological deposits, finds and features being encountered during activities associated with the Kenya Block 10BA and to provide procedures to follow in order to avoid such sites and to provide a clear pathway, where possible. These procedures should be followed to the later in case one comes across the sites or fossil finds.

The Environmental and Social Management Plan (ESMP)

Before construction starts, Tullow must ensure that all the necessary permits have been obtained and that engagement with key stakeholders has been initiated.

Tullow will carry out pre-construction surveys of the access road routes and the drilling location and take photographs to record the conditions before the project. Tullow will ensure that a Waste Management Plan (WMP), an Oil Spill Contingency Plan (OSCP) and an Emergency Response Plan (ERP) are provided before work begins to all subcontractors for implementation during the project.

During construction operations Tullow and subcontractors' EHS personnel will carry out inspections to verify that the access road and drilling location are constructed with the minimum of disturbance to local communities. They will also verify that construction reduces the cutting of dense shrubs and trees and avoids blocking natural drainage channels. Tullow will require the contractor to implement controls on traffic and construction plant.

When the drilling rig is mobilised to the drilling location, Tullow will carry out an inspection of the rig camp, drilling rig and their respective environmental systems to check they meet project requirements and document the findings including any improvements necessary.

During the drilling programme, the focus of environmental management is on routine inspection of the drilling location and checking that the equipment and procedures are effective and recording actual environmental performance parameters.

Once the well has been tested and verified to be commercially viable, it will be completed or suspended to allow for future production. If little / no hydrocarbons are detected, the well will be plugged and abandoned. Once the well has been plugged (with cement), the casing will be cut below the ground level and a plate, made of steel, welded to the top of the casing. If such a stage is reached, decommissioning and camp clearance will be conducted.

In order to manage the project's impact on socioeconomic issues, several management plans concerning stakeholder engagement, gender, employment, resettlement, indigenous people, health and safety, road safety and grievance mechanism plan should be developed. The plans should aim to avoid or minimise any potentially negative impacts on the socio-economic welfare of local communities and maximise the potential benefits, in line with national legislation, Tullow policies and the IFC EHS Performance Standards.

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LIST OF ABBREVIATIONS

ADBG	Africa Development Bank Group
AFR	Alternative Fuels and Raw Materials
APPEA	Australian Petroleum and Exploration Association Limited
ASALs	Arid and Semi-Arid Lands
AIC	African Inland Church
API	American Petroleum Institute
BOD	Biological Oxygen Demand
BSI	British Standards Institution
BPEO	Best Practicable Environment Option
BOP	Blow Out Prevention
CBD	Central Business District
CFC	Chlorofluorohydrocarbons
CSR	Corporate Social Responsibility
DC	District Commissioners
DEAP	District Environment action plan
DO	District Officers
DHMBS	District Health Management Boards
EAP	Environmental Action Plan
ECD	Early Childhood Development
EIA	Environmental Impact Assessment
EMCA	Environmental Management Coordination Act
EMS	Environmental Management System
EPE	Environmental Performance Evaluation
EPR	Exploration and Prospecting Rights
ESAP	Environmental and Social Action Plan
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management Systems
ESIA	Environmental and Social Impact Assessment
ERS	Economic Recovery Strategic
ESRS	Environmental and Social review Summary
FPIC	Free Prior Informed Consent
FTSE	Financial Times Stock Exchange
GoK	Government of Kenya
GHG	Green House Gas
GGFR	Global Gas Flaring reduction
GN	Guide Note
GVEP	Global Village Energy Partnership
ICESCK	The International Covenant on Economic, Social and Cultural Rights
HP	Horse Power
HSE	Health, Safety and Environment
IFS	International Finance Committee
IRS	International Rescue Committee
KES	Kenya Shillings
KNBS	Kenya National Bureau of Statistics
MDGs	Millennium Development Goals
MSID	Management Systems Interference Document
NADM	Non-Aqueous Drilling Mud
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organization
NHSSP	National Health Sector Strategic Plan
NOCK	National Oil Corporation of Kenya
NMK	National Museum of Kenya
NO _x	Nitrogen oxides
OBM	Oil Based Mud
OGP	Oil & Gas Producers
OSCP	Oil Spill Contingency Plan
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PSC	Production sharing Contract
PRSP	Poverty Reduction Strategy Paper

PS	Performance Standards
RAP	Resettlement Action Plan
ROP	Rate of Penetration
SBM	Synthetic Based Mud
SCE	Solids Control Equipment
SIA	Social Impact Assessment
STI	Science, Technology and Innovation
TCDP	Turkana County Development Profile
TCDDP	Turkana Central District Development Profile
TNDDP	Turkana North District Development Profile
TOES	Tullow Oil Environmental Standards
TOR	Terms of Reference
TUPADO	Turkana Pastoralist Development organization
UNEP	United Nations Environment Programme
VOC	Volatile Organic Compounds
WBM	Water Based Mud
WRMA	Water Resources Management Authority

1. INTRODUCTION

This ESIA has been prepared by Earthview Geoconsultants (K) Ltd for Tullow Kenya B.V. (Tullow), the project proponent. The ESIA report provides a critical examination of issues considered important to ensure that the project is carried out in a clean, sustainable and healthy manner, whilst maximising the benefits the project brings. This report is primarily aimed at establishing the impacts of the proposed exploratory drilling project to be conducted in Block 10BA (Figure 1.1), Turkana North and Turkana Central Districts in Northern Kenya by Tullow. The methodology used includes review of available literature, surveys of the existing environment, meetings and consultations with local stakeholders and government officials and public consultation with the local residents.

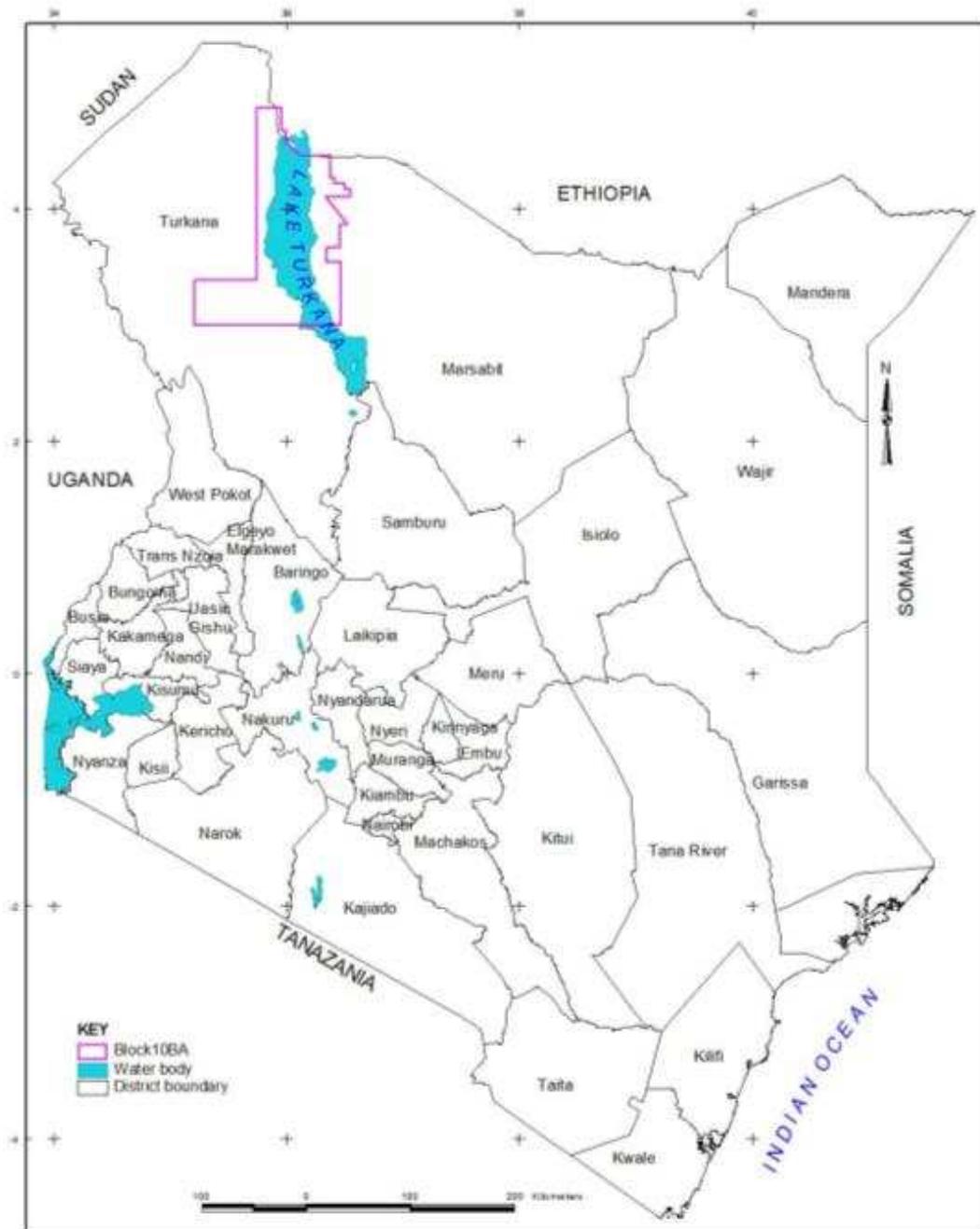


Figure 1.1: Location of Block 10BA

1.1 Purpose of the ESIA

1.1.1 The Mandate of NEMA

The National Environment Management Authority (NEMA) is the institution that has been established under the Environmental Management and Coordination Act (EMCA) of 1999 in order to deal with matters pertaining to the environment, with the object and purpose of exercising general supervision and co-ordination over all matters relating to the environment, and to act as the principal instrument of government in the implementation of all policies relating to the environment. Some of its mandates that are relevant to ESIA's are to:

- Co-ordinate the various environmental management activities being undertaken by the lead agencies and promote the integration of environmental considerations into development policies, plans, programmes and projects with a view to ensuring the proper management and rational utilisation of environmental resources on a sustainable yield basis for the improvement of the quality of human life in Kenya;
- Carry out surveys which will assist in the proper management and conservation of the environment;
- Undertake and co-ordinate research, investigation and surveys in the field of environment and collect, collate and disseminate information about the findings of such research investigation or survey;
- Identify projects and programmes or types of projects and programmes, plans and policies for which environmental audit or environmental monitoring must be conducted under the Act;
- Monitor and assess activities, including activities being carried out by relevant lead agencies in order to ensure that the environment is not degraded by such activities, environmental management objectives are adhered to and adequate early warning on impending environmental emergencies is given;
- Undertake, in co-operation with relevant lead agencies, programmes intended to enhance environmental education and public awareness about the need for sound environmental management as well as for enlisting public support and encouraging the effort made by other entities in that regard;
- Publish and disseminate manuals, codes or guidelines relating to environmental management and prevention or abatement of environmental degradation;
- Render advice and technical support, where possible, to entities engaged in natural resources management and environmental protection so as to enable them carry out their responsibility satisfactorily.

1.1.2 Requirements and Scope of Work for the ESIA

A project report is defined, in the preliminary section of the EMCA (1999) and the interpretation section of the Environmental (Impact and Audit) Regulations (2003), as a summarized statement of the likely environmental effects of a proposed development referred to in section 58 of the EMCA, 1999. Section 58 requires that a proponent intending to carry out any undertaking listed in the Second Schedule to the Act must submit a project report to the National Environment Management Authority ('the Authority') in the prescribed form accompanied by the prescribed fee.

Regulation No.7 of the Environmental (Impact and Audit) Regulations, 2003 lays down the specific issues that the project report must address, which in summary are: the nature, location, activities, and design of the project; the materials that are to be used; the potential environmental, economic and socio-cultural impacts and mitigation measures;

plans for the prevention and management of accidents and for ensuring the health and safety of workers and neighbouring communities; and the project budget. These issues are to further address, as outlined in the Second Schedule of the Environmental (Impact Assessment and Audit) Regulations (2003): ecological considerations; sustainable use; ecosystem maintenance; social considerations; landscape and land uses; and water. Within this framework, the collection of relevant baseline data, and consultations with stakeholders and the public are important, and ought also to be included in the report.

The scope of this ESIA project report can be summarised as:

- Stakeholder engagement;
- Review of relevant data and ground-truthing;
- Utilising existing baseline data (biophysical, social and health) for the description of the project area;
- Prediction and evaluation of potential impacts;
- Determination of appropriate mitigation measures that can eliminate, reduce/minimise the impacts;
- Development of an Environmental and Social Management Plan (ESMP); and
- Report preparation.

1.2 ESIA preparation

Tullow commissioned Earthview Geoconsultants Ltd in collaboration with RSK Environment Ltd (UK), to carry out an ESIA for its proposed exploration well in the Block 10BA in accordance with all applicable Kenyan legislation and international policies and best practices that are relevant to oil and gas exploration.

Table 1.1: The ESIA team composition

Company	Name	Role	Qualifications	Experience (years)
Earthview	Prof. Norbert Opiyo-Akech	Overall coordination/ Geological issues	PhD. Geochemistry	30
	Prof. Daniel Olago	Coordination/Biophysical and Socio-economic issues	PhD. Physical Geography and Quaternary Geology	20
	Mr. Nicholas Aketch	Logistics/Administration	BSc. Applied Business Computing and Project Management	8
	Mr. Joseph Ng'ang'a	Soil and Waste Management	PgD. Soil Survey and Mapping	20
	Mr. Stanley Chasia	GIS Expert	MSc Geographic Information Systems	4
	Ms. Emily Atieno	Policy/Legislation/Regulations	Bachelor of law	25
	Ms. Sheena Adongo Ogutu	Biophysical and waste management	BSc Environmental and Biosystems Engineering	3
	Ms. Linda Were	Socio-economics, Health and Socio-cultural issues	Bachelor of Arts in Anthropology	2
	Mr. Kennedy Ochieng	Socio-economics, Health and Socio-cultural issues	Bachelor of Arts in Anthropology	2
	Ms. Grace Mugo	Socio-economics, Health and Socio-cultural issues	Bachelor of Arts in Social Work	2
	Mr. Erick Ochieng	Socio-economics, Health and Socio-cultural issues	Bachelor of Arts in Anthropology	2

Company	Name	Role	Qualifications	Experience (years)
	Ms. Sarah Riziki	Socio-economics, Health and Socio-cultural issues	BSc. Environmental Education	1
	Mr. Elly Orwe	Biophysical and waste management	Dip. Natural Resources	1

RSK (UK) facilitated Quality Assurance and Quality Control (QA/QC) for the ESIA Report for Block 10BA.

Company	Name	Role	Position
RSK(UK)	Ms. Rachel Bendell	Quality assurance and control	Principal EHS Consultant

1.3 Structure of the ESIA Report

The structure of the report is based on that proposed in the NEMA EIA Guidelines (2002), and is indicated in Table 1.2 below.

Table 1.2: Structure of the ESIA Project Report

Chapter	Title	Contents
1	Introduction	Introduction to the project area; identification and activities of the project proponent in other regions; project background, objectives and justification; purpose of the ESIA and objectives of the report; the EIA team; TOR for the report.
2	Project Description	The technology and processes to be used in the implementation of the project; workforce requirements; the materials to be used in the construction and implementation of the project; the products, by-products and waste generated by the project.
3	Methodology	Methods used in carrying out the assessment; identification of gaps in knowledge and uncertainties, which were encountered in compiling the information.
4	Legal and Regulatory Framework	A concise description of the national environmental, legislative and regulatory framework, and international best practices.
5	Baseline Environmental Parameters of the Project Area	Description of the potentially affected environment within the framework of the proposed ESIA; assessment of existing (pre-project) impacts and potential (project and residual) impacts.
6	Stakeholder consultation and Public Participation	Information obtained during consultations with stakeholders and interested parties.
7	Alternatives	Alternative technologies, processes available, and reasons for preferring the chosen technology and processes.
8	Identification of Impacts and mitigation measures	Environmental effects of the project including the social, economic and cultural effects and the direct, indirect, cumulative irreversible, short-term and long-term effects anticipated. Identification of mitigation measures for all identified impacts and determination of impact significance.
9	Cummulative Impacts	Assessment of past and ongoing projects in the

Chapter	Title	Contents
		project area that may have cumulative impacts on the project
10	Environmental Management Plan	Environmental management plan proposing the measures for eliminating, minimizing or mitigating adverse impacts on the environment, including the time frame and responsibility to implement the measures; provision of an action plan for the prevention and management of foreseeable accidents and hazardous activities in the course of carrying out activities or major industrial and other development projects; measures to prevent health hazards and to ensure security in the working environment for the employees and for the management of emergencies.
11	Conclusions and Recommendations	Summary of the conclusions and key recommendations from the ESIA.
References	References	List of references and websites referred to in the text.
Appendices	1. Minutes of meetings	Minutes of meetings held with communities, community leaders and other stakeholders in the project area.
	2. Copies of laboratory results	Laboratory results for samples collected in the field (water quality, soil chemistry).
	3. Certificates	Certificates of the consultants and the company doing the ESIA project report.
	4. Pin Number and VAT certificate	Pin number and VAT certificates of the proponent.
	5. Other relevant documents	Relevant copies of the PSC contract with the Government of Kenya and certificate of registration.

2. PROJECT DESCRIPTION

2.1 Introduction

Turkana County is situated in North Western Kenya. It borders West Pokot and Baringo Counties to the south, Samburu County to the South East, and Marsabit County to the East. Internationally it borders South Sudan to the north, Uganda to the west and Ethiopia to the north east. The County shares Lake Turkana with Marsabit County. The total area of the county is 68,680.3 Km² and lies between Longitudes 34^o 30' and 36^o 40' East and between Latitudes 1^o 30' and 5^o 30' North (Unpublished Turkana County Development Profile, 2013).

Tullow is planning to undertake an exploratory drilling campaign comprising a number of exploratory wells to verify the presence of oil and natural gas in Block 10BA, following the analysis and interpretation of the seismic data (marine and onshore) that it is acquiring. The exploratory wells will be drilled in series, one at a time.

2.2 Preparation of access route, drilling site and rig camp

2.2.1 Access route

The preparation activities will consist of clearing the existing access route/cut line and minimal vegetation clearing within the existing Right of Way cleared during the seismic surveys. The access road will be built from the existing road to the proposed site.

2.2.2 Drilling locations and facilities

The number and locations of the exploratory wells and associated camps have not been determined at this stage. Tullow has, however, identified an area of interest for the proposed project (Figure 2.1). The exact site locations will be finalized taking into account the following environmental factors:

- Site at a minimum 30m distance from any surface water body (river or stream);
- Avoid cutting of trees and alteration of natural contours unless really necessary;
- Avoid National Park/ Wildlife Sanctuary/ Eco-sensitive area unless permissions have been granted by the relevant authorities to enter the areas;
- Avoid impact on drainage; and
- Avoid or minimize detrimental effects on the surrounding environment.

The proposed drilling sites will incorporate: the drilling rig pad, working area, accommodation facilities, waste management facilities, water reservoirs, kitchen facilities, power generation facilities, fuel storage facilities, a garage area, parking bays, a lay-down area for storage of bulk mud and cement, dry process materials, pipe rack, machinery, and secondary operations such as welding, painting and machining. The site will also include medical and emergency response facilities and security personnel quarters.

Working areas/ offices and accommodation facilities will be sited adjacent to the rig to facilitate operations and accommodation of the personnel working at the drilling site. The number of staff expected to be working at the camp/drill site is approximately 250 personnel.

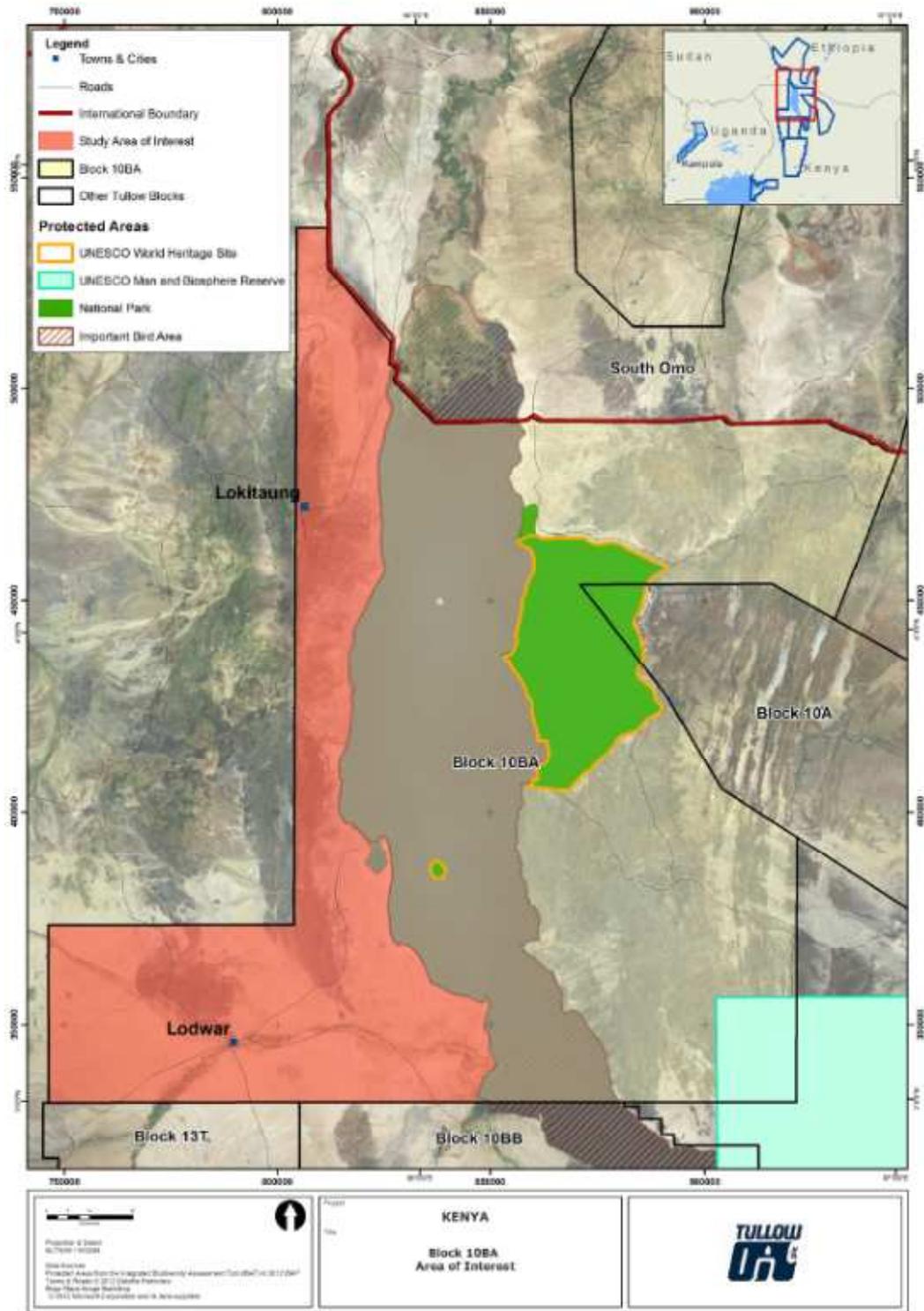


Figure 2.1: Area of interest for exploratory drilling in Block 10BA

2.3 Mobilising drilling rig and rig crew

The drilling rig and associated equipment will be transported via the existing road network and newly constructed access roads to the drilling sites either from decommissioned well sites in Turkana or shipped in from manufacturers. Mobilisation will be overseen by Tullow and the relevant subcontractors who will also facilitate transportation of their personnel to the campsite.

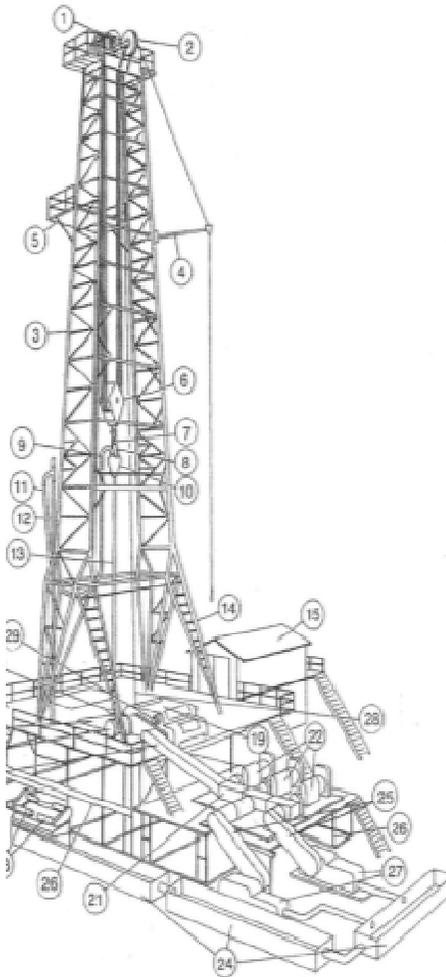
The drilling rig and equipment will be selected based on the total depth of the well to be drilled, geological formations, downhole pressures and any complications that are likely to be encountered. It is anticipated that a 1,500 HP size rig will be used.

2.3.1 Rigging-up

The rigging-up process will involve transfer of the components of the drilling rig and all necessary equipment to the proposed location via trucks and offloading by winch and skid techniques using cranes. The mast or derrick will be raised over the substructure and other equipment such as engines, pumps, and rotating and hoisting equipment will be aligned and connected. The drill pipe and drill collars will be laid out on racks convenient to the rig floor so that they may be hoisted up when needed and connected to the drill bit or added to the drill string. Figure 2.2 provides a schematic diagram of the rig and components and Table 2.1 describes the functions of each component.

Table 2.1: Functions of drill rig components

	PART	FUNCTION
1	Crown block	An assembly of sheaves or pulleys mounted on beams at the top down to the draw works.
2	Run around	
3	Mast	A portable derrick capable of being erected as a unit, as distinguished by a working position as a unit
4	Cutline boom/hoist line	A structural framework erected near the top of the derrick for lifting
5	Monkey board	The derrick man's working platform. Double board, triple board, the derrick or mast equal to two, three, or four lengths of pipe respectively
6	Travelling block	An arrangement of pulleys or sheaves through which drilling cable passes
7	Hook	The point on which the swivel is suspended
8	Swivel bail	A curved steel rod on top of the swivel that resembles the handle of a shovel
9	Gooseneck	A connection for the swivel and swivel bail.
10	Swivel	A mechanical device that suspends the weight of the drill pipe, preventing the upper portion from rotating, and permits the flow of drilling fluid
11	Rotary drive	The machine used to impart rotational power to the drill string. Modern rotary machines have a special component, the rotary table, which permits up and down movement of the kelly while the drill pipe is being rotated
12	Standpipe	A rigid metal conduit that provides the pathway for drilling mud where it connects to a flexible hose (kelly hose), which then connects to the kelly
13	Kelly	The heavy square or hexagonal steel member suspended from the topmost section of drill pipe to turn the drill pipe as the rotary table rotates
14	A frame	The structural system at the top which transfers loads through the mast
15	Reserve pits	A mud pit in which a supply of drilling fluid has been stored. Also known as a reserve pit. It may be lined with plastic to prevent soil contamination
16	Derrick floor	The area on the rig where the tools are located to make the connections and bit. It is considered the main area where work is performed.
17	Rotary Table	It rotates, along with its constituent parts, the kelly and kelly bus
18	Rotary drive	The machine used to impart rotational power to the drill string. Modern rotary machines have a special component, the rotary table, which permits up and down movement of the kelly while the drill pipe is being rotated
19	Draw works	The hoisting mechanism on a drilling rig.
20	Hydraulic brake	Acts as an auxiliary brake to the mechanical brake when the pipe is being lowered
21	Compound	Sends power from the engines to the draw works, the rotary table, and the mud pump
22	Engines	Any of various types of power units such as a hydraulic, internal combustion, or electric engine
23	Shale shaker	A series of trays with sieves or screens that vibrate to remove cuttings from the drilling fluid
24	Mud pit	Originally, an open pit dug in the ground to hold drilling mud and sediments.
25	Pump drive	Utilised for changing of the pump speed
26	Substructure	The foundation on which the derrick and draw works usually sit.
27	Mud pump	A large, high-pressure reciprocating pump used to circulate the drilling fluid
28	Drill pipe	The heavy seamless steel tubing used to rotate the drill bit and circulate the drilling fluid
29	Cat head	It is used to loosen the drill pipe when it is released from the hole
30	Draw works	Provides turning power to the rotary table.



2.2: Drilling rig components²

Adapted from: <http://www.offshore-technology.com/2011/09/drilling-rig-equipment.html>

2.4 Operating the drilling rig

2.4.1 General drilling process

There are a number of techniques used in oil and gas drilling including: Cable-tool drilling; Auger drilling; Rotary drilling which comprises Compressed air drilling and Rotary drilling with mud; and Foam /Polymer drilling. During drilling, the bore trajectory could be a straight hole/vertical or directional/ horizontal. A well bore is typically drilled in a series of progressively smaller-diameter intervals with the well bore exhibiting the largest diameter at the surface and smallest diameter at the end of the bore.

It is anticipated that the rotary drilling with mud method will be used for the project. The well will be straight hole / vertical since the selected project sites are sparsely populated and are not built up which would call for the use of directional/slant/ horizontal drilling. It is also the most efficient and cost-effective manner in which to reach the sub-surface targets.

2.4.1.1 Spudding in

Spudding in is the commencement of drilling operations. The drill string, consisting of a drill bit, drill collars, drill pipe, and kelly, which rotates the drill pipe, will be assembled and lowered into the conductor pipe. Drilling fluid, also known as drilling mud will be circulated through the kelly and the drill string by means of pipes and flexible hose connecting the drilling fluid or mud pumps and a swivel device attached to the upper end of the kelly. The swivel device will enable drilling mud to be circulated while the kelly and drill string are rotated. The mud pump will draw fluid from mud tanks or pits located nearby. The drilling mud will pass through the kelly, drill pipe, drill collars, and drill bit. It will be returned to the surface by means of the well bore and the conductor pipe where it will be directed to a device called a shale shaker which removes cuttings from the drilling fluid. Figure 2.3 below illustrates the spudding process.

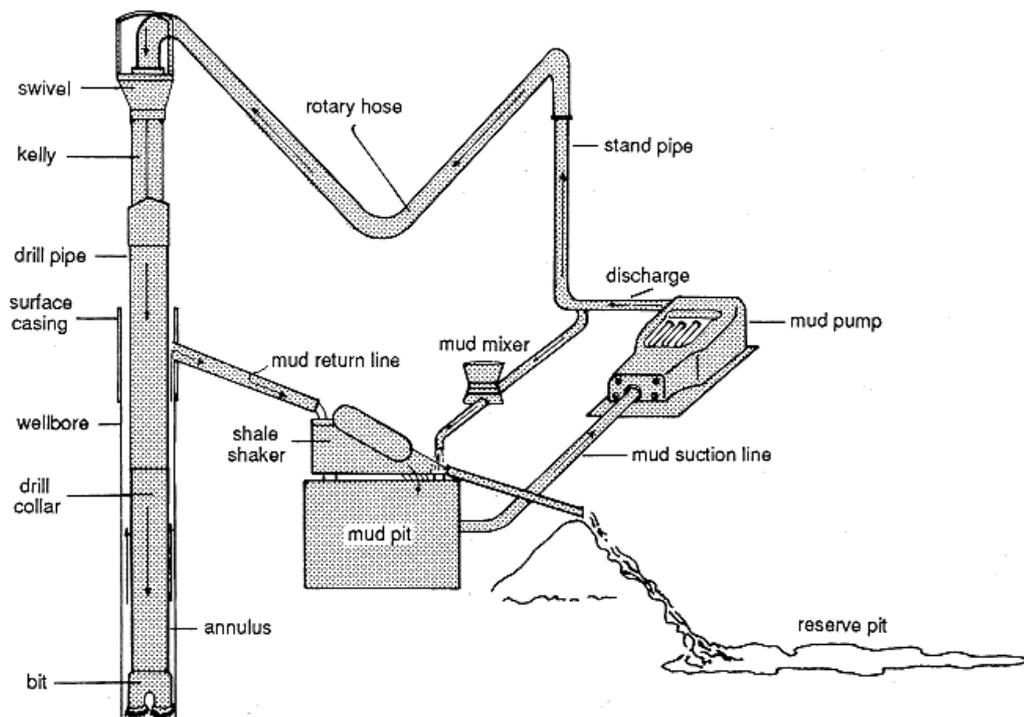


Figure 2.3: Spudding in process³

³ Source: <http://www.kgs.ku.edu/Publications/Oil/primer12.html>

2.4.1.2 Casing Operation

As each section is drilled, a casing will be run and cemented into place ready for drilling the next smaller diameter section. Each well will be drilled in sections, with the diameter of each section decreasing with increasing depth. The casing sizes also vary with depth as shown in Table 2.2 and Figure 2.4.

Casing or lining of the well will be undertaken to ensure the integrity of the wellbore throughout the drilling and production operation stages. Casing will consist of a stacked series of metal pipes installed into the new well in order to strengthen the walls of the well hole, to prevent fluids and gases from seeping out of the well as it is brought to the surface, and to prevent other fluids or gases from entering the rock formations through which the well will be drilled. The well casing will extend from the surface to the bottom of the well and will consist typically of a steel pipe. Casing with a diameter slightly smaller than that of the well hole will be inserted into the well, and wet cement slurry is pumped between the casing and the sides of the well. The casing will be installed as the well is progressively drilled deeper. The top interval of the well, extending from the surface to a depth below the lowermost drinking water zone, will be the first to be completed, being cemented from the surface to below the drinking water zone. Next, a smaller diameter hole will be drilled to a lower depth, and then that segment will be completed. This process may be repeated several times until the final drilling depth is reached.

Table 2.2: Well depths for proposed wells

Hole size (in)	Average depth (m)	Casing Size (in)	Proposed mud system
36	140	30	Water with bentonite
26	140 to 5000	20	Water with bentonite
17½	500 to 1290	13 ^{1/2}	Water based mud
12¼	1290 to 2200	9 ^{5/8}	Water based mud
7	2200 to 3000	7	Water based mud

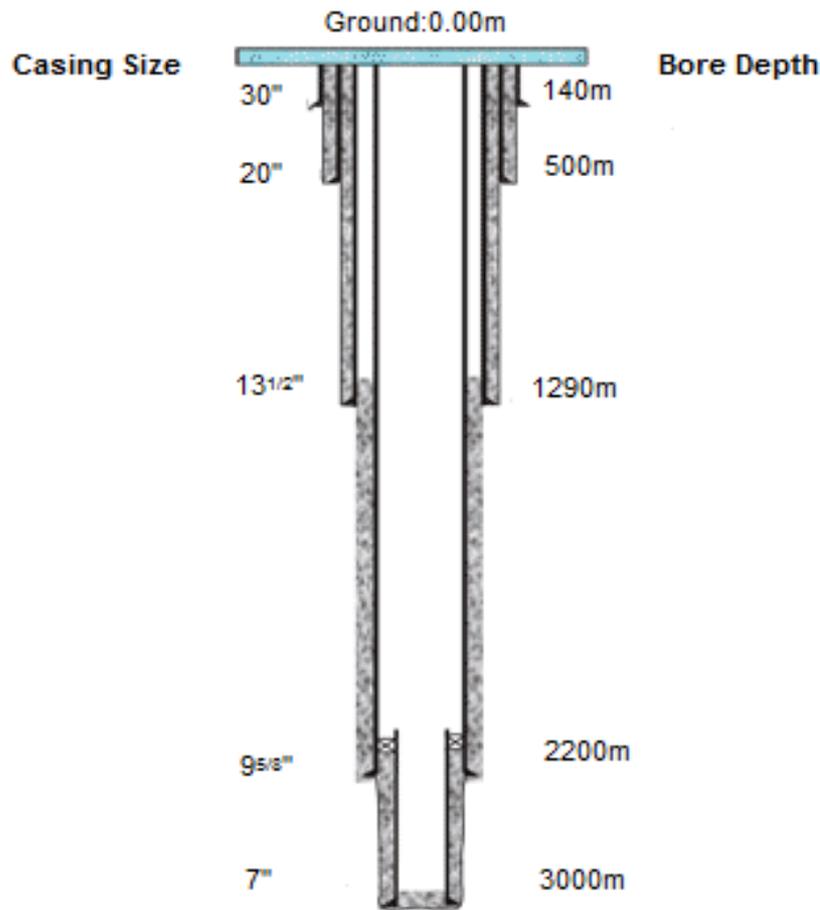


Figure 2.4: Schematic structure of the proposed casing design of exploration wells

2.4.2 Drilling mud

Drilling fluid/mud is used extensively in the upstream oil and gas industry, and is critical to ensuring a safe and productive oil or gas well. There are two primary types of drilling fluid/mud used during the drilling process. These are: water based drilling mud (WBM), and non-aqueous drilling mud (NADM) (Neff *et al.*, 2000; OGP, 2003).

WBMs have either fresh water or salt water as the primary fluid phase, while NADMs have either refined oil or synthetic materials as the primary fluid phase. NADM is also known as synthetic based mud (SBM). Drilling mud is circulated through the inside of the drill string, through the bit nozzles, and all the way up from the borehole back to the active mud system for recirculation.

Functions of the drilling mud include:

- Counteracting formation pressure;
- Preventing formation fluids from flooding the well-bore;
- Removing cuttings from the borehole;
- Cooling and lubricating the drill string and bit;
- Protecting, supporting, and stabilizing the borehole wall; and
- Protecting permeable zones from damage.

The drilling fluid to be used for this project will be WBM or SBM prepared by mixing mud additives and chemicals on site to the desired concentrations.

2.4.2.1 Water-based muds (WBM)

Water Based Mud (WBM) is prepared by mixing mud additives and chemicals on site to the desired concentrations in fresh water. The mud will consist of fresh water, weighting agent (barite: BaSO₄), bentonite, and various inorganic salts, inert solids, and organic additives to modify the physical properties of the mud so that it functions optimally.

WBM ingredients can be divided into the functional categories shown in Table 2.3 below:

Table 2.3: The functional categories of materials used in WBM, their functions and examples of typical chemicals in each category.

Functional Category	Function	Typical Chemicals
Weighting material	Increase density (weight) of mud, balancing formation pressure, preventing a blowout	Barite, hematite, calcite, ilmenite
Viscosifiers	Increase viscosity of mud to suspend cuttings and weighting agent in mud	Bentonite or attapulgite clay, carboxymethyl cellulose and other polymers
Thinners, dispersants, and temperature stability agents	Deflocculate clays to optimize viscosity and gel strength of mud	Tannins, polyphosphates, lignite, lignosulfonates
Flocculants	Increase viscosity and gel strength of clays or clarify or de-water low solids mud.	Inorganic salts, hydrated lime, gypsum, sodium carbonate and bicarbonate, sodium tetra phosphate, acrylamide based polymers
Filtrate reducers	Decrease fluid loss to the formation through the filter cake on the wellbore wall	Bentonite clay, lignite, Na-carboxymethyl cellulose, polyacrylate, pregelatinized starch
Alkalinity, pH control additives	Optimize pH and alkalinity of mud, controlling mud properties	Lime (CaO), caustic soda (NaOH), soda ash (Na ₂ CO ₃), sodium bicarbonate (NaHCO ₃), and other acids and bases
Lost circulation materials	Plug leaks in the wellbore wall, preventing loss of whole drilling mud to the formation	Nut shells, natural fibrous materials, inorganic solids, and other inert insoluble solids
Lubricants	Reduce torque and drag on the drill string	Oils, synthetic liquids, graphite, surfactants, glycols, glycerine
Shale control materials	Control hydration of shale that causes swelling and dispersion of shale, collapsing wellbore wall	Soluble calcium and potassium salts other inorganic salts and organics such as glycols
Emulsifiers and surfactants	Facilitate formation of stable dispersion of insoluble liquids in water phase mud	Anionic, cationic, or non-ionic detergents, soaps, organic acids, and water-based detergents
Bactericides	Prevent biodegradation of organic additives	Glutaraldehyde and other aldehydes

Functional Category	Function	Typical Chemicals
Defoamers	Reduce mud foaming	Alcohols, silicones, aluminium stearate (C ₅₄ H ₁₀₅ AlO ₆), alkyl phosphates
Pipe-freeing agents	Prevent pipe from sticking to wellbore wall or free stuck pipe	Detergents, soaps, oils, surfactants
Calcium reducers	Counteract effects of calcium from seawater, cement, formation anhydrites, and gypsum and mud properties	Sodium carbonate and bicarbonate (Na ₂ CO ₃ & NaHCO ₃), sodium hydroxide (NaOH), polyphosphates
Corrosion inhibitors	Prevent corrosion of drill string by formation acids and acid gases	Amines, phosphates, specialty mixtures
Temperature stability agents	Increase stability of mud dispersions, emulsions and rheological properties at high temperatures	Acrylic or sulfonated polymers or copolymers, lignite, lignosulfonate, tannins

WBM is pumped from the mud tanks on the pad down the hollow drill pipe and exits the drill string through holes in the drill bit. It sweeps cuttings from the drill bit up the space between the drill string and the wall of the well (the annulus) to the platform deck. The mud/cuttings mixture is passed through separation equipment that separates the cuttings from the drilling mud, which is returned to the mud tanks for recirculation down-hole.

When drill cuttings and drilling mud reach the surface during drilling, they are separated by means of Solids Control Equipment (SCE), whose function is to recover useful mud, so it can be re-circulated into the hole. There are several technologies used to remove the solids from the drilling mud.

The separation of WBM and cuttings is mainly based on particle size and relies on shale shakers, hydrocyclones, and a decanting centrifuge.

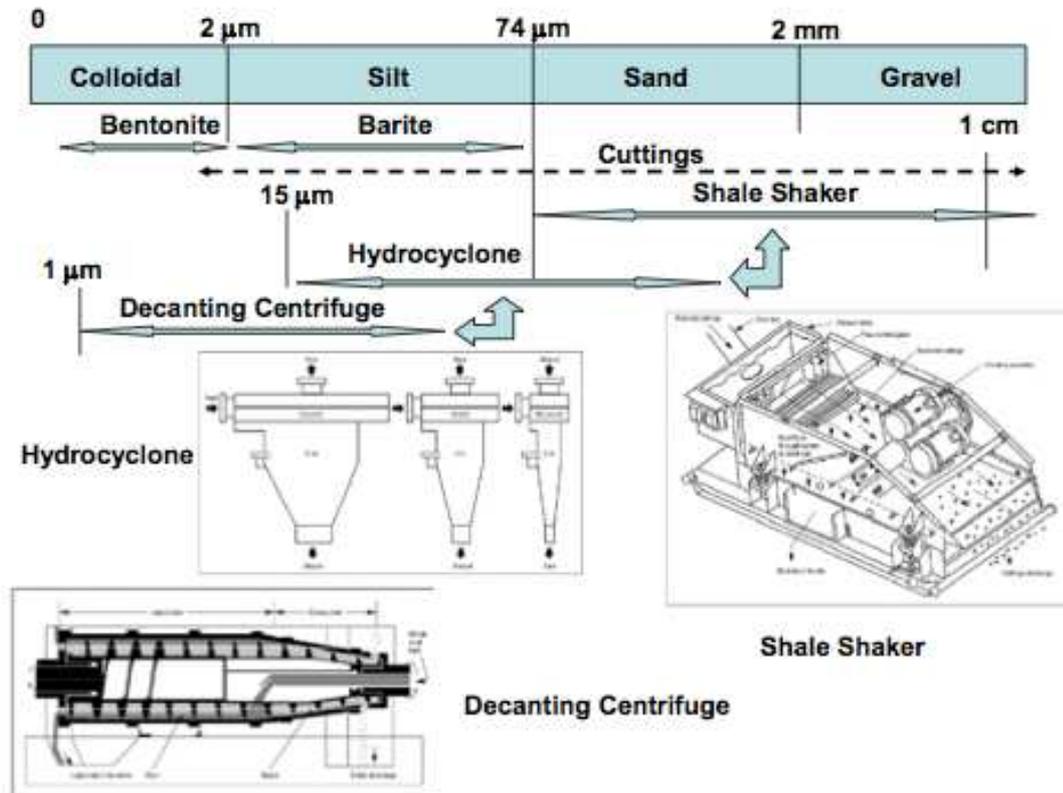


Figure 2.5: Illustrates various waste separation stages based on particle sizes (Adapted from Neff, 2005)

Most cuttings are sand/gravel-sized and are easily recovered on the shale shaker, while silt- and clay- sized cuttings are separated from the barite and bentonite of WBM by use of hydrocyclones and centrifuges due to their sizes.

2.4.2.2 Non-Aqueous Fluids (NAFs)

The NAFs comprise all non-water and non-water dispensable base fluids and include the following:

- Oil based mud (OBM);
- Synthetic based mud (SBM);
- Low toxicity mineral oil based fluid (LTMBF); and
- Enhanced mineral oil based fluids (EMBF).

NAFs are invert emulsions, meaning that the continuous phase is the base fluid with water and chemicals as the internal phase. Additives may be added to gain the desired drilling properties.

In most cases, WBM is less expensive than NAFs and are used where practical. In most cases, both WBM and NAFs are used in drilling the same well. WBM may be used to drill the shallower portion of the well and then NAFs are used in the deeper portions. WBM should not be used where water sensitive clays/shales are present as interactions of the formation with water will cause the drill pipe to stick or the walls of the hole to slough in.

In these circumstances, NAFs are used in place of WBM. Although NAFs are more expensive than WBM, the increased expense is usually offset by improved drilling performance. NAFs offer the following significant advantages:

- **Wellbore stability:** Because NAFs do not contain water as a free phase, they typically exhibit lower reactivity with water sensitive formations encountered and consequently avoid damage to the formation. Thus clay swelling and bore hole stability problems are minimized. The resulting improved drilling efficiency leads to lower operational and environmental risks;
- **Lubricity:** Some of the additives used to formulate NAFs can considerably reduce the friction factor (over that of WBM) between the drill string and the sides of the borehole;
- **High temperature stability:** Whereas the properties of WBM generally degrade at high temperatures, NAFs are more stable in high temperature applications such as those encountered in deeper sections of a well;
- **Low mud weight:** Lower mud weights can be achieved with NAFs than with WBM due to the lower specific gravity of NAF fluids. Low mud weight systems are desirable for wells drilled in highly fractured formations with low fracture strength or wells with low productivity;

Given the above properties of NAFs, the following benefits arise from their use over WBM:

- **Improved rate of penetration:** Drilling with NAFs can often result in more efficient drilling (less time to drill a well) by reducing well-bore friction, thus resulting in better stabilization of the bottom hole assembly, providing improved lubricity, providing better well-bore stability which results in less time for cleaning the hole and by keeping the bit cutting surfaces cleaner and minimizing bit balling;
- **Safety:** Use of NAFs reduces drilling times for wells drilled through sensitive shales. Additionally, NAF use results in fewer drilling problems and consequent remedial work. Reduction in drilling time and the need for remedial activity reduces the health and safety risks to personnel for each well drilled;
- **Cuttings production:** Drilling with NAFs can result in production of a lower volume of cuttings than would be generated from drilling using WBM, due to better hole maintenance and reduction of the formation solids generated when drilling with NAFs.

2.4.2.3 Best Practicable Environmental Option (BPEO): Drill mud and cuttings disposal

Management options

Drilling waste treatment may need to be undertaken to reduce the toxicity of waste, and/or hazardous materials, through chemical, physical, thermal or biological processes. Several methods exist under each of the mentioned broader treatment methods. Table 2.4 illustrates some of the approaches used for drilling waste treatment as provided in the Exploration and Production (E&P) Waste Management Guidelines (1993).

Table 2.4: Waste management approaches.

METHOD	DESCRIPTION AND APPLICATION
Biotreatment methods	<ul style="list-style-type: none"> ▪ Involves the use of indigenous and/or enhanced bacteria for the remediation/breakdown of contaminants, and applies mostly to organic compounds. Bio treatment methods include land farming; land spreading, compositing, biological treatment in tanks.
Injection	<ul style="list-style-type: none"> ▪ Involves pumping of waste fluids or slurries down a well into suitable underground formations for disposal. Wastes disposed of using this method include: produced water, process water, blow-down liquids, cooling water, and waste drilling fluids. ▪ Injection methods include mainly annular injection and downhole injection.
Landfills	<ul style="list-style-type: none"> ▪ Designed to accommodate burial of large volumes of waste.
Pits and burial	<ul style="list-style-type: none"> ▪ Use of earthen or lined pits for onsite management of drilling solids, evaporation and storage of produced water, work-over/completion fluids and emergency containment of produced fluids. ▪ Once the operation concludes, pits are used to dispose of stabilised wastes from drilling and production processes.
Solidification, stabilisation and Encapsulation	<ul style="list-style-type: none"> ▪ Involves the mixing of the drilling waste with a cement-based mixture to achieve the immobilisation of the contaminants and/or the chemical stabilisation of the mixture.
Solvent extraction	<ul style="list-style-type: none"> ▪ Use of solvents (CO₂, propane, hexane, triethylamine, methylene chloride, among others) to extract oil from oily solids or sludge.
Surface discharge	<ul style="list-style-type: none"> ▪ Used for low toxicity aqueous waste streams.
Thermal treatment methods	<ul style="list-style-type: none"> ▪ Available options include incineration, used as Alternative Fuels and Raw Materials (AFR) in cement kilns, open burning and thermal desorption systems.

A considerable volume of formation cuttings and spent drilling fluid will be generated from the well. Drilling mud will be separated at all times from the drill cuttings in order to minimize waste, and optimize the recovery and reuse of the drilling fluid. Excess WBMs will be dewatered, and the fluid phase will be treated to acceptable discharge standards.

Solids (cuttings) will be discharged into steel tanks or lined waste pits. Solids Control Equipment will be used for recovering as much mud as possible. Depending on its toxicity, the solids from the steel tanks/pit (drilled cuttings and solid mud products) will be mixed with native soil and buried at the drilling site.

2.5 Well testing and suspension

2.5.1 Well testing and flaring

2.5.1.1 Well testing

If the results of logging indicate a potential for hydrocarbon-bearing formations the well may be tested. During well tests, formation fluids will be brought to the surface where pressure, temperature and flow rate measurements will be made to evaluate the characteristics of well performance.

The well testing objectives will include: establishing productivity of the identified reservoir unit(s); production interference test to assess connectivity of the formations; calibration of sub-surface static and dynamic models; determination of flow barriers/discontinuities, if any; determination of near well-bore properties such as permeability and skin; collection of representative dead oil samples for flow assurance and assay studies; and evaluation of ESP performance. Where well-testing is to occur this will generally not exceed 5 days; well-test fluids will be flared. Produced water will be cleaned as per the International Finance Corporation (IFC) EHS Guidelines for Onshore Oil and Gas Development (2007) and discharged.

2.5.1.2 Flaring

Flaring is the controlled burning of hydrocarbons during a well test (Figure 4.5). This burning occurs at the end of a flare stack. Flaring disposes of the gas and oil and releases greenhouse gases in to the atmosphere. Flare systems are used throughout the petroleum industry around the world during well testing.

After testing, which includes separating the oil and gas, the hydrocarbons will be sent to the burner boom for disposal by flaring, as this is the only practical handling option for these hydrocarbons. Flaring may be initiated using diesel to ignite the mixture and to give a clean burn. It is intended to use a high efficiency burner to flare the oil during well testing and minimise as far as practical the release of un-burnt hydrocarbons (venting).

A flare is normally visible and generates both noise and heat. During flaring, the burned gas and oil generates mainly water vapour and carbon dioxide. Efficient combustion of the flame depends on achieving good mixing between oil and compressed air from a compressor. The gas will give a clean burn because the heavy-ends will be in the oil phase due to separation in the separator.

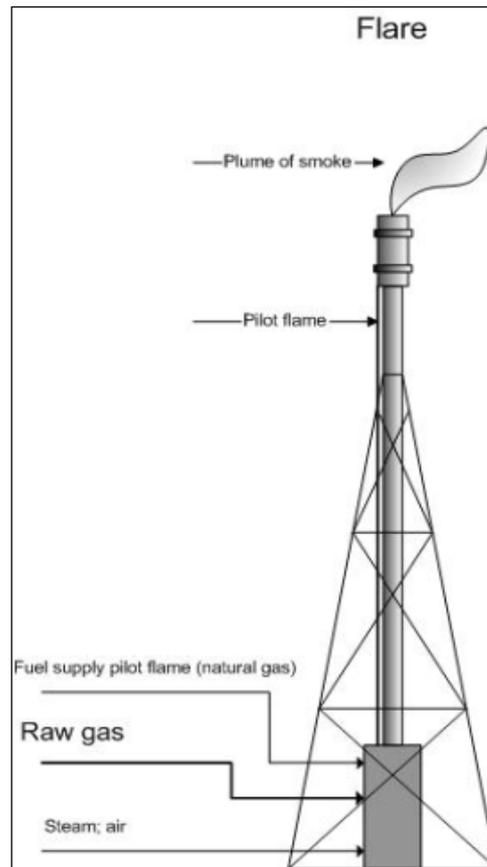


Figure 2.6: Schematic diagram for the flaring⁴ process

Once the required drilling depth is achieved, the following processes may be undertaken: Well completion, well suspension or abandonment.

2.5.2 Well suspension

Once the well has been tested and verified to be commercially viable, it will be completed or suspended to allow for future production.

If sufficient hydrocarbons are detected and tested, the well will be suspended. During suspension of the wells, bridge-plugs and cement plugs will be placed and tested across any open (perforated) hydrocarbon-bearing formations. This will be accomplished by pumping cement slurry to the desired location within the wellbore. A kill string can be run on with a tubing hanger before a plug is set in the wellhead. (This will allow the contents of the wellbore to circulate out at time of possible future re-entry). The wellhead equipment will remain in place and will be fitted with a purpose-designed flange and pressure gauge assembly that will allow the build-up of any pressure to be monitored.

Appraisal of the wells will be conducted after suspension. Before appraisal Tullow must establish the size of the field, and the most efficient production method in order to assess whether it will repay, with profit, the costs of development and day-to-day operation. A full ESIA study will be conducted before any further activities.

⁴ Source: <http://www.emis.vito.be/techniekfiche/flare?language=en>

2.6 Solid and Liquid Wastes

A waste management plan will be put into place at the drilling site. The plan will use the principles of Waste Management Hierarchy as its foundation, i.e., Waste Prevention, Reduction, Reuse, Recycle, Recovery (Energy from Waste), Treatment (to reduce hazardous properties), Disposal (Landfill). On-site efforts will concentrate on reuse, recycling, minimization of packaging material, reduction in size of waste material and finally reduction of time spent on location via optimization of drilling efforts. Minimization of waste material centres on reducing packaging materials through the use of large packaging such as bulk cement, barite or bentonite. The volume of the waste material will be reduced via on-site compaction. This will reduce the number of vehicle movements required for waste removal, as well as reducing the size of the landfill required. Wherever possible, use of water will be minimized and recycled. Plastic containers, especially those used for fluid and cementing chemicals, are prime targets for use as water containers for the local population. As some of these may contain substances which can be harmful to humans, care will be taken to ensure that they are not removed from the drilling site intact. In general, after emptying chemical containers (which did not contain any substances) the containers will be punctured and eventually compacted and conveyed off-site for disposal. The drilling site will not have facilities for rinsing chemical drum containers. These containers will be fully emptied, labelled with contents and removed off-site for further handling and disposal.

The following options are highly feasible for waste disposal generated during the operation. However, it will be necessary to evaluate the suitability of various waste-specific technologies for the site and select an option that will cause minimum environmental impact on the surrounding:

i. Landfill and/or pit burial

Land filling is the most common onshore disposal technique used for disposing of inert unrecyclable materials and is also used for drilling wastes such as mud and cuttings. The solids will be mixed with native earth, soda ash or polymers before burying on site. Land filling, if approved by the County Council, is a low-cost, low-technology method that does not require wastes to be transported away from the well site, and, therefore, it is a very attractive option for the proponent. Once the pit locality is closed, the area will be graded to prevent accumulation of water. The sites will then be re-vegetated with native vegetation species.

ii. Off-site disposal:

Wastes, which cannot be handled at the drilling site, will be removed to an approved and designated facility off-site for recycling or disposal.

iii. Sewage treatment and disposal:

A sewage disposal system will be established in the campsite during the drilling operation: since the exploration process is a temporary, short-term activity, the sewage will be diverted to a septic tank or soak pit. Sewage from septic tanks will be collected regularly by a NEMA registered waste handler for further disposal in the nearest County council sewage treatment plant. Biological treatment systems will also be used where treated effluent will be discharged into the environment provided it meets the national (NEMA) effluent discharge limits. In the camps, there will be clear separation of grey and black water which allows for proper disposal mechanisms to be put into place. The Contractor will ensure that the installed system meets national requirements and international industry standards.

2.7 Water supply

Tullow will obtain water for use both in the drilling rig and the base camp by drilling a borehole in or near the proposed exploratory oil and natural gas well site. A hydrogeological survey will be done to identify potential aquifers in the area.

The water obtained from the borehole will be tested regularly to ensure portability before use in the camp. In case the borehole water is unsuitable for domestic use, Tullow and subcontractors may procure bottled water for cooking and drinking.

The borehole water will be treated using the appropriate treatment systems e.g. chlorination, before use within the camp.

2.8 Abandonment and decommissioning

2.8.1 Abandonment

If little / no hydrocarbons are detected, the well will be plugged and abandoned. Once the well has been plugged (with cement), the casing will be cut below the ground level and a plate, made of steel, welded to the top of the casing. The top-hole section will be back-filled and a place marker installed on the surface indicating the position of the abandoned well.

2.8.2 Decommissioning and restoration

Decommissioning is an important phase in the exploration project cycle and comes last to wind up the operational activities of a particular project. It refers to the final disposal of the project and associated materials at the expiry of the exploration project lifespan. Alternatively, a decision may be taken to abandon the project at some stage. If such stages are reached, the proponent needs to remove all materials resulting from the demolition/ decommissioning or abandonment from the site. The following should be undertaken to restore the environment:

- Remove all underground facilities from the site;
- Landscape the site by flattening the mounds of soil;
- Re-plant indigenous vegetation;
- Remove all the equipment from the site;
- Remove all hazardous materials;
- Fence and signpost unsafe areas until natural stabilization occurs; and
- Backfill surface openings.

2.9 Project schedule

Tullow plans to mobilise the drilling rig to start drilling the well in the third quarter of 2014. Note that this date may change depending on the Groups priorities.

3. IMPACT ASSESSMENT METHODOLOGY

3.1 Introduction

The impact assessment process started with the identification of project “aspects” that arise as a result of the potential interaction between a project “activity” and a natural or socio-economic environment “receptor”. Potential changes (neutral i.e. no change, positive or negative) to any given receptor were then evaluated and where a positive or negative change was predicted, and ranked via an impact significance ranking process.

3.2 Methodology

The ESIA process constituted a systematic approach to the evaluation of a project and its associated activities throughout the project lifecycle. The process (Figure 3.1) included:

- Screening and Scoping;
- Project Alternatives and Base Camp Design;
- Existing Environmental and Socio-Economic Conditions;
- Impact Significance Assessment;
- Mitigation and Monitoring;
- Residual Impacts; and
- Disclosure and Stakeholder Consultation.

Stakeholder feedback was used to focus the impact assessment and, where appropriate, influenced project design and execution.

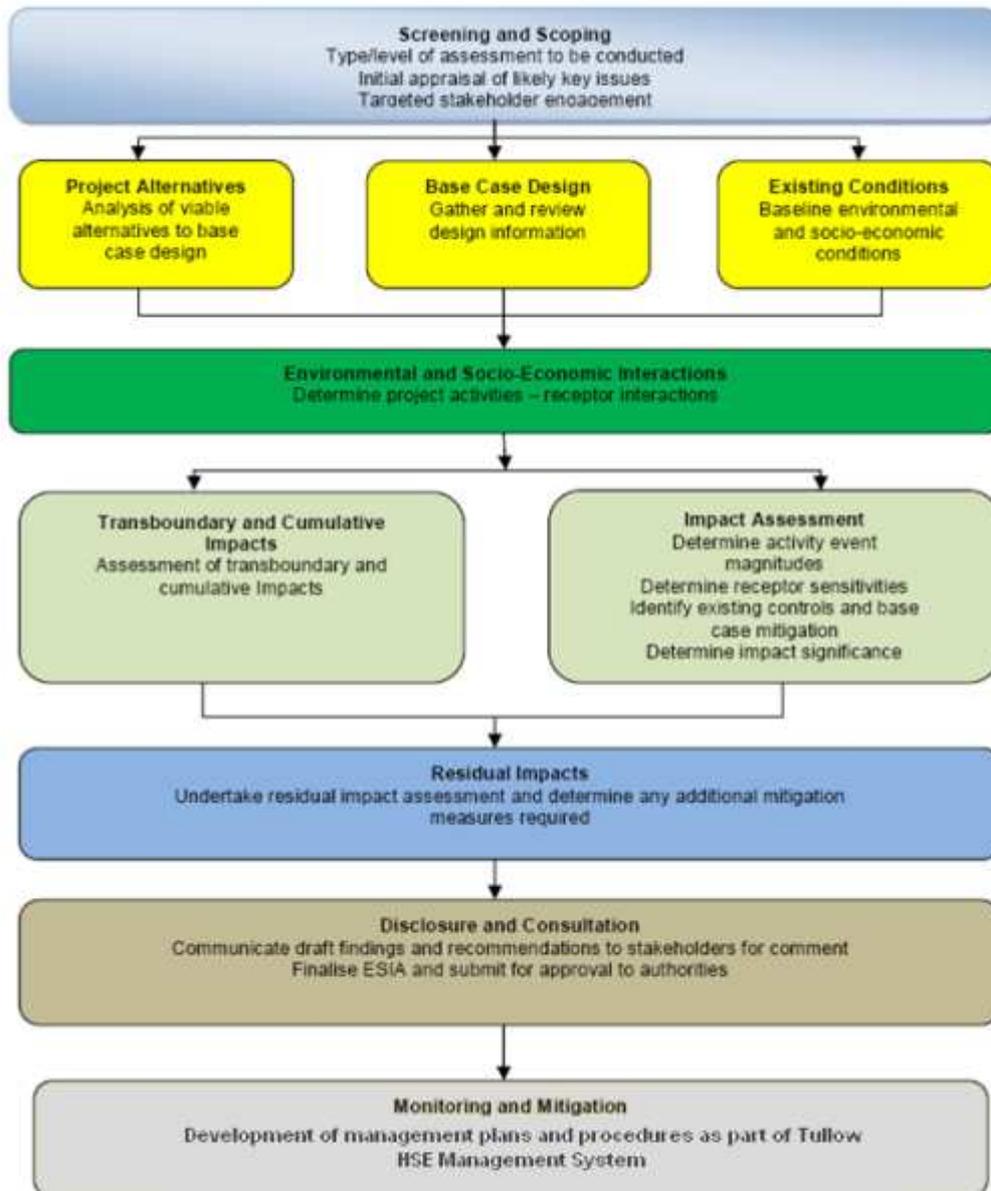


Figure 3.1: The ESIA process

3.2.1 Environmental and Social Parameters Assessed and Methods used

In order to identify potential impacts to receptors, an understanding of the existing conditions needed to be established prior to execution of project activities.

Earthview assessed the parameters in Tables 3.1 and 3.2 below, and established both the baseline status and the status following impact by exploratory drilling activities.

Table 3.1: Environmental Assessment methods

a) ENVIRONMENTAL COMPONENT			
	KEY ASPECTS	ISSUES	METHOD
1	Water	<ul style="list-style-type: none"> • Principle water-courses, ground water and aquifers within the study area (including water quality). • Community water wells within the study area. 	<ul style="list-style-type: none"> • Field observations and GIS-based mapping from existing paper maps, Google earth and free remotely-sensed images. • Water quality through field sampling and subsequent analysis at the Ministry of Water and Irrigation Central Water Testing Laboratory in Nairobi (sampling will include rivers, shallow and deep groundwater, and roof-harvested rain water if any).
2	Habitat and Biodiversity	<p>Biodiversity assessment with specific focus on:</p> <ul style="list-style-type: none"> • Wildlife migratory routes; Breeding birds, specifically any known nesting grounds in the project area. • Significance of the biodiversity in regional, national and international terms. • Designated sites and the potential for protected species within the study area. • Key elements of any ecology, national park and biodiversity management plans within the sites of interest. 	<ul style="list-style-type: none"> • Review of existing literature on habitat and biodiversity prior to field visit including importance at regional, national and international levels. • Biodiversity assessment based on literature review and field data • Mapping of key information in GIS e.g. nesting grounds; field observation, and local interviews with knowledgeable inhabitants and expert personnel that may be working in the area.
3	Infrastructure	<ul style="list-style-type: none"> • Existing infrastructure within the study area and within a 10 km radius of the study area perimeter. • Traffic and roads (quality of roads, types of traffic). • Main public roads leading to the study area. • Sensitive environmental receptors along the routes should be identified such as river crossings, designated lands. 	<ul style="list-style-type: none"> • Field survey and GIS mapping of existing infrastructure including industries. • Road quality through field observations and official classification categories. • Types of day traffic by monitoring at key specific points (needs assistance of local personnel as this is a stationary activity). • Physical identification of sensitive environmental receptors during the fieldwork.
4	Archaeology	<ul style="list-style-type: none"> • Archaeological and sensitive cultural sites. 	<ul style="list-style-type: none"> • Review of existing literature. • Interviews with key informants e.g. Archaeologists from the

a) ENVIRONMENTAL COMPONENT			
	KEY ASPECTS	ISSUES	METHOD
			<p>Turkana Basin Institute and National Museums of Kenya.</p> <ul style="list-style-type: none"> • Interviews with knowledgeable locals. • Physical observations in the field.
5	Topography and Geology	<ul style="list-style-type: none"> • Topography and Geology. 	<ul style="list-style-type: none"> • Use of topographic maps, Google earth, free remotely-sensed satellite images. • Generation of Digital Elevation Model (scale will be constrained by existing information). • Literature review and field survey of geology of the area.
6	Noise	<ul style="list-style-type: none"> • Noise levels at various locations in and around the study area. 	<ul style="list-style-type: none"> • Use of dosimeter for noise readings - criteria for areas to determine noise will be on the basis of results of reconnaissance survey where sensitive receptors (e.g. households, schools, dispensaries, industries, livestock sheds, etc.) have been broadly identified.
7	Soils	<ul style="list-style-type: none"> • Soil condition. • Areas subject to wind and water erosion. • Soil texture and drainage characteristics. • Soil chemical quality. • Assessment of rehabilitation potential. 	<ul style="list-style-type: none"> • Drilling rig and campsite construction considerations. • Disposal of domestic effluents, drilling mud and drill cuts. • Identification and prioritisation of factors requiring mitigation.
8	Air Quality	<ul style="list-style-type: none"> • Ambient air quality. • Generation of dust, smoke, odorous fumes, and other toxic gaseous emissions. • Release of gases which contribute to the greenhouse effect or ozone damage. • Identification of project components that can lower air quality 	<ul style="list-style-type: none"> • Establishment of baseline conditions. • Assessment of project impacts on air quality • Identification and prioritisation of factors requiring mitigation
9	Visual Aesthetics	<ul style="list-style-type: none"> • Aesthetic or high scenic value. • 	<ul style="list-style-type: none"> • Establishment of baseline conditions. • Assessment of project impacts such as vegetation clearance along cut lines and at campsites.
10	Solid and Liquid Wastes	<ul style="list-style-type: none"> • Disposal of sewage or domestic wastes. • Damage to environment through accidental spills of oil, fuel, cargo, waste 	<ul style="list-style-type: none"> • Establishment of baseline conditions. • Campsites will require installing waste discharge systems.

a) ENVIRONMENTAL COMPONENT			
	KEY ASPECTS	ISSUES	METHOD
		or sewage.	
	General Aspects		<ul style="list-style-type: none"> All the above items 1 to 10 will be supported by GIS mapping where applicable, photographs (georeferenced), and short, informative videos. Background literature review of prior study products, including those already done for Tullow and relevant to the area will be undertaken and pertinent information incorporated.

Table 3.2: Socio-Economic Assessment methods

b) SOCIAL COMPONENT			
	KEY ASPECTS	ISSUES	METHOD
1	Social set-up	<ul style="list-style-type: none"> Social organization and administration of the communities. Types of community addressing: urban/rural, size, ethnically homogenous/heterogeneous, size and spatial extent of ethnic groups, settled, nomadic and migration patterns. Community relation with national and district administrative structures. Vulnerable groups and human rights. Economic enterprise, value chains. Availability and skill of labour force. Household composition and organisation, trends in family composition. Health facilities, type, number and quality. 	<p>All issues will be addressed through:</p> <ul style="list-style-type: none"> Focus group discussions incorporating the various aspects. Questionnaire-administered interviews for the public and key informants. Available data from other sources e.g. Government reports, and others. Field verification.
2	Economic aspects	<ul style="list-style-type: none"> Development trend over the last 30 years. Livelihood systems, sources of income and levels of income, relative importance of different sources of income, production yield from agriculture, forestry, etc. Labour requirements with regard to gender, age, season. Markets – access, location and frequency. Community expectation with regard to opportunities and development resulting from exploration activities. 	<p>All issues will be addressed through:</p> <ul style="list-style-type: none"> Focus group discussions incorporating the various aspects. Questionnaire-administered interviews for the public and key informants capturing key issues of interest. Available data from other sources e.g. Tullow reports,

b) SOCIAL COMPONENT			
	KEY ASPECTS	ISSUES	METHOD
			<p>Government reports, and others.</p> <ul style="list-style-type: none"> • Field verification.
3	Cultural and Religious aspects	<ul style="list-style-type: none"> • Leadership (traditional, county, national) and hierarchical power structure. • Religious and cultural beliefs, including the importance of livestock or other in dowry, security, etc. • Key social institutions and customary systems for decision making, conflict resolution and peace building mechanisms. • Cultural property, moveable and fixed, architecture, art, archaeology, graves, shrines. 	<p>All issues will be addressed through:</p> <ul style="list-style-type: none"> • Focus group discussions incorporating the various aspects. • Questionnaire-administered interviews for the public and key informants capturing key issues of interest. • Available data from other sources e.g. Tullow reports, Government reports, and others; field verification.
4	Land use aspects	<ul style="list-style-type: none"> • General land use and land ownership patterns. • Use and economic significance of communal lands. • Land use and ecosystem services, forests, water, grazing, seasonal use, land tenure, control and access, customary land use policies, age and gender implications, formal mechanism for land distribution. 	<p>All issues will be addressed through:</p> <ul style="list-style-type: none"> • Focus group discussions incorporating the various aspects. • Questionnaire-administered interviews for the public and key informants capturing key issues of interest. • Available data from other sources e.g. Government reports, and others. • Physical observations and verification in the field.
5	Government and Donor supported activities	<ul style="list-style-type: none"> • Comprehensive list of committees working with ministries. • NGOs active in the area. • 	<ul style="list-style-type: none"> • Identification of government agencies and donor organisations (including NGOs) having presence in the area. • Discussions with the relevant Ministries and NGOs and local government administrators. • Their activities will be determined through questionnaire-administered interviews (guided

b) SOCIAL COMPONENT			
	KEY ASPECTS	ISSUES	METHOD
			<p>and/or self).</p> <ul style="list-style-type: none"> • Available data from other sources identifying such organisations and their functions e.g. Government reports, and others. • Physical observations and verification in the field.
6	Social support infrastructure	<ul style="list-style-type: none"> • Waste treatment and disposal facilities, NEMA license. • Transportation – roads, public transport. • Financial facilities, mobile phone network penetration. • Access to energy sources. Educational facilities, quality of education, level of education by age and gender. • Sensitive periods (times of day/night) with regard to traffic and noise (with respect to markets, schools, places of worship, community meetings, etc) with specific relevance to receptors within the area of interest. 	<ul style="list-style-type: none"> • Identification of key agencies and persons and interviews. • Physical survey in the field. • Focus group discussions and/or questionnaire administered interviews to capture key factors.
7	Public Awareness and Stakeholder Consultations		<p>This will be captured through advertisements in widespread national newspapers and local radio broadcasts; all issues raised by interested parties will be compiled and reported.</p>
	General Aspects		<ul style="list-style-type: none"> • All the above items 1 to 7 will be supported by GIS mapping where applicable, photographs (georeferenced), and short, informative videos. • Background literature review of prior study products, including those already done for Tullow and relevant to the area will be undertaken and pertinent information incorporated.

3.2.2 Environmental Impacts

3.2.2.1 Criteria and ratings

Earthview assessed impacts that may result from planned and unplanned events for the project and used the following criteria for determining the need for and level of environmental impact assessment, and based the risk/impacts determination on the criteria and ratings specified:

Character of the Receiving Environment

- Is it, or is it likely, to be part of the conservation estate or subject to treaty?
- Is it an existing or potentially environmentally significant area?
- Is it vulnerable to major natural or induced hazards?
- Is it a special purpose area?
- Is it an area where human communities are vulnerable?
- Does it involve a renewable or a non-renewable resource?
- Is it a degraded area, subject to significant risk levels, or a potentially contaminated site?

Potential Impacts

- Will construction, operations and/or decommissioning of the proposed activity/installation have the potential to cause significant changes to the receiving environment? (on site or off site, short term or long term)
- Could implementation of the proposed activity/installation give rise to health impacts or unsafe conditions?
- Will the project significantly divert resources to the detriment of other natural and human communities (for example water usage)?

This includes consideration of the magnitude of the impacts, their spatial extent, the duration and intensity of change, the total product life cycle and whether and how the impacts are manageable.

Resilience of Natural and Human Environments to Cope with Change

- Can the receiving environment absorb the level of impact predicted without suffering irreversible change?
- Can land uses within the area be sustained?
- Can sustainable uses of the area be achieved beyond the exploration period?
- Are contingency or emergency plans proposed or in place to deal with accidental events?
- Cumulative as well as individual impacts are considered in the context of sustainability.

Confidence of Prediction of Impacts

- What level of knowledge do we have on the resilience of a given significant ecosystem?
- Is the project design and technology sufficiently detailed and understood to enable the impacts to be established?
- Is the level and nature of change on the natural human environment sufficiently understood to allow the impact of the project to be predicted and managed?
- Is it practicable to monitor predicted effects?
- Are present community values on land use and resource likely to change?

Presence of Planning, Policy Framework and Other Statutory Decision Making Process

- Is the proposed installation consistent with existing zoning of the long-term policy framework of the area?
- Do other statutory approval processes exist to adequately assess and manage project impacts?
- What legislation, standard codes or guidelines are available to properly monitor and control operations on site and the type or quantity of the impacts?

Degree of Public Interest

- Is the proposed installation controversial or could it lead to controversy or concern in the community?
- Will the amenity, values or lifestyle of the community be adversely affected?
- Will the proposal result in inequities between sectors of the community?

3.2.2.2 *Event Magnitude*

Event magnitude was determined based on the following parameters, which were equally weighted and were each assigned a rating of "1", "2", or "3":

Extent / Scale: Events range from those affecting an area:

- 1** – Up to 500m from the source or an area less than 50 hectares; to
- 2** – Greater than 500m and up to 1km from the source or an area between 50-100 hectares; to
- 3** – Greater than 1km from the source or an area greater than 100 hectares.

Frequency: Events range from those occurring:

- 1** - Once; to
- 2** - Up to 50 times; to
- 3** - More than 50 times or continuously.

Duration: Events range from those occurring for:

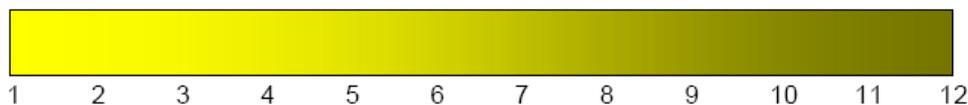
- 1** – Up to one week; to
- 2** - More than one week and up to one month; to
- 3** - Periods longer than one month to permanent.

Intensity: Concentration of an emission or discharge or noise level with respect to standards of acceptability that include applicable legislation and international guidance.

Degree/permanence of disturbance or physical impact (e.g. disturbance to species, loss of habitat or damage to cultural heritage). Ranges from:

- 1** - A low intensity event; to
- 2** - A moderate intensity event; to
- 3** - A high intensity event.

Overall event magnitude was scored on a spectrum from low (1) to high (12) by adding the individual parameter scores:



Resulting individual ratings were summed to give the overall event magnitude ranking. The score ranges for magnitude rankings were: "Low", "Medium" and "High".

Event Magnitude Score (Summed Parameter Rankings)

Event Magnitude	Score (Summed parameter rankings)
Low	4
Medium	5-8
High	9-12

3.2.2.3 Receptor Sensitivity

Receptor sensitivity was determined based on the following parameters, which were equally weighted and were each assigned a rating of "1", "2", or "3":

Biological/Ecological Receptors:

Presence: Ranged from:

- 3** - Routine, regular or reliably predictable presence of any species which is, in reverse order, a unique, threatened or protected species; to
- 2** - Regionally rare or largely confined to the Tullow project area or sensitive to industry emissions /disturbances; to
- 1** - A species which is none of the above and is therefore assessed at the community level only.

Resilience (to the identified stressor): Ranged from:

- 1** - Species or community unaffected or marginally affected; to
- 2** - Species undergoing moderate but sustainable change which stabilises under constant presence of impact source, with ecological functionality maintained; to
- 3** - Substantial loss of ecological functionality (e.g. loss of species in key groups, substantially lower abundance and diversity).

Human Receptors:

Presence: Ranged from:

- 3** - People being permanently present (e.g. residential property) in the geographical area of anticipated impact; to
- 2** - People being present some of the time (e.g. commercial property); to
- 1** - People being uncommon in the geographical area of anticipated impact.

Resilience (to the identified stressor): Ranged from:

- 1** - People being least exposed to change or disturbance (i.e. ambient conditions (air quality, noise) are below applicable legislation and international guidance); to
- 2** - People being exposed to change or disturbance (i.e. ambient conditions (air quality, noise) are below adopted standards); to
- 3** - People being most exposed to change or disturbance (i.e. ambient conditions (air quality, noise) are at or above adopted standards).

Physical Receptor/Features:

Presence (to the identified stressor): Ranged from:

- 3** - Presence of any feature which has national or international value (e.g. state protected monument); to
- 2** - Feature with local or regional value; to
- 1** - Feature which is none of the above.

Resilience (to the identified stressor): Ranged from

- 1** - Feature/receptor is unaffected or marginally affected i.e. resilient to change;
- 2** - Undergoes moderate but sustainable change which stabilises under constant presence of impact source, with physical integrity maintained; and
- 3** - Highly vulnerable i.e. potential for substantial damage or loss of physical integrity.

Soil, Ground Water and Surface Water features:

Presence: Ranged from:

- 3** - Receptor is highly valued e.g. used extensively for agriculture, used as a public water supply; to
- 2** - Receptor has moderate value e.g. moderate/occasional use for agriculture purposes; to
- 1** - Receptor has limited or no value.

Resilience (to the identified stressor): Ranged from:

- 1** - No or low levels of existing contamination (well below accepted standards) and receptor is unaffected or marginally affected i.e. resilient to change; to
- 2** - Moderate levels of mobile contamination present which are vulnerable to physical disturbance; to
- 3** - High levels of mobile contamination present which are highly sensitive to physical disturbance.

Overall receptor sensitivity was then scored on a spectrum from low (1) to high (6) by adding the individual parameter scores:



The table below presents the score ranges for sensitivity rankings of; "Low", "Medium" and "High".

Receptor Sensitivity	Score (Summed parameter rankings)
Low	2
Medium	3-4
High	5-6

3.2.2.4 Environmental Impact Significance Matrix

Impact significance, as a function of event magnitude and receptor sensitivity is subsequently ranked as "Negligible", "Minor", "Moderate" or "Major" as presented in the matrix below. Impacts can be "positive" or "negative".

Impact Significance

		Receptor Sensitivity		
		Low	Medium	High
Event Magnitude	Low	Negligible	Minor	Moderate
	Medium	Minor	Moderate	Major
	High	Moderate	Major	Major

Figure 3.2: Impact significance matrix

Any impact classified as "Major" is considered to be significant and where the impact is negative, requires additional mitigation. Impacts of negligible, minor or moderate significance are considered as being mitigated as far as necessary, and therefore, do not require further mitigation.

3.2.3 Socio-Economic Impacts

3.2.3.1 Magnitude and sensitivity

The socio-economic impact assessment identified and evaluated the significance of impacts associated with the project, including:

The identification of all socio-economic impacts (direct and indirect, positive and negative) that are linked to the project. The measurement (and where possible, monetisation) of socio-economic impacts, including the following:

- The numbers and characteristics of people affected (number of property owners, affected people and/or those subjected directly to changes in their socioeconomic conditions and living environment);
- Changes in people's access to, or changes in the status of: employment, commercial, recreational, cultural and social services and facilities;
- Direct loss of land, or change in people's access to land;
- Social patterns and linkages: changes in how areas function as a community with respect to levels of social interaction; personal relationships; feeling of belonging to the area or aspects relating to self-identification; and
- General amenity (perceived and actual) and change in the physical conditions that affect the quality of the environment and residential amenity; change in aesthetic values; change in recreation development and opportunities.

The socio-economic impact assessment assessed the significance of potential direct impacts based on probability, magnitude and receptor sensitivity.

Probability: The likelihood that the impact will occur, and degrees of uncertainty, based on the following criteria:

- **Highly likely** - almost certain to occur or may have already occurred.
- **Likely** - some substantiated evidence that the impact is likely to occur, or has previously occurred in a similar context.
- **Possible** - could occur without intervention.
- **Unlikely** - some evidence that impact could occur, no such incident in the region but may have occurred elsewhere.
- **Highly unlikely** - no evidence to suggest impact will occur.

Magnitude: Determined based on:

Spatial Scope: The geographical scope of the impact relative to local community receptors:

- **Local** – effects extending to the communities in the immediate areas
- **Regional** – effects extending to the entire county; and
- **National** - effects extending to Kenya.

Timing and Duration: The likely timing and duration of the impact (including whether the impact would be temporary or permanent in nature) and how this links to activities undertaken by Tullow;

Receptor Sensitivity: The groups of people or populations most likely to be affected and, in particular, whether impacts are likely to be disproportionately experienced by **vulnerable groups**.

3.2.3.2 Socio-economic Impact Significance

Significance of impacts will be assessed as presented in the table below.

Event	Magnitude		Probability	Receptor Sensitivity	Significance
	Spatial Scope	Timing and duration			

Significance is based on judgement taking into account the likelihood and magnitude of the impact and the sensitivity of the population or group of people that may be affected. The significance of impact (taking into account existing controls) is categorised as follows:

- **Major Positive** – a substantial positive change.
- **Positive** – some positive change.
- **Negligible** – very little change or no change.
- **Negative** – measurable negative change.
- **Major Negative** – considerable negative change.

Any impact classified as “Major Negative” is considered to be significant and requires additional mitigation. Impacts of “Negligible”, “Major Positive” or “Positive” significance are not considered to require mitigation.

Indirect impacts i.e. induced effects, cannot be readily assessed using the same approach. A qualitative assessment is therefore made based on judgement and taking into account existing controls.

3.2.4 Transboundary and Cumulative Impacts

Transboundary impacts are impacts that occur outside the jurisdictional borders of a project’s host country. Potential Tullow project transboundary impacts were considered to include:

- Social and economic issues surrounding the sourcing of labour, goods and services from the international market; and
- GHG emissions to air.

Cumulative impacts which rose from:

- Interactions between separate project-related residual impacts; and
- Interactions between project-related residual impacts in combination with impacts from other projects and their associated activities.

These can be either additive or synergistic effects, which result in a larger (in terms of extent or duration) or different (dependent on impact interaction) impacts when compared to project related residual impacts alone.

The assessment of Cumulative Impacts considered the potential for impact interaction and accumulation in terms of the following:

- **Temporal Overlap** – the impacts are so close in time that the effect of one is not dissipated before the next one occurs; and
- **Spatial Overlap** – the impacts are so close in space that their effects overlap.

3.2.5 Mitigation and Monitoring

Mitigation measures were identified and impacts reassessed to obtain residual impact significance for planned and unplanned activities. The determined mitigation measures were detailed in the ESMP along with monitoring frameworks to be implemented during the project.

4. REGULATIONS, GUIDELINES AND STANDARDS

4.1 The Constitution of Kenya 2010

The Constitution provides that every person has the right to a clean and healthy environment (Article 42). The State is obliged to ensure that the environment and natural resources are conserved and genetic resources and biological diversity are protected. In that regard it must eliminate any processes or activities that would be likely to endanger the environment. Everyone is expected to cooperate with the State organs and other people to protect and conserve the environment and ensure that the use and development of the natural resources are ecologically sustainable (Article 69). These environmental rights are enforceable in a court of law (Article 70). Land must be used in a sustainable manner, and in accordance with the principles of sound conservation and protection of ecologically sensitive areas. The State may regulate the use of any land or right over any land in the interest of land use planning (Article 66).

The Constitution of Kenya gives recognition to public, community and private land. Land use regulation goes beyond exploitation merely for economic purposes, and lays emphasis on conservation. It is required that wildlife conservation promotes sustainable development, which includes both environmental conservation and economic development. Parliament has five years from the date of promulgation to enact legislation to give full effect to the provisions relating to the environment. Community land vests in communities identified on the basis of ethnicity, culture, or other similar common interest. Apart from land registered or transferred, it consists of land that is lawfully held, managed or used by specific communities as grazing areas or shrines, and ancestral lands (Articles 60 – 72). The State is generally mandated to regulate the use of any land in the public interest. Public land is described as including: all minerals and mineral oils; specified government forests; government game reserves; water catchment areas; national parks; government animal sanctuaries; specially protected areas; and all rivers, lakes and other water bodies as defined by law. However, land on which mineral and mineral oils exist is held by the national government in trust for the Kenyan people (Article 62).

Article 174 of the Constitution sets out the objects of devolution of government, which include: (a) to give powers of self-governance to the people and enhance the participation of the people in the exercise of the powers of the State and in making decisions affecting them; (b) to recognise the right of communities to manage their own affairs and to further their development; (c) to protect and promote the interests and rights of minorities and marginalised communities; (d) to promote social and economic development and the provision of proximate, easily accessible services throughout Kenya; (e) to ensure equitable sharing of national and local resources throughout Kenya; and (f) to facilitate the decentralisation of State organs, their functions and services, from the capital of Kenya.

4.2 THE POLICY FRAMEWORK

4.2.1 The National Environment Policy 2012

The NEP aims to provide a holistic framework to guide environmental and natural resource management in Kenya. It also ensures that the link between the environment and poverty reduction is integrated into all government processes and institutions in order to facilitate and realize sustainable development at all levels in the context of a green economy enhancing social inclusion, improving human welfare, creating employment opportunities and maintaining a healthy functioning of the ecosystem.

It has been established that the main human activities contributing to environmental degradation in Kenya include unsustainable agricultural land use, poor soil and water management practices, deforestation, overgrazing and pollution. These activities contribute a great deal to the degradation of the country's natural resources such as land, fresh and marine waters, forests and biodiversity, thereby threatening the lives of many people. They undermine the sink function of the environment which operates through such processes as nutrient recycling, decomposition and the natural purification and filtering of air and water.

Environmental degradation in Kenya is partly responsible for the rising costs of water treatment, food imports and medical treatment. These are not only increasing human vulnerability and health insecurity but also draining the country's economic resources. The expansion of agriculture into marginal areas and clearance of natural habitats such as forests and wetlands has been a major driving force behind land degradation throughout the country. The loss of biological resources translates into loss of economic potential and options for commercial development in the future.

This is the justification for this policy. The policy gives the framework to deal with the ever-growing environmental issues and management challenges, such as:

- (a) The need to harmonize sectoral policy instruments with the Environmental Management and Coordination Act and the Constitution.
- (b) Implementation of the Land Policy
- (c) Valuation of environmental and natural resources
- (d) Rehabilitation and restoration of environmentally degraded areas
- (e) Loss of biodiversity
- (f) Concessions and incentives
- (g) Urbanization and waste management
- (h) Pollution
- (i) Energy
- (j) Climate change and disaster management
- (k) Conservation of shared natural resources
- (l) Invasive and alien species
- (m) Public participation, environmental education and awareness
- (n) Data and information
- (o) Poverty
- (p) Weak enforcement
- (q) Fragmentation

The goal, objectives and guiding principles are as follows:

Goal:

A better quality of life for present and future generations through sustainable management of the environment and natural resources.

Objectives:

- (a) Provide a framework for an integrated approach to planning and sustainable management of Kenya's environment and its natural resources.
- (b) Strengthen the legal and institutional framework for effective coordination and management of the environment and natural resources.
- (c) Ensure sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for national economic growth and improved people's livelihood and well-being.

- (d) Promote and support the use of innovative environmental management tools – such as incentives, disincentives, total economic valuation, and indicators of sustainable development, SEA, EIA, Environmental Audit, and payment of environmental services – in environmental management.
- (e) Promote and enhance cooperation, collaboration, synergy, partnerships and participation in the protection, conservation, better management of the environment by all the stakeholders.
- (f) Ensure inclusion of cross-cutting issues – such as poverty reduction, gender, disability and HIV/AIDS – in national and sectoral planning processes.

Guiding principles

Implementation of this Policy will be guided by the following principles:-

- (a) **Environmental Rights:** Every person in Kenya has a right to a clean and healthy environment and a duty to safeguard and enhance the environment.
- (b) **Right to Development:** The right to development will be exercised taking into consideration the economic, social and environmental needs.
- (c) **Ecosystem Approach:** An integrated ecosystem approach to conserving environmental resources will be adopted and enhanced to ensure that all ecosystems are managed in an integrated manner while also providing a range of benefits to people.
- (d) **Total Economic Value:** The benefits that ecosystems generate will be integrated into the national accounting system, programmes and projects.
- (e) **Sustainable Use:** Environmental resources will be utilized in a manner that does not compromise the quality and value of the resource, or decrease the carrying capacity of supporting ecosystems.
- (f) **Equity:** The management of the environment and natural resources will seek to secure the best interests of present and future generations.
- (g) **Public Participation:** A coordinated and participatory approach to environmental protection and management will be enhanced to ensure that the relevant government agencies, local authorities, private sector, civil society and communities are involved in planning, implementation and decision-making processes.
- (h) **Subsidiary:** The management of the environment and natural resources will be through decentralization and devolution of authority and responsibilities at the lowest level possible.
- (i) **Precautionary Principle:** Where there are credible threats of serious or irreversible damage to key environmental resources, lack of full scientific certainty will not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
- (j) **Polluter Pays Principle:** The polluter and users of environmental and natural resources shall bear the full environmental and social costs of their activities.
- (k) **International Cooperation:** Multilateral environmental agreements (MEAs) and regional instruments will be domesticated and implemented cooperatively for better environmental management of shared resources.

- (l) **Good Governance:** The rule of law, effective institutions, transparency and accountability, respect for human rights and the meaningful participation of citizens will be integrated in environmental management.

Cabinet approval for this draft policy is still pending.

4.2.2 The National Energy Policy 2012

The energy sector plays a vital role in the socio-economic development of a nation. In Kenya, petroleum and electricity as sources of energy are the main drivers of the economy, while biomass is mainly used in the rural areas. The sector currently relies solely on the import of all petroleum products. However, with the discovery of oil and gas deposits in the northern parts of Kenya, this will change. Policy direction in the energy sector was previously governed by Sessional Paper No. 4 of 2004. The new draft policy has been prepared to bring on board emerging issues such as Vision 2030, and more importantly, the functions of county governments in the new Constitutional dispensation.

In view of the recent oil discovery in northern Kenya, it is necessary to develop petroleum production capacity and infrastructure to meet the increasing market needs at home and in the region. These developments will include modernizing the existing refinery and building a new one, thereby making products more competitive, creating wealth and ensuring security of supply and stabilizing prices. Increased use of LPG will be encouraged to reduce dependence on biomass and eliminate the use of kerosene in homes. Natural gas may be used for power generation, transport and domestic purposes.

Fossil Fuels: The national government intends to fast-track oil discovery in other exploration blocks in the county by intensifying primary data acquisition in the blocks, thereby making them more attractive to investors. The exploration of coal as an energy source will also be intensified, care being taken to use it efficiently, while minimizing the environmental impacts generated. The government also intends to develop mechanisms for the sharing of revenue from both oil and coal production between the national and county governments.

Renewable Energy: the government plans to promote and accelerate the exploitation of renewable sources of energy as they have the potential to enhance energy security, mitigate climate change and generate income. They will also create much-needed employment.

Electricity: Electricity is vital to the socio-economic development of Kenya. The government plans to set up a hydro risk mitigation fund to cover risks such as prolonged droughts, cushion generators, transmitters, distributors and consumers against the adverse effects of hydrology and establish a committee to ensure coordination at policy, regulatory and operation levels on matters concerning the uses of water resources. Investors and the private sector will be encouraged to invest in geothermal energy. Thermal power plants will be designed, constructed, operated and maintain in a manner that minimizes environmental impact. In addition, it will promote and implement a nuclear electricity generation programme.

Energy Efficiency and Conservation: The government will enhance energy efficiency and conservation activities to improve energy security and mitigate the effects of climate change by lowering GHG emissions. It further intends to promote new and efficient technologies such as hybrid engines, fuel cell, electric vehicles and compressed natural gas.

The Energy Policy Objectives

The overall objective of the energy policy is to ensure affordable, sustainable and reliable supply to meet national and county development needs, while protecting and conserving the environment.

The specific objectives are to:

- a) Utilize energy as a tool to accelerate economic growth for the national and county governments as well as urban and rural development.
- b) Improve access to quality, reliable and affordable energy services.
- c) Provide a conducive environment for the provision of energy services.
- d) Promote development of indigenous energy resources.
- e) Promote energy efficiency and conservation.
- f) Ensure that prudent environmental, social, health and safety considerations are factored in energy sector developments.
- g) Ensure that a comprehensive, integrated and well-informed energy sector plan is put in place for effective development.
- h) Foster international co-operation in energy trade, investments and development.
- i) Promote energy research, development, training and local manufacture of energy plant, equipment, appliances and materials.
- j) Promote appropriate standards, codes of practice and specifications for equipment, systems and processes in the energy sector.
- k) Promote diversification of energy supply sources to ensure supply security.
- l) Promote healthy competition in the sector.
- m) Protect consumer interests.
- n) Promote both local and international investments in the energy sector.
- o) Promote an elaborate response strategy in energy related disaster management.
- p) Generate at least 70% of electricity from clean or renewable resources and build the infrastructure necessary to transmit that electricity.
- q) Provide for the phased transfer of provision of energy services to the Counties in accordance with Article 174 of the Constitution.

4.2.3 Oil and Gas Exploration

The government has identified certain challenges being encountered in the upstream activities of the oil and gas industry, namely: attraction of capital for oil exploration and production activities; high cost of acquisition of new technology; manpower and technical capacity; inability to access potential exploration sites/blocks which are located on private land or cultural heritage and conservancy areas as well as game parks/reserves; limited primary technical data in most of the country's exploration blocks; inadequate policy in petroleum revenue management; and inherent weaknesses in the Petroleum (Exploration and Production) Act, Cap. 308 and the Model Production Sharing Contract (PSC) which include lack of provisions for:

- a) Compensation regime
- b) Licensing rounds
- c) Community awareness and participation
- d) Windfall profits
- e) Gas sharing terms
- f) Corporate Social Responsibility requirements
- g) Mechanism for working out Government Share out of monetary gains from transfer of a PSC
- h) Defined criteria for evaluation of terms provided in PSC applications for prudence and competitive bidding for blocks
- i) Environmental protection, conservation and management.

The government has adopted the following oil exploration policy to deal with the above challenges:

- a) Continue to promote, through funding, oil and gas exploration activities and support private and public investments.
- b) Adopt the Extractive Industries Transparency Initiative (EITI) Treaty to enhance transparency.
- c) Establish the National Data Centre and Laboratory.
- d) Review the Petroleum (Exploration and Production) Act (Cap. 308).
- e) Enhance manpower, technical capacity and local content in oil and gas exploration activities.
- f) Develop mechanisms for sharing and managing oil and gas revenue.
- g) Undertake measures to fast-track commercial oil discovery.

An implementation plan has been drawn up in respect of the short-, medium- and long-term agenda between 2012 and 2030, covering upstream, mid-stream and downstream activities.

4.2.4 Land, Environment, Health and Safety

Environmental management in the energy sector is crucial in ensuring sustainability. Energy production, transportation and use cause various dangers to human life and the environment. It is necessary to provide affordable, reliable and sustainable energy while also upholding people's rights to land, environment, health and safety. Offshore and onshore oil exploration and production activities should therefore be conducted in a manner that protects the environment. Fire outbreaks and oil spills are major environment, health and safety concerns in the oil and gas industry. Loss of life and property can be prevented through the adoption of international best practices and compliance and enforcement of the law and regulations. In the coal industry, modern technologies can be used to reduce emissions which contribute to global warming and acid rain.

4.2.5 Climate Change

The government intends to ensure that the energy sector is represented in international climate change negotiations to improve the investment climate for development projects and that research is undertaken in the clean energy technology areas. It will also invest in renewable technologies. Kenya has developed a National Strategy on Climate Change.

4.2.6 Land and Socio-Economic Impacts

A major impact caused by energy development projects on communities is the displacement of persons. The affected communities are also concerned that they will not benefit from the projects. The current challenges are: lack of a Resettlement Action Plan Framework; lack of a proper compensation mechanism for local communities in line with the Constitution; difficulty in acquiring way leaves, rights of way and easements to facilitate infrastructure development; vandalism of energy infrastructure; inadequate regional, gender and environmental consideration in energy planning and development; and land access and permit where exploration blocks fall on private land or cultural heritage areas including game parks and reserves. To deal with these challenges, the national government planning for utility services and infrastructure as required by the Constitution includes planning for energy utility services; the proposed Energy Bill will provide for waiver of charges for use of resources owned by public bodies critical to energy development infrastructure; rates for compensation will be determined; legislation impacting negatively on the energy sector will be amended or repealed; the government will facilitate the development of standards for equipment, products, protective

equipment, facilities and operating practices in the energy sector to ensure safe operations, among other requirements as set out in the Constitution.

4.2.7 Devolution and Access to Energy Services

There is the concern that the two levels of government may clash on account of lack of clearly-defined roles in the Constitution. Further, no framework exists for devolution of functions within the energy sector to ensure service continuity or standards to guide county governments on devolved responsibility. To deal with these problems, a framework on the functional devolution of roles between the two levels of government will be developed; a royalty of 15% due to the national government from specific county resources developed by the energy sector players will be paid to the specific county government and 5% to the specific local community; minimum standards will be developed to guide county governments on devolved responsibilities in the energy sector; and some of the licensing services will be devolved to the county governments.

4.3 Legal and Regulatory Framework

This will be reviewed to align with the energy sector's legal and regulatory framework and the Constitution, and the various relevant statutes will be consolidated into one. Demarcation of roles between the two levels of government will be carried out. Provisions in the law will ensure that investments benefit local communities and their economies in terms of the Constitution. Sharing of royalties equitably from the exploitation of natural resources between the national and county governments will be provided for; the general rules of international law and the treaties and international conventions ratified will be recognised; additional safeguards will be created on use of land, environment and natural resources critical for energy infrastructure development and service provision.

4.3.1 The Kenya Health Policy 2012 – 2030

The policy is based on the Constitution of Kenya 2010, Vision 2030 and global health commitments. It was developed through an inclusive and participatory process involving the health sector and other related sectors. Its broad aim is to ensure equity, people-centredness and participation, efficiency, multi-sectoral approach and social accountability in delivery of healthcare services. It sets out the goal, objectives, guiding principles and policy directions aimed at achieving Kenya's health agenda and a comprehensive implementation framework. Also included is the institutional management plan under the devolved system of government – taking into account the varied roles of the national and county levels of government. The policy also sets out a monitoring and evaluation framework to track progress in achieving the policy objectives.

Goal: "Attaining the highest possible standard of health in a manner responsive the needs of the population"

The policy aims to achieve this goal through the overall and specific objectives set out below:

Overall objective: To attain universal coverage of critical services which positively contribute to the realization of the overall policy goal.

Specific objectives:

- a) Eliminate communicable diseases
- b) Halt and reverse the rising burden of non-communicable conditions
- c) Reduce the burden of violence and injuries
- d) Provide essential health care

- e) Minimize exposure to health risk factors
- f) Strengthen collaboration with other sectors that have an impact on health.

Policy principles:

The principles are based on an interpretation of primary health care principles, and include:

- a) Equity in distribution of health services and interventions
- b) People-centred approach to health and health interventions
- c) Participatory approach to delivery of interventions
- d) Multi-sectoral approach to realizing health goals
- e) Efficiency in application of health technologies
- f) Social accountability

Policy orientation:

This is how the sector intends to work to attain the above objectives. The orientations are built around the health system building blocks of service delivery systems, leadership and governance, the health workforce, health financing, health products and technologies, health information, and health infrastructure:

1. An efficient service delivery system that maximizes health outcomes.
2. Comprehensive leadership that delivers on the health agenda.
3. Adequate and equitable distribution of human resources for health.
4. Adequate finances mobilized, efficiently allocated and utilized, with social and financial risk protection assured.
5. Adequate health information for evidence-based decision-making.
6. Universal access to essential health products and technologies.
7. Adequate and appropriate health infrastructure.

Service delivery systems take into consideration the constitutional provisions on devolution and the right to the highest attainable standards of health including the right to life, reproductive health and the right to emergency treatment as enshrined in the Bill of Rights.

4.3.2 The National Environmental Sanitation and Hygiene Policy 2007

The Environmental Hygiene and Sanitation Policy (EHS) is intended to improve people's health and quality of life. Strategic interventions have been developed to determine the success of the policy implementation.

One of the key purposes of this policy is to clarify the various roles in order to enhance the existing legal and constitutional framework and to encourage the private sector, civil society and community participation in the planning, implementation and ownership of ESH services. It is envisaged that by 2015 all households will have been educated and made aware of the importance and need for improved environmental sanitation and hygiene practices for improved health, resulting in positive behaviour change.

Sanitation and the Environment: One of the key objectives of the policy is to protect the environment from pollution and its negative effect on human health. The government will seek to minimize negative impacts arising from various types of sanitation systems, and maximize positive effects. In situations where inappropriate hygiene and sanitation systems have negative environmental impacts, the particular choice of technology will be weighed against the unimproved or less elaborate sanitation practices. The Health Ministry, through its Division of Environmental Health in conjunction with relevant agencies, will provide guidelines for the delivery and management of environmental infrastructure, particularly household sanitation, and solid waste disposal including

healthcare waste and other wastes. Well-functioning sanitation and hygiene systems are a means of protecting the environment. Monitoring will be increased and undertaken systematically to help prevent environmental pollution from liquid and solid wastes. The policy is designed in a manner that will create job opportunities, e.g. labour intensive construction, sustainable livelihoods and long-term entrepreneurial activities.

Poor access to adequate sanitation and hygiene is a major hindrance to poverty alleviation. The health risks associated with poor ESH increase poverty. The government envisages that this policy is an important step towards poverty reduction.

4.3.3 The Land Policy (Sessional Paper No. 3 of 2009)

The overall objective of the National Land Policy is to secure land rights and provide for sustainable growth, investment and the reduction of poverty in line with the Government's overall development objectives. Specifically, it seeks to develop a framework of policies and laws designed to ensure the maintenance of a system of land administration and management that will provide all citizens with:

- The opportunity to access and beneficially occupy and use land;
- Economically, socially equitable and environmentally sustainable allocation and use of land;
- Effective and economical operation of the land market;
- Efficient use of land and land-based resources; and
- Efficient and transparent land dispute resolution mechanisms.

Inadequate environmental management and conflicts over land and land-based resources is one of the major issues the policy aims to resolve.

The need for land reforms in Kenya arose from the inadequacy of the old constitution to establish an efficient, accountable institutional framework for land ownership, administration and management. This resulted in:

- a) Centralisation of state responsibility over land matters, irresponsive to the citizens' needs;
- b) Lack of accountability by governments in land governance, leading to irregular allocations of public land;
- c) Constitutional protection of private property rights even when acquired illegitimately;
- d) Mass disinheritance of communities and individuals of their land;
- e) Inequitable access to land, particularly for women, children, minority groups and persons with disabilities; and
- f) Ineffective regulation of private property rights, as a result of which unplanned settlements and environmental degradation were commonplace.

With the passing of the Kenya Constitution 2010, these issues have been addressed. The previously existing land laws have been repealed and the law consolidated into three statutes, namely the Land Act 2012, the Land Registration Act 2012 and the National Land Commission Act 2012. Read together with the Constitution (the Land and Environment, chapter 5) these statutes now govern all land issues including security of communal tenure, benefit-sharing from land-based resources, restoration and conservation of land quality, land use regulation and development, conservation and sustainable management of land-based resources, ecosystem protection and management principles, land rights delivery, settlement land allocation, land adjudication, among others.

Land related issues such as historical injustices, and pastoral land issues were marked as deserving special attention. Historical injustices are grievances going back to colonial land administration practices and laws that resulted in mass disinheritance of communities and their land. Colonial and post-colonial land administration in the pastoralist areas also led to land management rights being taken away from the traditional institutions, and in the process creating uncertainty in the access, control and exploitation of land-based resources such as grazing lands and water. Minority communities culturally dependent on specific geographical habitats have over the years lost access to land and land-based resources that formed their livelihoods, e.g. when the land such as forests or national reserves are declared protected areas.

These issues have all been captured in the said Constitution and the recently enacted land legislation. The implementation of the Constitution and the enactment of new laws and regulations flowing from its provisions is still an ongoing process. Moving forward, there may be need to develop another land policy, if new problems arise or weaknesses are identified.

4.3.4 Kenya Vision 2030

Kenya Vision 2030 was launched on October 30, 2006, and is the country's new development plan for the period 2008 to 2030. It seeks to transform Kenya into an industrialized "middle-income country providing a high quality of life to its citizens by the year 2030".

Vision 2030 is based on three 'pillars': the economic, the social and the political. The adoption of the Vision follows the successful implementation of the Economic Recovery Strategy for Wealth and Employment Creation (ERS) launched in 2002. The Vision is to be implemented in successive five-year medium-term plans, with the first such plan covering the period 2008-2012.

The economic, social and political pillars of Kenya Vision 2030 are anchored on macroeconomic stability, continuity in government reforms, enhanced equity and wealth-creation opportunities for the poor, infrastructure, energy, science, technology and innovation, land reform, human resources development, security, as well as public sector reforms.

The foundations for the Vision are:

- **Macroeconomic Stability for Long-term Development:** The Vision places the highest premium on Kenya's current stable macroeconomic environment which works in favour of the poor, and expects it to continue in the future as a matter of policy. The projects proposed under Vision 2030 will be subjected to the parameters set under the macroeconomic stability framework.
- **Continuity in Governance Reforms:** These will be accelerated in order to create a more conducive environment for doing business, and also to enable Kenyans to fully enjoy their individual rights under the Constitution. Towards this end, the government will intensify the anti-corruption programme through more efficient investigation and prosecution; eliminating bribery in the public service and increasing public education and judicial and legal reform. The government will also fully support the people of Kenya, parliament, civil society and the press, recognising that they are the ultimate defence against abuse of office.
- **Infrastructure:** The Vision aspires for a country firmly interconnected through a network of roads, railways, ports, airports, water and sanitation facilities and telecommunications. This is a high priority issue.
- **Enhanced Equity and Wealth-Creation Opportunities for the Poor:** The Vision includes equity as a recurrent principle in economic, social and political

programmes. Special attention has been given to arid and semi-arid districts, communities with high incidence of poverty, the unemployed youth, women, and all vulnerable groups.

- **Science, Technology and Innovation (STI):** The government will intensify the application of STI to increase productivity and efficiency levels across all three pillars. It recognises the critical role played by research and development in accelerating development in the emerging nations. The government will create and implement an STI policy framework to support Vision 2030.
- **Land Reform:** Land is a vital resource for the socio-economic and political developments set out in the Vision. It is recognized that respect for property rights to land, whether owned by individuals, communities or companies, is key to rapid economic growth (A national land use policy has now been created to enable this growth) (section 4.2.4).
- **Human Resources Development:** Kenya will create a globally competitive and adaptive human resource base to meet the needs of a rapidly industrializing economy through training and education, raising labour productivity to international levels, creating a human resource database to facilitate better planning, and establish more training institutions.
- **Security:** The government will increase security in order to lower the cost of doing business and provide Kenyans with a more secure environment to live and work in. The strategies will include improving community policing, reducing the police-to-population ratio, and adopting information and communication technology in crime detection and prevention. These measures will be supported by judicial reforms.
- **Energy:** Since development projects recommended under Vision 2030 will increase demand on Kenya's energy supply, she must generate more energy at a lower cost and increase efficiency in energy consumption. The government is committed to continued institutional reforms in the energy sector, including a strong, regulatory framework, and will encourage more power generation by the private sector. New sources of energy will be found through the exploitation of geothermal power, coal, and renewable energy sources.
- **The Public Sector:** An efficient, motivated and well-trained public service is expected to be one of the major foundations of the Vision. Kenya intends to build a public service that is more citizen-focused and results-oriented. The government will intensify efforts to bring about an attitudinal change in public service that values transparency and accountability to the citizens of Kenya.

4.4 The National Environment Management Authority

4.4.1 The Environmental Management and Co-ordination Act, 1999

The Environmental Management and Co-ordination Act, 1999, provides for the establishment of an appropriate legal and institutional framework for the purpose of managing the environment and matters connected with it. The National Environment Management Authority ("the Authority") is established under section 7 of the Act. Its mandate is to monitor the operations of industries, projects or activities to determine their immediate and long-term effects on the environment. Tullow proposing a project, whose activities fall within the ambit of the Act, is therefore subject to its provisions.

The Act (Part VIII) lays down provisions pertaining to environmental quality standards. It establishes a Standards and Enforcement Review Committee whose broad functions are to (a) advise the Authority on how to establish criteria and procedures to measure water and air quality and (b) issue standards and guidelines for the safe and proper disposal of

waste (Sections 70, 71, 78, 86). Where Kenya is a party to an international convention, treaty or agreement on the management of the environment, the Authority must initiate legislative proposals to give effect to them (Section 124). The Authority may prescribe measures to ensure that the biological resources in place are preserved, issue guidelines to promote the conservation of the various terrestrial and aquatic systems, and protect species, ecosystems and habitats threatened with extinction.

4.4.2 The EIA Guidelines and Administrative Procedures

The Environment Impact Assessment and Administrative Procedures arose from the policy framework and the legislative and regulatory (the Environmental Management and Co-ordination Act, 1999, and its regulations) procedures in order to assist in the integration of environmental concerns in economic development so as to foster sustainable development. The document sets out guidelines for carrying out Environmental Impact Assessment, Environmental Audit and Monitoring, Strategic Environmental Assessment and dealing with issues of transboundary, regional and international conventions, treaties and agreements. It sets out the procedure in Environmental Impact Assessment studies and Environmental Audits as well as the contents and format of the reports required to be submitted to the National Environment Management Authority for consideration. The Environmental Impact Assessment study review process and decision-making are also explained. The guidelines are mainly intended to assist project proponents, EIA practitioners, lead agencies and members of the public to understand the process and the basis on which decisions are made.

4.5 KENYA LEGISLATION, REGULATIONS, STANDARDS AND INTERNATIONAL CONVENTIONS

The Kenyan legislation, regulations, standards and international conventions relevant to this study is presented in Table 4.1 below.

Table 4.1: Kenyan Legislation, Regulations, Standards and International Conventions Relevant to the Project

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
Physiography and Geology	The Petroleum (Exploration and Production) Act, Cap. 308 Section 4(4)	The Energy Ministry	Tulow activities must be restricted to the area specified in the terms and conditions of the petroleum agreement.	The Minister may take any action, decision, or give any permission or consent or exercise any other control as may be necessary or desirable for the purposes of the Act. Section 5(3)(d)
	The Petroleum (Exploration and Production) Regulations Regulation 6(1), (2)	The Energy Ministry	Tulow may not occupy or exercise any rights: in burial land in the locality of a church, mosque or other place of worship; any area within 50m of any building in use, or any reservoir or dam; any public road; any area within a municipality or township; any land within 1000m of the boundaries of an aerodrome; and any land declared to be a national park or national reserve. Directional drilling into the subsurface from land adjacent to these areas is permitted with the consent of competent authority. A fair and reasonable compensation must be paid to an occupier whose rights have been infringed by the contractor's activities.	As above
	The Physical Planning Act, Cap. 286 Section 36	The Ministry of Lands, Department	If a local authority is of the opinion that a proposed development, dump site, sewerage treatment plant, quarry or other development	

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
		of Physical Planning	activity will impact on the environment adversely, it will require the applicant to submit an environmental impact assessment report for consideration.	
	The Local Government Act, Cap. 265 Section 163(e)	The Ministry of Local Government	Local authorities have the power to control or ban businesses, factories and workshops which may emit smoke, fumes, chemicals, gases, dust, smell, noise or vibration, and in so doing become a danger or annoyance to the vicinity. The local authority may therefore lay down conditions under which such enterprises may carry on business. Tullow must ensure its compliance with the laws and regulations regarding the protection of the environment from forms of pollution that may occur as a result of waste discharge and disposal, as well as noise, vibration and exhaust emissions from vehicles, machines and equipment. In this regard the company must ensure that its activities do not cause nuisance or annoyance to the residents and that the method adopted or proposed to prevent noxious or offensive vapours, gases or smells is efficient.	The grant or renewal of a licence may be denied or cancelled. Section 165(1)(a)(i), (iii); (c) and (2)(a) and (c)
	The Environmental Management and Coordination Act, 1999 Section 58 The Environmental (Impact Assessment and Audit) Regulations, 2003 Regulations 18 and 45(2)(b)	The National Environment Management Authority	The Environmental Impact Assessment project study report must include the potential environmental impacts of the project on the physiography and geology of the area, and propose mitigation measures to be taken during and after the implementation of the project. Failure to prepare an environmental impact assessment in	Imprisonment for a term not exceeding two years or a fine of not more than two million shillings, or both. Section 138

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			accordance with the Act and regulations is an offence.	
Soils	The Environmental (Impact Assessment and Audit) Regulations, 2003 Regulations 17,18 and 45(2)(b)	The National Environment Management Authority	The Environmental Impact Assessment project study report must include the potential environmental impacts of the project on the soils, including the vegetation cover, and indicate the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	Imprisonment for a term not exceeding two years or a fine of not more than two million shillings, or both. Section 138, EMCA
Water Resources	The Public Health Act, Cap. 242 Sections 116, 118, 126(g) and 129	The Public Health and Sanitation Ministry	Tullov must guard against pollution of the camp's water supply source, underlying aquifers and surface water from liquid effluent discharges or solid waste emanating from sanitation systems at the campsite, oil, or chemical leaks from vehicles and equipment. There must be compliance with any rules the Minister may make as to the safe discharge of liquid or other material prone to pollute streams or that are likely in any way to be a nuisance or dangerous to health.	A fine not exceeding fifty thousand shillings, or to imprisonment for a term not exceeding six months, or both, and if the offence is of a continuing nature, to a further fine not exceeding one thousand shillings for each day it continues. Section 164
	The Environmental Management and Coordination Act, 1999 Section 75(1), (2)	The National Environment Management	A licence must be obtained from the Authority if it is intended to discharge waste into the environment. The application must be made	Cancellation of licence. Section 76

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
		Authority	within twelve months of commencement of the project.	
	The Water Act, Cap. 372 (Revised Edition 2012) Section 3	The Water Resources Management Authority	Water is vested in the State subject to rights of user that may be granted under the law. Tullow must strictly abide by any state scheme that may be formulated for the use for any public purpose (e.g. the distribution, apportionment or measurement of water) of the whole or part of a water resource. This would include community water projects.	
	The Water Act, Cap. 372 (Revised Edition 2012) Sections 25(c) and 94(1)	The Water and Irrigation Ministry	Tullow may not wilfully obstruct, interfere with, divert or obstruct water from any watercourse or water resource, or negligently allow such acts, or throw any dirt, effluent, or waste (e.g. oils or chemicals) or other offensive or unwholesome matter into or near any water resource in such a way as to cause or be likely to cause pollution of the water resource. A permit must be obtained in order to discharge a pollutant into any water resource.	A fine not exceeding one hundred thousand shillings or imprisonment for a term not exceeding twelve months, or both. Section 105
	The Environmental Management and Co-ordination (Water Quality) Regulations, 2006 Regulations 6, 12 and 24	The National Environment Management Authority	Tullow must obtain an environmental impact assessment licence in order to carry out any activity near lakes, streams, springs and wells that is likely to have an adverse impact on the quality of the water. An effluent discharge licence is required for the purpose of discharging effluent from point sources.	A fine not exceeding five hundred thousand shillings. In addition, the court may give such orders as are provided for in the Environmental Management and Coordination Act

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	The Water Resources Management Rules, 2007 Rules 81, 82, 88	The National Environment Management Authority	Tullow has a duty to ensure that no toxic or obstructing matter, radioactive waste or other pollutants are discharged into any water resource unless the discharge has been treated to permissible levels. Discharge of effluent into a water resource requires a valid discharge permit issued by the National Environment Management Authority. The wilful and deliberate spilling into any water source or onto land where such spillage may contaminate any surface or groundwater is not permitted. Any threat of contamination must swiftly be dealt with.	Regulation 27 The offender is liable on conviction to imprisonment for a term not exceeding two years or to a fine of not more than two million shillings, or to both.
	The Environmental (Impact Assessment and Audit) Regulations, 2003 Schedule 2, issue No. 5 (under Regulation 11), and regulations 17 and 18	The National Environment Management Authority	The Environmental Impact Assessment project study report must include the potential environmental impacts of the project on the water sources (quantity and quality) and the drainage patterns, and indicate the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	Imprisonment for a term not exceeding two years or a fine of not more than two million shillings, or both. Section 138, EMCA
	The Environmental Management and Co-ordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Regulation 15	The National Environment Management Authority	During the environmental impact assessment studies, Tullow must identify natural resources, land uses or activities that may be affected by noise or excessive vibrations from the project activities; determine the measures which are needed in the plans and	A fine not exceeding three hundred and fifty thousand shillings or imprisonment for a term not

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			specifications to minimize or eliminate adverse noise or vibration impacts; and incorporate the needed abatement measures in the plans and specifications.	exceeding eighteen months, or both. Regulation 28
Ecosystems	The Wildlife (Conservation and Management) Act, Cap. 376 Section 15	The Forestry and Wildlife Ministry	The Minister may declare an area protected, and restrict or prohibit activities there in order to secure the safety of the flora and fauna or to preserve the habitat and ecology within a national park, reserve or sanctuary. Anyone who acts in contravention of a notice issued in respect of a protected area commits an offence. Tullow should, as a matter of course, avoid carrying out its activities close to these areas so as to avoid disturbance of wildlife as a result of noise generated by its vehicles, machinery and equipment during the test-well drilling process, and the introduction of weeds and pests among the flora.	A fine not exceeding five thousand shillings or imprisonment for a term not exceeding six months or both. Section 15(2)
	The Environmental Management and Co-ordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit-Sharing) Regulations, 2006 Regulation 4	The National Environment Management Authority	Tullow must not engage in any activity that may have an adverse impact on any ecosystem; lead to the introduction of any exotic species; or lead to unsustainable use of natural resources.	Imprisonment for up to eighteen months, or to a fine not exceeding three hundred and fifty thousand shillings, or both. Regulation 24
	The Environmental (Impact Assessment and Audit) Regulations, 2003 Schedule 2, issue No. 1 (under regulation 11)	The National Environment Management Authority	The Environmental Impact Assessment study report must include the potential environmental impacts of the project on the area's ecology, incorporating the biological diversity including the effect of the project on	Imprisonment for a term not exceeding two years or a fine of not more than two million

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			the number, diversity, breeding habits, etc., of wild animals and vegetation, and the gene pool of domesticated plants and animals, and indicate the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	shillings, or both. Section 138, EMCA
	IFC Performance Standard 6 IFC Performance Standard 1		Tullow should avoid adverse impacts to priority system services that are of relevance to the affected community where it has direct management control or significant influence over them. If adverse effects are unavoidable, Tullow should minimize them and apply mitigation measures that will maintain the functionality of those priority system services.	
Solid and Liquid Wastes	The Public Health Act, Cap. 242 Section 126(e)	The Public Health and Sanitation Ministry	Tullow must comply with any rules the Minister may make as to the standard(s) of purity of any liquid which may be discharged as effluent after treatment.	A fine not exceeding fifty thousand shillings, or imprisonment for a term not exceeding six months, or both; and if the offence is of a continuing nature, to a further fine not exceeding one thousand shillings for each

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
				day it continues. Section 164
	The Physical Planning Act, Cap. 286 Section 36	The Lands Ministry, Department of Physical Planning	If a local authority is of the opinion that the proposed project, any dump site, sewerage treatment plant or other development activity that Tullow intends to carry on will impact on the environment adversely, Tullow will be required to submit an environmental impact assessment report for consideration by the Physical Planning Liaison Committee which determines development applications.	A fine not exceeding one hundred thousand shillings or imprisonment for a term not exceeding five years or both. Section 30(2)
	The Environmental Management and Coordination Act, 1999 Section 87	The National Environment Management Authority	Tullow must ensure that it discharges or disposes of waste in a manner that will not cause pollution to the environment or ill health to any person. A licence must be obtained from the Authority in order to: transport waste; dispose of the waste to a waste disposal site (set up in accordance with the licence issued); or operate a wastes disposal site. Tullow must employ measures essential to minimize wastes by treating, reclaiming or recycling such waste.	Imprisonment for not more than two years or a fine not exceeding one million shillings, or both. Section 87(5)
	The Environmental Management and Coordination Act, 1999 Section 91(3), (4) and (5)	The National Environment Management Authority	Hazardous wastes may not be transported, imported or exported without a valid licence issued by the Authority.	Imprisonment for not less than two years or a fine of not less than one million shillings or both. Offender responsible for the removal of the waste from Kenya and for its safe

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	The Environmental Management and Coordination Act, 1999 Section 93(1), (2)	The National Environment Management Authority	Tullow must not discharge any hazardous substance, chemical, oil or mixture containing oil into any segment of the environment.	disposal. Section 91(6), (7) In addition to any other sentence imposed by the court, payment of the cost of removing the hazardous substance, chemical, oil or mixture containing oil, including restoration of the environment, as well as payment of the cost to third parties in the form of reparation, restitution, restoration or compensation. Section 93(3)
	The Environmental Management and Coordination Act, 1999 Section 93(4)	The National Environment Management Authority	Tullow is required to mitigate any discharge from its storage facility/ies, motor vehicle(s) or vessel(s) by: giving immediate notice to the Authority and other relevant Government officers of the occurrence of such discharge contrary to the Act; immediately beginning clean-up operations using the best available clean-up methods; and by complying with any directions that the Authority may	Seizure of the storage facility/ies, motor vehicle(s) or vessel(s). Where the operator fails to take the mitigation measures within a reasonable time

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			prescribe.	(not more than six months), the Authority may, upon a court order, dispose of the storage facility/ies, motor vehicle(s) or vessel(s) to meet the costs of taking the necessary remedial and restoration measures. Section 93(5), (6)
	The Environmental Management and Co-ordination (Waste Management) Regulations, 2006 Parts II and III; Schedule 3	The National Environment Management Authority	Tullow must obtain an Environmental Impact Assessment licence if it intends to engage in any activity likely to generate hazardous waste. Toxic or hazardous waste generated, e.g. from the test-well drilling operations, the campsite and the field worksites, must be treated and disposed of according to the laid-down guidelines (Schedule 3 of the Regulations). Waste generated must be minimized by adopting cleaner production methods. The waste product can also be reused and recycled. Tullow is required to mitigate pollution by installing at its premises anti-pollution equipment for treating the waste it generates.	Imprisonment not exceeding two years, or a fine not exceeding one million shillings, or both. Section 141, EMCA
	Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and		Tullow must endeavour to reduce waste generation to a minimum in terms of quantity and/or hazard potential. Whenever it does	

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	Management of Hazardous Wastes within Africa, Bamako, 1991,		generate such wastes, Tullow should transport and dispose of them in a manner consistent with the protection of human health and the environment. Hazardous wastes should as far as is compatible with environmentally sound and efficient management, be disposed of where they were generated, in this case, in Kenya.	
	The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Basel, 1989		Appropriate legal, administrative and other measures must be taken within the area under the project's jurisdiction to prohibit the import of all hazardous wastes. A licence is required for trans-boundary movement of waste, and to export or transit waste. It is an offence to violate the provisions of the Regulations.	
	The Environmental (Impact Assessment and Audit) Regulations, 2003 Regulations 7(1)(e) and (f); and 17		The Environmental Impact Assessment project study report must include the potential environmental impacts of the project's methods of waste discharge and disposal into the environment, and indicate the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	The offender is liable on conviction to imprisonment for a term not exceeding two years or to a fine of not more than two million shillings, or to both. Section 138, EMCA
Public Health, Safety and Security	The Constitution of Kenya, 2010 Article 43 (1) (a)	The State	Everyone has the right to a high standard of health and health care services. Tullow must seek to avoid adverse impacts on the health and safety of the affected community during	

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			the life of the project in work and non-work related situations.	
	The Environmental (Impact Assessment and Audit) Regulations, 2003 Regulation 7(h)	The National Environment Management Authority	The Environmental Impact Assessment project study report must include a plan to ensure the health and safety of the neighbouring communities. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	Imprisonment for a term not exceeding two years or a fine of not more than two million shillings, or both. Section 138 , EMCA
	The Environmental Management and Co-ordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Regulations 3, 4, 5, 6(1), 11 and 12(1), (2)	The National Environment Management Authority	Tullow must not exceed the laid-down permissible noise levels unless the noise is reasonably necessary to preserve life, health, safety or property. The use of generators and vehicles, and activities such as drilling operations which are likely to emit noise or excessive vibrations must be carried out within the prescribed levels as set out in Schedules 1 – 3 of the Regulations, unless the noise is reasonably necessary to preserve life, health, safety or property.	A fine not exceeding three hundred and fifty thousand shillings, or imprisonment for a term not exceeding eighteen months, or both. Regulation 27
	IFC Performance Standard 3		Tullow must seek to avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities, reduce project related GHG emissions and promote sustainable use of resources, including water and energy.	
	IFC Performance Standard 4		It is Tullow's responsibility to avoid or minimize risks and adverse impacts to the health and safety of the local community arising from the project activities.	
Occupational	The Explosives Act, Cap. 115	The	Tullow must obtain a licence if it intends to	A fine not

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
Health and Safety	Sections 6, 7, 11, 13 The Explosives (Blasting Explosives) Rules Regulations Rules 78 - 80	Environment and Natural Resources Ministry	purchase and use blasting materials or convey explosives. The use or transport of explosives, in the working of the project is forbidden, unless an explosives manager has been appointed and the inspector notified in writing. The explosives manager is responsible for the safety and security of all explosives used, transported or stored, until they are handed to the blaster for use. The explosives manager is also responsible for the safety of every person who is working with explosives or in the vicinity of the locality where explosives are being used, whether under his direct supervision or not.	exceeding three thousand shillings, and in default of payment, imprisonment for a term not exceeding one year. Section 12
	The Environmental Management and Coordination Act, 1999 Sections 102 and 103	The National Environment Management Authority	Emitting noise in excess of the noise emissions standards (subject to the Civil Aviation Act) is an offence. However, the Authority may on request grant a temporary licence allowing emission of noise in excess of the established standards for activities such as demolitions and specific heavy industry on specified terms and conditions. Where exemption is granted, workers exposed to the excessive noise levels must be adequately protected as directed by the Authority.	Imprisonment for a term of not more than twenty-four months, or a fine of not more than five hundred thousand shillings, or both. Section 140
	The Energy Act, No. 12 of 2006 Sections 95(1), 98 and 117	The Energy Regulatory Commission	Tullow must comply with the Kenyan or other approved standards on environment, health and safety, and in conformity with the relevant laws. It must notify the Energy Commission of any accident or incident causing loss of life or personal injury, explosion, oil spill, fire or any other accident	A fine not exceeding one million shillings. Section 122

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			<p>or incident causing significant harm or damage to property or to the environment. All Tullow's petroleum equipment must conform to the relevant Kenya Standard, and where that does not exist, the relevant international standards approved by the Kenya Bureau of Standards will apply.</p>	
	<p>The Occupational Safety and Health Act, No. 15 of 2007 Sections 6, 55, 77- 83, 89, 101</p>	<p>The Labour Ministry</p>	<p>Tullow has a duty to ensure the safety, health and welfare of all its workers at work at the site and in the field environment, including work procedures that are safe. Visitors to the work sites should be similarly protected. The likely emission of poisonous, harmful, or offensive substances such as chemicals or vehicle fumes into the atmosphere should be prevented, and where they occur, they must be rendered harmless and inoffensive. Machinery, protective gear, and tools used at the project site have to comply with the prescribed safety and health standards. Dust, fumes or impurities may cause respiratory problems and must not be allowed to enter the atmosphere without appropriate treatment to prevent air pollution or harm of any kind to life and property. Highly inflammable substances must be kept in a safe place outside any occupied building. Where dangerous fumes are liable to be present, Tullow must provide a means of exit and suitable breathing apparatus. Means for extinguishing fire must be available and easily accessible, and evacuation procedures</p>	<p>A fine not exceeding three hundred thousand shillings or imprisonment for a term not exceeding three months, or both. If contravention continues after conviction, the offender will be liable to a fine not exceeding ten thousand shillings for each day on which the contravention is continued. The court may in addition or instead of a penalty order remedy of the contravention. Sections 109, 110</p>

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	<p>The Radiation Protection Act, Cap. 243 Sections 8</p> <p>The Environmental Management and Coordination Act, 1999 Section 105</p> <p>The Radiation Protection (Standards) Regulations, 1986</p> <p>The Radiation Protection (Safety) Regulations, 2010</p>	<p>The Radiation Protection Board and the National Environment Management Authority</p>	<p>must be tested regularly.</p> <p>Tullow must ensure that the public and radiation workers are protected from the dangers arising from the use of nuclear devices such as are used to power the well-logging equipment during the well-drilling process, or other devices or material capable of producing ionizing radiation. A licence is required in order to import or export any irradiating devices or radioactive material, to possess or use them, or to sell, dispose of or lease, loan or deal with them in any way.</p>	<p>For not possessing a valid licence - imprisonment for a term not exceeding two years. Section 16(2)</p> <p>A fine not less than five hundred and fifty thousand shillings, or imprisonment to a term not less than two years, or both.</p> <p>In addition, possible seizure of the radioactive material or other source of dangerous ionizing radiation.</p> <p>Section 106</p> <p>For possession, use, transport, sale, export or otherwise dealing with ionising radiation – a fine of not less than five hundred and fifty thousand shillings or imprisonment</p>

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
				for a term of not less than two years, or both. In addition, the court may impound the source of radiation. Section 106
	<p>The Radiation Protection Act, Cap. 243 Section 12(1)</p> <p>The Environmental Management and Coordination Act, 1999 Sections 104, 105</p> <p>The Radiation Protection (Standards) Regulations, 1986 The Radiation Protection (Safety) Regulations, 2010</p>	The Radiation Protection Board and the National Environment Management Authority	Once issued with a licence Tullow is responsible for ensuring that exposure to ionizing radiation resulting directly or indirectly from its operation, conditions of storage, transport or disposal is kept as low as reasonably practicable below the prescribed limits.	<p>Imprisonment for a term not exceeding two years. Section 16(2)</p> <p>Penalty for use, etc, as provided in section 106, EMCA (see above)</p>
	<p>The Radiation Protection Act, Cap. 243 Section 12(2)(a)</p> <p>The Radiation Protection (Standards) Regulations, 1986 The Radiation Protection (Safety) Regulations, 2010</p>	The Radiation Protection Board and the National Environment Management Authority	Tullow must appoint a person experienced in radiation health and safety measures as a radiation safety officer within the project premises.	Imprisonment for a term not exceeding two years. Section 16(2)
	<p>The Radiation Protection Act, Cap. 243 Section 12(2)(a)-(e)</p> <p>The Environmental Management and Coordination Act, 1999</p>	The Radiation Protection Board and the National Environment Management	The proponent's radiation safety officer must ensure that: a) all persons using or working in the facility are supplied with at least one monitoring device and any other protective accessories necessary to carry out radiation procedures with the lowest reasonably	<p>Imprisonment for a term not exceeding two years. Section 16(2)</p> <p>Penalty for use,</p>

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	Section 104 The Radiation Protection (Standards) Regulations, 1986 The Radiation Protection (Safety) Regulations, 2010	Authority	achievable risk; b) all radiation workers employed in the project are given proper instructions on radiation safety measures and receive a medical check-up every six months; c) proper care is taken of radioactive wastes if they appear in the course of the use of radiation sources as described in the code of practice for protection of persons exposed to ionizing radiation and that the wastes are only disposed of in accordance with the licence granted for that purpose; d) exposure records are kept as prescribed in the code of practice for users of ionizing radiation; e) any other instructions that may be issued from time to time by the Board are implemented.	etc, as provided in section 106, EMCA (see above)
	The Radiation Protection Act, Cap. 243 Section 16(1) The Environmental Management and Coordination Act, 1999 Sections 104, 105 The Radiation Protection (Standards) Regulations, 1986 The Radiation Protection (Safety) Regulations, 2010	The Radiation Protection Board and the National Environment Management Authority	It is an offence to: a) wilfully obstruct the Chief Radiation Protection Officer or any other radiation protection officer in the exercise of his duties under this Act; or b) without reasonable excuse, fail to produce a register, licence, notice or document which is required by or in pursuance of the Act to be produced; or c) wilfully withhold any information as to who is the owner or responsible for the management of a radiation source; or d) wilfully prevent or attempt to prevent any person from appearing before or being examined by a radiation protection officer.	A fine not exceeding twenty thousand shillings or imprisonment for a term not exceeding one year or both. Section 16(1) Penalty for use, etc, as provided in section 106, EMCA (see above)
	The Convention on the Physical Protection of Nuclear Material (2002)		Tullow has the responsibility to facilitate the safe transfer of nuclear material in its possession and to establish effective measures for its physical protection.	

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	The Code of Conduct on the Safety and Security of Radioactive Sources		While it is not a legally binding instrument, Tullow should work towards following the guidance contained in the Code in order to enhance the safety and security of radioactive sources.	
	The IAEA's Safety Standards (Radiation Protection and Safety of Radiation Sources)		These standards establish fundamental safety principles, requirements and measures to control the radiation exposure of people and the release of radioactive material to the environment, to restrict the likelihood of events that might lead to a loss of control over a nuclear reactor core, nuclear chain reaction, radioactive source or any other source of radiation, and to mitigate the consequences of such events were they to occur, with a view to ensuring the protection of people and the environment from the harmful effects of ionizing radiation. Tullow should endeavour to comply with these standards.	
	The Environmental (Impact Assessment and Audit) Regulations, 2003 Regulations 7(h) and 18(1)(m)	The National Environment Management Authority	The Environmental Impact Assessment project study report must include a plan to ensure the health and safety of the workers. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	The offender is liable on conviction to imprisonment for a term not exceeding two years or to a fine of not more than two million shillings, or to both. Section 138, EMCA
Land Resources	The Constitution of Kenya, 2010 Article 69(2)	The State	Tullow is expected to cooperate with the State organs and other people to protect and	Environmental rights are

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			conserve the environment and ensure that the use and development of the natural resources are ecologically sustainable.	enforceable in the Land and Environment Court. Regulation 70
	The Land Act, 2012 Section 19 (1), (2)	The National Land Commission	Tullow must comply with any rules or regulations the Commission may make for sustainably conserving land-based natural resources. [This Act was passed in May, 2012, and so far not rules or regulations have been made. However, they may be in place in the very near future and might include: measures to protect critical ecosystems and habitats; incentives for communities and individuals to invest in natural resource conservation programmes that generate income; measures to facilitate the access, use and co-management of forests, water and other resources by communities who hold customary rights to them; procedures on involving stakeholders in managing and utilizing land-based natural resources; and measures to ensure benefit-sharing for the affected communities].	Disputes arising from matters provided for under this law may be referred to the Land and Environment Court which has exclusive jurisdiction to handle them. Section 150
	The Land Act, 2012 Section 11(1),(2) The Convention on Biological Diversity, Rio de Janeiro, 1992	The National Land Commission	The National Land Commission is mandated to take appropriate action to maintain land that has endangered or endemic species of flora and fauna, critical habitats or protected areas. The Commission is required to identify ecologically sensitive areas that are within public lands, and demarcate or take any action on those areas to prevent environmental degradation and climate	

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			change. Tullow must minimise activities that would degrade the environment and cause climate change.	
	African Convention on the Conservation of Natural Resources (Revised Version) Maputo, 2003		The proponent must endeavour to meet developmental and environmental needs in a sustainable, fair and equitable manner.	
	The Environmental Management and Co-ordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit-Sharing) Regulations, 2006 Regulation 9(1)	The National Environment Management Authority	Anyone who intends to access genetic resources must apply to the Authority for an access licence, and thereafter comply with the conditions imposed on the licence or those implied under the Regulations, or the agreements made in relation to its grant. Contravention or failure to comply with any of the matters provided in the Regulations will constitute an offence.	Suspension, cancellation or revocation of the licence. Imprisonment for a term not exceeding eighteen months, or a fine not exceeding three hundred and fifty thousand shillings, or both. Regulation 24
	The Environmental Management and Co-ordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Regulation 15	The National Environment Management Authority	As for Water Resources above	A fine not exceeding three hundred and fifty thousand shillings or imprisonment for a term not exceeding eighteen months, or both. Regulation 28
	The Environmental (Impact Assessment and Audit) Regulations, 2003 Regulations 7(f), 17 and 18;	The National Environment Management Authority	The Environmental Impact Assessment project study report must include the potential environmental impacts of the project on the current and surrounding land	Imprisonment for a term not exceeding two years or a fine of not more than

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	Schedule 2, Issue No. 4 (under Regulation 11)		use and land use potentials, and indicate the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	two million shillings, to both. Section 138, EMCA
Visual Aesthetics	The Environmental (Impact Assessment and Audit) Regulations, 2003 Schedule 2, Issue No. 3 (under regulation 11); regulation 17	The National Environment Management Authority	The Environmental Impact Assessment project study report must include the potential environmental impacts of the project on the landscape, including the views opened up or closed, visual impacts (features, removal of vegetation, etc.), compatibility with the surroundings, and amenities opened up or closed (e.g., recreation possibilities) and indicate the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	Imprisonment for a term not exceeding two years or a fine of not more than two million shillings, or both. Section 138, EMCA
Noise and Vibrations	The Environmental Management and Coordination Act, 1999 Sections 101-103	The National Environment Management Authority	Emitting noise in excess of the noise emissions standards (subject to the Civil Aviation Act) is an offence. However, the Authority may on request grant a temporary licence allowing emission of noise in excess of the established standards for activities such as demolitions and specific heavy industry on specified terms and conditions. Where	Imprisonment for a term of not more than eighteen months, or a fine of not more than three hundred and fifty thousand shillings, or both.

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			exemption is granted, workers exposed to the excessive noise levels must be adequately protected as directed by the Authority	Section 144
	The Environmental Management and Co-ordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Regulations 3-6, 11, 12	The National Environment Management Authority	Tullow must not exceed the laid-down permissible noise levels unless the noise is reasonably necessary to preserve life, health, safety or property. The use of generators and vehicles, and activities such as drilling operations which are likely to emit noise or excessive vibrations must be carried out within the prescribed levels as set out in Schedules 1 – 3 of the Regulations, unless the noise is reasonably necessary to preserve life, health, safety or property.	A fine not exceeding three hundred and fifty thousand shillings or imprisonment for a term not exceeding eighteen months, or both. Regulation 28
	The Environmental Management and Co-ordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Regulation 15	The National Environment Management Authority	During the environmental impact assessment studies, Tullow must identify natural resources, land uses or activities that may be affected by noise or excessive vibrations from the project activities; determine the measures which are needed in the plans and specifications to minimize or eliminate adverse noise or vibration impacts; and incorporate the needed abatement measures in the plans and specifications.	A fine not exceeding three hundred and fifty thousand shillings or imprisonment for a term not exceeding eighteen months, or both. Regulation 28
	The Explosives Act, Cap. 115 Sections 6, 7, 11, 13	The Department of Mines and Geology	Addressed under Occupational Health and Safety above, but also applicable to Noise and Vibrations	A fine not exceeding three thousand shillings, and in default of payment, imprisonment for a term not exceeding one year.

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	The Environmental (Impact Assessment and Audit) Regulations, 2003 Regulations 7(h) and 17	The National Environment Management Authority	The Environmental Impact Assessment project study report must include the potential environmental impacts of the project on the natural serenity of the surroundings, and indicate the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	Section 12 Imprisonment for a term not exceeding two years, or a fine of not more than two million shillings, or both. Section 138, EMCA
Air Quality	The Environmental Management and Coordination Act, 1999 Sections 78, 80, 82	The National Environment Management Authority	Tullov must comply with the emission standards in the Act so as to ensure that substances which cause pollution are not emitted during the course of the project. Its motor vehicles should be operated in a manner that will not cause air pollution, and it must ensure that its machinery, equipment and appliances do not cause emissions in contravention of the prescribed standards.	An imprisonment term not exceeding two years, or a fine not exceeding five hundred thousand shillings, or both. The offender must in addition, pay the cost of removing the pollution and the cost to third parties in the form of reparation, restitution, restoration or compensation. Section 78(2)
			The proponent must apply to the Authority for a licence in respect of activities that will	Cancellation of licence

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			emit substances or energy causing or likely to cause air pollution. Any conditions specified in the licence must be complied with.	Section 84
	The Public Health Act, Cap. 242 Section 118	The Public Health Act, Cap. 242	Tullow must comply with any rules the Minister may make as to the safe discharge of any liquid or other material prone to cause offensive smells. It must also abide by any conditions the Minister may lay down, under which an activity producing smoke, fumes, chemicals, gases or dust that may cause a danger to people in the vicinity, may carry out its business. A licence may be cancelled or denied if the method adopted or proposed to prevent noxious or offensive vapours, gases or smells arising from the activity are not effective.	A fine not exceeding one thousand five hundred shillings for every day during which the contravention continues. Section 121
	The Environmental Management Co-ordination (Fossil Fuel Emission Control) Regulations, 2006 Regulation 4	The National Environment Management Authority	Internal combustion engines are subject to inspection and must pass tests to show that they comply with the standards and requirements for the control of air pollution or contamination. It is an offence to operate an internal combustion engine which emits smoke or other pollutant in excess of the emission standards. Tullow must ensure that power generators and associated machinery and vehicles do not emit toxic carbon gases and particulates matter. The polluter must bear the cost of clearing the pollution generated through fuel emission. Tullow will need to consider the application of international standards on flaring during well-testing, as well as consideration of all	Imprisonment for a term of not more than eighteen months or a fine of not more than three hundred and fifty thousand shillings or both. Section 144, EMCA

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			relevant legislative and regulatory provisions on environmental protection and prevention of pollution set out in this chapter.	
	The Environmental (Impact Assessment and Audit) Regulations, 2003 Sections 17, 18	The National Environment Management Authority	The Environmental Impact Assessment project study report must include the potential environmental impacts of the project on the ambient quality of the air, and the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	The offender is liable on conviction to imprisonment for a term not exceeding two years or to a fine of not more than two million shillings, or to both. Section 138, EMCA
	The Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, 1997		Tullow must show that it is consistently taking steps to control/reduce greenhouse gas emissions.	
Economic and Social Characteristics	The Constitution of Kenya, 2010 Article 14(1)	The State	Everyone has the right to: a high standard of health and health care services; accessible and adequate housing and reasonable standards of sanitation; adequate food of acceptable quality; clean and safe water in sufficient quantities; social security and education. Tullow can support the government's efforts in enforcing these rights by incorporating some of them in its local CSR plans.	
	The Environmental (Impact Assessment and Audit) Regulations, 2003 Regulations 17, 18	The National Environment Management Authority	Tullow is required to consider the positive and negative economic impacts that the project may have on the lives and livelihoods of the local population (e.g. increased development, job opportunities, disruption of livelihoods)	The offender is liable on conviction to imprisonment for a term not exceeding two

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			<p>ties to the area's land and/or water resources, e.g., fishing, agriculture, and livestock-keeping.</p> <p>The Environmental Impact Assessment project study report must include the potential environmental impacts of the project on the economy and development of the area, and the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.</p>	<p>years or to a fine of not more than two million shillings, or to both.</p> <p>Section 138, EMCA</p>
	<p>The Environmental (Impact Assessment and Audit) Regulations, 2003 Regulations 17, 18</p>	<p>The National Environment Management Authority</p>	<p>The Environmental Impact Assessment process requires that Tullow considers the project's environmental effects, including the socio-cultural consequences and the anticipated direct, indirect, cumulative, irreversible, short-term and long-term impacts and create an environmental management plan proposing the measures for eliminating or mitigating adverse impacts on the environment. The social considerations as set out in Schedule 2 include: economic impacts, social cohesion or disruption, effect on human health, influx or emigration, communication, and effects on culture and valued cultural objects.</p> <p>The Environmental Impact Assessment</p>	<p>As above</p>

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
			project study report must include the potential environmental impacts of the project on the daily lives of the local community, their health, and culture, and the mitigation measures to be taken during and after the implementation of the project. The views of the people who may be affected by the project must be sought. Failure to prepare an environmental impact assessment in accordance with the Act and regulations is an offence.	
	The International Covenant on Economic, Social and Cultural Rights (ICESCR)		The proponent should support Kenya's programmes toward the granting of economic, social, and cultural rights to individuals, including labour rights and the right to health, the right to education, and the right to an adequate standard of living.	
	IFC Performance Standard 1		Tullow must compensate workers and affected communities or offset for risks and negative impacts generated by the project. Grievances from stakeholders and affected communities must be addressed appropriately. Tullow must sufficiently and continuously throughout the course of the project engage the affected community on issues that are likely to affect them.	
Labour/ Employment	The Constitution of Kenya, 2010 Articles 27(1)-(5), 30, 32(3) and 41(1)-(2)(a) The Labour Relations Act, 2007 Sections 5, 76	The State The Labour Ministry	Tullow must ensure that men and women in their employ are treated equally in the workplace, given equal opportunities in the economic sphere. There must not be any discrimination on any ground. Forced labour is prohibited. Labour practices must be fair.	For a trade union, employers' organisation or federation – a fine not exceeding forty thousand shillings.

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	IFC Performance Standard 2		Workers must be given fair remuneration; they are entitled to reasonable working conditions and have the right to participate in a trade union and go on strike. There must be a grievance mechanism for workers to raise workplace concerns. Children must not be engaged in hazardous or exploitative labour.	For an individual – a fine not exceeding ten thousand shillings. Section 82
	The Work Injury Benefits Act, 2007 Section 10	Directorate of Work Injury Benefits	Employees who sustain work-related injuries and contract diseases in the course of their employment must be compensated.	A fine not exceeding two hundred thousand shilling or imprisonment for a term not exceeding one year or both. Section 55
	International Labour Organisation (ILO) Conventions		Freedom of association and the effective recognition of the right to collective bargaining; the elimination of all forms of forced or compulsory labour; the effective abolition of child labour; and the elimination of discrimination in respect of employment and occupation are considered as fundamental principles and rights at work. Tullow should abide by these principles.	
Culture and Natural Heritage	The Constitution of Kenya, 2010 Article 11	The State	All people have the right to participate in their cultural life and to enjoy their culture. Tullow should endeavour not to interfere with these rights in any way, but rather respect them.	
	The National Museums and Heritage Act, Cap. 216 Section 34	The State Ministry for National	The Minister may prohibit or restrict access or any development on an open space or on a specified site on which a buried monument or	A fine not exceeding one million shillings or

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
		Heritage and Culture	object of archaeological or paleontological interest exists, if, in his/her opinion, it is liable to damage that monument or object. The restriction may include the adjacent area, or a geo-park. A breach of a prohibition or restriction order or a breach of any law made by the Minister in respect of protected areas amounts to an offence. Tullow should avoid the use of heavy vehicles and machinery in or close to these areas as they may damage the archaeological, historical or cultural sites.	imprisonment for a term not exceeding twelve months, or to both. Section 36
	The Petroleum (Exploration and Production) Regulations Regulation 6(1), (2)	The Energy Ministry	Tullow may not occupy or exercise any rights: in burial land in the locality of a church, mosque or other place of worship; any area within 50m of any building in use, or any reservoir or dam; any public road; any area within a municipality or township; any land within 1000m of the boundaries of an aerodrome; and any land declared to be a national park or national reserve. Directional drilling into the subsurface from land adjacent to these areas is permitted with the consent of competent authority. A fair and reasonable compensation must be paid to an occupier whose rights have been infringed by the contractor's activities.	The Minister may take any action, decision, or give any permission or consent or exercise any other control as may be necessary or desirable for the purposes of the Regulations. Section 5(3) (d)
	IFC Performance Standard 8		Tullow must protect cultural heritage from adverse effects that its activities may cause, and seek to preserve it.	
	The Convention Concerning the Protection of the World Cultural and Natural Heritage, Paris, 1972		Tullow has the responsibility to protect the host country's cultural and natural heritage of outstanding universal value.	

Environmental/ Social Parameter	Legislation/Regulations/ International Conventions	Regulatory Agency	Relevance to Project	Offences and Penalties
	The Cultural Charter for Africa, 1976		Tullow should endeavour to support the objectives of the Charter, namely to develop educational systems embodying the African values of civilization to root the youth in African culture, and to promote African languages, mainstay and media of cultural heritage in its most authentic form.	
	The International Covenant on Economic, Social and Cultural Rights (ICESCR)		The proponent should support Kenya's programmes toward the granting of economic, social, and cultural rights to individuals, including labour rights and the right to health, the right to education, and the right to an adequate standard of living.	
Minorities and Marginalised Groups	The Constitution of Kenya, 2010 Article 56	The State	Affirmative action programmes are required to ensure that minorities and marginalised people participate and are represented in all areas of life; are given special opportunities in educational and economic fields, and access to employment; develop their cultural values and practices and have reasonable access to water, health services and infrastructure. These are areas where Tullow may be engaged in partnership with the government with regard to its CSR policy.	
	IFC Performance Standard 7		Tullow must respect the human rights, dignity, culture, practices, aspirations and livelihoods of the indigenous people. It must avoid negative impacts on such communities or minimize and/or provide compensation for such impacts.	

4.6 Devolved Government Legislation

4.6.1 The County Governments Act, 2012

The purpose of this Act is to give effect to Chapter 11 of the Constitution (Devolved Government), to provide for county governments' powers, functions and responsibilities to deliver services. Other aims are to: a) give effect to the objects and principles of devolution as set out in Articles 174 and 175 of the Constitution ; give effect to Article 176(2) of the Constitution in respect of further decentralization ; b) provide for public participation in the conduct of the activities of the County Assembly as required under Article 196 of the Constitution; c) prescribe mechanisms to protect minorities within counties pursuant to Article 197 of the Constitution; and d) prescribe additional requirements in respect of county legislation as contemplated in Article 199 of the Constitution .

The functions and service provision of each county government must be decentralized to: a) the urban areas and cities within the county as required in the Urban Areas and Cities Act (No. 13/2011); b) the sub-counties equivalent to the constituencies within the county established under Article 89 of the Constitution; c) the Wards within the county established under Article 89; d) such number of village units in each county as the respective county assembly may determine; and e) such other or further units as the county government may determine (section 48).

The sub-county administrator is responsible for the coordination, management and supervision of the general administrative functions in the sub-county unit, including the development of policies and plans; service delivery; developmental activities to empower the community; the provision and maintenance of infrastructure and facilities of public services; the facilitation and coordination of citizen participation in the development of policies and plans and delivery of services; and for the exercise of any functions and powers delegated to the County Public Service Board (section 50). The Ward administrator is mandated to coordinate, manage and supervise the general administrative functions in the Ward and other functions as for the sub-county administrator (section 51). A village administrator has the responsibility to coordinate, manage and supervise administrative functions in the village, including ensuring and coordinating the participation of the village unit in governance; and assisting the village unit to develop administrative capacity for the effective exercise of the functions, powers and participation in governance at the local level and other functions and powers as the Public Service Board may delegate under section 86 (section 52). At the lowest level is the village council for each village unit. The village council comprises the village administrator as the chairperson, and not less than three and not more than five village elders appointed by the village administrator with the approval of the county assembly, taking into account gender balance. All of the administrators are appointed by the Public Service Board (once constituted).

4.6.2 The National Government Co-Ordination Act, 2013

This Act is intended to establish an administrative and institutional framework for co-ordination of national government functions at the national and county levels of government. Articles 131 and 132 of the Constitution are cited in support. The Public Service Commission is mandated, in consultation with the Cabinet Secretary, to recruit and appoint national government administrative officers to co-ordinate government functions countrywide. County commissioners are appointed in respect of every county, including a deputy and other junior officers (section 15). A mediation team will be constituted to deal with disputes arising as to the mandate or powers of any of the officers, or their roles in the county and national governments (section 19).

4.6.3 Transition to Devolved Government Act, 2012

This statute was enacted to provide a framework for the transition to devolved government pursuant to section 15 of the Sixth Schedule to the Constitution. The section provides that Parliament must enact legislation for the phased transfer from the national to the county government of the functions assigned to counties within a period of three years after the date of the first election of county assemblies. Section 23(1) of the Act provides that the Transition Authority is required to identify functions listed in the Fourth Schedule of the Constitution that may be transferred to county governments immediately after the first elections under the 2010 Constitution. This was done through Legal Notice No. 16 of 2013. The said functions are in addition to the executive, legislative and financial functions provided through the establishment of the County Executive and the County Assembly.

The functions devolved include: agriculture; county health services; cultural activities, public entertainment and public amenities; control of air pollution, noise pollution, other public nuisances and outdoor advertising; county transport; animal control and welfare; trade development and regulation; county planning and development; pre-primary education, village polytechnics, home-craft centres and child-care facilities; implementation of specific government policies on natural resources and environmental conservation; fire-fighting services and disaster management; control of drugs and pornography; and ensuring and co-ordinating the participation of communities and locations in governance at the local level and assisting them to develop the administrative capacity for the effective exercise of the functions and powers and participation in governance at the local level.

Section 24 of the Act provides that the county government must meet the following criteria so as to have the functions in the Fourth Schedule transferred to it:

- a) Existing legislation relating to the function applied for exists.
- b) A framework for service delivery already is in place to implement the function.
- c) Where applicable, the county government has identified or established administrative units to the function.
- d) The county government has undertaken a capacity assessment in relation to the function.
- e) Arrangements for, and the extent of, further decentralization of the function and provision of related services have been made by the county government.
- f) The required infrastructure and systems to deliver the function are in place.
- g) The county government has the necessary financial management systems in place.
- h) The county government has an approved plan in relation to the function.
- i) Any other variable as may be prescribed after consultations between the Authority, the county government, the Committee for the Implementation the Constitution and the Commission on Revenue Allocation.

The devolved government statutes act as the framework for the transfer of certain functions from the national government to the 47 county governments. The functions commence once the executive, the legislative and the financial systems are in place. Tullow will need to familiarize itself with Turkana County's legislative and regulatory provisions as soon as the same are passed and gazetted, and ensure compliance with them.

4.6.4 The Climate Change Authority Bill, 2012

The Bill seeks to provide a framework for mitigating and adapting to the effects of climate change on various sectors of the economy by establishing The Climate Change Authority and giving it specific functions and powers relating to mitigating and adapting to the effects of climate change and development of response strategies. It lines up with international best practices and standards. The Authority is tasked with preparing and implementing climate change programmes which will include: adaptation; mitigation; emission levels and trends; education and creation of awareness, including integration in the educational curricula; assessment of climate change vulnerability and climate change threats; capacity building in

strategic climate change sectors; research, development and technology transfer; and identification of climate change opportunities. The Authority may also address the health, energy, water, transport, agriculture, livestock, forestry, tourism, infrastructure, industry, waste management sectors or any other relevant sectors. The programmes will be informed by:

- a) Scientific knowledge about climate change;
- b) Technology relevant to climate change;
- c) Economic circumstances, in particular the likely impact of the programmes on the economy, the competitiveness of particular sectors of the economy, small and medium enterprise, employment opportunities; and the socio-economic well-being of any segment or part of the population;
- d) Fiscal circumstance, in particular, the likely impact of the programmes on taxation, public spending and public borrowing;
- e) Social circumstances, in particular the likely impact of the programmes on the marginalized and disadvantaged communities;
- f) Energy policies, in particular, the likely impact of the programmes on energy supplies and energy consumption;
- g) Environmental considerations, in particular, the likely impact of the programmes on biodiversity and the ecosystem;
- h) International law and policy relating to climate change; and
- i) Indigenous knowledge related to climate change adaptation and mitigation (Section 19).

In January 2013, former President Kibaki refused to sign the Bill into law, citing lack of public involvement in its creation, and recommended that it be referred back to Parliament to allow for public input. Should this Bill become law, Tullow will be expected to carry out its activities in a manner that does not or is not likely to adversely affect efforts towards mitigation and adaptation to the effects of climate change.

4.7 International Standards, Practices and Conventions

4.7.1 Oil and Gas Industry Guidelines

The International Association of Oil & Gas Producers (OGP) is a unique global forum in which members identify and share best practices to achieve improvements in every aspect of health, safety, the environment, security, social responsibility, engineering and operations.

Industry guidelines, based on information from OGP, International Association of Drilling Contractors, and ISO14001, have become widely accepted as providing a strong basis for preparing regulations, policies and programmes to minimize the impact that these operations have on the environment. The E&P Forum (Oil Industry International Exploration and Production Forum), jointly with UNEP, published a document on the best approaches to achieving high environmental performance and standards worldwide. Within the framework provided, various technical reviews and guidelines already available from other relevant sources can be applied. It developed a common management system to deal with health, safety and environmental (HSE) issues. Its key elements are as follows:

1. Leadership and Commitment

It is vital to have a senior management committed to ensuring that the management system is developed and maintained, and that the company's policy and strategic objectives are achieved. Management should ensure that the policy requirements are adhered to during operations and support local initiatives to protect health, safety and the environment. Management commitment will involve delegating responsibility, providing resources and motivation, and ensuring participation and open communication.

2. Policy and Strategic Objectives

The HSE management system requires that the company's policies and strategic objectives are well-defined and documented. The policies must be relevant and consistent and should be on a par with other company policies and objectives. Here also, commitment to carrying out the company's policies towards protecting people's health and safety as well as the environment, is vital, as are responses to community concerns. Partnerships with stakeholders are just as essential. Where relevant legislation and regulations do not exist, the company must commit to apply responsible standards.

3. Organization, Resources and Documentation

Organization of personnel, resources and documentation make for a sound HSE management system. Roles must be clearly defined from the beginning to the end of the project. Appropriate periodic training and review will enhance competence and effective performance.

4. Evaluation and Risk Management

Procedures must be in place to identify on a regular basis the dangers and effects of the undertaking. This identification should apply to all the activities from the start to the decommissioning of the project. Environmental impact assessment study becomes a suitable criterion to gauge what is acceptable, particularly in the absence of appropriate legislative control.

5. Planning

Environmental planning and compliance programmes should include ways and means of preventing or minimizing adverse impacts, as well as enhancing the beneficial impacts that may accrue. It is also imperative that internal standards and targets are set for compliance. A detailed decommissioning plan should be considered in the initial planning of the project, and a plan to restore the environment should be developed before the end of the project.

6. Implementation and Monitoring

The purpose of monitoring is to ensure that the results forecast at the planning stage are being achieved, and where the contrary is the case, to identify the cause and take action to correct the situation. Managers must strictly adhere to legal and statutory requirements and controls as well as the company's own commitment to responsible management of the environment. Monitoring will indicate whether or not commitments and compliance with legal and corporate requirements are being met. It also provides the basis for audit.

7. Audit and Review

This management tool enables the senior management to regularly assess its performance, effectiveness and suitability. It also provides an opportunity to obtain feedback on the effectiveness of the organization and its environmental performance. In addition, it is useful in verifying compliance with monitoring programmes and ensuring that plans, procedures and standards are working effectively.

Extractive Industries Transparency Initiative (ETTI) is an international standard which is highly regarded in the oil and gas industry. It ensures transparency around countries' natural resources such as oil, gas and minerals so that they can benefit all citizens. It is developed and overseen by a multi-stakeholder coalition of governments, companies, civil society, investors and international organizations.

Other renowned national and international standards for best practice, particularly the ISO 9000 and 14000 series, also offer management systems models that can be used by companies to enhance their environmental performance.

Some regional and national Standards Development Organizations and industry organizations have developed standards found to be acceptable for use internationally. Examples are the American Petroleum Institute (API), the British Standards Institution (BSI) and the Australian Petroleum Production and Exploration Association Limited (APPEA).

From the environmental principles emerging from the codes of conduct and environmental guidelines developed by the above-mentioned oil industry organizations and other bodies, and recognized as being best practices, Alexandra S. Wawryk (2006) identified five that when adequately implemented, should help to minimize the harmful environmental and cultural impacts of oil and gas exploration and production, namely:

- Environmental Impact Assessment (EIA)
- Social Impact Assessment (SIA)
- Environmental Management Systems (EMS)
- Environmental Performance Evaluation (EPE)
- Environmental Monitoring, Auditing and Reporting

4.7.2 The World Bank Group's Environmental, Health and Safety (EHS) Guidelines

The World Bank's guidelines in respect of the oil and gas industry lay down maximum acceptable levels for air emission, noise levels and liquid effluents. It further maintains that a discussion on best practices must deal with the following issues:

- Consultation and participation of all stakeholders, particularly the indigenous people, from the beginning of the exploration to the end of the project.
- Sharing of benefits from the exploitation of resources.
- Governance and human rights.
- Private social investments, including health, education, infrastructure and development projects.
- Improved environmental and social regulations.

4.7.3 The International Finance Corporation (IFC)

IFC is committed to sustainable development, as evidenced in its Sustainability Framework, comprising IFC's Policy and Performance Standards on Environmental and Social Sustainability, and IFC's Access to Information Policy. The Policy on Environmental and Social Sustainability describes IFC's commitments, roles and obligations as concerns environmental and social sustainability while the Access to Information Policy reflects its commitment to transparency and good governance in its operations. The Performance Standards guide clients on how to identify risks and impacts, and avoid, mitigate and manage them in a sustainable manner during the life of the project.

IFC's highly structured environmental and social due diligence process requires the proponent financed by the Corporation to apply the Performance Standards (PS) as well as the World Bank Group's Environmental, Health and Safety (EHS) Guidelines once an agreement to work together is reached. IFC assesses the project against the Performance Standards and the EHS Guidelines. The client is required to review and approve an Environmental and Social Review Summary (ESRS) and an Environmental and Social Action Plan (ESAP) created by IFC. The client then carries out the project Environmental and Social (E&S) assessment locally. The proponent must engage and consult with the affected community or communities to ensure that they are aware of the project, and provide for an ongoing constructive relationship. IFC determines the level of community support for projects with potential significant adverse impacts on affected communities and projects involving indigenous peoples. Continuous monitoring and disclosure is vital, and involves site visits from IFC staff and submission of the client's annual monitoring report on progress made in fulfilling the terms of the E&S investment agreement. Interaction between the client and the affected communities should also be continuous. IFC gauges the client's progress against the ESAP.

There are eight Performance Standards on environmental and social sustainability that IFC expects the client to comply with:

PS1: Assessment and Management of Environmental and Social Risks and Impacts – requires the client to identify the project E&S risks and impacts, adopt mitigation hierarchy, manage performance through an Environmental and Social Management System (ESMS), and engage with affected communities and other stakeholders throughout the life of the project.

PS2: Labour and Working Conditions - recognizes that there should be a balance of the pursuit of economic growth through employment and income creation with the protection of workers' basic rights. These include fair treatment, equal opportunity and non-discrimination; cultivation of good labour-management relationship; compliance with the national employment and labour laws and regulations; safety and health; protection of the workers, particularly the vulnerable groups; and avoidance of forced or child labour.

PS3: Resource Efficiency and Pollution Prevention – aims to avoid, minimize and reduce project-related pollution such as air, water and land pollution, achieve more sustainable use of resources, including energy and water, and reduce project-related Greenhouse Gas (GHG) emissions.

PS4: Community Health, Safety and Security – recognizes that the project activities can increase potential exposure to risks and impacts from incidents, accidents, structural failures and hazardous materials. There is therefore a need to anticipate and avoid such adverse impacts on the health and safety of the affected community and to safeguard life and property in accordance with relevant human rights principles.

PS5: Land Acquisition and Involuntary Settlement – seeks to avoid or minimize adverse social and economic impacts where land is acquired (resulting in displacement) or restrictions placed on land use. It also aims to improve or restore livelihoods and standards of living, and improve the displaced persons' living conditions.

PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources – promotes biodiversity protection and sustainable management and use of natural resources. The integration of conservation needs and essential development agenda is vital.

PS7: Indigenous Peoples – supports the preservation of cultural heritage and aims to protect it from the adverse impacts that the project activities may engender, by avoiding or minimizing them. In this regard, the client must respect the indigenous people's culture, knowledge, practices, human rights, dignity, aspirations and livelihoods. It also seeks to promote sustainable and culturally appropriate development benefits and opportunities.

PS8: Cultural Heritage – seeks to preserve and protect cultural heritage from adverse impacts generated by project activities, and to promote equitable sharing of cultural heritage benefits.

4.7.4 International Conventions

The Kenya Constitution provides that the general rules of international law shall form part of the laws of Kenya, as shall any treaty or convention that she ratifies (Article 2). Kenya has ratified or subscribed to a number of international conventions that relate to the environment within her borders. Table 4.2 below shows some conventions signed by Kenya.

Table 4.2: International conventions that Kenya has ratified

	Convention	Entry into force	Date of ratification
1.	African Convention for the Conservation of Nature and Natural Resources, Algiers, 1968 Parties must conserve their natural resources – soil, water,	16 June, 1969	12 May, 1969 (accession)

	Convention	Entry into force	Date of ratification
	flora and fauna – ensuring that they are used and scientifically developed in a manner that will benefit their people.		
2.	African Convention on the Conservation of Natural Resources (Revised Version) Maputo, 2003 Parties must ensure that developmental and environmental needs are met in a sustainable, fair and equitable manner.	11 July, 2003	17 December, 2003 (signature)
3.	Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, 1971. It provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.	21 December, 1975	5 October, 1990
4.	Convention Concerning the Protection of the World Cultural and Natural Heritage, Paris, 1972. It establishes a system of collective protection of cultural and natural heritage of outstanding universal value.	17 December, 1975	1 July, 1983
5.	Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973. It aims at ensuring that international trade in specimens of wild animals and plants does not threaten their survival.	1 July, 1975	13 March, 1979
6.	Convention on the Conservation of Migratory Species of Wild Animals, Bonn, 1979. It aims to protect those species of wild animals that migrate across or outside of national boundaries. Parties must protect them, conserve and restore their habitat, mitigate obstacles to migration and control other factors that might endanger them.	1 November, 1983	
7.	Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Basel, 1989. It aims at protecting human health and the environment against the adverse effects resulting from the generation, management, transboundary movements and disposal of hazardous wastes.	5 May, 1992	2000 (accession)
8	Amendments to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, Geneva, 1995. The amendment prohibits exports of hazardous wastes destined for final disposal or recycling purposes from Annex VII countries to non-Annex VII countries (Annex VII not yet in force).	5 May, 1992	9 September, 2009 (acceptance)

	Convention	Entry into force	Date of ratification
9	<p>United Nations Framework Convention on Climatic Change, New York, 1992.</p> <p>It sets an overall framework for intergovernmental efforts to tackle the challenge posed by climatic change, recognizing that the climate system can be affected by industrial and other emissions of carbon dioxide and other greenhouse gases</p>	21 March, 1994	30 August, 1994
10	<p>Kyoto Protocol to the United Nations Framework Convention on Climate Change, Kyoto, 1997.</p> <p>It sets binding targets for 37 industrialized countries and the European Community as well as for countries undergoing the process of transition to a market economy in order to reduce greenhouse gas emissions.</p>	16 February, 2005	2005 (accession)
11	<p>Convention on Biological Diversity, Rio de Janeiro, 1992</p> <p>It aims at granting the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the use of genetic resources.</p>	29 December, 1993	27 June, 1994
12	<p>Stockholm Convention on Persistent Organic Pollutants, Stockholm, 2001.</p> <p>It protects human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically and accumulate in the fatty tissue of humans and wildlife. It requires Parties to take measures to eliminate or reduce the release of persistent organic pollutants into the environment.</p>	17 May, 2001	24 September, 2004
13	<p>Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa, Bamako, 1991</p> <p>It binds Parties to take appropriate legal, administrative and other measures within the area under their jurisdiction to prohibit the import of all hazardous wastes, for any reason, into Africa from non-Contracting Parties.</p>	22 April, 1998	17 December, 2003 (signature)
14	<p>The International Covenant on Economic, Social and Cultural Rights (ICESCR), 1966.</p> <p>It commits parties to work towards the granting of economic, social and cultural rights to individuals, including labour rights and the right to health, education and an adequate standard of living.</p>	3 January, 1976	1 May, 1972 (accession)
15	<p>The Cultural Charter for Africa, 1966.</p> <p>The Charter aims to develop educational systems embodying the African values of civilization to root the youth in African culture, and to promote African languages, mainstay and media of cultural heritage in its most authentic and essentially popular form.</p>	19 September, 1990	28 October, 1981

4.8 TULLOW POLICIES AND PROCEDURES

Policy	Detail
1. Environment, Health and Safety (EHS) Policy	Tullow Oil is committed to high standards of Environment, Health and Safety (EHS) performance. The goal is to preserve biodiversity, promote sustainable development by protecting people, minimising harm to the environment and reducing disruption to neighbouring communities. The policy is reviewed periodically to ensure its ongoing suitability and effectiveness.
2. Driving Policy	As part of commitment to EHS, Tullow has stipulated minimum requirements for vehicle use and general land transportation which are applicable to all company vehicles, employees and contractors of Tullow Oil while on company business and may be exceeded by detailed local producers.
3. Corporate Social Responsibility Policy	Tullow Oil's policy is to conduct all business operations to best industry standards and to behave in a socially responsible manner. The goal is to behave ethically and with integrity in the communities where they work, and to respect cultural, national and religious diversity.
4. Fossil Avoidance Procedure	<p>This procedure is meant to address the possibility of archaeological deposits, finds and features being encountered during activities associated with Block 10BA and to provide procedures to follow in order to avoid such sites and to provide a clear pathway, where possible</p> <p>The procedure facilitates identification and promotion of the preservation and recording of any cultural or archaeological material that may be discovered and notification the appropriate authorities and stakeholders.</p>
5. Emergency Preparedness, Incident Management and Business Continuity Standard	<p>This standard defines a series of requirements to ensure effective preparation for emergency situations and management of incidents impacting, or with the potential to impact, Tullow activities.</p> <p>It is aimed to ensure that Tullow is suitably prepared, resourced and equipped to respond effectively to emergency situations and mitigate the impact on people, the environment, assets and reputation.</p>
6. Malaria Management Policy	The company is committed to protecting the health of all the staff working across the organisation. The policy is aimed at reducing malaria case incidents year on year. This is through creation of awareness, prevention of mosquito bites, use of anti-malarial medication and encouragement of early diagnosis among its workers.
7. HIV/AIDS policy	The policy provides guidance for the management of HIV/AIDS in the work place. The policy is aimed at ensuring that employees affected by HIV/AIDS are employed in a working environment that promotes dignity, respect and compassion without discrimination; provide access to local counselling support services to employees who are infected and affected so as to improve the overall health status of those employees and provide education sessions or acces to information where appropriate on Living with HIV/AIDS and prevention measures that can be taken.
8. EHS Management Standards	The EHS Management Standards sets out minimum mandatory EHS requirements to support the development and implementation of EHS related processes across Tullow. The management standards consist of fourteen standards with each standard stating a number of EHS requirements that all operations and activities within the organization must meet.

5. ENVIRONMENTAL AND SOCIAL BASELINE DESCRIPTION

5.1 Introduction

This chapter provides a description of the current environmental (physical and biological), cultural and socio-economic situation of the proposed project area, against which the potential impacts of the proposed exploratory well can be assessed, and any future changes monitored and rectified if necessary. It provides details of the desktop studies, field survey, and results from laboratory analyses of samples collected in the field, which are based on the methods applied as outlined in Chapter 3, in relation to the possible exploration well site and the surrounding areas which may be directly or indirectly impacted upon by the proposed exploratory drilling and associated activities.

5.2 Physical/chemical environment

5.2.1 Geology

The major rock types exposed within the project area are: metamorphic rocks of the Precambrian Basement, later volcanic series which are quite extensive (basalts, trachytes, phonolites and pyroclastics) interspersed with sedimentary materials, and Neogene sedimentary deposits consisting of a complex of alluvial fan, fluvial, deltaic and lacustrine deposits exposed over an area of about 2500km².

Most of the uplands consist of soda-rich basalts, trachytes and phonolites, remnants of Tertiary volcanism, with few and scattered outcrops of Precambrian Basement rocks. The alluvium cover is thin and runs in a narrow belt parallel to the Lake's shoreline. In the south western hinterland of the Lake, south of the project area, are extensive outcrops of Precambrian basement rocks, consisting of biotite gneisses, hornblende gneisses, migmatites and plagioclase amphibolites of the Upper Proterozoic Turbo-Kitale Group (Pallister, 1971).

The sediments adjacent to the Kerio-Turkwel drainage system contain quartz, feldspar, illite and smectite, derived from the Precambrian gneisses and schists, which characterise the area (Halfman *et al.*, 1989). Closer to the Lake's shoreline, the alluvium cover is extensive, deposited by the Turkwel and Kerio Rivers as they wind their way to the Lake. The southern part of the Lake basin consists largely of basalts, trachytes and phonolites, with small and interspersed outcrops of granitic gneiss basement rocks.

Figure 5.1 below presents the geology within the project area.

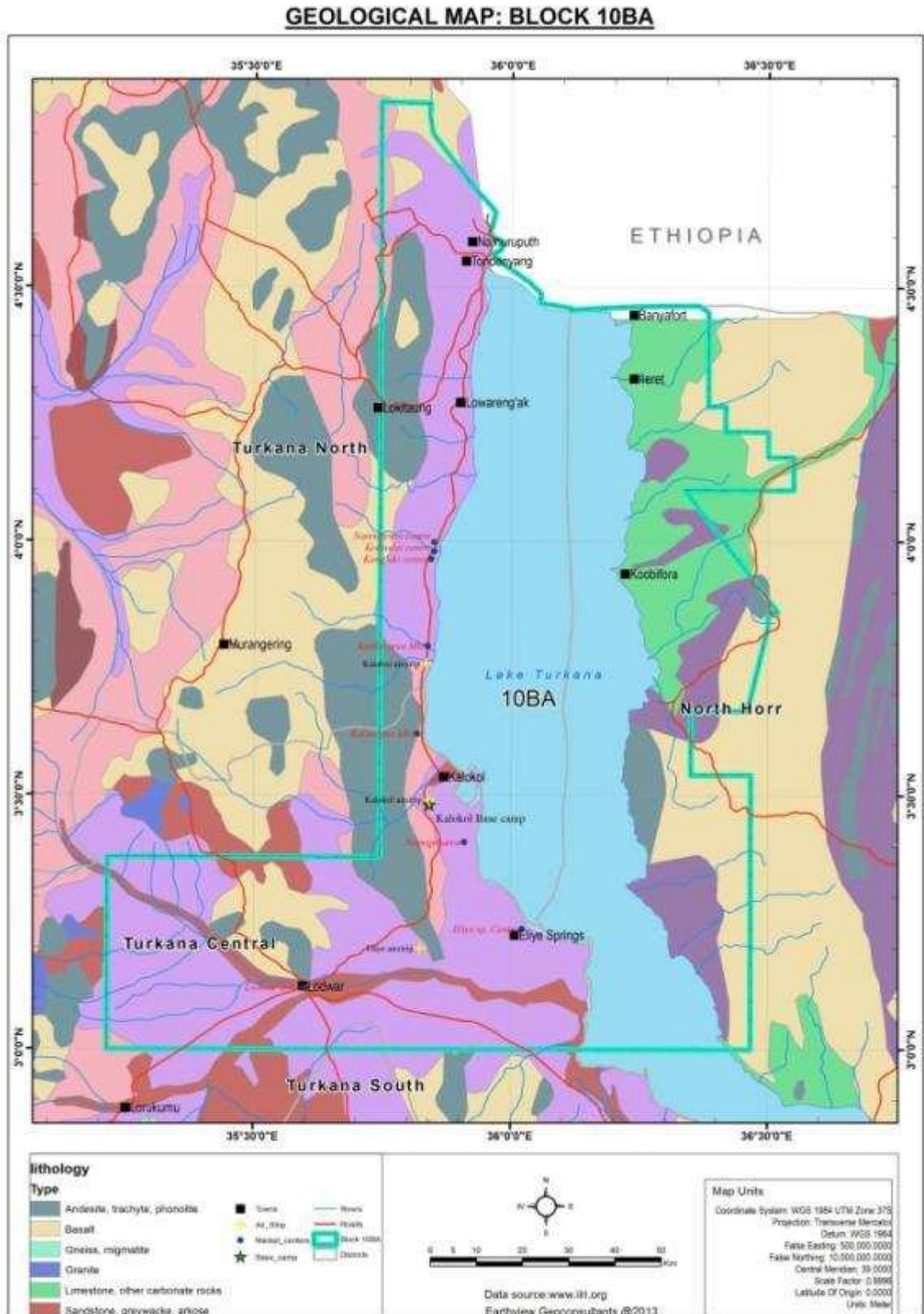


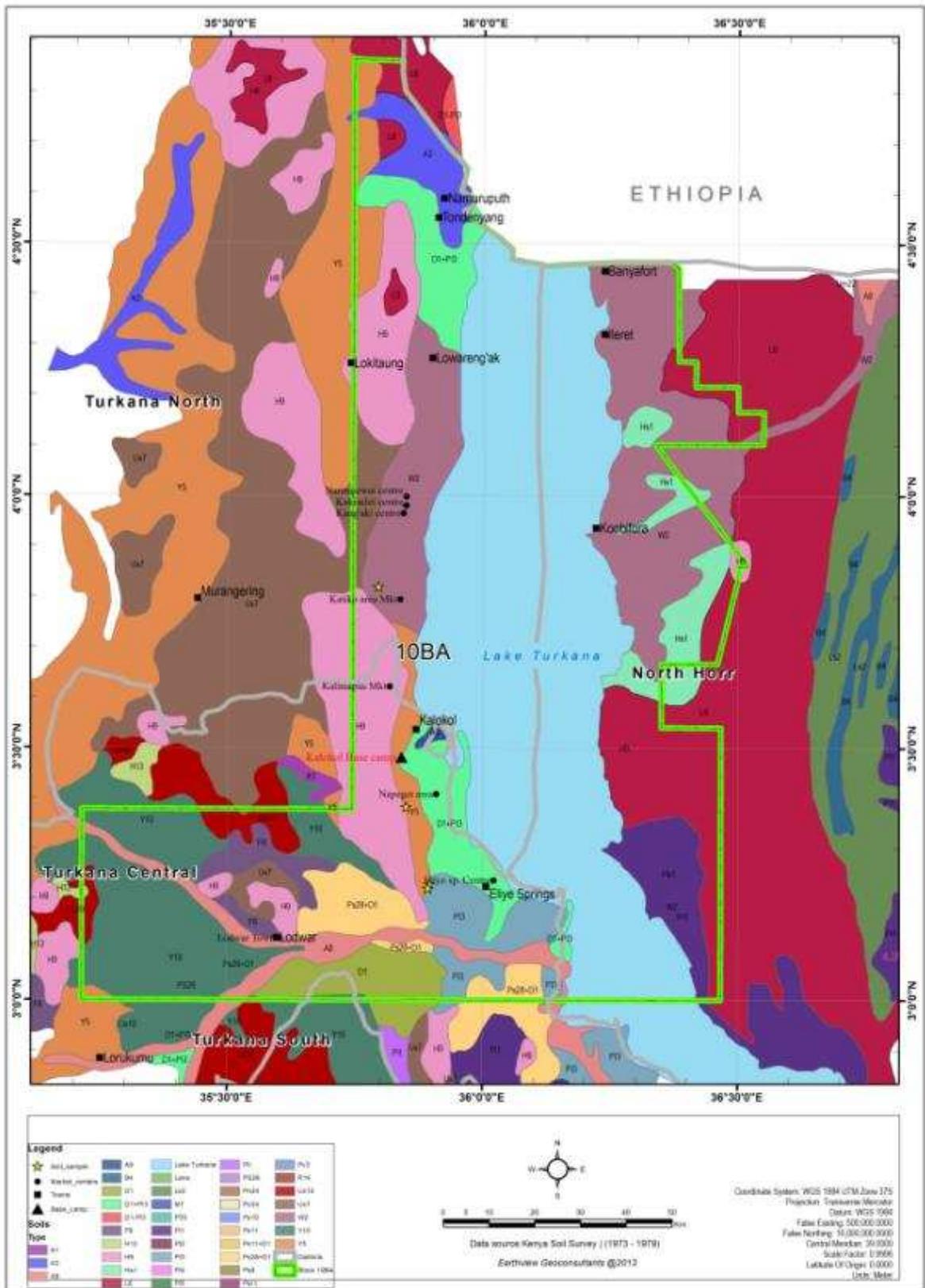
Figure 5.1: Geology of the project area

5.2.2 Soil

The predominant mapping units in the project area of interest are: Piedmont plains (Y5), lacustrine plains (PI3), the boundary zone of the Badlands (W2), and Hills (H9). The soil classification process follows the FAO-UNESCO legend that accommodates the worlds' soils in order to overcome gaps in national classification systems and to provide a common basis for soil correlation. The identification of soils is based on the presence of diagnostic horizons and diagnostic properties which are defined by measurable morphological, physical and chemical criteria related to soil characteristics that are the result of soil genesis/formation. There are 26 soil units recognized by FAO-UNESCO legend of which Kenya has 23. The soil mapping unit description refers mainly to the characteristics of the subsoil, usually the 'B' horizon, to a depth of 100cm (less if impenetrable material such as bedrock occurs at a shallower depth). Among the parameters described are: drainage condition, effective soil depth, colour (moist condition), mottling (if present), consistence (moist condition), calcareousness (if present), salinity, sodicity (if present), rockiness (if present), stoniness (if present), cracking (if present), texture, additional information on special topsoil or subsoil features, landform, geology, inclusions of other soils, etc. (Sombroek *et al.*, 1982). For mapping units, the first letter represents the landform while the second letter represents the geology of the unit.

Figure 5.2 presents the soil mapping units of the proposed project area.

SOIL MAP: BLOCK 10BA



The ESIA team sampled some different soil units and they are described in the following sections.

5.2.2.1 Mapping unit Y5

This mapping unit, in which the soil profile pit site (PP: 10BA NG-001, Ngisurumanyang area of Kalokol division) is found, occurs along the coastline of Lake Turkana from Katiko and southward towards Eliye springs. Around Kalokol, the unit is bound by D1+PI3 unit to the east and along the coastline and H9 unit to the west. The unit is also found to the north from the Kataboi lugga, past Lokitaung to the Kenya/Ethiopia border. In Ngisurumanyang area, the unit is bound by Losidok hill and other hill masses to the west. The hills straddle the study area in a northwest/southeast direction.

Its geology is alluvium from various Tertiary/Quaternary volcanic rocks mainly basalts. Its landform/topography is piedmont plain that is gently sloping. The soils are moderately well drained to imperfectly drained, very deep, brown to dark brown, friable to firm, sandy loam to sand; with a surface of sandy loam to sandy clay loam soils (Plate 5.1, Figure 5.3). The surface soils have been denuded by sheetwash erosion and exhibit sealing and crusting. There are also coppice mounds stabilized by dwarf shrubs, an effect of soil deposition. To some extent windborne erosion has contributed to the denudation of the surface soils too, especially during dry spells. The surface and near surface soils also harbour fossil material. The soils classify as *haplic Solonchak*. The vegetation is denser on the upper and lower slopes of the unit in the northwest and southeast ends respectively.

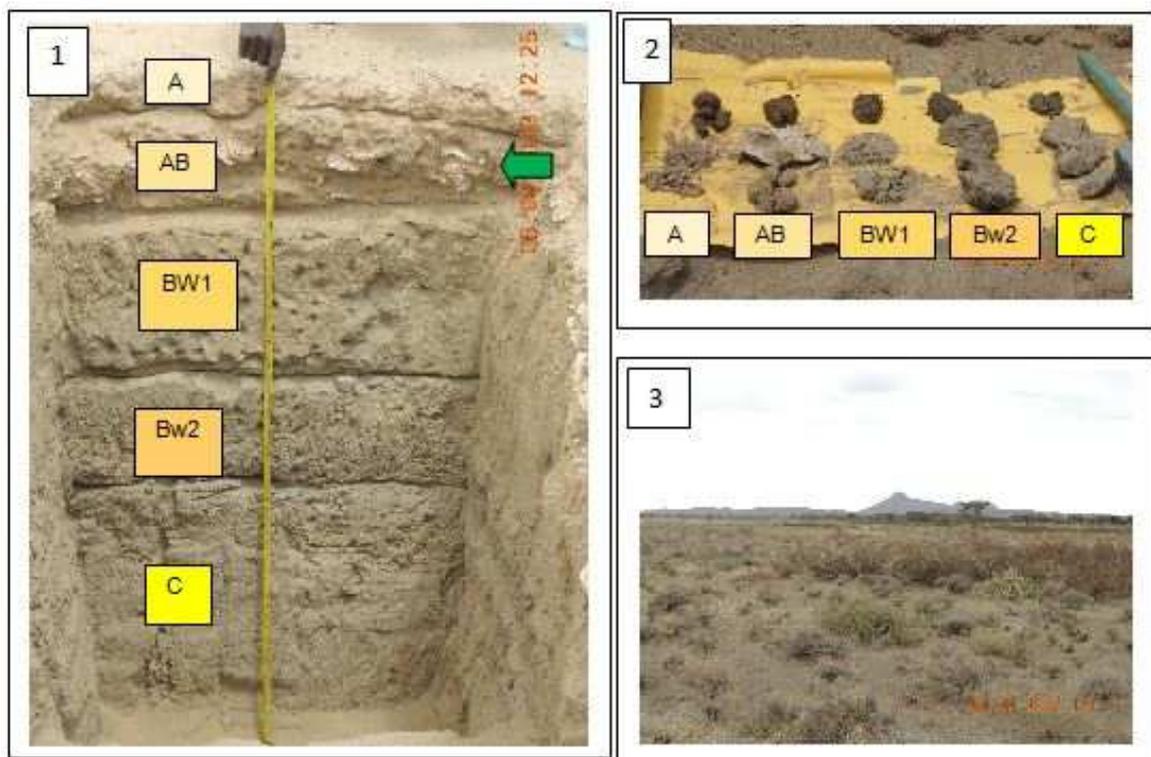


Plate 5.1 (clockwise) 1: Profile Pit showing soil horizons, green arrow depicts the near surface fossil material; 2: soil structure and texture of the different horizons (for description, see figure 5.8) and; 3: surface characteristics showing Losidok hill on the background and depositional coppice mounds where dwarf shrubs have established.

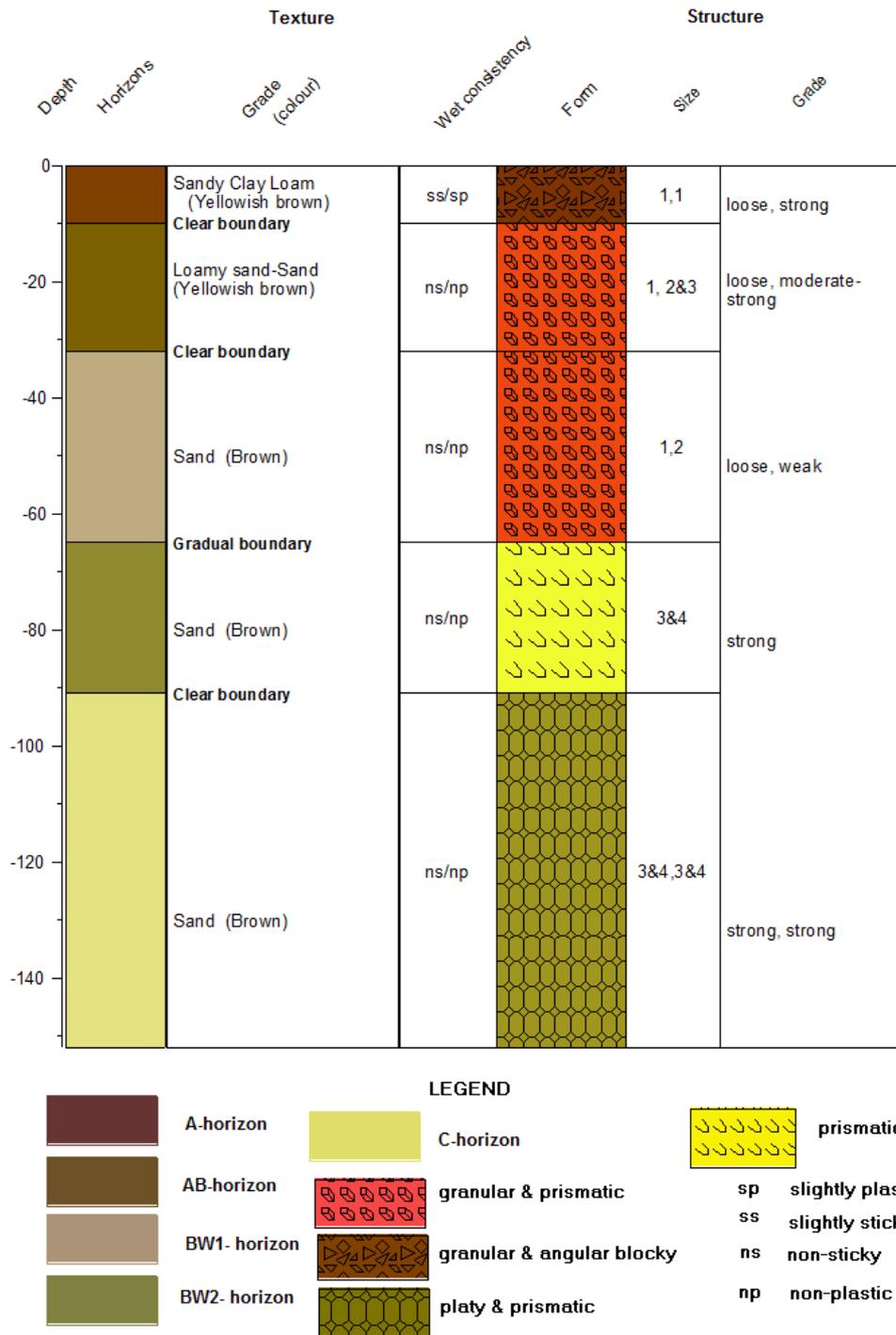


Figure 5.3: Soil Pedon stratum showing soil horizons, texture, colour, wet consistency and structure of the soil of the study area based on soil profile pit sampled at Ngisurumanyang, Kalokol

5.2.2.2 Mapping unit PI3

This mapping unit comprises the soil profile pit site (PP: 10BA NT-002) sited at Natiir (Kenya Oil) area of Kalokol division. The unit is found along the southern coastline of Lake Turkana in Eliye Springs area and is dissected by the Turkwel River floodplain. It is bound by the D1+PI3 complex soil unit in the north and south directions (Figure 5.2).

Its geology is sediments from various sources. Its landform/topography is lacustrine plain that is very gently sloping. The meso-relief consists of common low sand dunes that have been stabilized by dwarf shrubs. The soils are imperfectly to poorly drained, very deep, brown, to dark brown, friable to firm, gravely sandy clay loam to sandy clay; with a surface of sandy clay loam soils (Plate 5.2, Figure 5.4). The surface soils have been denuded by mostly windborne erosion that is responsible for the establishment of the common low dunes manifest in the study area. The extensively bare surface exhibits quartzite pebbles and surface crusts that are moderately strong. Localized surface cracks are manifest where zoned out millet gardens have been established. There is a presence of primary minerals (micas) throughout the pedon. The soils classify as *haplic Solonetz*. The dwarf shrubs consist mainly of *Indigofera spinosa*. Grazing of livestock is extensive in the unit contributing to surface soil degradation via trampling.

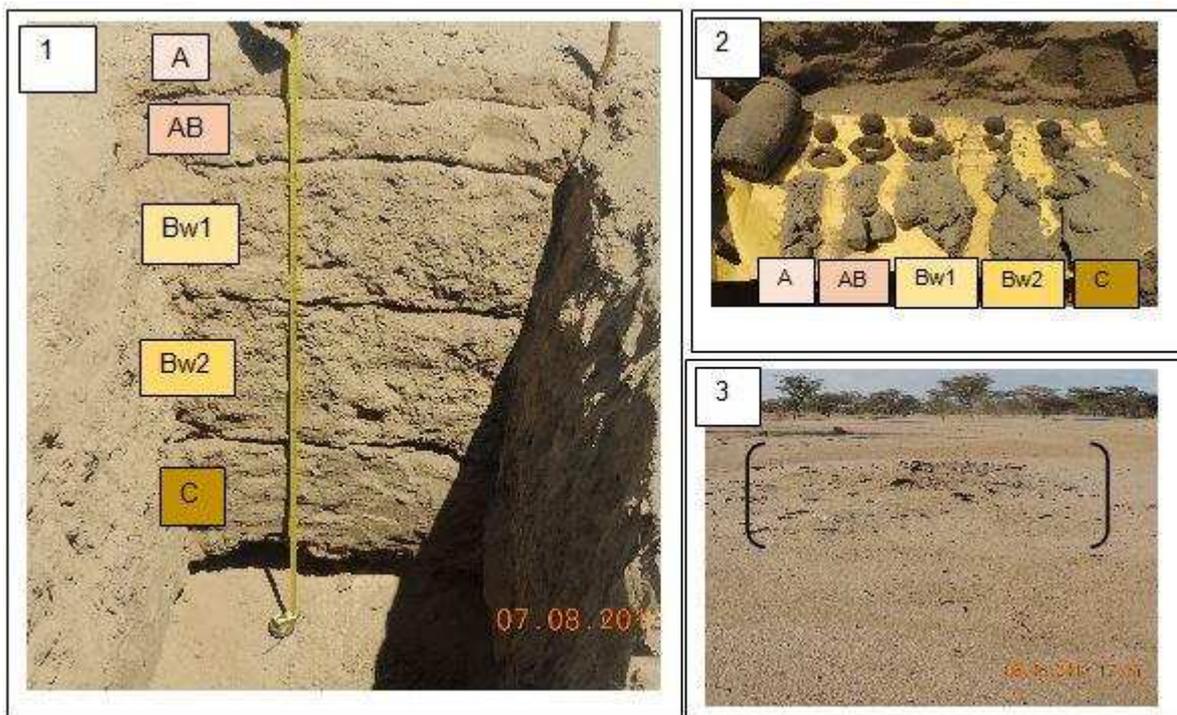


Plate 5.2 (clockwise) 1: Profile Pit showing soil horizons; 2: soil structure and texture of the different horizons (for description, see figure 5.9) and; 3: surface characteristics showing extensive bare surface with low dunes (in brackets); in the background is the *Acacia tortilis* woodland vegetation

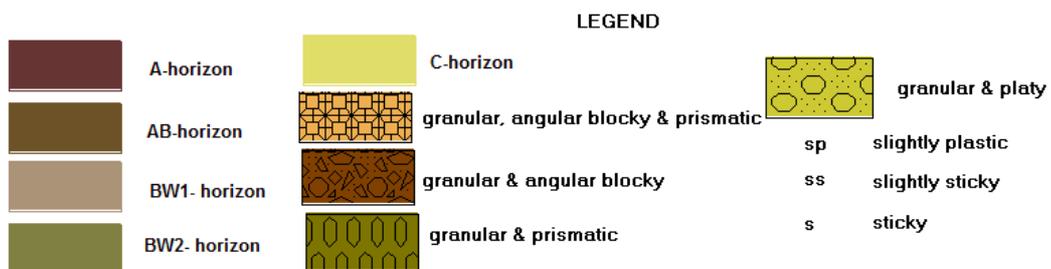
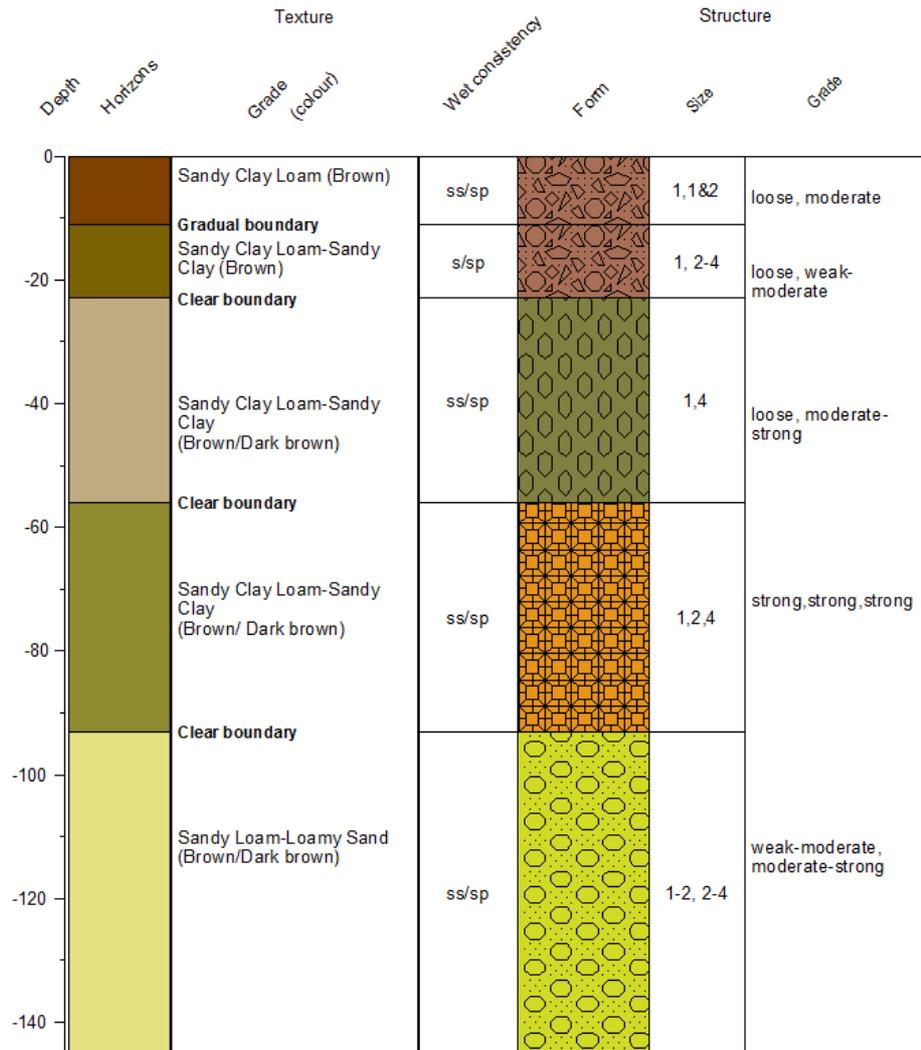


Figure 5.4: Soil Pedon stratum showing soil horizons, texture, colour, wet consistency and structure of the soil of the study area based on soil profile pit sampled at Natiir, Kenya Oil, Kalokol.

5.2.2.3 Mapping Unit W2 [Study site: confluence unit (Badlands (W2), Piedmont plains (Y5) and Hills (H9)].

This mapping unit is found around Lowarengak and traverses southward to Katiko. Its geology is various older lacustrine and volcanic rocks. The landform is badlands that are undulating to rolling. The soils are excessively drained, reddish brown, firm, strongly calcareous, slightly to moderately saline, strongly sodic, silt loam to clay loam of varying depth, strongly eroding and in many places with a gravel or stony surface. The soils classify as *Solonetz* with *calcic Xerosols* (Sombroek *et al.*, 1982). The soil characteristics of this mapping unit differ from the sampling site.

The sampling site (soil profile pit PP: 10BA KT-003) is located at Katiko area. The site is found at the southern tip of W2, bordering H9 and Y5 unit and further to the northwest, it borders the Ux7 unit. This is a buffer zone found where Y5, H9 and W2 juxtapose and exhibit characteristics of the parent units around Kataboi lugga, and to the north west of Nachukui. The surface stones present in clusters makes the unit resemble Ux7 unit that has shallow soils. These rocks and surface stones are, however, associated with the H9 unit whose geology is undifferentiated Tertiary volcanic rocks [(olivine basalts, rhyolites and andesites) (Figure 5.2)]. The geology is therefore influenced by the three units sited and consists of various Tertiary/Quaternary volcanic rocks, mainly basalts and older lacustrine and volcanic rocks. Its landform/topography is undulating upland. The meso-relief consists of narrow and moderately deep interfluvies, the result of severe erosion as exhibited in the greater W2 unit. The soils are moderately well drained to imperfectly drained, moderately deep, dark yellowish brown, friable to firm, loamy sand to sandy loam; with a surface of gravelly sandy loam soils (Figure 5.2). The surface soils host surface pebbles and stones from various sources but predominantly quartzite and basalts. The soils classify as *dystric Cambisols*. Grazing of livestock is extensive in the unit contributing to surface soil degradation via trampling. The W2 unit found in the study area can, therefore, be described as Badlands with *Solonetz*s and inclusions of *Cambisols* where they border with H9, Y5 and Ux7 units.

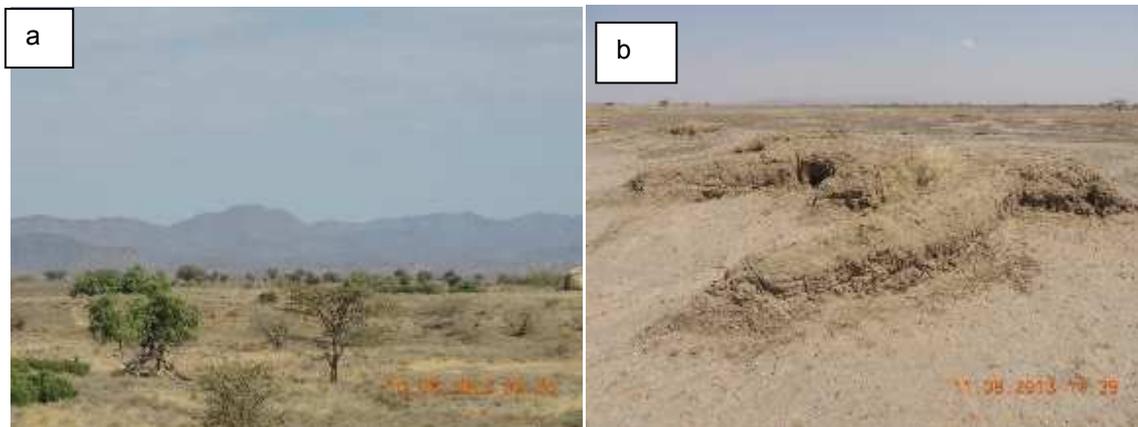


Plate 5.3 (a) Moru-eris ranges - H9 unit to the west of Kataboi; and (b) Badlands-Bw2 unit

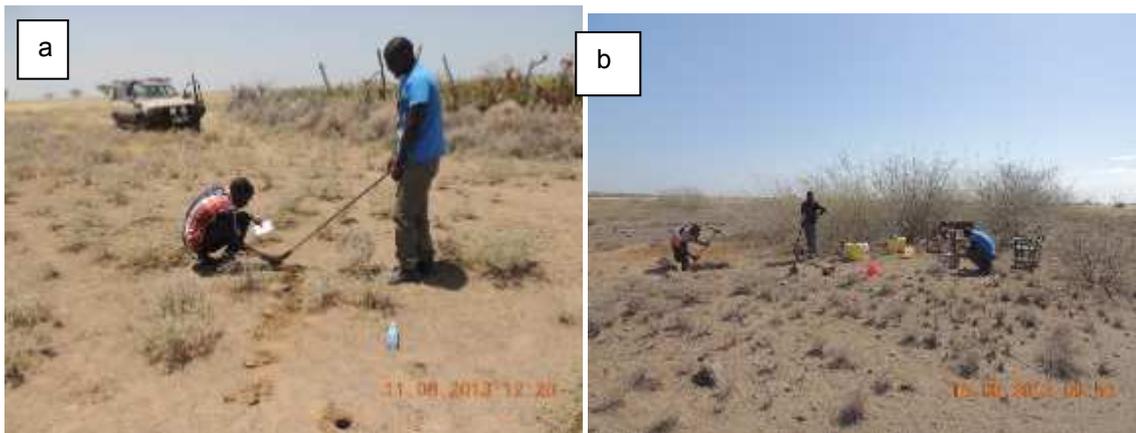


Plate 5.4: (a) piedmont plain-Y5 unit with deep soils, near the vehicle is a fenced off millet farm and (b) The study site that is juxtaposed by the three soil units (H9, W2, Y5) influencing the soil characteristics and classification

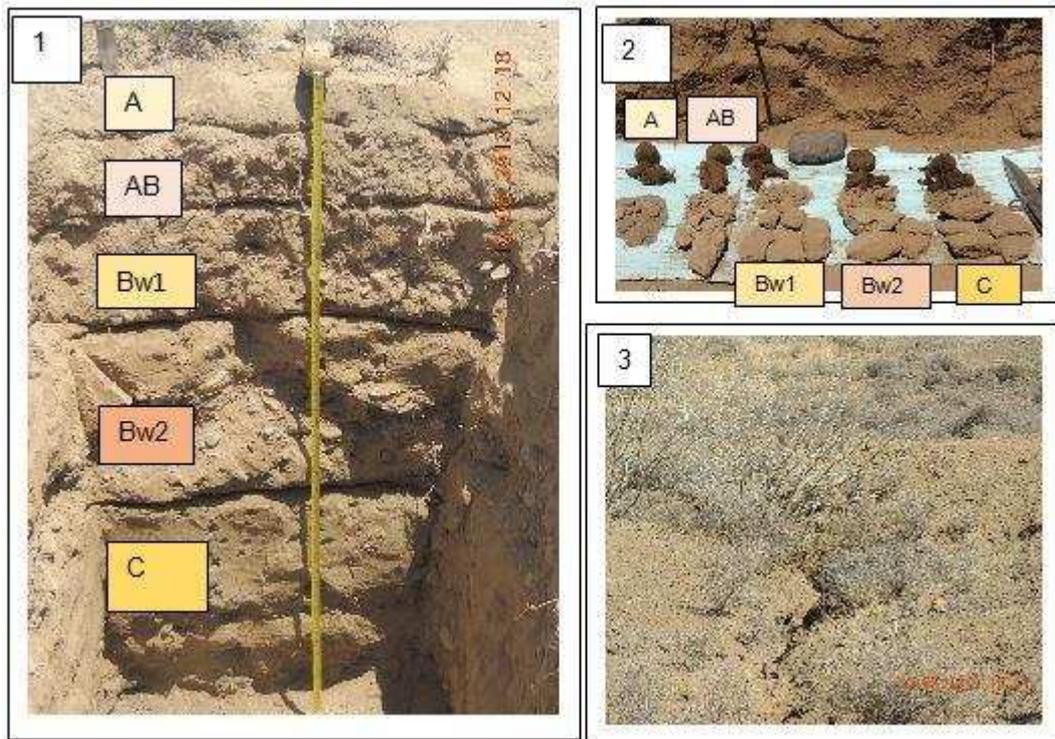


Plate 5.5 (clockwise) 1: Profile Pit showing soil horizons; 2: soil structure and texture of the different horizons (for description, see figure 5.5) and; 3: surface site characteristics showing surface stones and narrow rills; *Indigofera spinosa* dwarf shrubs and *Acacia nubica* have established along the rills

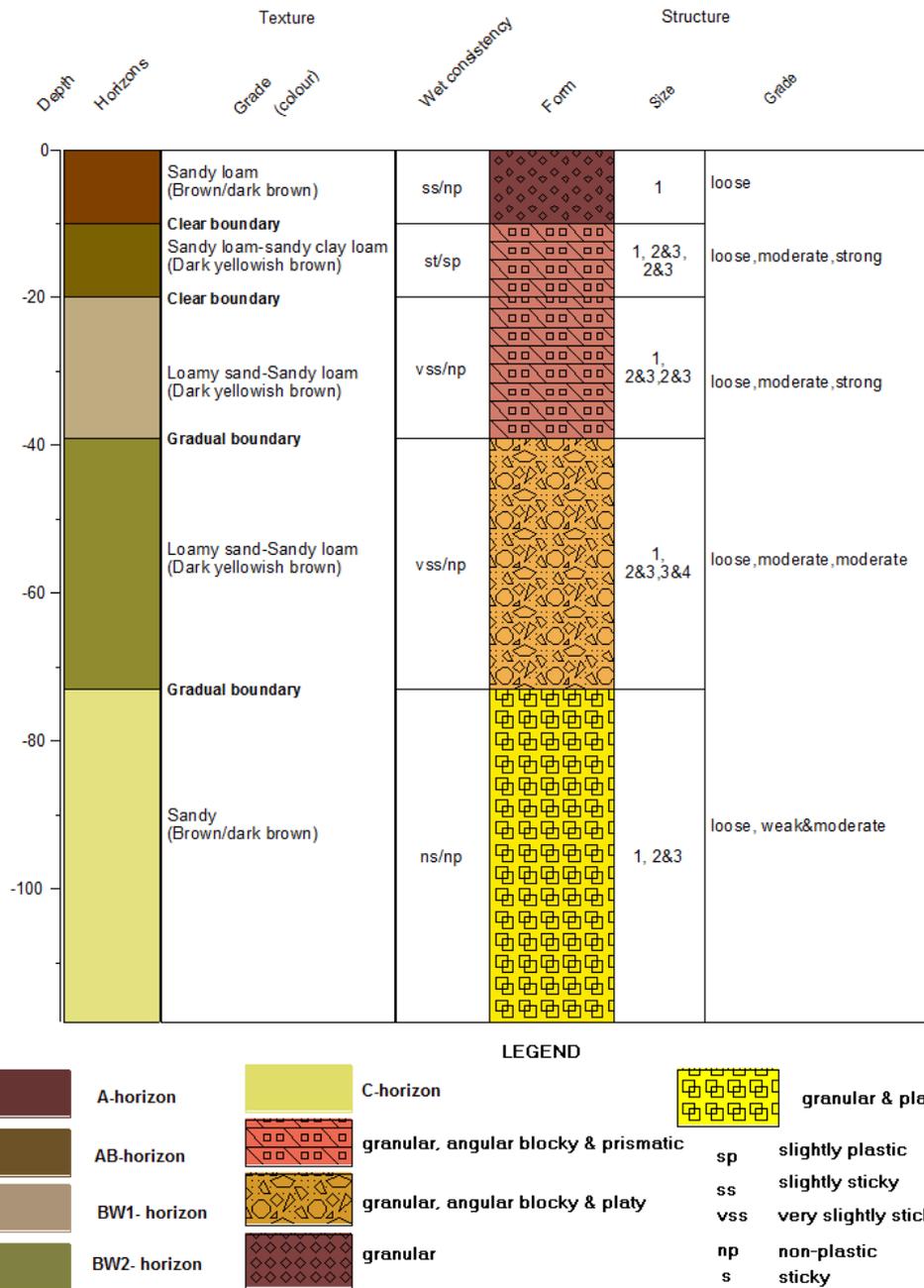


Figure 5.5: Soil Pedon stratum showing soil horizons, texture, colour, wet consistency and structure of the soil of the study area based on soil profile pit sampled at Katiko

5.2.3 Landscape and visual receptors

The physiography of the project area comprises open plains with dunes, mountain ranges and hills, Lake Turkana and rivers. The main mountain ranges are Songot and Suguta in the North and Loima and Lorengippi in the South of Block 10BA. The ranges support economic activities such as honey production, grazing during dry season, water catchment areas, wood and charcoal production.

Low lying plains such as Lotikipi and Kalapata form part of the arid area and receive the lowest amount of rainfall. The plains consist of dwarf shrubs and grassland, which provide forage for livestock during and shortly after rainy seasons.

The area has pristine and rugged scenic beauty with hills, extensive plains, several sand rivers (luggas), and the emerald Lake Turkana with its three volcanic islands that are important natural

heritage sites. The tourism potential is quite high due to these aesthetic features, but is today still underexploited on account of the poor infrastructure of this remote area.

5.2.4 Surface water

Water sources include Lake Turkana, influent rivers (Omo, Turkwel and Kerio) and luggas, and a few small dams and water pans (see Plates 5.4-5.6; Figure 5.6). Lake Turkana is an expansive water reservoir with a surface area of 6,750 km², has an average depth of 35m, and is mainly fed by the Omo River which contributes about 90% of the Lake waters. The Omo originates in Ethiopia. The Lake has no outlet. Turkwel and Kerio rivers also drain into Lake Turkana.

Lake Turkana is the largest and the most saline of the Rift Valley lakes. Due to the lack of an outlet and reduced inflows and evaporation, the water is subject to between 3 and 4m seasonal level fluctuations. The Lake's water is generally not suitable for drinking by either humans or livestock: it is characterized by high pH (8.6-10.6), high content of sodium and potassium, and high content of total dissolved solids. The Lake's water also has high amounts of silt. This makes the water not potable, unfit for long periods of livestock watering and unfit for irrigation. The water quality is not homogeneous (NEMA-EAP, 2009).

Due to the generally dry climatic conditions of the area, the rivers and luggas are all seasonal or ephemeral, and dry up during dry seasons. It has also been observed that the Lake has receded at a high rate of 6m along its shores in a period of ten years (NEMA-EAP, 2009; Christensen and Pauly, 1993).



Plate 5.6: Luggas in the project area: (a) Kataboi lugga; (b) Kalurkang'ole lugga; (c) Narimet lugga; (d) Nakiria lugga, and; (e) Areng'amunyen lugga



Plate 5.7: Lake Turkana as seen in Narimet area in Turkana Central



Plate 5.8: (a) Nadokoro dam in Lokitaung and (b) Waterpan at Nariokotome Catholic Mission station.

area, water is readily obtainable from shallow wells dug in the riverbeds. During the rainy season the locals also dig holes in luggas to obtain water (Plate 5.10). The groundwater is sensitive to rainfall fluctuations, and during the dry season the water level in these wells falls rapidly.

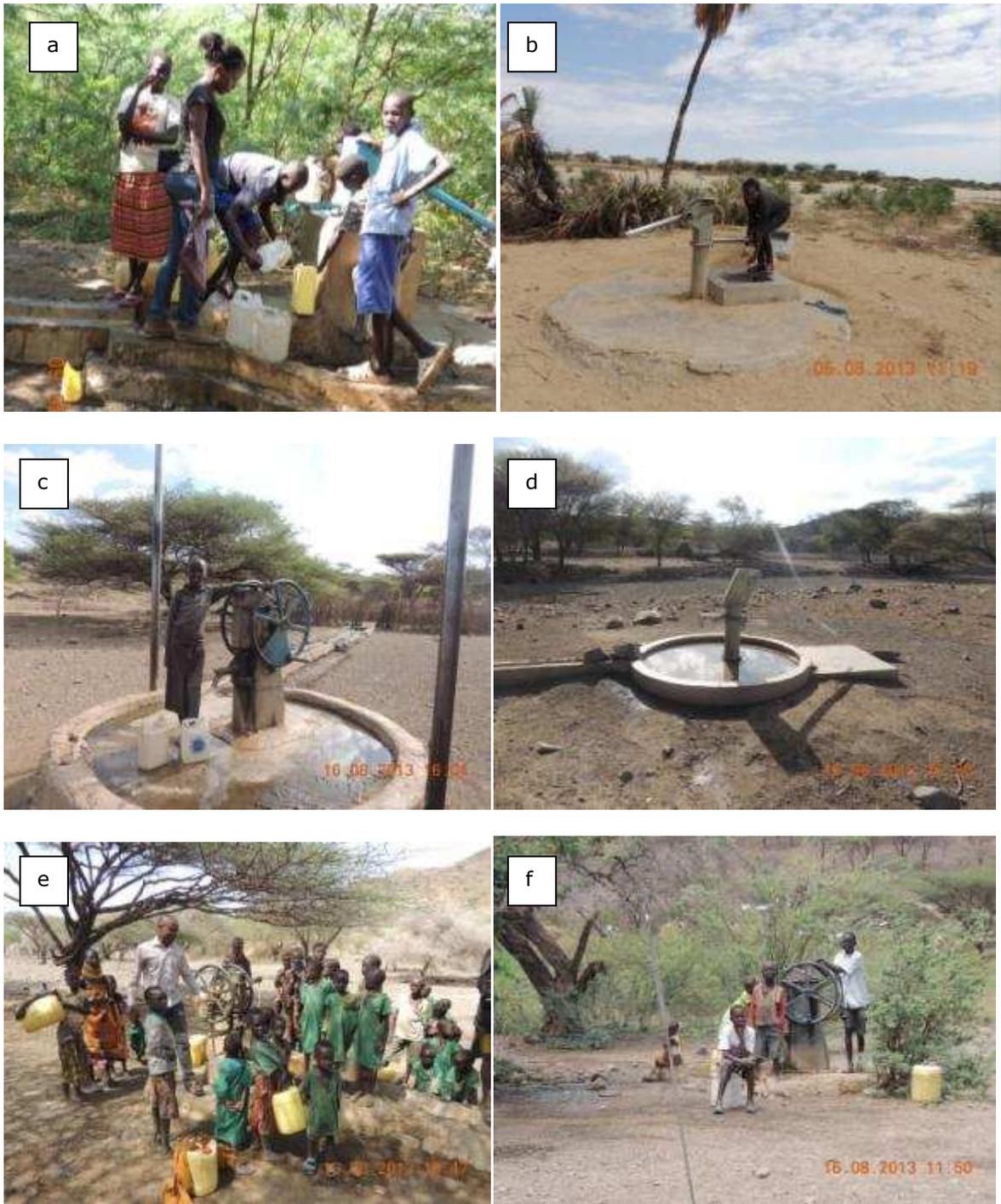


Plate 5.9: (a) Kataboi well; (b) Kalurkang'ole well; (c) Natoo well; (d) Kangarukia well; (e) Mana Alongoria well, and; (f) Nakalale well



Plate 5.10: Holes dug in (a) Narimet and (b) Kataboi luggas respectively

In September 2013, the two major aquifers have been recorded and proven by drilling. These are: the Lotikipi Basin Aquifer estimated to store 207 billion cubic meters of water and the Lodwar Basin Aquifer, situated within a short distance of Lodwar town, fed by the perennial Turkwel River and has an estimated reserve of 10 billion cubic meters. Three other deep reserves: Gatome, Kachoda and Nakalale, discovered during the groundwater survey project for the Kenyan Government on behalf of the UN, may hold 30 billion cubic meters once confirmed by drilling. Also, 2 billion cubic meters of water passing only a few meters under the ground and easy to reach were mapped (RTI, 2013). The findings are preliminary and there is need for further studies to adequately quantify the reserves and to assess the quality of the water (UNESCO PRESS, 2013).

Among the reserves are Lodwar Basin Aquifer and Kachoda Half-graben which lie within the project area of interest in Block 10BA. While the extent of Kachoda reserve is yet to be quantified, the Lodwar Basin Aquifer could serve as a strategic reserve for the development of Lodwar town and its environs (Lofgren, 2013). According to RTI (2013), water in the reserves which is suitable for human consumption has implications for development in Turkana region and the country at large such that, it can be used to sustain national water consumption or to sustain human life annually. It also be used to sustain agricultural development in regions that have greater potential (water availability and good soils) (RTI, 2013).

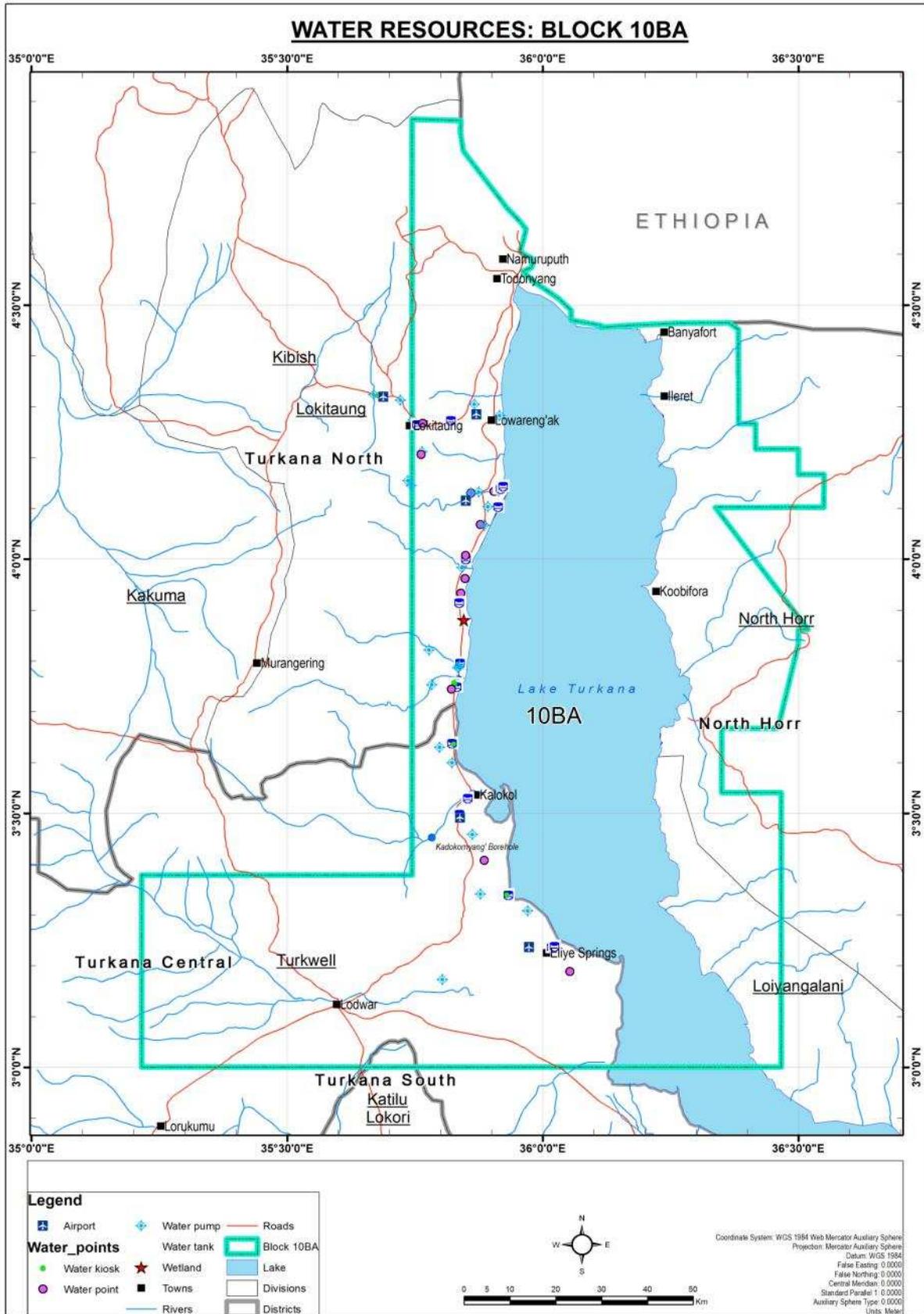


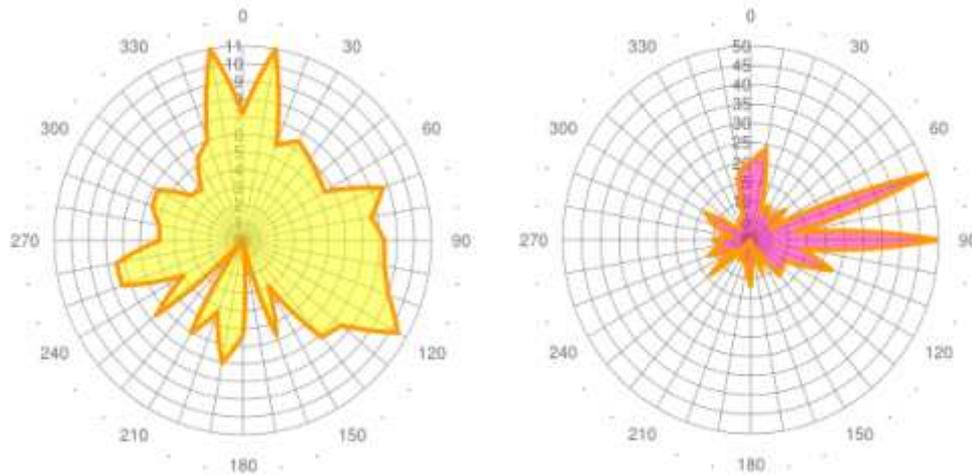
Figure 5.7: Ground water resources in the project area

5.2.6 Climate and air quality

5.2.6.1 Climate

Wind

For most of the year, an easterly wind (the Low Turkana Jet Stream) prevails and is particularly strong near the lakeshore especially on the western side of Lake Turkana around Todynyang. Wind in the area travels at an average speed of 11.5 kph west. The wind rose data is presented in Figure 5.8.



Average wind intensity (scale in knots) Maximum wind intensity (scale in knots)

Figure 5.8: Wind rose data⁵

Rainfall and Temperature

The rainfall in the project area is scarce with an annual average of 14.8 mm. The area experiences an average maximum temperature⁶ of 35°C and an average minimum of 25°C.

Table 5.1: Temperature and Rainfall data

Monthly Average	January	February	March	April	May	June	July	August	September	October	November	December
Rainfall (mm)	9	7	21	48	25	7	14	10	3	8	13	13
Max. Temp (°C)	34.5	35.5	35.5	33.8	33.8	32.8	32.2	32.8	34.4	35	33.8	33.8
Min. Temp (°C)	25	25.6	26.7	26.7	26.7	26.1	25.6	25.6	26.1	26.7	25.6	25

⁵Source: <http://www.aviador.es/Weather/Wind KLO-4, 2012>

⁶Source: <http://www.lodwar.org/climate-time.htm> (data recorded for 2011)

5.2.6.2 Air Quality

The project area is generally sparsely populated, and consists of many small settlements along the lakeshore. It is basically undeveloped but has a number of small towns like Lodwar, Kalokol, Lowareng'ak, Lokitaung and Kataboi. It is more or less a rural setting. There are no significant industrial activities in the towns; hence pollution from industry is negligible.

Strong winds are the main distributor of air-borne dust, as they raise frequent dust storms over the sparsely vegetated land. The main point sources of air pollution, though minimal and transient, are biomass burning due to burning of firewood for cooking and charcoal-making, small scale industrial activities in the towns and vehicular/generator emissions. Offensive odours were only associated with pit latrines and garbage dumps in settlement areas, and shorelines where the locals dump fish and fish remains.

5.2.7 Noise

Ambient noise in the project area is low level as it is a rural setting where there are neither industries nor significant traffic save for Lodwar which is characterized by transit vehicle movement.

5.3 Biological environment

5.3.1 Baseline conditions

5.3.1.1 Habitat

The vegetation of the project area belongs to the Somali-Masai eco-region (White, 1983), comprising of deciduous bushland and thicket, semi-desert grassland and bushland with *Acacia* spp., *Commiphora africana*, *Balanites aegyptiaca*, *Euphorbiaceae*, and abundant dryland taxa. The fairly high alkali content of the Lake's waters greatly limits the range of species of vegetation along its shoreline. *Salvadora persica* forms a bushland on Central and South Islands (Hughes and Hughes, 1992). The grasses, shrubs and trees of the ecoregion are fire-tolerant because fires are frequent in the dry season. The area, especially in the market centres such as Kalokol and Lokitaung', is dominated by the alien shrub known as *Prosopis juliflora*.

Along the water bodies, such as luggas there is abundance of riverine vegetation mainly dominated by Doum palm trees (*Hyphaene thebaica*) and *Acacia tortilis*. The fairly high alkali content of the water in Lake Turkana greatly limits the range of species of vegetation along its shoreline.

The ecological team observed that the vegetation types within the project area are as follows;

Kalokol area: Sparse grassed-dwarf shrubland with a few *Acacia tortilis* trees on the boundary. The dwarf shrubs comprised mainly of *Indigofera spinosa*, *Jatropha* spp. and *Cadaba* spp.

Natiir area: Sparse to moderately dense woodland consisting of *Acacia tortilis* and *Balanities aegyptiaca*, with sparse and clustered dwarf shrubs and *grass* spp. undergrowth.

Katiko area: Grassed sparse dwarf shrubland with clusters of *Acacia nubica* shrubs. The dwarf shrubs consist of *Indigofera spinosa*, *Cadaba* spp. (*Eppu*) and stunted *Acacia tortilis*.

Figure 5.9 presents the vegetation within the project area. Plates 5.11 and 5.12 show vegetation types identified in the project area.

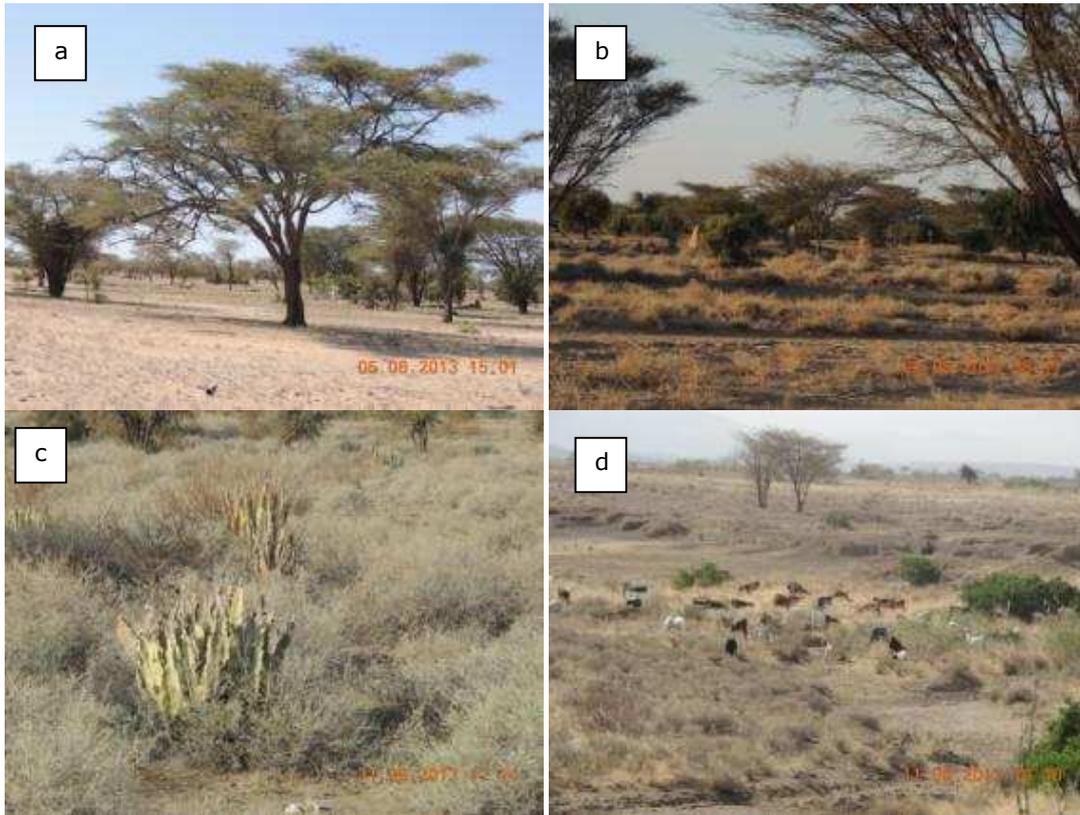


Plate 5.11: (a & b) shrubland bordered by *Acacia tortilis* trees along waterways in Ngisurumanyang area; and (c & d) Grassed shrubland comprising *Caralluma acutangula* and *Cadaba farinosa* dwarf shrubs in Katiko area. The area is used as grazing land.



Plate 5.12: (a) Doum palm trees along Lake Turkana shores in Lobolo area; and (b) Riverine vegetation on a wetland in Loyoro

5.3.1.2 Biodiversity

a) Mammals

Mammalian population have become severely depleted in the project area such that existing mammals are protected with parks such as Sibiloi and South Island National Parks. There are no parks within the project area of interest. The area, however, has Silver-backed or black-backed jackals (*Canis mesomelas*) and spotted hyenas (*Crocuta crocuta*). There are small mammals such as Ground squirrels, African hares and Dwarf mongoose. IUCN (2013) classified these mammals as shown in table 5.2 below.

Table 5.2: IUCN Classification for mammals in Block 10BA

SPECIES NAME	IUCN RED LIST CLASSIFICATION	
	Not Yet Assessed	Least Concern
Silver/Black-backed jackals (<i>Canis mesomelas</i>)		✓
spotted hyenas (<i>Crocuta crocuta</i>)		✓
Ground squirrels (<i>Otospermophilus beecheyi</i>)	✓	
African hares (<i>Lepus microtis</i>)		✓
Common Dwarf mongoose (<i>Helogale parvula</i>)		✓

b) Reptiles and amphibians

The semi-arid to arid climate in Block 10BA creates a suitable environment for reptilian life. During the ESIA, the team observed smaller reptiles such as skinks and geckos but did not encounter any amphibians. The predominant species of amphibians and reptiles in the area include: Eastern Groove-crowned Bullfrog (*Haplobatrachus occipitalis*), Mascarene Rocket frog (*Ptychadena mascariensis*) and Cryptic sand frog (*Tomoptrena cryptotis*), Kenyan dwarf gecko (*Lygodactylus keniensis*), Short-necked skink (*Mabuya brevicollis*), and Semi-ornate snake (*Meizodon semiornatus*) (Spawls et. al., 2006).

The Lake hosts the world's single largest crocodile population. During the ESIA exercise, the team did not encounter any crocodiles as they hide in marshes during the day. Napasinyang' area is a crocodile breeding site and it lies within the project area. The classification for reptiles and amphibians are shown in Table 5.3 below.

Table 5.3: IUCN Classification for reptiles and amphibians in Block 10BA

SPECIES NAME	IUCN RED LIST CLASSIFICATION	
	Not Yet Assessed	Least Concern
Eastern Groove-crowned Bullfrog (<i>Haplobatrachus occipitalis</i>)	✓	
Mascarene Rocket frog (<i>Ptychadena mascariensis</i>)	✓	
Cryptic sand frog (<i>Tomoptrena cryptotis</i>)	✓	
dwarf gecko (<i>Lygodactylus keniensis</i>)	✓	
Short-necked skink (<i>Mabuya brevicollis</i>)	✓	
Semi-ornate snake (<i>Meizodon semiornatus</i>)	✓	
Speke's sand lizard (<i>Heliobolus spekii</i>)	✓	
Southern long-tailed lizard (<i>Latastia longicaudata</i>)	✓	
Yellow-throated plated lizard (<i>Gerrhosaurus flavigularis</i>)	✓	
Red-headed rock agama (<i>Agama agama</i>)	✓	
Ruppell's agama (<i>Agama rueppelli</i>)	✓	

SPECIES NAME	IUCN RED LIST CLASSIFICATION	
	Not Yet Assessed	Least Concern
Nile monitor (<i>Varanus niloticus</i>)	✓	
Hook-snouted worm snake (<i>Leptotyphlops macrorhynchus</i>)	✓	
Kenya sand boa (<i>Eryx colubrinus</i>)	✓	
Smith's racer platyceps (<i>Brevis smithii</i>)	✓	
Semi-ornate snake (<i>Meizodon semiornatus</i>)	✓	
Large eyed snake (<i>Telescopus dhara</i>)	✓	
Bark snake (<i>Hemirhagerrhis nototaenia</i>)		✓
Rufous beaked snake (<i>Rhampiophis rostratus</i>)	✓	
Speckled sand snake (<i>Psammophis punctulatus</i>)	✓	
Link-marked sand snake (<i>Psammophis biseriatus</i>)	✓	
Red spitting cobra (<i>Naja pallida</i>)	✓	
Puff adder (<i>Bitis arietans</i>)	✓	
North east african carpet viper (<i>Echis pyramidum</i>)	✓	
Cryptic sand frog (<i>Tomopterna cryptotis</i>)	✓	

c) Birdlife

A rich birdlife thrives in the block, with the majority of the birds observed being water birds and a few Palaearctic migrants like the yellow wagtail observed at the shores of Lake Turkana within the bird breeding site in Namakat Area.

The other bird species in the project area include: Fork tailed drongo, Yellow vented bulbul, Superb starling, Rupelles long tailed glossy starling, White crested helmet shrike, Kori bastard, Northern white-crowned shrike, red backed shrike, Brown necked crow, Mourning dove, White bellied Cuckoo, Martial eagle, Abyssinian roller, Rufous-crowned roller, Blue headed coucal, African scoops owl, Grey headed kingfisher, Pied Kingfisher, Pied wagtail, White browed sparrow weaver, Crested lark, Variable sunbird, Shinning sunbird, Speckled pigeon, Blue headed bee-eater, Carmine bee eater, Paradise flycatcher, Namaqua dove, White headed buffalo weaver, White browed sparrow weaver, Ring neck dove, Eastern pale chanting goshawk, Sacred ibis, Lesser Flamingo, Greater Flamingo, Lesser egret, Intermediate egret, Greater egret, Goliath Heron, Yellow billed stork, Red billed hornbill, White headed mouse bird, Great white pelican and African hoopoe among others. Plates 5.13 and 5.14 show bird species observed in the project area. The IUCN (2013), the bird species' classification are presented in Table 5.4.

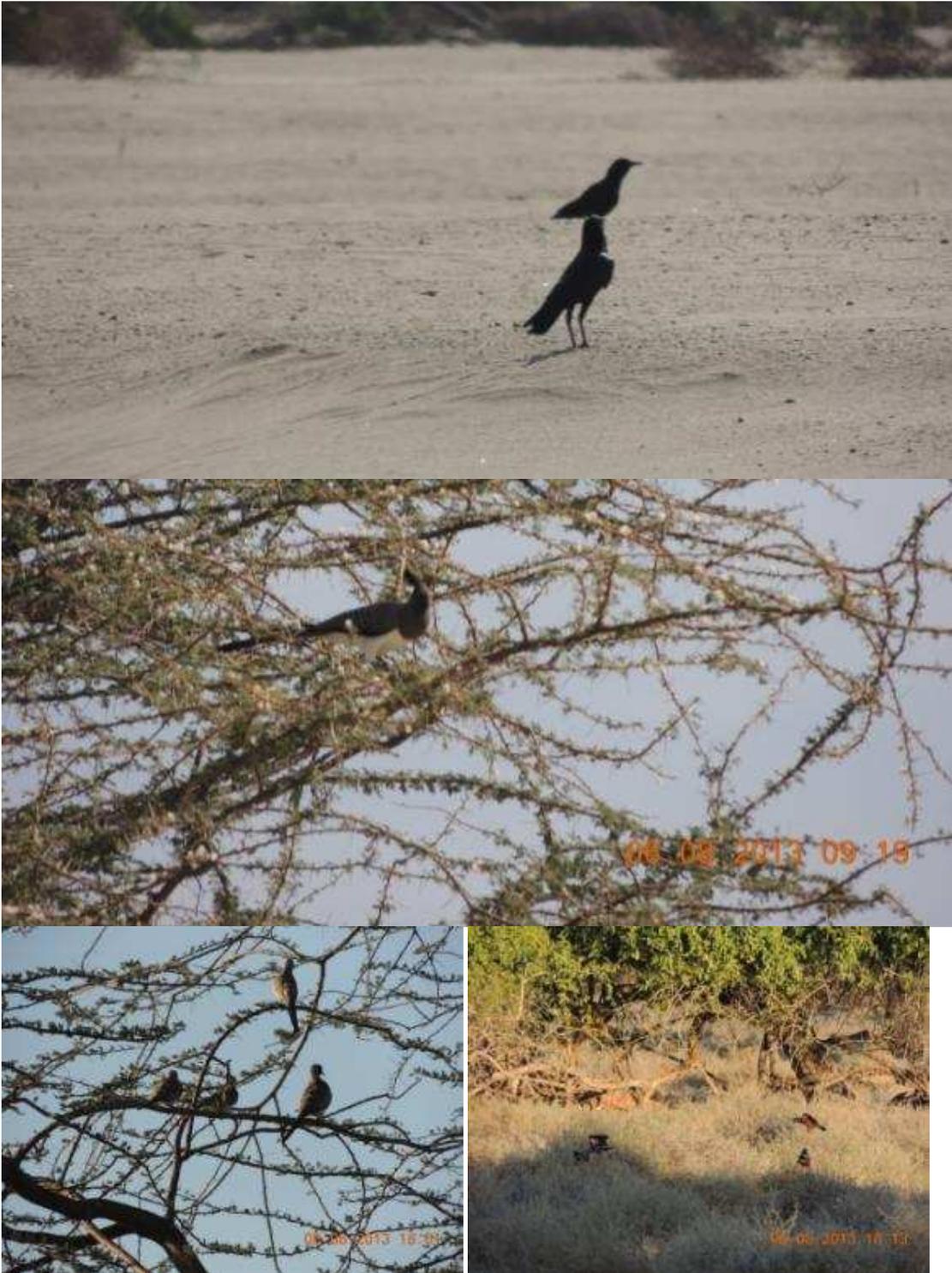


Plate 5.13: (a) Brown ravens; (b) Go away bird; (c) Namaqua doves; and (d) Super starlings observed in different parts in the project area.



Plate 5.14: Water birds observed along Lake Turkana; (a) Egyptian goon and an African spoonbill; (b) Spur-winged plover; (c) Sacred ibises; (d) Greater and lesser flamingos and Great white pelicans; (e) Grey headed gulls; and (f) a yellow billed stork

Table 5.4: IUCN Classification for birdlife in Block 10BA

NAME	IUCN CATEGORY			
	Not Assessed	Yet	Least Concern (LC)	Near Threatened (NT)
Yellow wagtail (<i>Motacilla flava</i>)			✓	
Fork tailed drongo (<i>dicrurus adsimilis</i>)			✓	
Yellow vented bulbul (<i>Pycnonotus goiavier</i>)			✓	
Superb starling (<i>Lamprotornis superbus</i>)			✓	
Rupelles long tailed glossy starling (<i>Lamprotornis purpuropterus</i>)	✓			
White crested helmet shrike (<i>Prionops plumatus</i>)	✓			
Kori bustard (<i>Ardeotis kori struthiunculus</i>)			✓	
Northern white-crowned shrike (<i>Eurocephalus rueppelli</i>)			✓	
Red backed shrike (<i>Lanius collurio</i>)			✓	
Brown necked crow (<i>Corvus (ruficollis edithae)</i>)	✓			
Mourning dove (<i>Streptopelia decipiens</i>)			✓	
White bellied Cuckoo	✓			
Martial eagle (<i>Polemaetus bellicosus</i>)				✓
Abyssinian roller (<i>Coracias abyssinica</i>)			✓	
Rufous-crowned roller (<i>Coracias n. naevia</i>)			✓	
Blue headed coucal (<i>Centropus monachus</i>)			✓	
African scops owl (<i>Otus scops</i>)			✓	
Grey headed kingfisher (<i>Halcyon leucocephala</i>)			✓	
Pied Kingfisher (<i>Ceryle r. rudis</i>)			✓	
Pied wagtail (<i>Motacilla aguimp vidua</i>)			✓	
Crested lark (<i>Galerida cristata somaliensis</i>)			✓	
Variable sunbird (<i>Nectarinia venusta</i>)			✓	
Shining sunbird (<i>Nectarinia habessinica turkanae</i>)			✓	
Speckled pigeon (<i>Columba g. guinea</i>)			✓	
Blue headed bee-eater (<i>Merops m. muelleri</i>)			✓	
Carmine bee eater (<i>Merops nubicus</i>)			✓	
Paradise flycatcher (<i>Terpsiphone viridis</i>)			✓	
Namaqua dove (<i>Oena c. capensis</i>)			✓	
White headed buffalo weaver (<i>Dinemellia dinemelli</i>)			✓	
White browed sparrow weaver (<i>Plocepasser mahali melanorhynchus</i>)			✓	
Ring neck dove (<i>Streptopelia capicola</i>)	✓			
Eastern pale chanting goshawk (<i>Melierax poliopterus</i>)			✓	
Sacred ibis (<i>Threskiornis a. aethiopicus</i>)			✓	
Lesser Flamingo (<i>Phoeniconaias minor</i>)				✓

NAME	IUCN CATEGORY			
	Not Assessed	Yet	Least Concern (LC)	Near Threatened (NT)
Greater Flamingo (<i>Phoenicopterus roseus</i>)			✓	
Lesser egret	✓			
Intermediate egret (<i>Mesophoyx intermedia brachyrhynca</i>)			✓	
Greater egret	✓			
Goliath Heron (<i>Ardea goliath</i>)			✓	
Yellow billed stork (<i>Mycteria ibis</i>)			✓	
Red billed hornbill (<i>Tockus e. erythrorhynchus</i>)	✓			
White headed mouse bird (<i>Colius leucocephalus</i>)	✓			
Great white pelican (<i>Pelecanus onocrotalus</i>)			✓	
African hoopoe	✓			

Important Bird Areas (IBAs)

According to Nature Kenya (2013), IBAs cover all the key habitat types in Kenya; some are protected (gazetted forests and national parks), but many are not. IBAs include 22 forest (20 of them protected areas); 19 wetlands (only 5 protected); 12 semi-arid and arid areas (7 protected); 6 moist grasslands (3 protected) and 2 unprotected sites with cross-sections of different habitat types. Lake Turkana is listed as an Important Bird Area, though it has no official protection. The lesser flamingo is listed as one of the globally-threatened species and is notable because over 10% of the East African wintering population of Little Stint is found in Lake Turkana. Populations of IBA Trigger Species⁷ are as shown in Table 5.5 below.

Table 5.5: IBA Trigger Species in Block 10BA

Species	Population Estimate	IBA Criteria	IUCN category
Greater Flamingo (<i>Phoenicopterus roseus</i>)	2,580 individuals	A4i	Least Concern
Pink-backed Pelican (<i>Pelecanus rufescens</i>)	1,060 individuals	A4i	Least Concern
Spur-winged Lapwing (<i>Vanellus spinosus</i>)	6,930 individuals	A4i	Least Concern
Common Ringed Plover (<i>Charadrius hiaticula</i>)	13,600 individuals	A4i	Least Concern
Kittlitz's Plover (<i>Charadrius pecuarius</i>)	8,600 individuals	A4i	Least Concern
Caspian Plover (<i>Charadrius asiaticus</i>)	500 individuals	A4i	Least Concern
Little Stint (<i>Calidris minuta</i>)	113,000 individuals	A4i	Least Concern
A4iii Species group - (water birds)		A4iii	Least Concern

⁷ Source: Nature Kenya, The East Africa Natural History society, <http://www.naturekenya.org/content/important-bird-areas> retrieved on 02/10/2013

Key:

A4i: Site known or thought to hold, on a regular basis, $\geq 1\%$ of a biogeographic population of a congregatory waterbird species. (This applies to 'waterbird' species as defined by Delaney and Scott (2006) Waterbird Population Estimates, Fourth Edition, Wetlands International, Wageningen, The Netherlands, and is modelled on Criterion 6 of the Ramsar Convention for identifying wetlands of international importance. Depending upon how species are distributed, the 1% thresholds for the biogeographic populations may be taken directly from Delaney & Scott, they may be generated by combining flyway populations within a biogeographic region or, for those for which no quantitative thresholds are given, they are determined regionally or inter-regionally, as appropriate, using the best available information.)

A4iii: Site known or thought to hold, on a regular basis, $\geq 20,000$ waterbirds or $\geq 10,000$ pairs of seabirds of one or more species. (This is modelled on Criterion 5 of the Ramsar Convention for identifying wetlands of international importance.)

d) Breeding seasons

Breeding seasons for various fauna are as shown in Table 5.6 below.

Table 5.6: Breeding seasons for fauna in Block 10BA

Fauna	Breeding/Nesting season
Fish	January to March and July to September
Crocodiles	November to December, peak hatching in March
Turtles	November to December
Birds	March and May and in November

5.3.2 Ecosystem services

According to IFC PS 6 'ecosystem services', refer to the benefits that people, including businesses, derive from ecosystems, which can be organized into four types: (i) provisioning services, which are the products people obtain from ecosystems; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the non-material benefits people obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services⁸.

With its endowment in natural resources, the area offers an array of ecosystem services. The Doum palm trees (*Hyphaene thebaica*) (Plate 5.13) have various uses in the community. The fronds are used to thatch the houses, make mats and baskets while the fruits are a source of food to the locals. The desert rose (*Adenium obesum*) provides aesthetic beauty and landscape enrichment. Among herbs used in traditional medicinal values are *Aloe secudiflora*, *Acacia reficiens* and *Caraluma acutangula*. The hard wooded *Acacia tortilis* is a source of domestic fuel. Other natural resources are used in detoxification and decomposition of wastes, air and water purification, water flow regulation, cultural support and biodiversity maintenance. Table 5.2 below shows uses of various trees and shrubs in the project area.

⁸ IFC, January 2012. Biodiversity Conservation and Sustainable Management of Living Natural Resources.

Table 5.7: Uses of selected vegetation

Botanical name	Traditional name	Uses
<i>Acacia nubica</i>	Ekalale	Considered to be having varied medicinal uses
<i>Acacia reficiens</i>		Direct values of food (bark used to curdle milk) and the gum is also edible and its thorns are used to pierce the ears
<i>Acacia tortilis</i>	Etirr	Medicine for stomach ache and diarrhoea. Used for witchcraft among some communities and it's also used as a domestic fuel (the hard wooded Acacia)
<i>Adenium obesum</i>	Egales	Aesthetic beauty and landscape enrichment; the bark infusion is used to remove ticks and lice from cows and camels
<i>Aloe secudiflora, Acacia reficiens, Caraluma acutangula</i>		Medicinal plants
<i>Balanites aegyptiaca</i>	Eroronyit	Its fruits are edible, yields edible oil, roots used as an emetic and the gum is used to fix spearheads and arrowheads to their shafts
<i>Blepharis integrifolia</i>	Ekuleu-lochi	Whole plant boiled and decoction drunk as a remedy for fever
<i>Barleria acanthoids</i>	Lekwelito	Medicine for goats
<i>Calotropis procera</i>	Etetheru	Dried stem used as fencing material. Dried leaves eaten by goats. Roots are a remedy for coughs, snakebites, hook worms and it is an emetic
<i>Caralluma flara</i>	Lochen or Lokosuno	Whole plant sap is applied on small wounds for treatment
<i>Commiphora rostrata</i>	Lokimeta	Bark chewed or decoction given to children with diarrhoea and also young goats with a similar problem
<i>Conostomium quadrangulare</i>	Lokoroumwe	Used as a purgative. The roots are boiled and the decoction drunk warm. Root infusion used for eye diseases
<i>Cynachuma defoliascens</i>	Elagama	Plant infusion drunk for painful menstruation
<i>Delonix elata</i>	Ekurinchanait	The barks are used to cure bilharzia and diarrhoea

Botanical name	Traditional name	Uses
		whereas the twigs are used to make tooth brush. The twigs is remedy of bleeding gums and other mouth diseases
<i>Hyphaene thebaica</i>		Building of <i>Manyattas</i> (houses) and the branches are used in fencing the livestock yards
<i>Ingigofera spinosa</i> and <i>Grass spp</i>	Erin	Forage for livestock especially during dry periods.
<i>Pterodiscus ruspolis</i>	Otuk	Whole plant infusion is given to cows to remove a problematic placenta after delivery
<i>Salamothomnus rivae</i>	Loboria	For treatment of stiff and painful hips (lumbago), an infusion of the bark is drunk
<i>Salvadora persica</i>	Esekon	The stem of the plant is a source of toothbrush. The stem contains an antibiotic that prevents toothache. The decoction of the roots serves as a remedy of gonorrhoea, stomach problems and spleen pain

Some birds (Ground hornbill, Green wood hoopoe, Spotted eagle owl, and Night jar) and frogs are considered prophets of rain by the local community. Lake Turkana is rich in a variety of fish species, which are a source of livelihood for the fishermen and source of food for the local people (Plate 5.15). The fish are consumed both locally in Turkana and nationally as fish collected are transported to other areas of the country, including Nairobi, Mombasa and Kisumu, by middlemen. A fisher woman from Kalokol reported that she exports her fish as far away as the Democratic Republic of Congo.

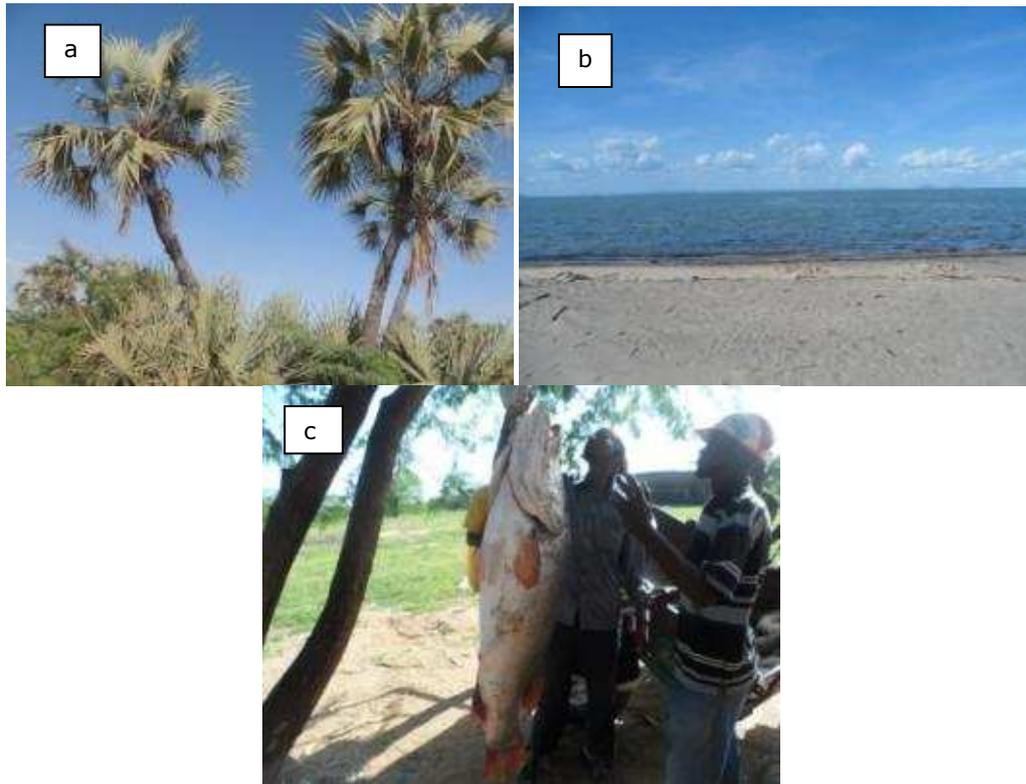


Plate 5.15: Ecosystem services (a) Doum palm trees along Lake Turkana beach in Lobolo area, (b) Lake Turkana in Lobolo area, (c), Fish being weighed for sale at the Impressa Beach Management unit, Kalokol

5.4 Cultural heritage

Culture is the way of life of a people, their behaviours, beliefs systems, values, and symbols that they accept and that are passed on by communication and imitation from one generation to another (Li & Karakowsky, 2001). Culture exists in tangible and intangible forms. Tangible forms of culture consist of immovable heritage sites such as burial and memorial places and places of worship. The intangible forms of culture on the other hand are manifested in oral traditions and expressions including social practices, rituals and festive events.

5.4.1 Archaeological and Palaeoanthropological sites

The project area is rich in cultural and historical sites (Figure 5.10 below). Lake Turkana is a geologically recent phenomenon, but what is now the Lake Turkana Basin has an extremely rich prehistoric record that stretches back to the Cretaceous Period. For more than 40 years, Lake Turkana Basin has been an active arena for sustained archaeological, geological and paleontological research on human behavioural, biological and cultural evolution (NMK, 2012). Ample fossil evidence indicates that Lake Turkana's shores were teeming with wildlife, including prehistoric elephants and three-toed ancestors of the horse, and before them some truly enormous dinosaurs such as the 50t, 25m long *Diplodocus*, a fossil of which was found near Lokitaung on the west side of the lake (Finke, 2001). Other existing archaeological sites include Nariokotome, which is at the western shores of the lake where the "Turkana Boy", a nearly complete skeleton of a hominid classified as either *Homo erectus* or *Homo ergaster*

who died in the early Pleistocene period was discovered. Plate 5.16 shows the site in Nariokotome where fossils of Turkana boy was found.

The Nachukui formation⁹ is also found in the project area. This volcano-sedimentary series is also located on the Western shore of Lake Turkana and includes archaeological sites with the earliest stone tool production in the world. The Nachukui formation sites were discovered by H. Roche and M. Kibunjia (jointly funded by the National Museums of Kenya (Nairobi), and the Mission Préhistorique au Kenya, France. The Nachukui formation sites are:

- Lokalalei 2c - a Pliocene site (2.34 Ma) located in Kalocho in the south part of the Nachukui formation. The site assemblage includes Oldowan¹⁰ artifacts.
- Kokiselei 5¹¹ - dated to around 1.70 Ma and considered transitional from Early Oldowan to Early Acheulean. Over 1600 Oldowan artefacts have been recovered from the site.
- Kokiselei 4 - dated 1.65 Ma is one of the oldest Early Acheulean¹² sites in Africa. A small assemblage of tools which includes Acheulean hand axes, proto-hand axes, picks, flakes and cores have been discovered in the site.
- Nadung'a 4 - found in Nariokotome area and dated to the very end of the early Pleistocene or the beginning of the middle Pleistocene about 0.7 Ma.

From the field observations and focus group discussion in Nachukui, it was mentioned that stone-age tools were also found in Nachukui 6 (Plate 5.16) and these were discovered by officials from NMK. In addition, an official from NMK, Nairobi listed the following areas that also contain cultural sites; Lomekwi, Lothagam, Kalokol, Kalodir, Lorachangam, Muruorot, Loperot, Eliye springs, Nakwai, Napudet, Egoro, Kanapoi, Losodot and Lodwar.



Plate 5.16 (a) Nariokotome archeological site where Turkana boy was found, (b) Nachukui 6

⁹ <http://archaeology.about.com/od/lowerpaleolithic/qt/Nachukui-Formation.htm>

¹⁰ Oldowan is the oldest-known stone tool industry. The oldowan technology is typified by choppers which are stone cores with flakes removed from part of the surface, creating a sharpened edge that was used for cutting, chopping, and scraping.

¹¹ At 1.7 million years of age, Kokiselei is one of the earliest expressions of Acheulean in Africa

¹² Acheulean stone tools are the products of *Homo erectus*, a closer ancestor to modern humans. Acheulean technology is best characterized by its distinctive stone hand axes. These hand axes are pear shaped; teardrop shaped, or rounded in outline, usually 12–20 cm long and flaked over at least part of the surface of each side. The hand axes were multi-purpose tools used in a variety of tasks which include butchering and skinning of game, digging in soil, and cutting wood or other plant materials.

5.4.2 Tangible cultural heritage

Apart from the archaeological sites, there also exist immovable heritage sites in the project area. Such sites include shrines such as *Namorutung'a* (Plate 5.17), a small cluster of cylindrical stones along Lodwar-Kalokol road. It is believed that when one passes the area he or she should put a stone on top of the cylindrical stones and pray for blessings. The same rituals also happen on Kalimapus hills and in Kalulaswe in Eliye Springs.

Another cultural site is *Narowebeby Lokodongany* where the first resident of Lomopus died and was buried. His gravesite exists to date. He was a great diviner and is still revered by the Lomopus community. There is restricted access to the site, and only the elders are allowed by those in charge of the site. When the elders visit, they are supposed to perform rituals, and dances, as well as offer sacrifices, and traditional cultural prayers. In addition, when the community is faced with calamities, the elders visit the place to petition the gods. The site is marked with stone pillars piled one upon the other.

Other immovable heritage sites in the area include gravesites, initiation places (*ekitoe angasapanet*) usually under big trees, meeting places also under big trees and the diviner's manyattas. The area has also churches meaning that it is a highly religious population.

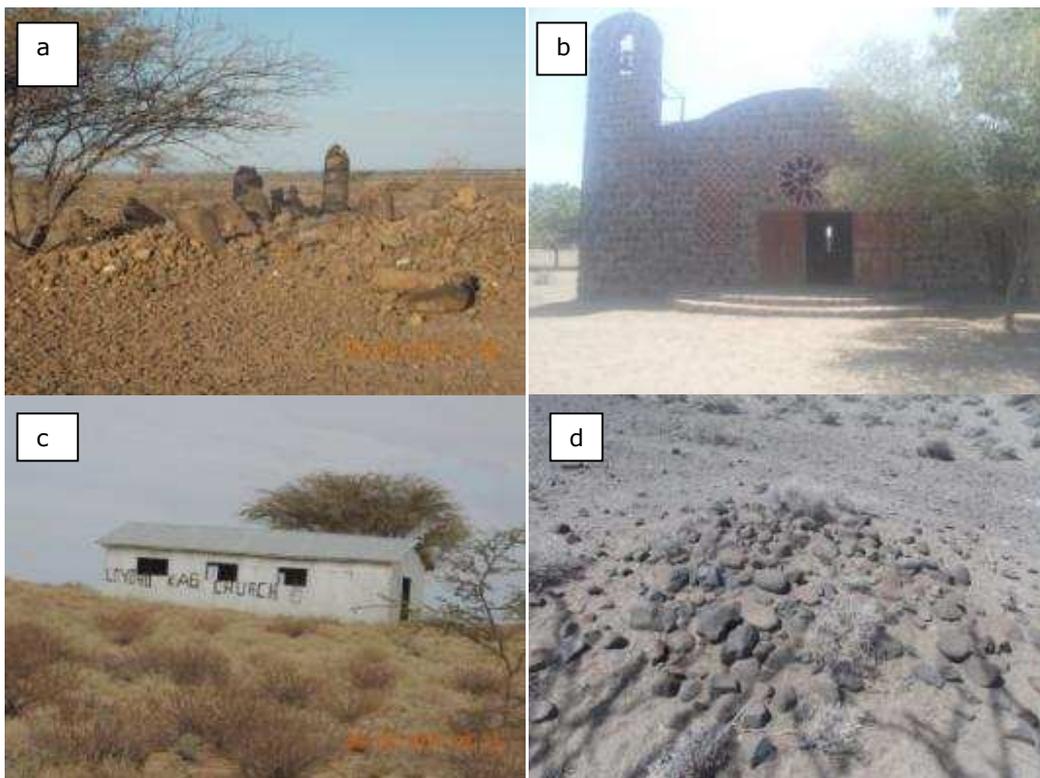


Plate 5.17: Cultural sites: (a) Namortunga cultural site; (b) Nachukui Catholic church; (c) Loyoro KAG Church; and (d) Gravesite in Kalimapus

5.4.3 Intangible cultural heritage

A people's belief system, oral traditions, customs, social practices, rituals and festive events form the intangible culture. In the project area it was evident that the Turkana people have various belief systems concerning their society and their resources.

From the focus group discussions it came out clearly that adultery is prohibited and any adulterous woman is sent to bring a camel from her father for cleansing and an adulterous man is fined a given number of animals. They also believe that calamities occur upon families of the adulterous persons such as loss of livestock and even death of children.

The women in the project area are also forbidden from giving their daughters hand in marriage and are not allowed to give drinking water to their husbands with their *khangas* knotted. The girls are not allowed to choose the man to marry and are also discouraged from marrying poor men who do not have enough livestock. Amongst the Turkana, men are not allowed to enter the kitchen and cook.

Since the Turkana are mainly pastoralists, the animals kept have also cultural functions. The animals are used to pay dowry during the traditional weddings. Dowry can be paid in form of cattle, camels, sheep, or goats, or a combination of these animals. In addition, a fat ram is taken to the girl's mother as a gift of appreciation. During traditional weddings, a bull or a camel is killed to mark the climax of the ceremony. The animals are also a source of food. One focus group discussion (FGD) participant from Kalokol mentioned that donkey meat is the best because it has some medicinal value. It was also highlighted that when goats are slaughtered for specific functions the men eat the head and legs, the boys eat the breast area to the rear end and the women are eat the remaining parts.

During ceremonies such as burial, initiation and births, animals are also used. They mentioned that during burials, cattle, camels and goats may be slaughtered to feed the mourners and during initiations mainly goats are slaughtered. Whenever a new born is delivered an animal is slaughtered, however, this depends on the clan but mainly goats are used. The Turkana prefer baby girls as opposed to baby boys because the girls are a source of wealth in terms of bride wealth. Livestock in Turkana are also used to pay fines and are given to visitors as gifts. Donkeys and camels are also used as means of transport as they carry property and old people when migrating.

5.5 Socio-economic environment

5.5.1 Administrative setting

Turkana County is split into six (6) sub-counties, namely: Turkana North, Turkana Central, Turkana West, Turkana South, Turkana East and Loima. The sub-counties are further subdivided into smaller administrative units known as divisions. The project area is concentrated in the sub-counties of Turkana North and Central. Turkana North is composed of Lokitaung, Kaaleng, Lapur, Kaikor, Kataboi and Kibish divisions while Turkana Central is made up of Kalokol, Kerio and Central divisions.

Politically, Turkana has three electoral constituencies, namely Turkana North (composed of Turkana North and West sub-counties), Turkana Central (comprising of Turkana Central and Loima sub-counties) and Turkana South (which covers Turkana East and Turkana South sub-counties). This study did not put emphasis on the Loima, Turkana West, South and East sub-counties as they fall outside Block 10BA.

5.5.1.1 Turkana Central District

The sub-county consists of three divisions namely Kerio, Kalokol and Central. The divisions are further subdivided into eight locations and twenty one sub locations. Kerio Division is the largest with an area of 2704.2 sq. km followed by Kalokol and Central occupying 2139.9 sq. km and 831.8 sq. km respectively. Lake Turkana falls partly in Kerio and Kalokol divisions.

Table 5.3 below shows the administrative units and their respective areas, number of locations as well as number of sub-locations.

Table 5.8: Area of the Turkana Central sub-county by Administrative Units

Division	Area (sq. km)	No. of Locations	No. of Sub-locations
Kerio	2704.2	3	8
Kalokol	2139.9	3	8
Central	831.8	2	5
Total	5675.9	8	21

Source: 2009 Kenya Population and Housing Census

5.5.1.2 Turkana North Sub-County

Turkana North is composed of four divisions including Kaaling, Lapur, Lokitaung and Kibish. These divisions are divided into fourteen locations and thirty eight sub locations. Kaaling is the largest of the divisions occupying an area of 8225.8 sq. km followed by Kibish, Lapur and Lokitaung covering 5633.2 sq. km, 2436 sq. km and 1857.8 sq. km respectively. (Kenya Population and Housing Census, 2009)

The table below shows the administrative units and their respective areas, number of locations as well as sub-locations.

Table 5.9: Area of the Turkana North Sub-county by Administrative Units

Division	Area (sq. km)	No. of Locations	No. of Sub-locations
Kaaling	8225.8	4	13
Lapur	2436	3	7
Lokitaung	1857.8	4	11
Kibish	5633.2	3	7
Total	18152.8	14	38

Source: 2009 Kenya Population and Housing Census

Block 10BA covers Kalokol and Lokitaung divisions of Turkana Central and Turkana North respectively. Some parts of Lapur division (Todonyang) in Turkana North also lie in the Block. Therefore the ESIA covered the three divisions.

The project area is administered from the local grassroots level, sub-location, with the hierarchy ascending to location, division, district levels (sub-county) and the county level. All these are under the provisional administration which is slowly changing to the county administration and are managed by the deputy county commissioner (formerly district commissioners) assistant county commissioners (formerly district officers) chiefs, assistant chiefs and a network of village elders.

The constitution of Kenya (2010) provides for devolved system of government through the creation of county governments. The county government is headed by an elected governor. The county has also a senator who is also elected and represents the county in the senate. Other elected members include members of the national assembly who represent the constituency in the parliament as well as members of the county assembly who represent wards in the county.

Figure 5.11 presents the administrative units within the project area while tables 5.5 and 5.6, show the administrative structures at national and county government.

Table 5.10: Administrative structures-National Government

Level of Governance	Authority in Charge	Person in Charge
County- Turkana	County Commissioner	Mr. J.M Mathenge
District (Sub-Counties)	Deputy County Commissioner	Turkana North; Mr. Abdi Fatar Mohamoud Turkana Central; Mr. Duncan Darusi
Divisions	Assistant County Commissioner	Central D.O 1; Joshua Mwangi Kalokol D.O; David Nyachuma Lokitaung D.O 1; Mr. Tom Webi Konyole
Locations	Chiefs	Kalokol; Mr. Daniel Namojong' Namukuse; Mr. Moses L. Lokala Kataboi; Mr. Francis Naseki Nachukui; Mrs. Esther Manna
Sub locations	Assistant Chiefs	Namadak; Mr. Samuel Lokoan

Table 5.11: County Government Administrative Structure

Level of Governance	Authority in Charge	Person in Charge
County	Governor-	Mr. Josephat Nanok
County	Senator-	Mr. John Munyes
Constituency	Members of the National Assembly	Turkana North; Mr. Christopher Nakuleu Turkana Central; Mr. John Lodepe Nakara Women Representative; Mrs. Joyce Emanikor
Wards	County Representatives	Kalokol Ward; Mr. John Lolimo

5.5.2 Demographics

The proposed exploratory drilling project lies in both Turkana Central and Turkana North sub-counties of Turkana County, which according to Kenya Population and Housing Census (2009) had a population of 855,399 in 2009 (Table 5.6). According to the Turkana County Development Profile (2013), the county was projected to have a total population of 1,036,586 in 2012 and 1,427,797 in 2017. These projections are based on a population growth rate of 6.4% assuming constant mortality and fertility rates (Unpublished Turkana County Development Profile, 2013). Turkana North sub-county has seven divisions while Turkana Central has five divisions (Kenya National Bureau of Statistics (KNBS), 2009). The table below shows the demography of both Turkana North and Central sub-counties and their divisions and Locations according to the KNBS (2009).

Table 5.12: Demographic data by sub-county and divisions

1. Demography by sub-counties							
Sub-county	Male	Female	Total population	Area in Sq Km	Density		
Turkana North	197508	176908	374414	35418.8	11		
Turkana Central	126539	128067	254606	14590.7	17		
2. Demography by Division							
Turkana North sub-county							
NO	Divisions	Male	Female	Total population	Area in Sq Km	Density	
1	Lokitaung	20,029	18,713	38,742	1,857.8	21	
2	Lapur	9,777	7,702	17,479	2,436.0	7	
3	Kibish	11,380	10,293	21,673	5,633.2	4	
4	Kaaleng	27,469	23,724	51,193	8,225.8	6	
6	Oropoi	32,144	29,390	61,534	5,534.8	11	
7	Kakuma	49,361	45,330	94,691	3,466.5	27	
8	Lokichogio	47,348	41,754	89,102	8,264.8	11	
Turkana Central sub-county							
NO	Divisions	Male	Female	Total population	Area in Sq Km	Density	
1	Central	28,531	29,759	58,290	831.8	70	
2	Kerio	17,231	16,999	34,212	2,704.2	13	
3	Loima	21,003	19,901	40,904	3,429.0	12	
4	Kalokol	20,715	21,457	42,172	2,139.9	20	
5	Turkwel	39,077	39,951	79,028	5,485.8	14	
3. Demography by Location							
Division	Location	Male	Female	Total	Households	Area (km ²)	Density
	Kalokol	9,484	9,993	19,477	3,684	1,134.9	17
	Namukuse	5,459	5,403	10,862	1,629	139.7	78
	Kangatoha	5,772	6,061	11,833	1,969	865.3	14
Lokitaung	Lokitaung	3,535	3,704	7,239	1,284	316.2	23
	Kataboi	4,524	4,237	8,761	1,460	908.6	10
	Ngissiger	7,199	6,601	13,800	2,210	397.5	35
	Kokuro	4,928	3,812	8,740	1,259	1240.0	7

From the above data, we can deduce that population in the project area is sparsely distributed. Namukuse has the highest population density of 78 people per sq. km followed by Ngissiger, Lokitaung, Kalokol, Kangatoha and Kataboi with population densities of 35, 23, 17, 14 and 10 persons per sq. Km respectively. Kokuro is the least populated with a population density of 7 persons per sq. Km. It is also worth noting that locating a proposed exploratory drill site within Kokuro, Kataboi, Kangatoha and Kalokol locations would have

minimal negative impacts on the human population. However, should the drill site be located in Namukuse, then displacement is likely to occur thus greater negative impact would be felt. The population of the area is also enough to provide unskilled labour during the drilling period. The figure 5.12 below shows the population density of the project. The area has many clans distributed in the locations. Table 5.13 shows the clans in the specific locations in the project area.

Table 5.13: Clans in the Project Area

Local Area	Clans
Lobolo	Ngissiger; Ngikomoso-roko; Ngiduya; Ngiponga; Ngimeturuana; Ngineripur; and Ngipacho.
Kalokol	Ngimataperi; Ngilthiger; Ngilukumong; Ngiramuk; Ngikwatialia; Ngiyapakuno; and Ngibochores .
Loyoro	Ngipucho; Ngikomoso-roko; Ngiduyia; Ngiponga; Ngimacharimukata; Ngimeturuana; Ngineripur; and Ngidocha.
Katiko	Ngissiger; Yapakuno; Kwatela; Bochoros; and Lukumong.
Lomopus	Emachari; Ngimeturain; Ngissiger; Ngikomoso-roko; Ngiduiya; Ngisalika; Ngipucho; Ngithaparakolong; Ngikalesio; Ngidocho; Ngipongo; Ngingolerot; Ngikatap; and Ngimacharikwa.
Kalimapus	Ngilukumong; Ngissiger; Ngiyapakono; Ngikwatela; Ngibochoros; and Ngimataperi.
Eliye Springs/Ille	Ngikatap; Ngimosoro-roko; Ngissiger; Ngiponga; Ngisaliua; Ngipucho; Ngiduya; Ngimeturana; Ngilukumong; Ngitoropauolong; and Ngibochoros.
Lomekwi	Ngissiger; Ngilukumong; Ngibochoros; Ngiyapakuno; Ngikamatak; and Ngikwatela.
Lokitaung	Ngissiger; Ngiyapekuno; and Ngikwalela.
Todonyang	Ngissiger; Kwaleta; Yapakuno; Bochoros; and Ngilukmong.
Lowarengak	Ngissiger; Ngilukomongo; Ngikwatelo; Ngiyapakuma; Ngibochorasi; and Ngikamatak.
Nachukui	Ngiponga; Ngissiger; Ngipucho; Ngimeturuana; Ngineripur; and Ngiduya.

5.5.3 Ethnic groups

The main indigenous communities inhabiting Turkana North and Central sub-counties include the Turkana and Elmolo. These communities are said to have all along been responsible for the preservation and maintenance of traditional knowledge and practices that are highly relevant for the sustainable use of biodiversity of Lake Turkana (Socio-economic Analysis and Public Consultations of Lake Turkana Communities - Draft Report, 2009)

Other minor tribes in the block include Luo, Kisii, Kalenjin, Luhya, Kikuyu and Somali who are mainly civil servants and businessmen. The Turkana are the dominant ethnic group in the block. The data collected during this study shows that 100% of households sampled from the project area are Turkana.

From the FGDs with the community members and household interviews it was established that the clans found within the project area are Ngissiger, Yapakuno, Ngikomoso, Ngiduya, Ngiponga, Ngipucho, Ngimeturuana, Ngineripur and Ngimecharimukata. In addition, Katiko and Todonyang areas have the Kwatela, Bochoros and Lukumong clans. Ngissiger is the dominant and indigenous clan in the project area. All the clans have social stratification in that there is a social hierarchy system where the senior most in the community are the elders, the chief and diviners. The other community members derive their status depending on their family status as well as time and age at initiation (*asapan*). From the FGDs, it emerged that decision making is done by elders who from time to time, depending on the nature and magnitude of the matter at hand, may consult with the local chief.

Apart from decision making, the elders (Plate 5.18) also perform the following duties:

- Admitting and/or expelling visitors/foreigners to the community;
- Promotion of education through monitoring of the school going children;
- Conflict resolution;
- Counselling troubled community members; and
- They are the custodians of the Turkana culture.



Plate 5.18: Some Turkana elders in Kalimapus area

The women (Plate 5.19) also have their culturally defined duties to undertake. These include:

- Construction of the manyattas (family house);
- Fencing of the homestead;
- Taking care of the homestead and children;
- Serving the husband;
- Preparation of food;
- Carrying of the husbands traditional stool (*ekicholong*) to meeting places;
- Milking of goats and sheep;
- Tending the small animals like goats and sheep; and
- Charcoal making as well as weaving to supplement the family income.



Plate 5.19: Turkana women in Lomopus

The youths in the community are tasked with duties such as fishing, provision of security to the sisters, grazing livestock, going to school and joining the women in charcoal burning. In addition, during periods of drought they move with the animals from place to place in search of pasture and water for their livestock. The young children, however, do not have culturally defined duties but depending on the households, the parents may assign light household chores to them.

Some of the common duties assigned to the young children may include:

- Looking after the young goats (kids);
- Going to school; and
- Running errands in the home.

The people who live around Kalokol, Lowarengak, Kalimapus, and Kataboi depend largely on Lake Turkana for their livelihood through fishing and resultant fish trade. It is therefore worth noting that any activity that interferes with their livelihood activities around the lake will lead to conflict. On the other hand, those whose livelihoods entirely depend on pastoralism will get angered in an event that their pastureland and water points are interfered with. Other common sources of conflicts in the project area are:

- Trespassing;
- Affairs with other people's spouses;
- Scrambling for pasture and livestock watering points;
- Stealing another fisherman's catch;
- Stealing of fishing nets and fishing related items; and
- Conflicts emanating from child play.

Inter-clan and inter-ethnic relations

There is no bad blood between the Turkana clans inhabiting the project area. The clans cooperate in many cultural celebrations including initiation (*asapan*), marriage and funeral ceremonies. It emerged from the FGDs that the Turkana are very hospitable for example; after the Todonyang community members were attacked by the Merrille from Ethiopia, they moved to Lowarengak where they were welcomed and allowed to stay. This led to the creation of Todonyang village within Lowarengak town next to the Lowarengak Police Post. Similarly, there exist cordial relationships between the Turkana and members of the other ethnic groups living among them.

Conflicts occur between individual pastoralist families over pastureland and water for their livestock. This nature of conflict is, however, usually solved either through negotiations between the affected parties or involvement of elders who act as mediators.

5.5.4 Land rights and usage

Pursuant to Article 68 of the Constitution of Kenya (2010), three land laws came into effect on May 2nd, 2012. They are the National Land Commission Act, No. 5 of 2012, the Land Act, No. 6 of 2012 and the Land Registration Act, No. 3 of 2012. These laws are intended to speed up the social, economic and political development of the country. The National Land Commission Act gives effect to the objects and principles of devolved government in land management and administration. Some of the Commission's functions are as follows:

- Managing public land on behalf of the national and county governments;
- Recommending the national land policy to the national government;
- Initiating investigations on complaints into present or historical injustices, and recommending appropriate redress;
- Encouraging the application of traditional dispute resolution mechanisms in land conflicts;
- Alienating public land on behalf of and with the consent of the national and county governments;
- Ensuring that public land and land under the management of designated state agencies are sustainably managed for their intended purpose and for future generations; and

- Managing and administering all unregistered trust land and unregistered community land on behalf of the county governments.

The Constitution vests county governments with exclusive jurisdiction over specified key functions which will determine the nature, scope and content of county laws. The scope of functions will be determined by their legislation, regulations or policy instruments. The Constitution as a framework is very skeletal. The national and county governments are distinct (they have exclusive and some shared functions) and interdependent (part of one nation). Apart from guiding on policy issues, the national government is not permitted to interfere with these county functions. Counties are legal entities with power to sue and be sued. Their legislation will have full legal force. County legislation overrides national legislation, save for the Constitution. The governor and his deputy provide the overall policy direction and strategies. Policy implementation is a function of the county executive.

The Land Act revised and consolidated previously existing land laws so as to provide for the sustainable administration and management of land and land-based resources, among other things. In effect, the country's substantive land laws which were contained in several statutes were brought under this one statute. The Act recognizes four categories of land tenure, namely: freehold, leasehold, customary land rights and partial interest. Under this Act, title to land may be acquired through compulsory acquisition, settlement programmes, allocation, prescription, land adjudication, long-term leases exceeding twenty years, and transfers and transmissions. Public land may be allocated through application to a target group, public drawing of lots, public exchange of equal value, public auction to the highest bidder, public notice of tender or public request for proposals.

The Land Registration Act revises, consolidates and rationalizes the registration of titles to land, and gives effect to the principles and objects of devolved government in land registration and related purposes. It creates a uniform system of land registration, replacing the previous existing registration provisions contained in several statutes. Rather than various types of land registries all over the country, a uniform set of registries now exists under this law.

In Turkana and other parts of northern Kenya, land is governed by communal and traditional forms of tenure. The recent oil discovery there occurred on communal land. The exploitation of land-based resources should be guided by the National Land Policy and the Constitution of Kenya, which espouse the principles of prompt and fair compensation for all community land rights that have been compulsorily acquired, as well as that of benefit sharing with the affected communities. The Constitution (Schedule 5) provides a five-year period for Parliament to enact legislation to give effect to Article 63 (legislation on community land). Also pending is legislation regarding the environment (Article 72 - within four years), regulation on land use and property (Article 66 - within five years), and agreements in relation to natural resources (Article 71 - within five years).

Kenya's economy has depended on land and land-base resources since independence. The exploitation of natural resources is and will clearly continue to be of great interest to both the national government and the county governments. Turkana County, being the location of an oil-find (and more recently, water) is under current intense focus. The land is held in trust for the Turkana people by the Turkana County government (previously the local authority under the old constitution). Recent media reports have indicated that people from out of Turkana

County (some ill-intentioned) are heading to the county to acquire land there for speculative purposes, to the detriment of the land rights of the people of Turkana. The local people are fearful that they will lose their land to outsiders.

'Land grabbing' is an issue that has dogged the nation since independence. One of the reasons for the enactment of the new Constitution was to address the issue and end it decisively. The new land laws ensure that it will be a thing of the past. The National Land Commission now manages all trust land and community land on behalf of the County. Any attempts by unscrupulous people to obtain land in Turkana contrary to their interests, as has happened in many parts of the country in the past, will be in contravention of the law. The Turkana are also apprehensive that they will not benefit from the oil discovery, even though it is in their county, and that rather, outsiders will benefit instead, thereby perpetuating Turkana's marginalization. Stakeholders are concerned that that fear may lead to opposition of the project and perhaps other similarly good ones in the future. Another widely expressed concern is that Kenya will go 'the Nigeria way' of never-ending conflicts as a result of the oil discovery.

The mean holding size for Turkana County is two acres per household. This land is, however, communally owned and this represents the average holding size if it were to be shared. There is no land under title deeds in Turkana although some three people have certificates of title for the land they have acquired and owned (NEMA EAP 2009). From the study findings (Figure 5.13), 94% of the respondents own land communally while 6% have individual ownership of their land. Those with individual ownership indicated that their parcels of land were acquired through buying of plots especially in the shopping centres of Kalokol, Lowarengak, Lokitaung and Nachukui.

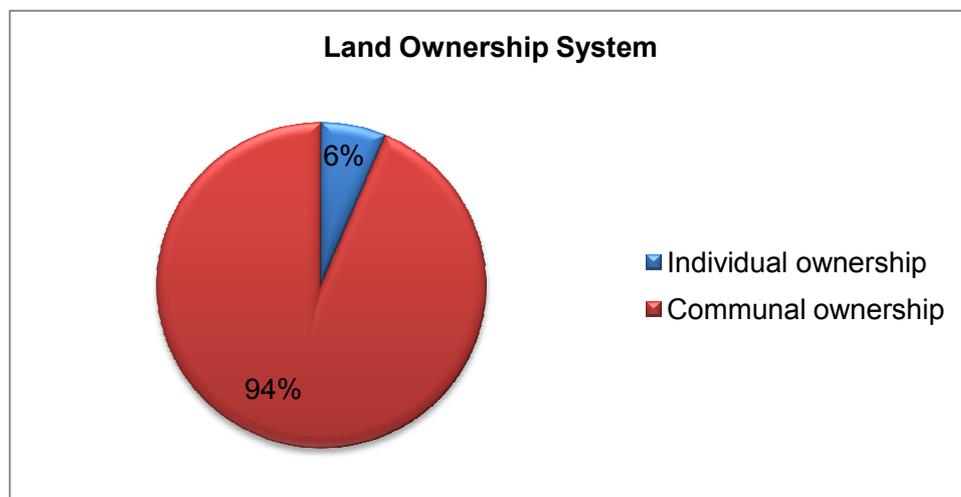


Figure 5.13: Land ownership system in block 10BA

Although the land is communally owned, the participants in FGDs mentioned that clan members live where their ancestors used to live hence they term that as their "own land". In addition, in the rural areas, people are free to graze in any area of their choice, but for settlement purposes one has to consult with the "owners" of that particular piece of land and

the chief of the area. However, in urban and market centres, land is allocated by the local authority at a fee.

Land adjudication has not begun in rural areas in Turkana county due to lack of staff and legal structure. However, demarcation is being done in urban centres to control haphazard developments. This has been done particularly in Lodwar and the main towns of Kainuk, Kakuma and Lokichoggio (NEMA EAP, 2009). Discussions with the community members revealed that for any outsider (a person not from within the community) to acquire land he/she has to consult with the chief in-charge, elders and the owners that particular area before any consent is granted.

Land use types in the area include residential, industrial, recreational, public purpose, public utility, commercial, agricultural, pastoralism, mining and quarrying (NEMA EAP, 2009). From the study findings (Figure 5.14), 75 percent of the respondents use their land for grazing, 23 percent for small scale farming, 1 percent for brick making while the remaining 1 percent used their land for construction. The fact that Turkana is a pastoralist community explains why many households use land for grazing. The pastoralists migrate with their animals out of and into the project area. During dry seasons, pastoralists from Kalimapus, Lomekwi, Kataboi and Lomopus move with their animals up to Lotikipi, Lokichoggio, Lowarengak and Todonyang in search of water and pasture for their livestock but return during rainy seasons.

A move seen as a shift from the norm, the agro-pastoralists are now establishing among the Turkana; they practice small scale farming particularly in the areas along the Turkwel River and luggas especially in areas of Loyoro, Lomopus, Katiko and Kataboi. Sorghum was the major crop planted with a few areas cultivating maize under irrigation.

Even though land in Turkana is communally owned, the decision on its use is a preserve of the local leaders in the area. From the field data (Figure 5.14 below), 89 percent of the respondents indicated that decision making on matters of land use rests with the chiefs and the elders. The remaining 11%, on the other hand, indicated that all community members are involved in making decisions on land. The proponent should consider consulting the elders and the chief of that particular place where a suitable site will be found.

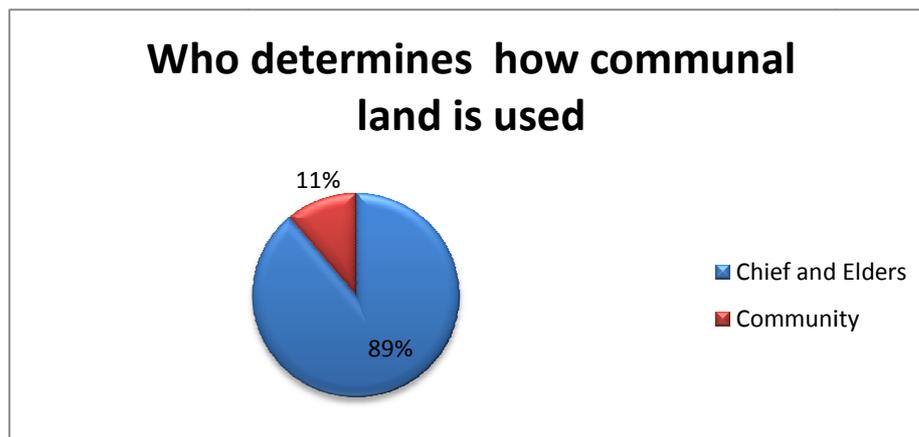


Figure 5.14: How communal land usage is determined.

5.5.5 Livelihood and economic activities

The Turkana mostly rely on nature for their livelihoods and economic activities. From the field observations, FGDs, interviews and public meetings with the community members it was highlighted that the people depend on livestock, weaving, charcoal burning, crop farming and small scale business. The study findings (Figure 5.15 below) show that 28% of the respondents depend on fishing as the main source of income, 24% on livestock keeping while another 20% rely on charcoal burning. Other respondents mentioned that they depend on weaving, small scale businesses, crop farming and casual labour. The others depend on formal employment from government and non-governmental organizations in the area.

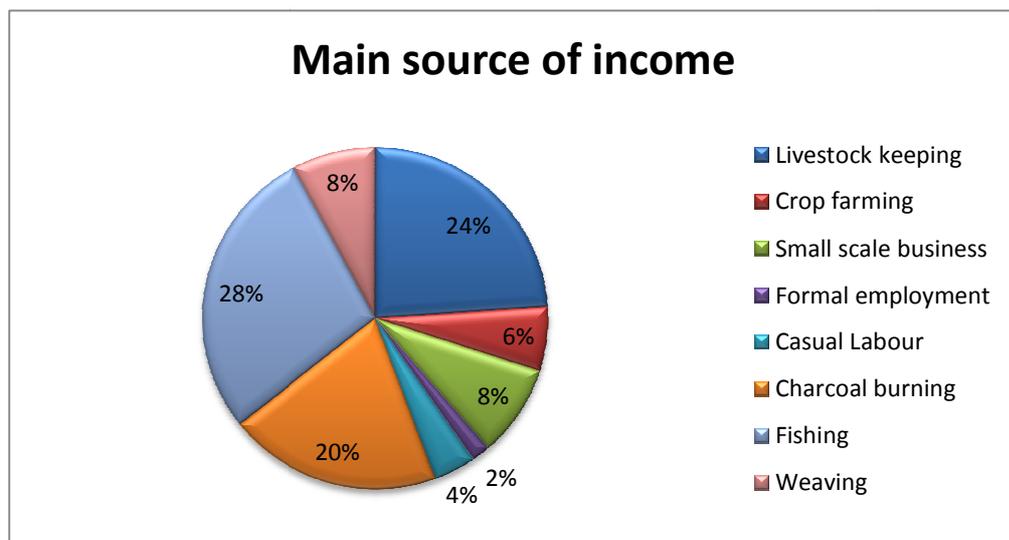


Figure 5.15: Main sources of income

5.5.5.1 Livestock

The livestock kept by the Turkana pastoralists include goats, sheep, camels and donkeys. A few cattle were also spotted. The Turkana derive social prestige from how large a person's herd is. In addition, large herds are a sign of wealth and insurance in cases where drought or diseases threaten to sweep away some herds. Furthermore, the livestock are also used for bridal wealth and payment of fines to the elders as detailed in Section 5.4.5. Pastoralism is practiced in the entire project area and the locals regard that all the areas are grazing areas however, during extreme dry seasons the pastoralists move with their livestock towards Lotikipi, Lokichoggio, Lowarengak and Todonyang in search of water and pasture. The pastoralists are, however, faced with a number of constraints including inadequate forage, frequent water shortage, animal diseases, as well as cultural attitude towards livestock that emphasize quantity rather than quality of breeds.

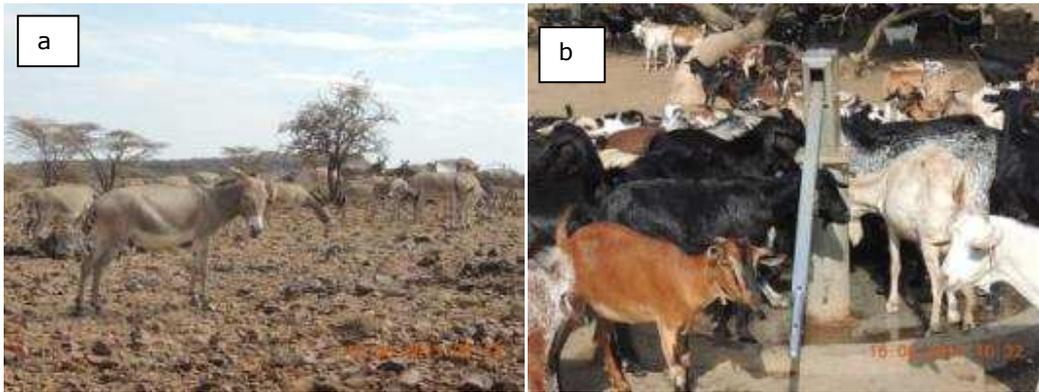


Plate 5.20: (a) herd of Donkeys grazing in Lokitaung; and (b) Goats at a water point in Kaekoropus water point in Lokitaung

5.5.5.2 Crop production

Crop production is practiced by agro-pastoralists. The majority of people who live along the Turkwel River mentioned that they practiced farming during wet season. It was observed that crop production is undertaken at *Ataporangdomo, Etiriwaye both in Loyoro and, Nakadukui, Namoru Egelon in Lomopus area*. Other farms are also found in, *Kataboi* (TRP Maize farm), Katiko, Lokiporonyang and Mana Alongoria. Refer to figure 5.16 for the locations of the farms in the area. Sorghum is the main crop grown. The harvest is dependent largely on the amount of rain realized in a good year and the volume of water flowing in the two major seasonal rivers of Turkwel and Kerio. It was, however, noted that among the agro-pastoralist families, livestock keeping is still valued. Indigenous fruits are also important sources of food, particularly during dry spells. Of the wild fruits, Doum palm (locally known as *mkoma*) is the most widely used. The Doum palm tree leaves are used for basket and mat weaving while *Acacia tortilis* is used for firewood and charcoal production (Socio-Economic Analysis and Public Consultation of Lake Turkana Communities - Draft Report, 2009). The Doum palm trees are mainly found along the coastline areas in Kalokol, Eliye Springs, Kalimapus, Lomekwi, Katiko, Lowarengak and Nachukui.



Plate 5.21: A maize farm at Lomopus

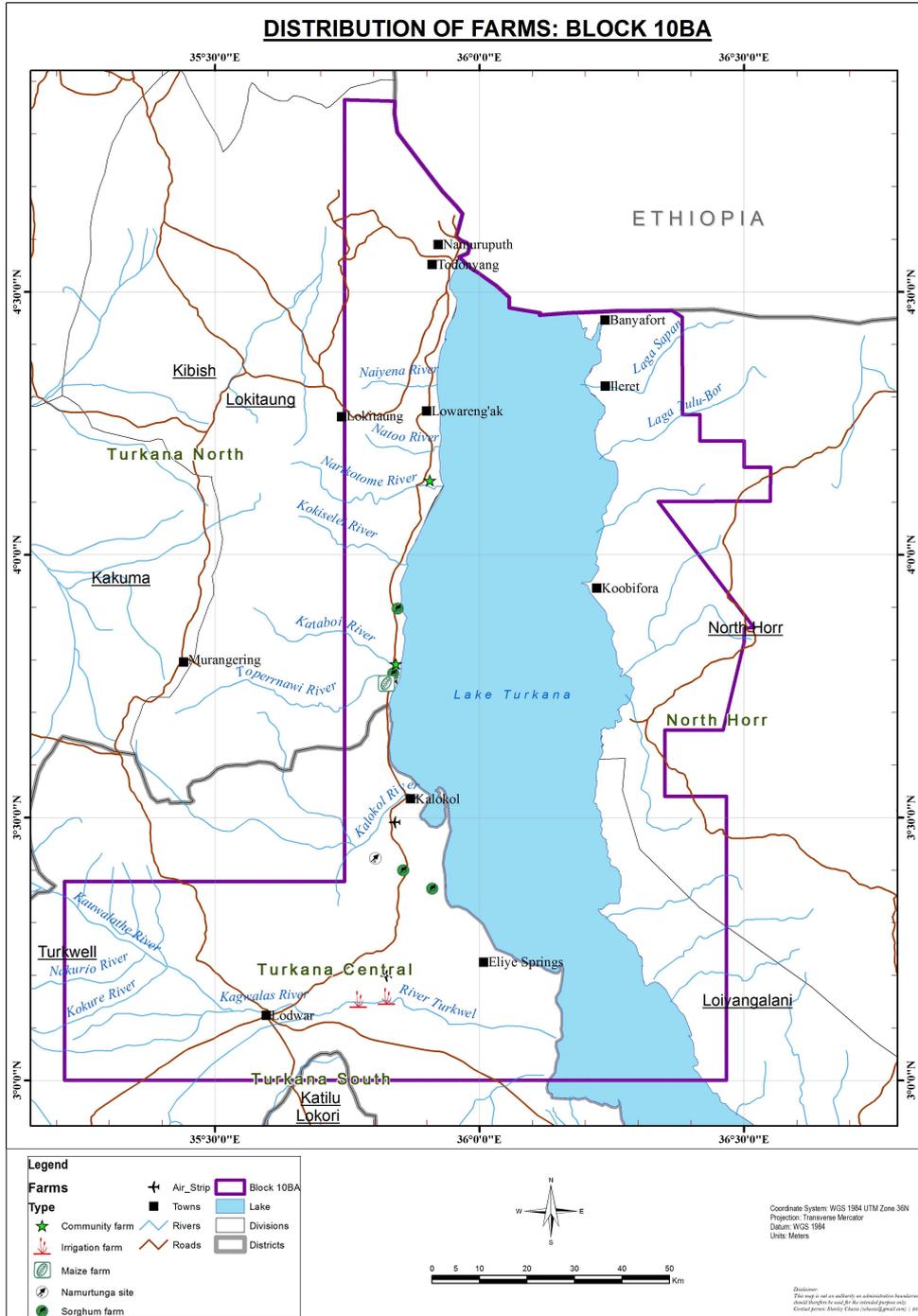


Figure 5.16 Location of Farms in the Project Area

5.5.5.3 Fishing

Fish is an important food item especially for those living around the lake in such areas as Kalokol, Kalimapus, Kataboi, Nachukui, Lomekwi, Lowarengak and Eliye springs. Nile Perch and tilapia are the key species of fish in the lake. Fishing is an all year round economic activity, however, some households do engage in it only during prolonged dry spells for subsistence.

5.5.5.4 Weaving

Weaving is carried out by the Turkana women (Plate 5.22 below). Doum palm leaves are used to make floor and table mats, baskets and hats. Weaving is practiced in all areas within Block 10BA where the palm tree grows. Some of the areas include Kalokol, Nareng'ewoi, Kangaki, Eliye springs, Kataboi, Lomekwi, Lokitaung and Lowarengak. The woven products are sold in the local markets.



Plate 5.22: Women weaving in Nareng'ewoi

5.5.5.5 Charcoal burning

It was observed that charcoal burning is taking root in the project area. This particularly takes place during dry spells as an alternative source of income. Majority of the charcoal burners in the project area are women. They use dried trees and shrubs as well as cut down the few existing trees to sustain charcoal burning. The shrubs used are mainly *Acacia*

reficiens (locally known as *Arekayan* or *Anywa* or *Eragai*) and *Acacia mellifera* (locally known as *Ebenyo*). Other species used for charcoal burning are *Abutilon fruticosum* and *Portulaca aleraceae*. The plates below show bags of charcoal on sale along the Kalokol - Lodwar road and Lokitaung-Lodwar road (Plate 5.23).



Plate 5.23:(a) Sacks of charcoal in Nareng'ewoi; and (b) a Turkana woman taking her charcoal on the roadside for sale at Nareng'ewoi

5.5.6 Natural resource base

The main environmental resources in the project area upon which the local Turkana people rely on for their livelihoods and economic activities are water, pastureland, minerals (including gemstones, gold, and salt licks), fish, wildlife and tourism resources, solar and wind energy (The Turkana District Vision and Strategy 2005). In addition, the natural environment also provides the local people with wild fruits, air and water purification, water flow regulation, biodiversity maintenance, aesthetic beauty and landscape enrichment, detoxification and decomposition of wastes, traditional medicinal values and domestic fuel¹³.

5.5.6.1 Fruits

The Doum palm trees are mainly found along the shores of Lake Turkana (Plate 5.24). The leaves of the Doum palms are used for thatching the houses, making mats and baskets for selling and the fruits are eaten.

¹³ Refer to section 5.3.2. on full details on ecosystem services



Plate 5.24: Doum palm trees along Turkana Beach

5.5.6.2 Water

Turkana's main sources of water are two seasonal rivers namely Turkwel and Kerio. Some households depend on Lake Turkana, springs, dams and pans for water. There also exist underground water points. Examples of notable springs in Block 10BA include Eliye and Lobolo springs. Figures 5.6 and 5.7, Section 5.2, show existing water sources in the area.

According to Mr. Kabogo, an official from Water Resources Management Authority (WARMA) in Lodwar, the main sources of potable water in the county are boreholes. These are supported by NGOs operating in the region, including the Kenya Red Cross, International Rescue Committee (IRC), Oxfam GB, and Practical Action. He stated that there are about twelve functioning boreholes in the entire county. In addition to the main sources of water in the area, Mr. Kabogo also mentioned some of the conserved and key water areas to include:

- Lodwar aquifer at Lokori;
- Kalokol extension from Lodwar; and
- Lokitaung extension from Kakuma.

The respondents from the project area were also asked to name their main source of water for domestic use. This is shown in figure 5.17 below.

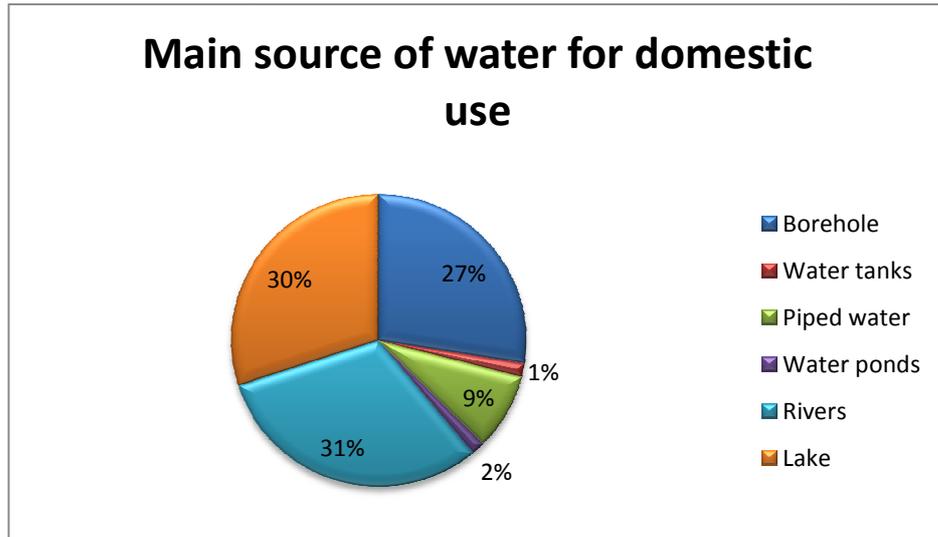


Figure 5.18: Main source of water for domestic water

From the field data 31% of the respondents indicated total reliance on river Turkwel for domestic use, 30% relied on Lake Turkana while 27% depended on deep boreholes run using generator and solar pumps for their daily water usage. In the market centres of Kalokol, Eliye and Lowarengak, 9% of the households rely on piped water although it is unreliable. Water is pumped twice a week and therefore the users store water in reservoir tanks. The Kalokol water is pumped by Kalokol Water Users Association. A further 2% percent of the respondents used water from water ponds and rain. Rain is unreliable in the area. Plate 5.25 shows sources of water in the project area.

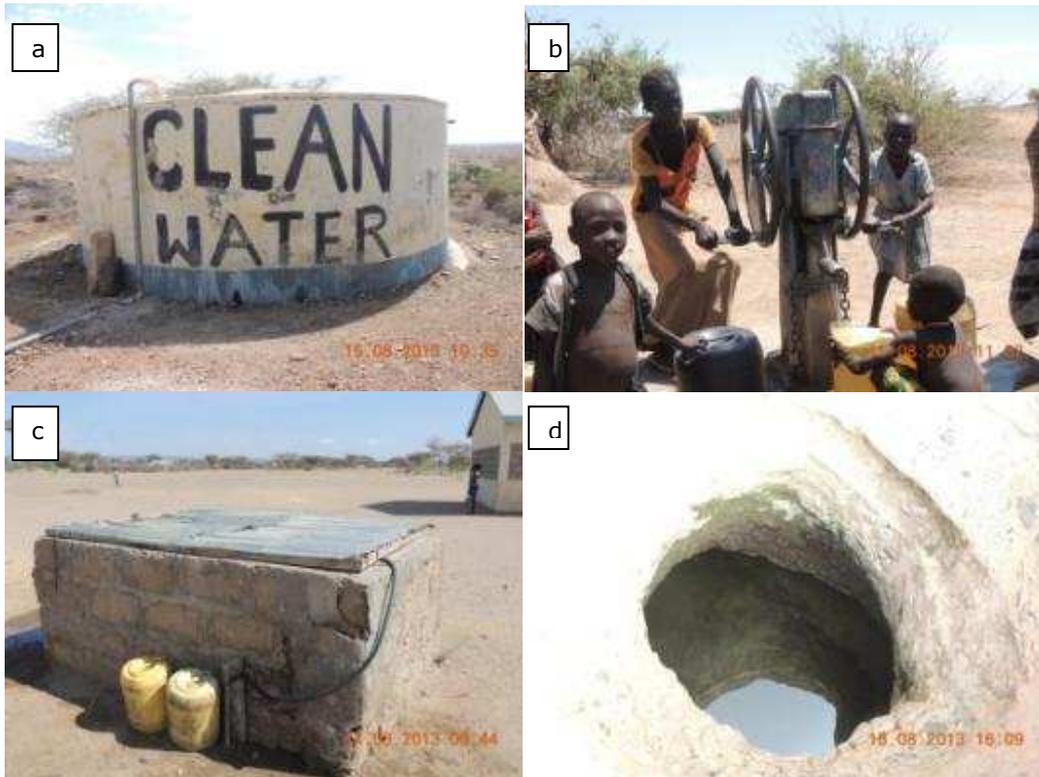


Plate 5.25: (a) A water tank in Lowarengak; (b) Pringan water tank in Lowarengak; (c) Water point at KAG Kalokol church; and (d) Kawalathe borehole in Lokitaung

The respondents and key informants highlighted that the water points face several challenges including:

- Poor management of existing water points; there exist several silted dams and pans as well as boreholes that are closed down due to disrepair. From field observation, there were more broken down water pumps than operating ones i.e., there are several broken down water pumps in Katiko and Lowarengak, Nachukui, Kalokol, Kachoda, Lobolo, Lomopus and Loyoro. Communities need to be empowered to manage existing water works responsibly.
- Pollution of rivers, dams and water pans: Animal and human waste pollution is common in the project area. This may be attributed to majority of the locals lacking latrines/toilets in their homes hence careless disposal of human wastes in the bushes and water bodies. In addition, the livestock consume water directly from the water points leading to further pollution. To curb this, the communities need to be empowered to control contamination of water sources by their animals and people.
- Long distance to the water points was also highlighted as a challenge. Women are forced to walk long distances to get water for domestic use. This is also the case with the young men who are tasked with grazing livestock. From the focus group discussions

and the public meetings it was mentioned that water was the main development priority in the area since there are few water points which are also unreliable¹⁴.

5.5.6.3 Fish

Lake Turkana has vast fishing potential and the capacity to provide sustainable income earning opportunities for the local people (Plate 5.26). According to Mr. Alex Lukhwenda and Mr. Michael Saina of the GoK - Fisheries Department, Kalokol, fishing in Lake Turkana faces the following challenges:

- Poor infrastructure in the area hindering access to key markets within and outside the project area;
- Poor and inappropriate fishing gears by fishermen;
- Inaccessibility to the fishing zones;
- Insecurity on the northern side at the Kenya - Ethiopia border; and
- Water pollution.

Other challenges to fishing include: reduced water inflows into the Lake Turkana due to over-abstraction of water on key rivers draining into the lake. Strategic interventions must focus on the sustainable use of upstream sources especially the Omo River. Mr. Saina further mentioned that the only protected fish breeding area along Lake Turkana is within Sibiloi National Park on the eastern side of the lake.

¹⁴ This is likely to change since the discovery of a large aquifer in Turkana County that can provide water for the country for about 70 years.



Plate 5.26: Fisherman carrying fish in Namakat

5.5.6.4 Medicinal plants

There is potential for commercial utilization of medicinal plants in the project area. This is, however, challenged by insufficient local capacity to harness the resource, poor market information and access. Below is table 5.14 showing the notable medicinal plants in the project area and their specific uses.

Table 5.14: Medicinal plants in Block 10BA

Scientific name	Local Turkana name	Use
<i>Barleria acanthoides</i>	Lekwelito	Medicine for goats
<i>Blepharis integrifolia</i>	Ekuleu-lochi	Boiled and decoction drunk as a remedy for fever
<i>Caralluma flava</i>	Lochen or Lokosuno	Whole plant sap is applied on small wounds for treatment
<i>Cynanchum defoliascens</i>	Elagama	Plant infusion drunk for painful menstruation
<i>Commiphora rostrata</i>	Lokimeta	Bark chewed or decoction given to children with diarrhoea and also young goats with a similar problem
<i>Pterodiscus ruspolis</i>	Otuk	Whole plant infusion is given to cows to remove a problematic

Scientific name	Local Turkana name	Use
		placenta after delivery
<i>Salamothomnus rivae</i>	Loboria	For treatment of stiff and painful hips (lumbago), an infusion of the bark is drunk
<i>Conostomium quadrangulare</i>	Lokoroumwe	Used as a purgative. The roots are boiled and the decoction drunk warm. Root infusion used for eye diseases

Source: Kokwaro, 2009

Other medicinal plants in the project area are tabulated below.

Scientific name	Local Turkana name
<i>Balanites rotundifolia</i>	Ebei
<i>Heliotropium subulatum</i>	Ebonyo
<i>Cratera adansonii</i>	Eiyoroit
<i>Cadaba glandulosa</i>	Emakak
<i>Senna obtusifolia</i>	Emang
<i>Berchemia discolor</i>	Emeyan
<i>Hyphaene compressa</i>	Engoli
<i>Acacia rubica</i>	Epetet
<i>Heliotropium zeylanicum</i>	Eponyo
<i>Acacia reficiens</i>	Eragai
<i>Cadaba farinose</i>	Eren
<i>Cyphostemma cyphotalum</i>	Erodo
<i>Salvadora persica</i>	Esekon
<i>Calotropis procera</i>	Etithuru
<i>Lippia carviadora</i>	Eur

Source: Kokwaro, 2009

The strategic initiatives required include capacity building of locals so that they can take up available market investments. Cooperative societies would help local people strengthen their bargaining position and also act as useful entry point for providing marketing information and skills required to make the utilization of this resource sustainable.

5.5.6.5 Wind, hydro and solar energy

The project area has long periods of sunny and windy conditions that are suitable for solar and wind energy generation. Wind energy has been harnessed in such areas as Nachukui, Lokitaung, Kalokol, Loyoro and Lobolo among other areas in the project area. Wind energy is used to generate electricity for lighting as well as water pumping. Refer to Plate 5.27 for a windmill in Nachukui which is used to generate power for pumping water. The presence of wind energy has also led to the commissioning of the Lake Turkana Wind Power Project in the nearby Marsabit County which is adjacent to Turkana County. The project was commissioned

in June 2013. The project is of significant strategic benefit to Kenya, and one of the largest private investments in Kenya's history. The project will comprise a wind farm, associated overhead electric grid collection system and a high voltage switchyard. The project aims to provide 300MW of reliable, low cost wind energy to the national grid, equivalent to over 20% of the current installed electricity generating capacity. The generated power will be transmitted via a proposed 400kV transmission line that will run from the wind farm site to a new switchyard at Suswa, a distance of approximately 428km. (Updated Environmental and Social Impact Assessment Summary, Lake Turkana Wind Power Project, November 2011)

. The use of solar energy is not fully utilised in the area in that only few institutions use solar energy for lighting and running electronic machines. Schools such as Ille Mixed Boarding and Kalimapus Mixed Boarding primary schools are a few in the project area which use solar power. The solar panels in those institutions were installed by the government through the Ministry of Energy. Other facilities with solar power include, Ille Dispensary, Nakiria Primary School, Lowarengak dispensary among others. In addition, Ille dispensary uses solar to run refrigerators used to store vaccines.



Plate 5.27: Kaito windmill in Nariokotome

5.5.6.6 *Wildlife*

According to (Africa Development Bank Group (ADBG), 2009) Lake Turkana has the largest population of Nile crocodiles in Africa. Other animals in the lake are hippos and water birds. Around the lake are seasonal populations of Grevy's zebra, Gerenuk, Giraffe, Kudu, Ostrich, Lions and Cheetah (ADBG, 2009). The biggest strategic challenge in the wildlife management in Turkana is to spread benefits of the tourism activities to the local community. There is need to promote community participation in the management of wildlife in the county. The

proposed project will have minimal impact, if any, on the population of crocodiles, hippos and water birds since the exploratory drilling site will be onshore.

5.5.6.7 Minerals

The area is endowed with various mineral resources such as gold in small quantities, gravel and stones, and sand. Gold mining has been prevalent in Turkana for many years. According to the unpublished Turkana County Profile (2013), there are many areas within the County where small scale gold mining is carried out. Currently gold mining occurs primarily in Nakoriyek (on the road to Kanakurdio), Kimagur (on the main road before Lokichar), Lokiriama, Namorupus, Nadunga (West of Nakoriyek) and Lolupe (GOK, 2008). Initially there were some co-operatives that were set up by the gold prospectors in Kakamega, Migori, Turkana and West Pokot. The Korpu co-operative society was operating in Turkana, however, it collapsed due to institutional mismanagement. There is continued uncontrolled gold mining in these areas with all the environmental hazards and deterioration unabated¹⁵.

Gravel is mainly found on Lapur hills and Mlango quarry where stones are shaped and sold to government, NGOs as well as churches and mosques for construction. In addition, sand for construction is also harvested from Nakira lugga in Kalokol.

5.5.7 Tourism facilities

The project area covers Turkana Central and Turkana North districts. Generally, there lack of facilities such as hotels and restaurants. In major centres such as Lodwar Town, Kalokol Town, Lokitaung Town and Eliye Springs centre, there are a number of small restaurants and lodges for accommodation. There are also cultural and archaeological sites which are potential tourist attractions. Table 5.15 and Plate 5.28 present the tourism facilities in the project area.

Table 5.15: Tourism facilities in the project area

Location	Detail
Lodwar	<p>This is the administrative headquarters of Turkana County. The town houses major institutions in the county including government offices, NGOs and various faith-based organizations with interests in different areas of the County.</p> <p>To cater for the needs of the frequent visitors to the town, Lodwar boasts of a number of lodges and guest houses for accommodation. Notable lodges and guest houses in the town include: Lodwar Lodge, Choma zone lodge, Lodwar County Palace, Turkana Lodge, The Splash, Golden Guest House, and St. Teresa's Pastoral Centre. Others are Bethany House and Nawoitorong Women Group Lodge. A few of the facilities also offer conference facilities in addition to accommodation and dining.</p> <p>The town has an airstrip (Lodwar Airstrip) which enables visitors to the</p>

¹⁵ <http://www.worldsummit2002.org/texts/KENYAminerals.pdf> (retrieved on 25th September 2013)

Location	Detail
	town and its environs travel fast and safe.
Kalokol	Kalokol is a busy town given that it has one of the fish landing sites in Turkana. Within the town centre are a number of small restaurants which offer locally available dishes only. There are at least two accommodation facilities namely Kalokol and Lake Turkana Guest Houses. Kalokol Guest House can accommodate up to 14 persons. The facility has dining services upon request. Namakat beach is a good breeding site for flamingos and pelican birds, offering a good attraction for bird watching enthusiasts. Along Lodwar-Kalokol route there is the Namortunga stones cluster, a culture site which is revered the locals.
Lokitaung'	In Lokitaung' there are food kiosks within the town centre. There is a guest house, St. Patrick's Guest House, run by missionaries. It is mainly used by NGOs and faith-based organizations operating in the area. The town also has the famous Kenyatta Line cells ¹⁶ which over the years has attracted both local and international scholars interested in the reconstruction of Kenya's political history.
Eliye Springs	<p>Eliye Springs Resort is a tourist spot in the small centre on the shores of Lake Turkana. The resort offers a number of facilities including dining, water sports and visits to Central Island National Park. There are also accommodation facilities including camping areas.</p> <p>During a beach management unit (BMU) stakeholder's meeting in Kalokol, it was mentioned that there is an annual phenomenon similar to solar eclipse during the month of November. This occurrence is said to cause the water from the springs to flow up hence attracting many tourists in the area.</p>
Nariokotome (Turkana Boy Site)	<p>Nariokotome offers the site where a near complete human skeleton was discovered by Kamoya Kimeu and Dr. Richard Leakey in 1984. The hominid has since been classified as <i>Homo ergaster</i> and is dated to be around 1.5 million years old.</p> <p>This discovery opened up the area for subsequent archaeological and historical research for other finds. Close to Nariokotome, is the Nachukui 6 site where several stone age tools were found. Many archaeologists have thronged the area in search of the history of human kind.</p>

¹⁶ This is the detention cell where Kenya's first president was detained before being moved to Lodwar by the British colonial government.



Plate 5.28: (a) Nareng'ewoi Mission Guest House; (b) flock of pelicans and ostrich bird at Namakat; (c) Eliye Springs Resort d)Namortunga site, Kalokol

5.5.8 Education

Education is a vital tool in the developmental process of any given nation. According to Psacharopolous (1988), education is considered the route to economic prosperity, the key to scientific and technological advancement, the means to combat unemployment, the foundation of social equality, equal wealth distribution, and the spearhead of political socialization and cultural diversity. In addition, education enhances capacity of the work force thus empowering people to participate in development initiatives. The ESIA also sought to investigate the general education and literacy level of the people in the project area.

The field data shows that there are high levels of illiteracy in the districts covering the block (Figure 5.19 below). A majority of the respondents (58%) have no formal education and only 5% have achieved college/university level education.

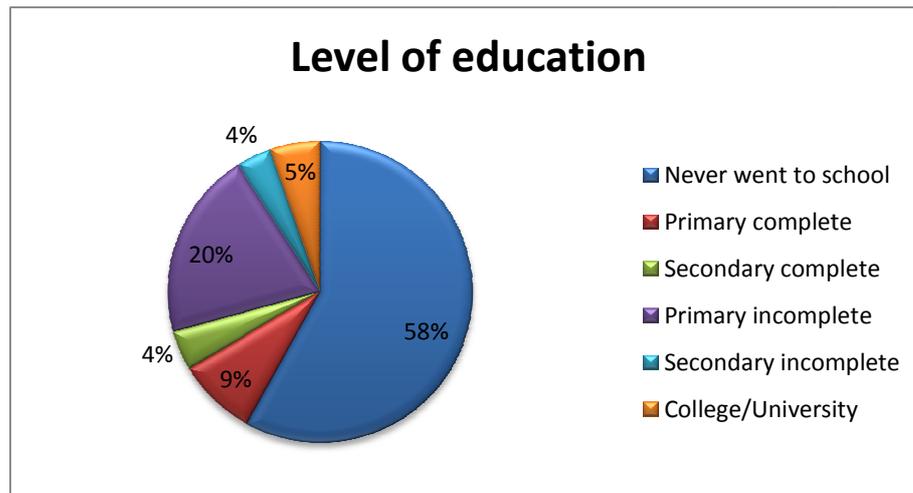


Figure 5.19: Level of education in the project area

The education sub sector in Turkana North district is characterized by low enrolment rates, poor performance, and high pupil-teacher ratio. This is because of the community's nomadic way of life where less value is attached to education (Turkana North District Development Plan- TNDDP, 2008-2012). There are only a few education facilities in the district, with poor quality of services since the teachers are few. The district has 49 primary schools, 3 secondary schools, 102 Early Childhood Development (ECD) Centres and 3 mobile schools. There are 286 teachers in primary school, 48 in secondary schools and 133 teachers in ECD centres. Primary school and secondary school performance remained very low for the past 5 years due to: few trained staff; droughts; high poverty levels; inadequate technological advances, and; poorly maintained physical facilities (TNDDP 2008-2012). There are no tertiary institutions in Turkana North District.

Turkana Central district comprises of 73 primary and 188 ECD centres. The transition rate from ECD to primary and from primary to secondary is 53% and 54% respectively. This low transition rate has greatly contributed to the low literacy levels in the district. The main challenges facing the education sector include: low staffing, inadequate infrastructure (Plate 5.29), poverty, and the nomadic way of life which results in disruption of education activities. Refer to figure 5.20 for the location of the schools in the project area. There is a high dropout rate among the girls due to cultural practices and early pregnancies (Turkana Central District Development Plan (TCDDP), 2008-2012). The district lacks tertiary institutions, having only one accredited college. According to the unpublished Turkana County Profile 2013, Turkana Central District has a polytechnic - Lodwar Youth Polytechnic and one university - Mt Kenya University based in Lodwar.

The above mentioned challenges facing the education sub sector in the two districts were echoed by the head teachers and other key stakeholders consulted during the ESIA. Poor physical facilities and high pupil-teacher ratios were evident in most of the schools visited during the study. Other challenges cited by the respondents include:

- Harmful cultural practices such as early marriages that continue to draw children out of school;

- Lack of a good reading culture among the students;
- Most of the parents are illiterate and so they do not value education;
- Absenteeism is common among the students as they are instructed by their parents to engage in other household chores and pastoralism at the expense of their schooling;
- Common disease outbreaks contribute to drop out since the parents can't afford to pay for their children's medical expenses; and
- The majority of people who have completed primary and secondary education cannot advance their education due to lack of financial resources.

These challenges thus contribute to low enrolment and transition rates among children in the two districts. The community proposed a number of projects to enable them deal with the above mentioned challenges. The provision of bursary and scholarship opportunities for students in the area in order to advance their education was one of the suggestions repeated in almost every location in the project area.

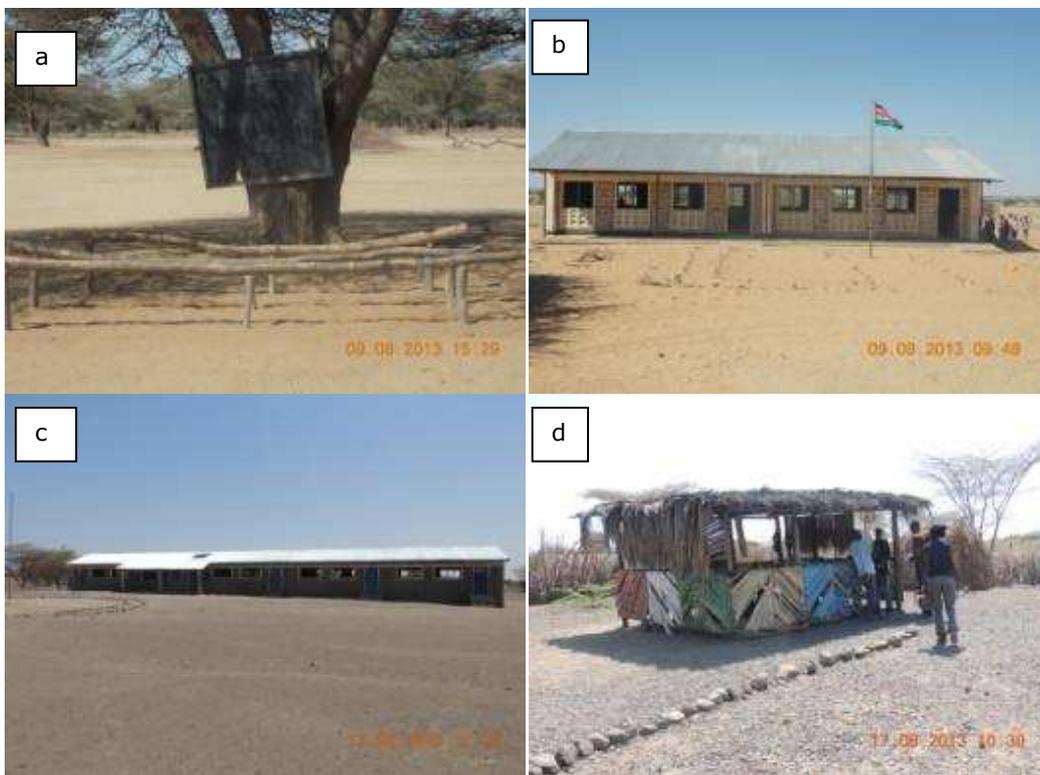


Plate 5.29: Existing educational infrastructure in the project area; (a) Learning point at Natigilae primary school in Lomopus area (b) some of the classrooms at Lomopus primary school (c) some of the classrooms at Nariokotome primary school in Nachukui (d) St. Peters nursery school in Nachukui sponsored by Nariokotome Catholic Mission

5.5.9 Health

Health is one of the targets to be achieved by the Millennium Development Goals (MDGs). There are three MDGs that are directly linked to health namely; reduction of child mortality, improvement of maternal health and combat HIV/AIDS, malaria and other diseases. The indirect benefit of improved health care is improved productivity, which in turn leads to higher economic growth and real incomes (Jerome, 2011). Kenya still faces a challenge of providing affordable, accessible and quality health services to its citizenry. This situation is more manifest in the remote parts of the country such as Turkana County.

Turkana Central district that lies in the block has health infrastructure that have been established by funds from the government, public, Non-Governmental Organization (NGOs), and Faith Based Organization (FBOs), as well as private facilities. A total of 37 public and private health facilities are found in the district. Some of the health facilities in the area are Lodwar District hospital, AIC Kalokol Mission hospital, Eliye Springs dispensary, Kataboi Dispensary, Kalimapus Dispensary, Kangagetei Dispensary and Lochor Dispensary. The district has a bed capacity of 397 beds (TCDP 2008-2012). Due to the nomadic lifestyle of the locals, there has been use of mobile outreaches to supplement service delivery in the facilities.

Turkana North District comprises two government hospitals, namely, Lopiding and Lokitaung sub-district hospitals, plus 30 dispensaries and 7 private clinics. In addition, there is one Mission and one NGO hospital. The health facilities visited during the assessment include: Nareng'ewoi Dispensary, Nachukui Dispensary, Nariokotome Dispensary, Kachoda Dispensary, Lowarengak Dispensary, and Lomekwi Dispensary. The health facilities have a total bed capacity of 319 beds. The major services provided by the medical services and public health sub sectors in the district are preventive, curative and promotive health services.

Some of the weaknesses experienced by the health sector in the district include: inadequate health services, low literacy levels, inadequate personnel and poor supply of drugs. The health personnel interviewed in the block during the ESIA cited the following additional challenges: inconsistent supply of drugs to the facilities, frequent water shortages, lack of ambulance for referrals and emergency situations, and shortages in power supply. Some of the common diseases mentioned include malaria, diarrhoea, HIV/AIDS and eye infections. Scorpion bites are common in the area while snake bites are countable.

Sanitation and health are closely related hence they influence each other. In the project area, there are low levels of latrine use leading to poor sanitation hence increase in diseases. According to the TCDDP (2008), the district latrine coverage is as low as 9% which is attributed to the low demand for environmental sanitation. This low demand can be explained by the nomadic way of life of the locals living in the project area as well as the ignorance on the importance of latrines among the locals. Thus they do not find it necessary to have latrines for human waste disposal in their homesteads especially in the interior parts of the proposed project area. In addition, there is low hygiene and sanitation awareness, low priority and poor perception on hygiene issues. During the ESIA a household survey was undertaken to establish how the locals disposed of their human waste. The figure 5.21 below presents the study findings.

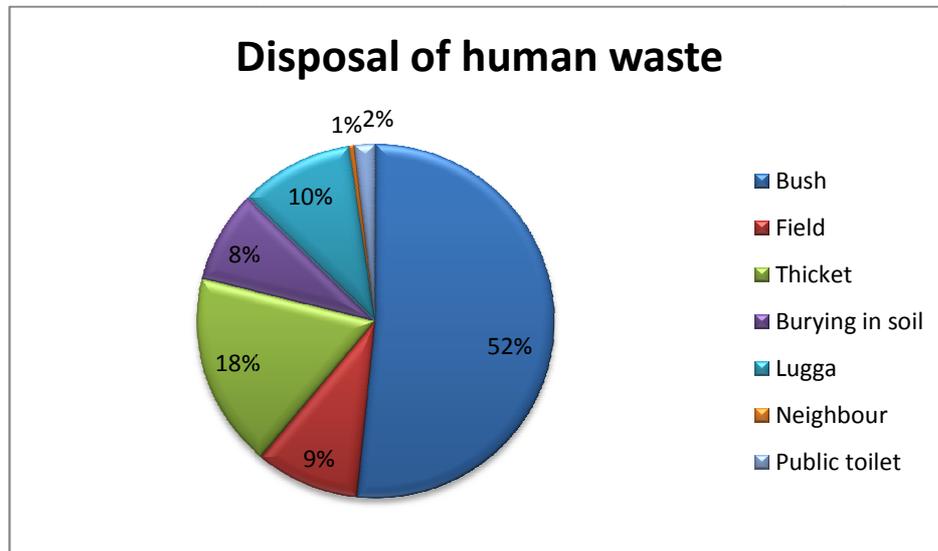


Figure 5.21: Disposal of human waste is done

Hygiene and sanitation awareness campaigns need to be undertaken to ensure that the locals understand the importance of maintaining good hygiene. Since there is low latrine coverage in the area, the majority of the respondents (52%) resort to disposing their human waste in the bush while 18% use the thickets as their dumping sites for their human wastes. Only 2% of those interviewed use public toilets while 8% bury in the soil. 10% of the respondents in the project area dump their human wastes in the lugga which results into high prevalence of water borne diseases in the area. The data confirms the challenge cited in reviewed literature. From the study findings, there is need to upgrade the health facilities and construct sanitation facilities such as latrines. Plate 5.30 and figure 5.22 below shows the health facilities in the area and the locations of the health facilities.



Plate 5.30: Health facilities in the area;(a) Lomekwi dispensary;and (b) Kalimapus dispensary

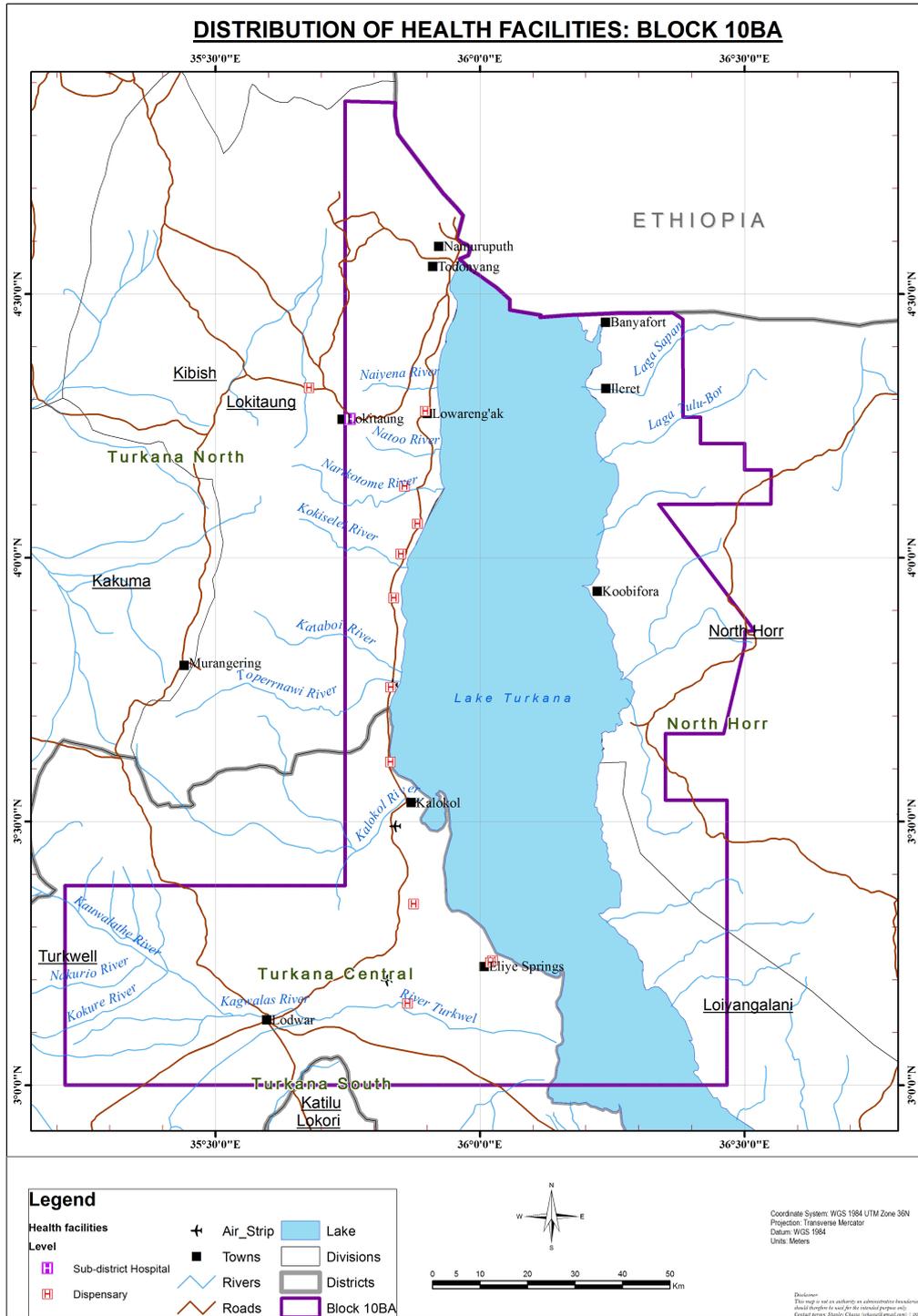


Figure 5.22: Location of the Health facilities in the Project Area

5.5.10 Infrastructure

5.5.10.1 Transport

According to the unpublished Turkana County Development Plan (2013), Turkana County has a total road network of 5,496.2 km of which 488.5 km are bitumen, and 5007.7 km earth surface. 80% of the roads in Turkana North are in poor condition and during the rainy season, seasonal rivers cut through the roads rendering them impassable (TNDDP, 2008).

In Turkana Central, the district road network comprises of 729.7 kilometres with 186.3 kilometres of bitumen standard roads, 290 kilometres gravel, and 253.4 kilometres of earth roads. The roads in the project area are in poor condition (Plate 5.31) due to low funding, destruction of roads by heavy trucks ferrying relief food, and poor soils. As a result of the poor road network, there are few public service vehicles and lorries that carry people, animals, and produce (e.g. fish) to town centres. From the study findings (Figure 5.23), 49% of the people walk on foot while 31% use vehicle as their means of transport. Some people use NGO vehicles and trucks to commute between the market centres. Also, 12% and 8% of the respondents use motorcycles and bicycles for their transport, respectively.

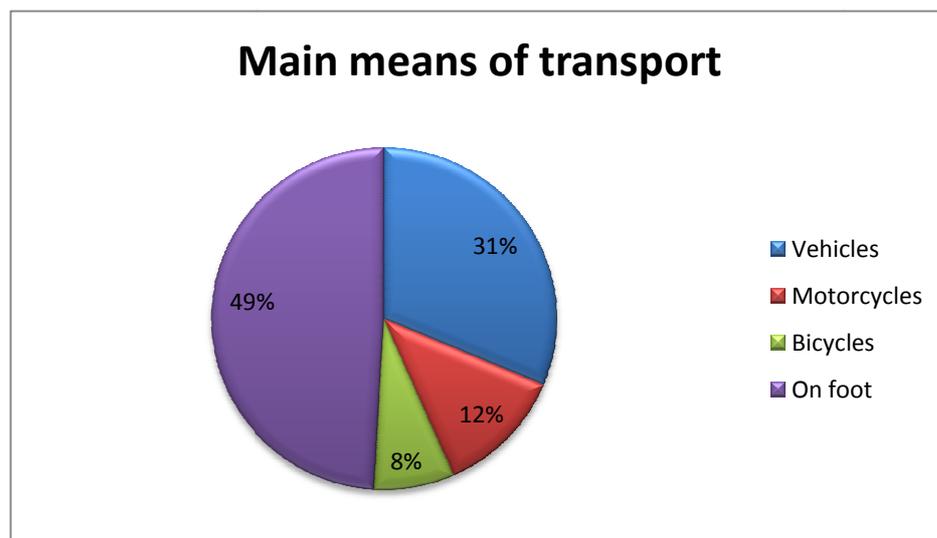


Figure 5.23: Main means of transport in the project area.

The greater percentage of locals travelling on foot (Figure 5.23), is attributed to poor road network and lack of defined roads in the interior parts of the project area. Some of the transport challenges also mentioned include:

- Fatigue due to walking long distances and some end up falling sick;
- Inadequate means of transport i.e. vehicles and motorbikes are few;
- High cost of transport due to inaccessibility of vehicles and motorbikes;
- Poor road infrastructure; and
- Insecurity from bandits and wild animal attacks.

In terms of air transport (Plate 5.32), there is only one airport in Lokichoggio, which is in Turkana North district. There are 22 airstrips in Turkana County; eight of which lie in the project area: Kalokol, Kibish, Todonyang, Lokitaung, Kataboi, Lodwar and Eliye springs. Lodwar airstrip runway is tarmacked, while the rest are not (Unpublished Turkana County Development Profile, 2013).

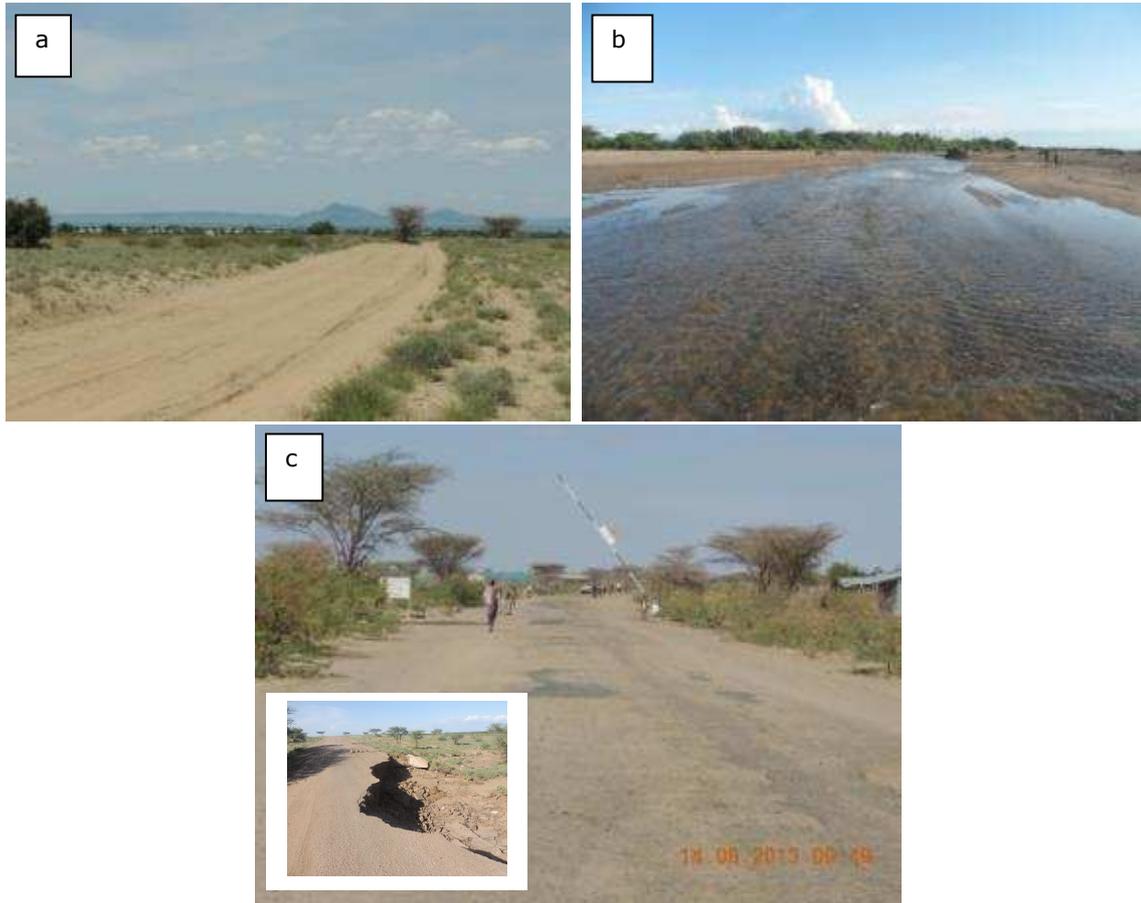


Plate 5.31: Existing roads in the project area; (a): Road leading to Eliye springs (b): Road leading to Kalimapus from Kalokol through Nakiria lugga (c): Road leading to Kalokol from Lodwar, inset: section of road damaged by rains



Plate 5.32: Existing air transport facilities in the project area; (a): Kalokol airstrip (b): Lodwar airstrip (c): Kachoda airstrip in Lokitaung (d) Kataboi airstrip

5.5.10.2 Energy Sources

There is no electricity supply grid in the project area, therefore, a number people in the towns use generators, solar and wind energy for their business premises. There is high potential for solar power generation due to the high intensity of sun. The sources of fuel in the project area are as shown in figures 5.24 and 5.25 below.

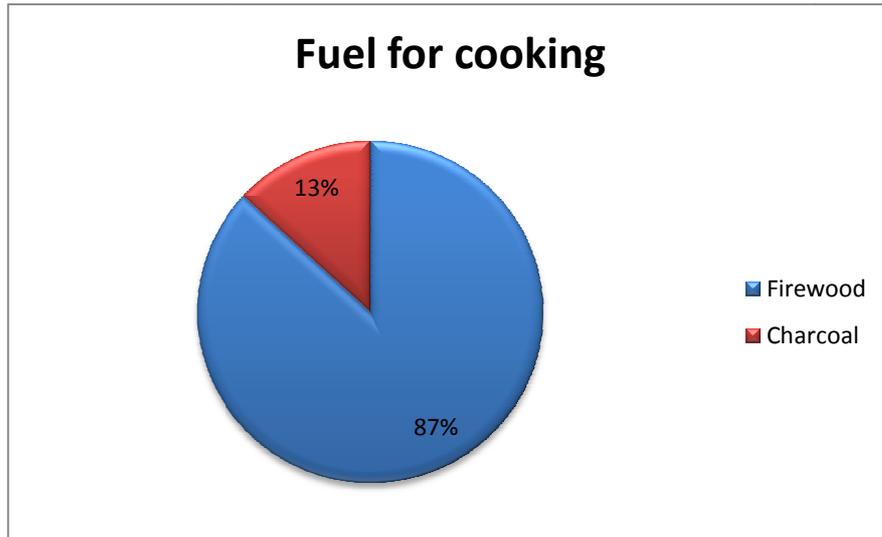


Figure 5.24: Sources of fuel for cooking

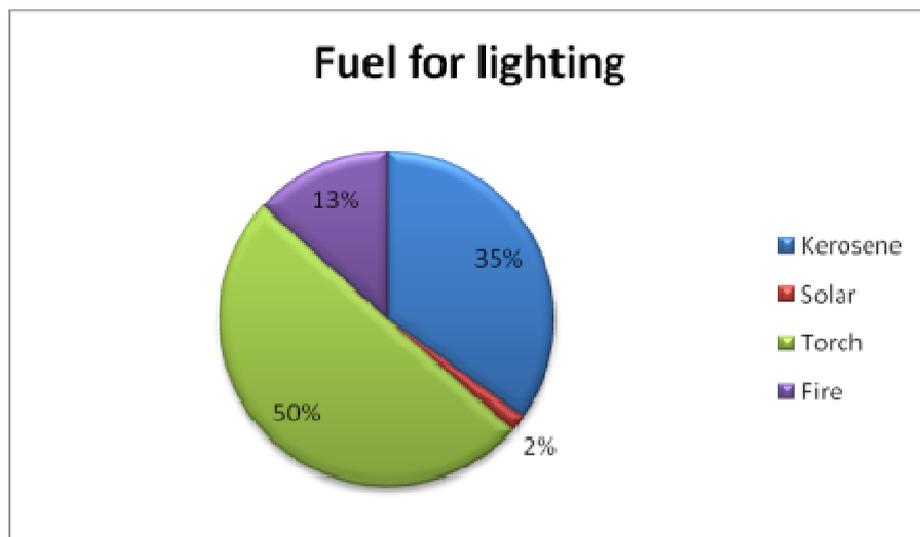


Figure 5.25: Fuel sources for lighting

From the figures above, firewood is the main type of fuel used for cooking while the main source of energy for lighting is a torch. Shrubs and dried trees are the main sources of firewood in the area.

5.5.10.3 Communication

Safaricom and Orange are the only mobile networks that serve the project area, and only in some parts (Figure 5.26). Safaricom is the most widespread mobile network in the project

area. Telekom is the sole landline services provider with 460 telephone connections (unpublished Turkana County Development Profile, 2013). Some of the parts of the project area that lack or have poor mobile network connectivity are Nachukui, Eliye springs, Kang’aki, Nareng’ewoi, Kataboi and Lowarengak.

There are five post offices in the project area, namely Lodwar, Kalokol, Kakuma, Lokichoggio and Lokitaung (unpublished Turkana County Development Profile, 2013).

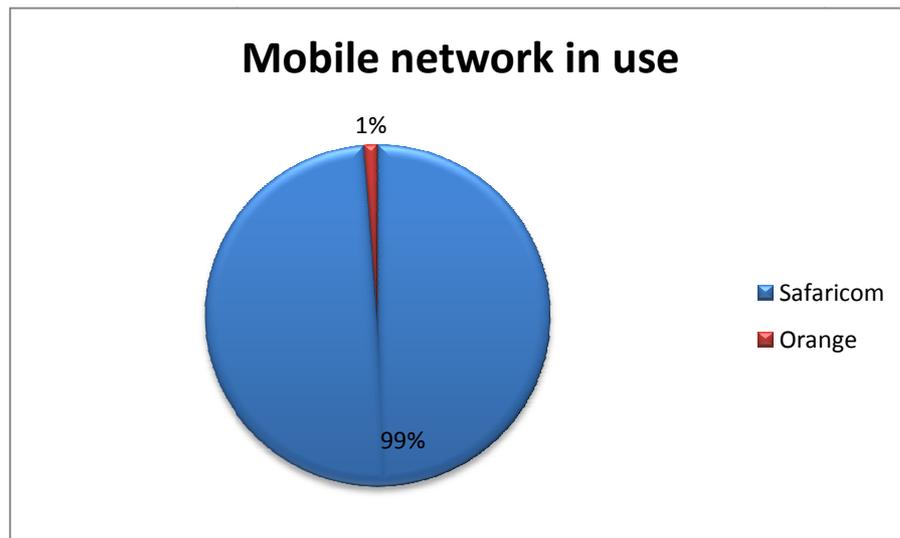


Figure 5.26: Mobile network in the project area

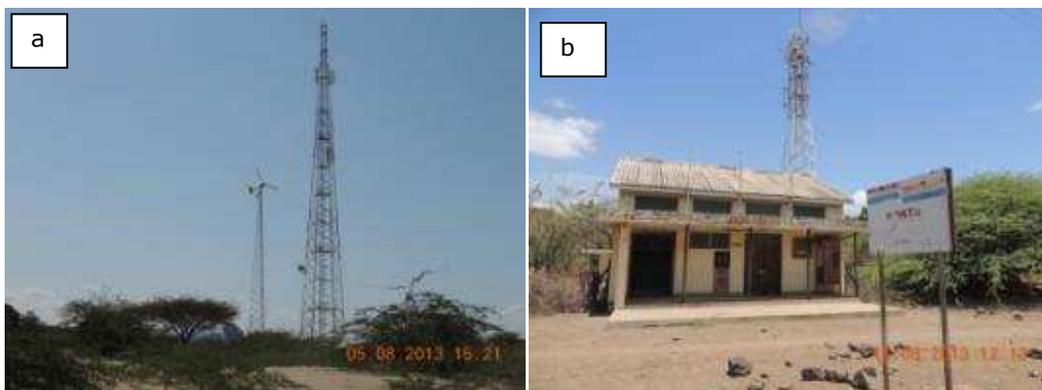


Plate 5.33: Existing communication infrastructure in the project area: (a) communication masts in Kalokol (b) Post office at Lokitaung

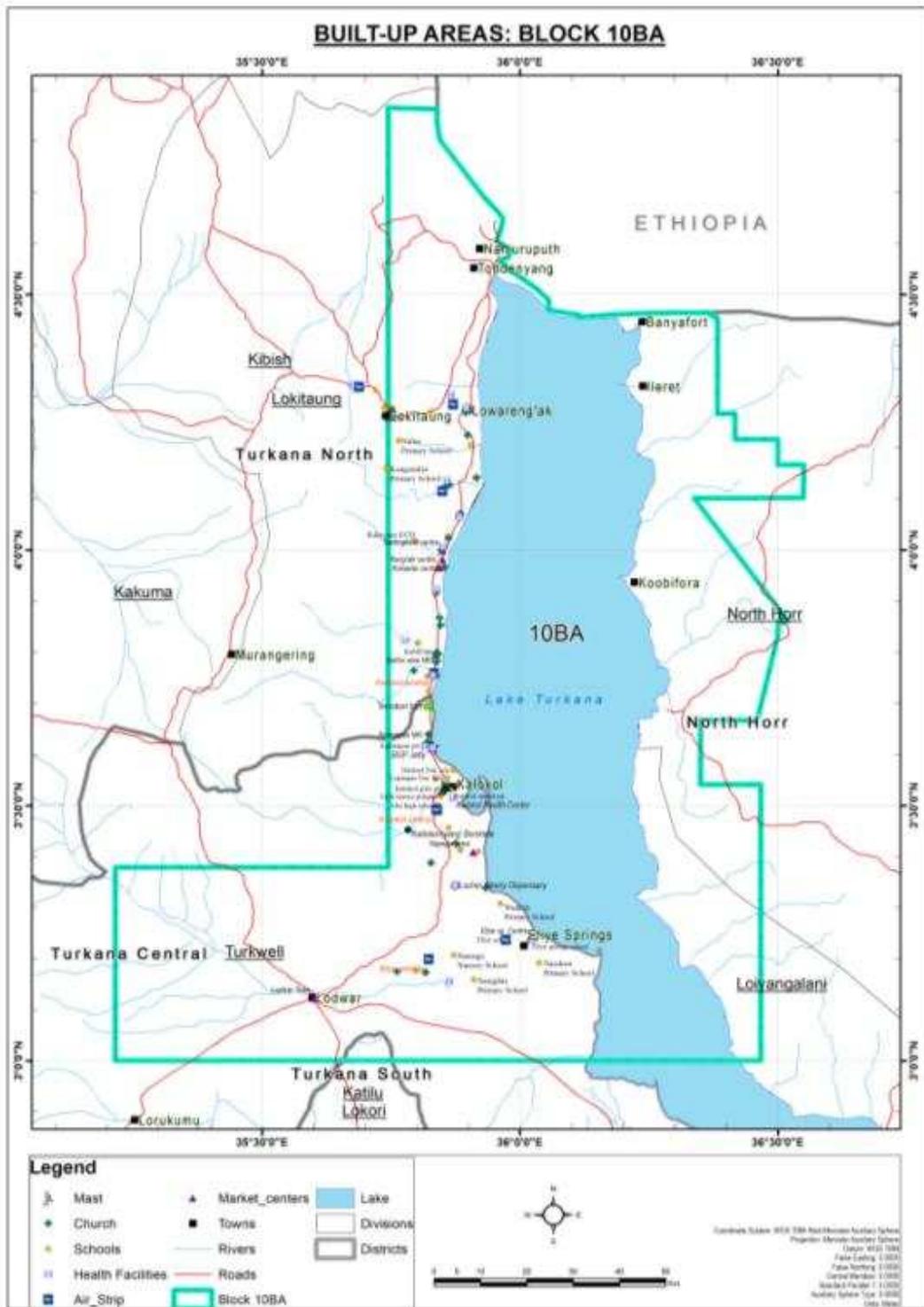


Figure 5.27: Existing infrastructure in the project area

5.5.11 Gender issues

The word gender is used to describe socially determined characteristics while sex describes those, which are biologically determined. Gender does not, therefore, refer to women and men, but to the relationships between them in the society. Most of the communities in Kenya are patriarchal in nature and Turkana County is not an exception (TCDDP, 2008-2012).

Women among the Turkana are relegated to lower spheres. They hold lower political, social and economic status in the society. Most of them are taken as housewives while the men provide for the family. The women in the household are expected to undertake all the household chores such as fetching water, firewood and looking after the children. In addition, the women are charged with the duty of feeding their families. This is quite evident during the dry season where the women form the largest percentage of the population that collects relief food at the food distribution centers (TCDDP, 2008-2012).

Boys are preferred for school attendance in case there is a choice to be made while girls are withdrawn once they start reaching their puberty and in most cases are married off so that the family can get dowry. Turkana North district has high rates of divorce cases which leave women to cater for the children (TNDDP, 2008-2012).

According to the Turkana Central District Development Plan (2008), the level of gender awareness is low and this is attributed to the fact that women have accepted the cultural norms, which have a bias against them. Culturally, a woman is not supposed to make decisions unless in consultation with a man. From the household survey carried out during the assessment, 49% of the respondents mentioned that decisions are made by the father while 40% were of the view that decisions are made by both the father and the mother in the family (refer to figure 5.28 below). This was also confirmed during the FGDs in that the community members were of the view that in most cases men make decisions in the households and also at the community level. For example, during the FGD in Katiko, the community members reported that a woman can't slaughter a goat for visitors if they visit when the man is absent. She has to wait for the man to allow her slaughter the goat for the visitors. However, with the increase in gender awareness carried out by different groups in the county, the situation is gradually changing. In some parts, the council of village elders involved in decision making at the community level comprised of older men and women.

It is clear from the field data that the women are engaged in most of the household chores such as basket and mat weaving, fetching water and firewood, cooking, construction of "manyattas", taking care of the children, and burning charcoal for sale. Men provide security to the family members as well as meet their basic needs. The men are at the highest level in the traditional hierarchy of leadership among the community.

Participation and representation in decision making depicts gender disparity. Women comprise a small proportion of persons holding elective posts at the wards and the constituency levels yet their participation is crucial as they are the ones playing the economic roles in their families.

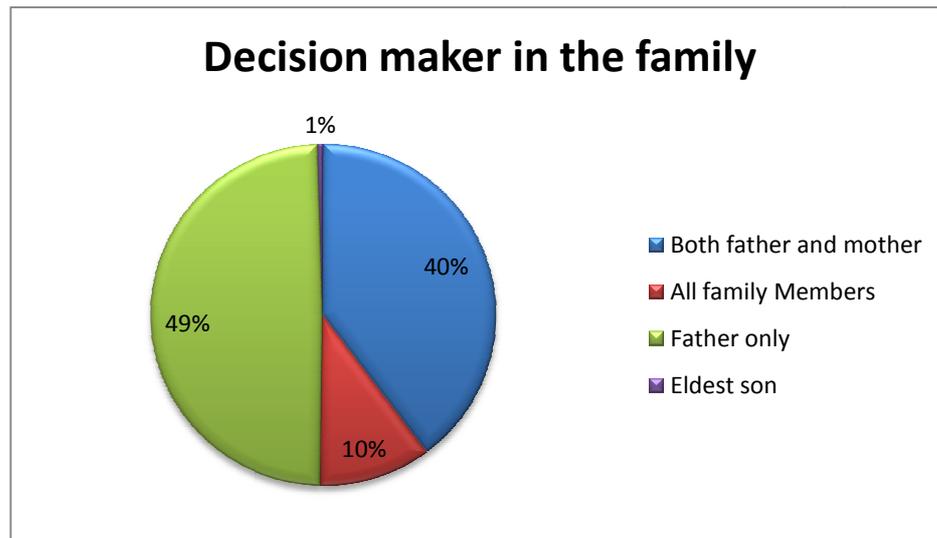


Figure 5.28: Main decision maker in the household

5.5.12 Socio-economic risks

The term “risk” is used differently in various disciplines. According to Wiener and Graham (1997), a risk is defined as the chance of an adverse outcome to human health, the quality of life, or the quality of the environment. This definition is quite broad, encompassing the full range of injuries to human accidents, illnesses, loss of mobility or enjoyment of personal freedoms, and injuries to other life forms, such as ecological disruptions.

Some of the socio-economic risks mentioned by the key stakeholders and community members in the area during the assessment include the following:

- Insecurity and frequent occurrence of conflicts due to cattle rustling especially along the borders such as Todonyang;
- Seasonal droughts and famines leading to loss of livelihoods by the community members;
- Unpredictable weather conditions;
- Harmful cultural practices such as early marriages;
- Outbreak of livestock diseases such as foot and mouth disease; and
- Poor infrastructural development such as roads, education and health facilities.

The major challenges faced by the community members as indicated during the public meetings include the following:

- High unemployment rates especially among the youth;
- Poor road network which hampers the accessibility of the major market centres;
- Lack of motor boats and appropriate fishing gears for the fishermen;
- Insecurity along the borders such as Todonyang; and
- Shortage of water. Water from the lake is salty and also causes some diseases like diarrhoea and respiratory infections among the community members

5.5.13 Security

The main source of insecurity within the block as raised by the local residents is the threat from neighbouring communities, especially the Merille from Ethiopia. There are inter-boundary clashes which continue to increase between the Merrille and the Turkana community especially on border points such as Todonyang, Lowarengak and Nachukui. These inter-boundary attacks arise due to natural resources such as fish, pasture and water. These attacks happen on both the mainland and across the lake. During the public meeting in Lowarengak, the community members mentioned that security was a big threat in that some fishermen had been attacked and killed on 13th of August 2013 by the Merrille and their bodies had not been found. The insecurity situation is also compounded by lack of enough security personnel and national security forces in the region. The available armed security personnel are the Kenya Police Reservists (KPR) and the Rapid Deployment Unit (RDU). The RDU are specifically based in Todonyang. However, the community members were very apprehensive on government efforts to provide security and they felt that they had been neglected since the government had done little to curb insecurity in the area.

With the current rate at which the KPR personnel are employed by Tullow to offer security in their base camps and fly camps, the community members fear that insecurity is going to be even more compromised. The armed KPR focus on guarding the camps and leave the local community and property susceptible to attacks and theft. According to the DC Turkana Central, the proximity of the area to Ethiopia and Uganda has led to infiltration of illegal firearms, especially at the borders, hence worsening the security situation in the area.

5.5.14 Recommendations for Social Investment

While the stakeholders and community members in the project area are aware that the proponent cannot provide all their needs, they identified areas which they felt the project proponent could assist through social investment projects. Some of the projects mentioned include; provision of water, improvement of infrastructure, development of social amenities like schools, dispensaries and health facilities as well as improvement of local roads and livelihoods in the area.

Tullow can therefore be involved in various social investment project to support various social development projects while in partnership with other organisations and the government. From the public meetings, focus group discussions and key informant interviews, the following are the propositions as mentioned by the stakeholders on what Tullow can engage to help the community.

Fishing

Fishing is mainly done by the community members who live on the lake shores. The fishermen in the project area requested Tullow to provide them with engine boats per location for surveillance purposes as well as fishing into the deeper parts of the lake. This will help curb insecurity concerns in the area. Tullow can also provide motorboats and life jackets to ensure safety while fishing. Tullow can partner with government and non-governmental organization

in the area to help revive the existing fish factory in Kalokol. This will enable fishermen to sell their fish in time and also boost fish business in the area.

Livestock

The community members also mentioned that the veterinary services were missing in the project area. This leads to huge losses when there is an outbreak of livestock diseases such as foot and mouth. Tullow can partner with non-governmental organizations that deal with livestock in the area so that they can initiate veterinary services such as vaccination and treatment of livestock.

Tullow can also initiate a project where livestock products such as bones and horns can be used to make beads, cups, flower vessels and candle stands among others hence benefiting the community.

Water and Farming

Community members mentioned that water shortages was the main problem in the area. They reiterated that women walk long distances in search of water and most of the boreholes are broken down. With the new discovery of a large aquifer in Turkana County, Tullow can partner with other NGOs and Turkana County government to help in piping and distribution of water from the source to different areas of Turkana County. They can also help in construction of water pans for animals so that livestock drinking areas are separate from domestic use water points.

Tullow can also initiate irrigation projects since majority of people in the project area are embracing farming. This will help in diversification of livelihoods hence alleviating poverty.

Education

Education sector in the project area faces a lot of challenges. From the public meetings and key informant interviews with teachers, it was mentioned that there are few teachers in schools, poorly maintained physical facilities and harmful cultural practices such as marriages that hinder children from completing their education. Tullow can assist the community by building additional classrooms in the existing schools and also increase the amount given for bursaries and scholarships so that many pupils and students can pursue higher education. Additionally, Tullow can help in construction of boarding facilities in the existing schools so that students and pupils are retained in school and as a result curbing school dropouts.

Health

Health is wanting in the project area. Most of the stakeholders mentioned that there are inadequate health facilities, frequent water shortages in health facilities, poor supply of drugs and power shortages. In addition, there are no ambulances for emergency and referrals cases and the community members cover long distances to access health facilities. Tullow can partner with NGOs and Turkana County government to build dispensaries in areas where there are no health facilities such as Lomopus, Loyoro, Lobolo, Nareng'ewoi, Kataboi and Kang'aki. It can also support by buying ambulance so that people can easily access the existing health facilities in case of an emergency. In addition, Tullow can help in facilitation of supply of drugs to the various health facilities in the project area. Tullow in conjunction with

the government and non- governmental organizations in the area can facilitate free medical camps occasionally so that the locals can get free medical services.

Communication infrastructure

Mobile phone communication in the project area is limited to towns such as Lodwar, Kalokol and Lokitaung and their environs. Hence most parts of the project area lack mobile phone network. These areas are Nachukui, Eliye springs, Kang'aki, Nareng'ewoi, Kataboi and Lowarengak. Tullow can request mobile service providers to consider erecting base transmission masts in those areas so as to improve communication. This will be helpful to the community as well as to Tullow workers.

Environment

The community members in the project area raised issues on cutting down of trees and clearing of vegetation during the construction of roads and campsite. This they mentioned would lead to environmental degradation. Tullow should therefore minimise where possible the cutting down of trees and shrubs in the area. Tullow can also be involved in reforestation so that it can restore the original state of the physical environment and provide indigenous seedlings to the community to be planted within the project area.

5.5.15 Development agencies

There are several development agencies which include nongovernmental organizations that have projects in Block 10BA. The agencies, their thematic areas and summary of their views on development issues, human rights and livelihoods in the region are summarized in the table below

Organization	Thematic Areas	Summary on Areas of interest	Summary of Views on Development Issues, and Livelihoods in the Region	Summary of Views on Human rights in the area
CEZAM and Associates Ltd	<ul style="list-style-type: none"> Food security which includes: fishing, irrigation and livestock keeping. Micro-finance activities. 	<ul style="list-style-type: none"> The fishing component supports 5 beach management units: Impressa, Natilel, Eliye, Longech and Kerio. These services are provided at two levels namely: Enterprise Development Initiative and Enterprise Expansion Investment. Irrigation agriculture involves growing of cowpeas, maize, sorghum, <i>sukuma wiki</i> and amarantha. The organization supports 8 irrigation schemes. Livestock component mainly focuses on poultry. The organization supports two groups keeping poultry in Lokichar and Lodwar. Five other groups are involved in livestock keeping. In addition, the organization is involved in improving infrastructure, provision of clean water, sanitation facilities, livestock marketing and management of sale yards. In micro- finance section the organization offers grants to groups for business 	<ul style="list-style-type: none"> Development priorities in the area include: improvement of the existing educational facilities, provision of water by sinking boreholes, and improvement of the existing health facilities and construct new health facilities. 	<ul style="list-style-type: none"> Key human rights issues in the area are child labour and land issues surrounding exploration activities.

Organization	Thematic Areas	Summary on Areas of interest	Summary of Views on Development Issues, and Livelihoods in the Region	Summary of Views on Human rights in the area
Child Fund Kenya	<p>They are involved in:</p> <ul style="list-style-type: none"> • sponsorship program, • health and nutrition program, • education, • water and sanitation program, • livelihood development, • Irrigation program and peace building initiatives. 	<p>empowerment.</p> <p>Main programs include:</p> <ul style="list-style-type: none"> • Sponsorship program is the main source of revenue for the organization. • Health and nutrition programs during emergencies. • Education program helps improve infrastructure in schools such as provision of water and sanitation facilities, school bursaries, construction of classrooms, latrines and dormitories for the girl child. • Water and sanitation program meant for the community. • Livelihood development focuses on supporting communities living along River Turkwel to develop crop farming under irrigation, improved breeds for their livestock for those who are far from river banks, provide fishing boats, canoes and training on how to access market for those living on the shores of the lake. • Irrigation program helps communities create their own assets through a sub program called Food for Assets such as rain water harvesting and creating water pans. • Peace building initiatives especially among communities in Loima and Turkana North who 	<p>Some of the development priorities to be focused on in the project area are:</p> <ul style="list-style-type: none"> • Improvement of education facilities in the area, • provision of clean water, • Development of health infrastructure, • Diversification of livelihoods such as enhancement of the capacity to explore the current resources e.g. lake as well as islands in the area, hot springs and landing sites which in turn will enable development of eco-tourism in the project area 	<p>Key human rights issues in the area are:</p> <ul style="list-style-type: none"> • Conflicts between Turkana and the neighbouring communities from Ethiopia. • Marginalization by the government.

Organization	Thematic Areas	Summary on Areas of interest	Summary of Views on Development Issues, and Livelihoods in the Region	Summary of Views on Human rights in the area
		face frequent conflicts since these communities engage in cattle rustling.		
International Organization for Migration (IOM)	<ul style="list-style-type: none"> Refugee safe migration. Peace building initiatives. Livelihood development. Human trafficking. 	<ul style="list-style-type: none"> Refugee safe migration program ensures safe settlement of refugees abroad. Peace building initiatives: IOM together with 5 other organizations (UNICEF, ILO, WHO, FAO and UNDP) have been funded to help with peace building in the area. Livelihoods development and human trafficking issues in its area of operation. 	<p>Some of the key development priorities in the area include:</p> <ul style="list-style-type: none"> Construction of hospitals and empowerment of health workers, Construction of additional classrooms in the existing schools and establishment of mobile schools to cater for the nomadic pastoralists as well as initiation of agricultural activities in the area. 	
IGPAF, Elizabeth Glaser Paediatric	<ul style="list-style-type: none"> Paediatric HIV Program HIV/AIDS program 	<ul style="list-style-type: none"> Elimination of Paediatric HIV Supporting the government in the implementation of HIV/AIDS programs in the community 	<ul style="list-style-type: none"> Some of the development priorities in the area include: school, health infrastructure, Land rehabilitation and roads. 	
Aphia Plus Imarisha	<ul style="list-style-type: none"> HIV Program. Livelihood development. Borehole drilling. Livestock production program. 	<ul style="list-style-type: none"> HIV program - the organization supports 38 health facilities in logistics, various outreaches, drug supplies, training and advanced HIV testing. Assist the community with paying of schools fees for their children and carry out food distribution. Provide green house in conjunction with the ministry of 	<ul style="list-style-type: none"> Support the upgrading of the historical sites and cultural activities such as Lake Turkana cultural festival which is currently done ones in a year in Loyangalani. Empowerment of the community based organizations in the area. 	<ul style="list-style-type: none"> Key human right issue in the area involves marginalization of the girl child.

Organization	Thematic Areas	Summary on Areas of interest	Summary of Views on Development Issues, and Livelihoods in the Region	Summary of Views on Human rights in the area
		agriculture.		
OXFAM	<ul style="list-style-type: none"> • WASH • Food security and livelihoods programs 	<ul style="list-style-type: none"> • Food security - trade and markets program which targets small scale traders in the area and engage in value addition to the products. • Water related projects - sinking of boreholes for the community members and leave them to manage the water points while the organization provides the technical support. The water is used for livestock and subsistence production. • Provision of veterinary services to the pastoralists. • Public health hygiene - they engage in campaigns to ensure that the community members wash their hands at the critical times. • Governance programme where the organization educates the community members on their rights and the organization supports them to demand their rights. • Oil and gas program was launched in December 2012 after the president's announcement that oil has been discovered in Turkana. The programme is meant to deal 	<ul style="list-style-type: none"> • Infrastructural development such as constructions of roads and railway. • Social protection program for the poor households. • Provision of micro-finance facilities for business development. 	<ul style="list-style-type: none"> • Historical injustices whereby there has been skewed distribution of resources in the area and misappropriation of resources. • Lack of involvement of locals in decision making and insecurity along the borders.

Organization	Thematic Areas	Summary on Areas of interest	Summary of Views on Development Issues, and Livelihoods in the Region	Summary of Views on Human rights in the area
		<p>with the mixed reactions that resulted from the announcement among the host community, investors and other stakeholders.</p> <ul style="list-style-type: none"> The organization is also involved in research and dissemination of results. 		
Turkana Pastoralist Development Organisation (TUPADO)	<ul style="list-style-type: none"> Peace building and conflict resolution. Livestock marketing. Reproductive health. Water and sanitation program. Micro-credit scheme. 	<ul style="list-style-type: none"> Peace building and conflict mitigation tied with natural resource management in Turkana north, Turkana south and Turkana east. Strengthening livestock marketing mainly in Turkana west at Lopur; Kakuma; Kalobeyei; Lokichoggio and also involves development of the associated infrastructure. Behaviour change communication in reproductive health in Turkana central, Turkana north, Turkana south and Loima districts. Water and sanitation includes construction of water harvesting structures, especially dams and shallow wells. Micro-credit scheme for the Livestock Marketing Associations (LMA) 	<ul style="list-style-type: none"> Improvement of water sector Economic empowerment of women groups through grants. 	<ul style="list-style-type: none"> The human rights cases in the region are tied with the violation and absence of the basic human rights such as: right to education; right to shelter; Right to security; and right to food and clean water.
Friends of Lake Turkana	<ul style="list-style-type: none"> Conservation and protection of Lake Turkana Human rights advocacy Research 	<ul style="list-style-type: none"> The organization undertakes activities to ensure conservation and protection of Lake Turkana, Advocating for human rights in the community. Engaging in research on issues 	<ul style="list-style-type: none"> Provision of proper healthcare facilities, Support the fishing industry by providing fishing equipment and vessels. Construction of learning 	<ul style="list-style-type: none"> The right of life has been violated. Raids are not taken seriously and yet many people are losing their lives to these attacks, Young girls are being

Organization	Thematic Areas	Summary on Areas of interest	Summary of Views on Development Issues, and Livelihoods in the Region	Summary of Views on Human rights in the area
	<ul style="list-style-type: none"> Environmental conservation policies 	<p>affecting the Turkana Basin and advising the community on the environmental conservation policies.</p>	<p>institutions from primary to tertiary level</p>	<p>forced into early marriages due to poverty and facing rejection from their families because of unplanned pregnancies.</p> <ul style="list-style-type: none"> The disabled people are facing stigmatization due to backward culture.
<p>Help Age International</p>	<ul style="list-style-type: none"> The organization mainly targets the elderly in the community. 	<ul style="list-style-type: none"> The organization offers emergency services during droughts and flooding and also healthcare for the immune compromised and social protection for the elderly. 	<ul style="list-style-type: none"> Improvement of infrastructure such as roads and airstrip. Food security in that they can help in diversification of livelihoods to deal with famine and droughts, Improvement of educational infrastructure, Initiation of programs for older persons and provision of health care services and food for older persons. 	<p>Key human rights issues in the area are: Insecurity due to limited security personnel and poverty.</p>
<p>Diocese of Lodwar</p>	<ul style="list-style-type: none"> Bursary program School feeding program Medical program Nomadic program Water and irrigation program 	<ul style="list-style-type: none"> The organization has partnered with Tullow to assist in allocation of bursary funds in schools in Turkana County. It runs a school feeding programme for 16,000 students. The organization has set aside a budget for its medical programme of 85 million to be allocated to about 19 dispensaries. 		

Organization	Thematic Areas	Summary on Areas of interest	Summary of Views on Development Issues, and Livelihoods in the Region	Summary of Views on Human rights in the area
		<ul style="list-style-type: none"> • Initiated a nomadic program which is meant to assist pastoralists in the area. • Water and Irrigation program which include drilling of boreholes and constructing hand pumps. 		

6. STAKEHOLDER CONSULTATION AND PUBLIC PARTICIPATION

6.1.1 Introduction

Public participation and stakeholders consultations are very important if any project is to be undertaken. This helps the company involved to get the views and concerns of the potentially affected people on the project and how the adverse impacts can be mitigated. During the ESIA, meetings, interviews and discussions were held with local communities, the leaders, government officials and the NGO officials in Turkana Central and Turkana North sub-counties. The following areas were covered; Lodwar, Kalokol, Lobolo, Loyoro Lomopus, Eliye Springs, Kataboi, Kalimapus, Katiko, Lomekwi, Kang'aki, Nachukui, Nareng'ewoi, Lowarengak and Lokitaung. Interviews were also held with officials from National Museums of Kenya, Ministry of Energy and Petroleum and other interested individuals in Nairobi. All the consultations were held from 1st to 28th of August 2013.

The main objectives of the consultation were to:

- To inform the community and the stakeholders about the proposed project and the activities that will be undertaken;
- To discuss the nature of potential negative and positive impacts of the project and appropriate mitigation measures;
- To incorporate the views, concerns and proposals of stakeholders, community members, local NGO officials and other stakeholders on their expectations from the project activities; and
- To obtain socio-economic information about the project area.

6.1.2 Issues and concerns raised

Table 6.1 below summarizes the expectations, concerns and the mitigation measures that were discussed during the stakeholders meetings, public meetings and interviews. Appendix 2 provides minutes of meetings held with various stakeholders.

Table 6.1 Summary of Stakeholders' Expectations, Concerns and Mitigation Measures

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
Government Officials at Lodwar		<p>They wanted the following issues clarified:</p> <ul style="list-style-type: none"> • One member wanted to know if production will be done at the same site. • They also wanted to know how many wells will be drilled. • Some members mentioned that land in Turkana belongs to the community who area pastoralists hence they wanted to know what plans were in place to make sure that the grazing lands are not interfered with. • They also wanted to know whether drilling will be done in the lake. • They also wanted to know how experts come to a conclusion that oil has been found in a certain area and whether it is commercially viable. • Members also mentioned that there was already a problem of resistance from locals in block 10BB and they wanted to know some of the mitigation measures in place to offset this anticipated impact. 	
NGO officials at Lodwar		<ul style="list-style-type: none"> • They sought to know if Tullow had HIV work related policies in place for 	<ul style="list-style-type: none"> • They suggested that community participation should be explored from the

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
		<p>the employees and if there was a plan to work with the existing health facilities.</p> <ul style="list-style-type: none"> Lack of community involvement in previous projects. Tullow movement plans are not known to the public hence these movements interfere with their grazing patterns and water points. 	<p>grassroots level.</p> <ul style="list-style-type: none"> They want plans in place to ensure that rehabilitation is done after the ongoing seismic survey has been completed. They would like some social investment projects done by the proponent in the region.
Members of Turkana County Assembly	<ul style="list-style-type: none"> They were full of praise for the meeting quoting that other projects lacked such meetings that inform the locals. 	<ul style="list-style-type: none"> The members raised a number of issues concerning Tullow and these included: Displacement; Environmental degradation; Workers being imported and the various contracts being awarded to the foreigners (people not from Turkana region). They felt that the local people do not gain from Tullow activities. They also said that Tullow has an inadequate CSR and that Turkana faces a shortage of security personnel because those available are absorbed by Tullow and other organizations. They stressed on the need for security since the block borders Ethiopia to the North. They mentioned that the project might lead to environmental degradation. 	<ul style="list-style-type: none"> They encouraged Earthview Geoconsultants Ltd. to write a detailed report that will capture as many views as possible. They want to access the report through the Governor's office. A copy of the ESIA report to be sent to the county assembly for debate. Employment of locals to assist in data collection through the household questionnaire administration. The disabled to gain from Tullow activities through training so that they can benefit from the project.

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
		<ul style="list-style-type: none"> • They further pointed out that devolution has brought hiccups in terms of the process and roles that the officials have to play. • They commented that the rig makes a lot of noise and shakes the ground and which makes people terrified. • The seismic survey on the lake had an adverse impact on the fish breeding patterns and led to a decrease in population. 	
The Beach Management Unit Stakeholders at Kalokol	<ul style="list-style-type: none"> • They expect Tullow to give them more employment opportunities. 	<ul style="list-style-type: none"> • They reiterated that Tullow has been making promises and not fulfilling them e.g. on benefits that the fishermen stand to gain from the project and the bursary funds that are to be released to further education. • Tullow has channelled the security personnel in their region to secure their campsites. This has been to the detriment of the community due to exposure to insecurity. • They lamented that Tullow's activities have been far more adverse than they had revealed in their previous exploration activities e.g. the seismic survey that was carried out in the lake had an effect on the aquatic life which migrated 	<ul style="list-style-type: none"> • They want Tullow to uphold their promises because so far they have no confidence in Tullow and their activities. • They expect more transparency and information sharing from Tullow regarding their project activities. • They requested to have the ESIA reports delivered to them. • They mentioned that that the sub-contractors hired by Tullow do not comply with the standard rules and regulations pertaining to the environment.

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
		<p>further up north leading to a lower yield in fish production.</p> <ul style="list-style-type: none"> • They mentioned that they have not been able to gain access to any past project reports. This is because they are not able to meet the expenses of travelling to the respective offices to access the reports. 	
Members of the Public at Kalokol	<p>That Tullow to provide the following:</p> <ul style="list-style-type: none"> • Bursaries • Boreholes for the community • Roads • Grants to be given to self help groups 	<ul style="list-style-type: none"> • The current committee that was formed to represent the community in Tullow is corrupt and does not represent the views of the community. • They mentioned that the grazing lands will be affected by the proposed project. • They also reiterated that a family homestead was affected by the seismic vibrations leading to collapsing of structures in Nachukui and has not been compensated. • One member mentioned that he read in the local newspaper that oil will be transported to Mombasa for refinery hence their oil would be celebrated by other people. He added that this would bring friction between the Turkana and the government. • They mentioned that BGP was disposing of grey water in the bushes 	<p>They proposed the following:</p> <ul style="list-style-type: none"> • Tullow should make sure that before the proposed project starts the owners of the particular piece of land are negotiated with. • The committee that will be formed should stay out of the camp so that they can channel their complaints. In addition they also said that the committee should have their leaders; member of county assembly, the chief and the local leaders and in case the member of county assembly is replaced in the elections then he or she should be replaced immediately • The chief, assistant chief, village elders and the MCA should be fully engaged in Tullow activities that touch on the community. • Compensation should be calculated by experts such as land valuers so that people are not exploited.

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
		<p>during the seismic survey.</p> <ul style="list-style-type: none"> • They also added that children were hanging around BGP camp in Nachukui to get food left over and this was impacting on their health and education. • They also added that workers in the BGP camp in Kalimapus did not have toilets hence they were defecating in the surrounding village. 	<ul style="list-style-type: none"> • The compiled report should be given to the public and communicated to the communities through barazas and local radios. The reports should also be taken to the Governor's office because it is easy to access them. • Refining the oil should be done in Turkana and if not they want to know how they would benefit. • That there should be payment of an occupancy fee to the owners of the land that where drilling would take place. • Locals should be given priority in terms of employment and that the MCA, the chief, the assistant chief, village elder, ward development committee and Kalokol advocacy group should be consulted before the exploratory drilling starts. • They added that Lodwar water and sanitation company be licensed faster so that they can handle and dispose of grey water from the base camp. • One member said that the drilling company should give tenders to local people and that they should be rotational so that many people can benefit. This includes transportation.
Members of the Public at Lobolo	<ul style="list-style-type: none"> • They were glad that finally there was someone to elaborate and give facts 	<p>They mentioned that:</p> <ul style="list-style-type: none"> • The high level of illiteracy in the 	<p>They proposed the following:</p> <ul style="list-style-type: none"> • The entire project should be socio-

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
	<p>on how exploratory well drilling projects are done; they had been misinformed by rumours and wrong information on oil drilling happening in other areas.</p> <ul style="list-style-type: none"> • They were happy that the base would not take up large tracts of land. • They are positive that the project initiated by the Government is economically viable and therefore they believe the project will have a good socio-economic impact on their community. • They want a fishing industry to be considered in case of Community Social Responsibility (CSR). • They also suggested that after the seismic activities the existing BGP seismic camps on the shores be donated to Lobolo BMU (Beach Management Unit). They also want: • Dispensaries to be constructed in the area and the water scarcity issues addressed. They mentioned that there exists a water pump line built by UNICEF and Red-Cross but water supply is erratic and there is increased pressure for use by the residents. More water for irrigation should also 	<p>Lobolo area will have an effect on the job employment opportunities.</p> <ul style="list-style-type: none"> • Dislocation from homes and livelihood zones far from the site of the proposed exploratory well drilling. • Effect on water aquifers will leave the community more vulnerable and susceptible to prolonged drought and famine. • Existing state of insecurity caused by frequent attacks by the Merille community, a situation compounded by lack of Kenya Police Reserve (KPR) staff. • Noise pollution and air pollution likely to arise from the rig operations may disrupt the existing state of tranquillity and low levels of air pollution. • Influx of immigrants and rig workers to the area will lead to social disorder, introduction of prostitution, intermarriages, exploitation of local community members and school dropout cases in search of employment. • The challenge of illiteracy and ignorance on a wide range of issues and development options. 	<p>economically viable for it to raise the socio-economic level of the local communities.</p> <ul style="list-style-type: none"> • On the inter-tribal conflicts by the Rendille and Borana at the Marsabit border in Lake Turkana, they propose that KPR personnel provide security to fishermen in the lake. • Access routes to be created and the existing road network to be enhanced. • More latrines to be set up in the villages.

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
	<p>be pumped into the farmlands.</p> <ul style="list-style-type: none"> • More schools should be built to enhance education and bursary funds availed to students. • Motorboats to be stationed in the area for rescue missions in the lake, e.g. capsized boats and fishing accidents. • Set up education programs. • Youth groups and women groups to be empowered and supported to improve living standards. • In case the site of the proposed exploratory well drilling project will be located at Lobolo; they want the people from the community to be employed. 		
Members of the Public at Loyoro	<ul style="list-style-type: none"> • If displacement does not occur (since they have a strong attachment to their ancestral land), then the community is content with the project. • They mentioned that off-shore seismic survey by the BGP was well conducted and had no negative impacts on the Loyoro community. • They expect that there will be creation of market for their local goods e.g. basketry, charcoal. • That under the CSR program Tullow should construct a health facility within Loyoro to shorten the long 	<p>They raised the following concerns:</p> <ul style="list-style-type: none"> • That there might be cases of theft of their livestock due to population influx by the immigrants in search of job opportunities. • The high levels of illiteracy in the region are as a result of extreme poverty causing school drop-out cases and this may bar them from being employed in the proposed project. • The cases of BGP workers having relations with their community members has led to social disruption 	

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
	<p>distances to the health facilities at Kalokol and Lodwar.</p> <ul style="list-style-type: none"> • Idle youth should be employed and also be supported through business grants. • Water scarcity in the region to be addressed to cater for their household needs. • They emphasized on irrigation of farmlands together with the related infrastructure as this will improve their living standards and will make them not rely on relief services. • They also expect that there will be construction of roads and improvement of the existing routes. • If oil prospecting is successful the community members should have a social fund through bank accounts to assist them make a living. • Construction and renovation of schools and necessary infrastructure and facilities e.g. solar panels, school fees and scholarships. • Empowerment of women groups through business grants to enhance their small scale businesses. • The community should be regularly updated and informed of all development projects in the region. 	<p>and reported cases of married women abandoning their household duties and business to get married to the workers in the camp.</p>	

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
Members of the Public at Eliye Springs	<ul style="list-style-type: none"> • Provision of employment opportunities in the area was mentioned as one of the perceived benefit of the project to the community members. • Another benefit is the possibility of supporting business development such as basket weaving in the area through funding and training to improve skills. • Access roads to be improved in the area since Eliye Springs is a tourist attraction site and also the roads will improve business in the area • The chief acknowledged previous development projects done by Tullow in the region. He mentioned that Tullow had approved drilling of five water wells and the diocese of Lodwar was granted tender to drill these wells in the area. In June this year, Tullow gave 18 students in Kangatoso location scholarships. Each sub-location got six positions. These scholarships were awarded depending on the state of financial need of the student. • There should be investments in veterinary services for their livestock including animal health extension education and drugs to reduce the livestock disease cases in the region. 	<ul style="list-style-type: none"> • The community members raised alarm over some negative impacts that resulted from past exploration activities by Kenya Oil in the 1980s. They mentioned that the company put paraffin in their left-over food and disposed of the food carelessly in the neighbourhood. This attracted the community to pick up the left-over and some ate and fell sick. In addition, there were cases of sexual abuse to the girls and married women in the area. They feared that this might be repeated by Tullow. • The feared being displaced because of the proposed drilling project • They raised concerns over the potential rise of conflicts in the area if oil is discovered as it happens in some oil producing countries such as Nigeria. 	<ul style="list-style-type: none"> • They would like the camp to be demarcated from the rest of settlement area for the community to enhance harmonious co-existence. • The lake should be taken care of since their livestock depend on it. • The recruitment process should be on merit and taking of bribes by the recruiting officers should be avoided at all costs. • They will appreciate whatever type of employment they are offered, be it contracts or permanent jobs. • All the groups of people in the area should be factored in the employment. • A conflict resolution committee to be constituted in the area to deal with any conflicts that may arise between the community and the contractor company. • Tullow should increase the number of scholarships offered in Eliye Springs area so as to reach out to a larger number of people in the community. • The area chief should be informed of anything that is intended to be done in the area so that he or she can inform the villagers.

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
	<ul style="list-style-type: none"> • They also want support for the early childhood development (ECD) education programmes in the area. The few ECD teachers are volunteers and are not paid; and ECD units have neither classes nor learning facilities. • They also want Tullow to help in diversification of domestic crops by provision of seeds from other breeds that are drought resistant e.g. maize. The only crop grown is sorghum. • Provision of fishing facilities e.g. nets, live jackets, lines & hooks and motorized boats. 		
Members of the Public at Lomopus	<ul style="list-style-type: none"> • The community was in agreement that the proposed project should continue and sought to know who will own the oil once its presence and commercial viability is established. • The community suggested that water projects, health facilities and school infrastructure development be given priority in the area. Other development areas included payment of school fees, electricity, employment opportunities, irrigation projects and access to revolving funds. • The community suggested that their vulnerable groups such as the blind, the physically challenged as well as 	<ul style="list-style-type: none"> • They feared possible displacement as a result of the proposed project. Despite their reservation, they showed willingness to move so long as a tenable agreement is reached between the community and Tullow. • The community was concerned about possible destruction of property belonging to the community by Tullow workers including misconduct with their women. • The community was concerned about the possibility of HIV infection in the area rising due to the influx of people into the area during the implementation of the proposed 	<ul style="list-style-type: none"> • They should be allowed to arrest and kill anyone who misbehaves with their women or report the person to police. • There should be transparency and free flow of information channels from Tullow to the community and vice versa. • A committee should be constituted to be in-charge of every community dealing with Tullow Kenya BV including recruitment of labour, flow of information among others. • Prior to the project commencement, community elders should be informed first since they are the ones who would decide on the appropriate site for base camp location. They said that one way of

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	<p>the deaf be given food and money to enable them start income generating activities for sustenance.</p> <ul style="list-style-type: none"> The chief suggested that those living with HIV be assisted to enable them lead fulfilling lives. He also brought to the attention of the SIA team the existence of epileptic children in the community. Tullow should come to the aid of such children by sponsoring their medication. Tullow to assist the community in accessing veterinary services for their livestock as well as sponsor their insurance so that should the animals die during drought, they can buy to restock. 	<p>exploratory drilling.</p> <ul style="list-style-type: none"> The community was concerned about effects of noise pollution on the behaviour pattern of their livestock. For example, they said that their livestock were not used to noise and therefore any slight noise might make their animals run away and get lost. 	<p>avoiding conflicts during the exercise is keeping the elders informed.</p>
Members of the Public at Kataboi	<ul style="list-style-type: none"> They have agreed that oil exploration and production is a profitable venture with no adverse negative environmental destruction to the community. They hope that the oil exploration will eventually uplift the economy of the local community and entire country like in Libya. They are grateful that Tullow delivered the school bursaries which benefited twenty five students from Kataboi. The community suggested the 	<ul style="list-style-type: none"> Dismay on job employment and recruitment exercise. The community members reported that during the seismic survey, BGP had shortlisted ten people from Kataboi. Those selected were, however, dismissed on health and unfitness grounds. No replacement was made after that. Fear of displacement. Vegetation clearing would deprive their livestock of fodder especially during dry seasons. They heavily rely on Acacia fruits to feed their 	<ul style="list-style-type: none"> For tree clearance they suggested replanting measures to be taken. They are ready to allocate land for the project site but all agreements (between investor and local community) should be honoured by the investor. The community wants gender balance to be considered during job recruitment. The jobs advertised so far only required male applicants. Advertisements for casual jobs should not be strict on education levels as competence is gained through

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
	<p>following development projects to be considered in the CSR:</p> <ul style="list-style-type: none"> • The construction of a security fence around the girls' dormitory at Kataboi primary school; • Construction of dormitories, teachers' quarters and dining hall at Kataboi secondary school; • A hospital to be constructed to handle referral cases and relieve pressure from the Kataboi dispensary; and • Business grants and boosts to be allocated to the youth, elderly, and fishermen. 	<p>livestock.</p> <ul style="list-style-type: none"> • During the 1980's exploration by Kenya Oil in the area, seismic routes and access roads were constructed without consideration of people's homes and trees were indiscriminately cleared along the routes. • They also mentioned that social relief and humanitarian aid agencies would pull out their funding and services as a result of the project. And also that investors may pull out of the region due to discovery of oil resource. 	<p>experience.</p>
Members of the Public at Nareng'ewoi	<p>They need:</p> <ul style="list-style-type: none"> • Assistance in school fees for their children and construction of health facilities, storage facility for charcoal, water wells and nursery units in every location to promote education in the area as part of CSR. • Solar panels should be installed in schools for lighting. • The women and youth groups in the area should be supported to empower people in the area. • Creation of job opportunities by the project. • Improvement of mobile phone 	<ul style="list-style-type: none"> • Cases of sexual exploitation were reported during the BGP activities. This led to spread of sexually transmitted diseases in the area. • Reported cases of underage girls pursuing the BGP camp employees during the seismic survey. This may happen again with the proposed project due to being lured with money and other luxury goods. 	<ul style="list-style-type: none"> • The community members wanted the camp personnel movements to be restricted so as to avoid inappropriate interaction between the personnel and the locals. • The community members insisted that the 5 million for student bursary in Turkana County donated by Tullow is still not enough to cater for the needy students in the district since the number is increasing. The kitty should be increased too.

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
	<p>network connectivity in the area.</p> <ul style="list-style-type: none"> The BMU requested provision of an engine boat and life jackets for use during emergency situations and construction of an office. 		
Members of the Public at Katiko	<p>They mentioned the following to be to be addressed by Tullow:</p> <ul style="list-style-type: none"> Job employment opportunities for the youth. Construction of a dispensary. Improvement of their education facilities. They also need dormitories and teachers quarters built within the school and assistance to pay school fees for their children. Provision of clean drinking water as well as the construction of a dispensary. They expect the drilling company to empower them economically. Improvement of road network in the area for easier accessibility. Construction of water pans for their livestock. Motor boats for the fishermen to enhance deep sea fishing. 		<ul style="list-style-type: none"> They suggested that a recruitment committee be formed that represents the whole community so that there is fare distribution of employment opportunities.
Members of the Public at Lowarengak and Todonyang	<p>They mentioned the following:</p> <ul style="list-style-type: none"> Drilling of water boreholes which will also help the proponent as they carry out their work. 	<ul style="list-style-type: none"> Fear of displacement and arising conflicts during compensation and resettlement as the land is not individually owned but belongs to the 	<ul style="list-style-type: none"> Maximizing on security options by the proponent to avoid frustrations and interferences when carrying out the project. In addition they suggested that

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
	<ul style="list-style-type: none"> Hiring of security personnel from areas where the drilling would be conducted as they are more aware of the security situation in the area. Provision of speed boats to be used for patrolling the delta. 	<p>community as a whole.</p> <ul style="list-style-type: none"> Increased insecurity on the Kenya Ethiopia border which would be worsened by the project. 	<p>reeds that grow along the lake shores be cleared because they are the hiding grounds of the Ethiopian Merille</p> <ul style="list-style-type: none"> Turkana population has many illiterate people and as such proper mechanisms should be sought on how to sensitize them on the potential benefits of the project as well as the potential negative impacts. NEMA to address the adverse locust attacks in their region which is deteriorating their grazing lands. They should eradicate this problem.
Members of the Public at Nachukui	<ul style="list-style-type: none"> Improvement of socio-economic infrastructure in the area by constructing schools and hospitals and drilling water boreholes. Increase of the amount of bursary funds allocated to schools in the local community. Allocation of job opportunities to the people from the local community if the drill site is identified in their area. 	<p>They raised the following concerns:</p> <ul style="list-style-type: none"> Noise and air pollution that is likely to occur during the drilling of the well and the construction of access roads. Oil spillage and seepage into the underground water aquifers and subsequent contamination. Disruption of socio-cultural setting due to introduction of new lifestyles by the immigrants eroding their culture and social fabric. Poor human waste disposal i.e. by defecating in the bushes and lakeshores used in the past by Tullow sub-contractors. 	<ul style="list-style-type: none"> Formulate corrupt-free criteria for employment that prioritises the local community. Left over foods should not be thrown to pits as it attracts young children lingering around the camps. Circulation of the ESIA report to the local community for information and monitoring of the project.
Members of the Public at Kang'aki	<p>Community members expect the following:</p> <ul style="list-style-type: none"> Building of more school structures for 	<ul style="list-style-type: none"> They fear that there might be sexual exploitation of married women and 	<ul style="list-style-type: none"> Tullow should discourage immorality in the area by their employees especially

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
	<p>Kang'aki primary school.</p> <ul style="list-style-type: none"> Construction of a health centre at Kang'aki to serve alongside the Nachukui mission health facility. 	<p>young girls as happened during the seismic survey process.</p> <ul style="list-style-type: none"> They also fear that there might be increased rate of school drop-out cases. 	<p>child abuse should they camp in Kang'aki.</p> <ul style="list-style-type: none"> The recruitment process should be transparent and fair.
Members of the Public at Lomekwi	<p>They should assisted by Tullow in the following:</p> <ul style="list-style-type: none"> Acquiring potable water since for a long time, the community has depended on the waters of Lake Turkana which they described as not good for human consumption. Water projects, health facilities and school infrastructure development be given first priority in the area. Other development priority areas included payment of school fees, scholarships, electricity, employment opportunities, irrigation projects and access to revolving funds. Considering of the local community members during tendering and supplies to the base camp. Assistance to get engine boats to help in sea rescue mission by the fishermen and construction of an office for the BMU operations. 	<ul style="list-style-type: none"> Fear of air pollution and earth tremors taking place during the proposed project. Possible destruction of property belonging to the community by Tullow workers including moral misconduct by the employees. The community was concerned about a possibility of HIV infection in the area due to the influx of people seeking employment. Effects of noise pollution on the behaviour pattern of their livestock. The livestock develop anxiety due to slight changes in their environment especially unfamiliar noise. They fear eruption of war due to the discovery of oil in the area as has happened in other countries. 	<ul style="list-style-type: none"> There should be free flow of information from Tullow to the community and vice versa. Serious penalties and legal action be taken against misconduct and especially sexual immorality by the employees. There should be a local committee that comprises the local people to bridge the gap between the contractor and the local community. They were particular on employment of locals and not outsiders especially the unskilled labour. Prior to the project commencement, information should be passed on to the village elders as it is they who will decide on where the site will be located. The elders must also be closely managed to keep conflicts away before, during and after the project. Increased public sensitization on the project to keep the public aware of the progress of the project.
Members of the Public at	<ul style="list-style-type: none"> They expect Tullow to improve education levels and standards in the 	<ul style="list-style-type: none"> Fear of displacement from the region. 	<ul style="list-style-type: none"> In the event that an animal is hit by a Tullow vehicle, they would like to be

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Kalimapus	<p>local area.</p> <ul style="list-style-type: none"> • They want water to be drilled for domestic and livestock use to supplement the existing tanks which serve a wide population and livestock demand. • Provision of veterinary services and drugs. 	<ul style="list-style-type: none"> • The high noise level produced by the drilling machine and the moving vehicles may impair hearing of the local community. Their livestock especially sheep and goats may be frightened and run away and even get lost. • Sexual abuse and vulnerability of their girls by the workers at the camp. • Married women may also engage in sexual affairs and this will lead to alarming cases of divorce in the area. 	<p>compensated.</p> <ul style="list-style-type: none"> • Tullow should engage elders of the community in the project to give advice. • There should be minimal dust produced by moving vehicles and machinery.
Government officials in Lokitaung	<p>The positive impacts as stated are:</p> <ul style="list-style-type: none"> • Job creation opportunities; • Opening up of economic activities which includes creation and expansion of existing trades; • Source of income generation for both the county and national government; • Improvement of existing road infrastructure and installation of new ones; and • Future employment of the sponsored students and Tullow scholarship beneficiaries. 	<p>The negative impacts that they pointed out are:</p> <ul style="list-style-type: none"> • Displacement of the local community and disturbance of their lifestyles. • The activities may render some water points dry. • Interference with existing ecosystems which is made up of scanty vegetation and dwarf plant. • Rise of insecurity at the Northern border (cross-border attacks) may affect the project. • Activities may lead to stress and anxiety to the society and livestock. • Destruction of grazing lands and fodder due to the project activities will cause conflicts with the nomadic 	<ul style="list-style-type: none"> • Tullow to drill water boreholes for the surrounding communities around the rig areas to provide water for re-vegetation and irrigation to replace any vegetation cleared for setting up of the camp. • The local community needs adequate information and education on the oil exploration activities. • On sexual offences and misconduct, several mitigation measures were suggested: jail sentence for sexual offenders in case of child defilement; in case of pregnancy, the offender must take care of the school fees of the offended once she resumes school; there should be a provision for a child fund

Stakeholders	Expectations (Positive Impacts)	Concerns (Adverse Impacts)	Proposed Mitigation Measures and Recommendations by the Stakeholders
		<p>pastoralists</p> <ul style="list-style-type: none"> • Livestock accidents may occur both directly (being knocked down by moving machines) and indirectly (injuries as a result of running away from moving machines). • They feared that large tracks of land may be taken away and cited the land-related issues in Block 10BB. • They feared that social impacts associated with the project such as child labour and exploitation, adultery, prostitution and spread of HIV/AIDS and other STI's may come up. • They mentioned that deforestation may also be experienced since there might be demand for charcoal from the proponent. 	<p>which is to be deducted directly from the offender's salary; other administrative measures.</p> <ul style="list-style-type: none"> • Create public awareness and sensitization on the social evils likely to affect the community. This should be done regularly by the local area chiefs through barazas. • However, the chief's activities should be facilitated by Tullow due to the long distances to be covered in passing information. • The use of charcoal for fuel should be minimal. • Cases related to livestock accidents should be reported to the area chiefs immediately by the offender to avoid conflicts. The chief will then direct the conflict resolution and settle disputes.

7. ALTERNATIVES

7.1 Introduction

According to the Environmental (Impact Assessment and Audit) Regulations, 2003, it is necessary to consider alternatives to the proposed activity (alternative technologies and processes available and reasons for preferring the chosen technology and processes; analysis of alternatives including project site, design and technologies and reasons for preferring the proposed site, design and technologies).

Due to the numerous factors (surface and subsurface geology, topography) that dictate the location of oil wells, there are only two viable alternatives that can be genuinely considered; drilling option and the no drilling/do nothing option.

Seismic data are used to indicate possible areas where hydrocarbons could be trapped in oil or gas-filled geological structures. Without exploratory drilling, however, one cannot with certainty establish the presence or otherwise of hydrocarbons, their quantities, and commercial viability. Exploratory drilling is thus a necessary step in petroleum exploration. It is also a requirement for Tullow to drill at least one exploratory well under the terms of the PSC between it and the Government of Kenya.

7.2 Project alternatives

The proposed project involves the drilling of an exploratory well at locations identified from processed and interpreted seismic data in Block 10BA. As per the NEMA Environmental (Impact Assessment and Audit) Regulations, this report compares the following two alternatives:

- i. "Undertake drilling" alternative, which includes a consideration of the project location and project technology (rig and drilling fluids) alternatives; and
- ii. "No action" alternative.

7.2.1 "Undertake drilling" alternative

7.2.1.1 Area of interest

While offshore seismic acquisition is still ongoing in Block 10BA, onshore acquisition has been completed and drilling target areas have been identified. Figure 2.1, Chapter 2, shows the area of interest for the exploratory drilling project in Block 10BA.

7.2.1.2 Rig site location

Within the exploratory drilling site will be the rig site which comprises the drilling pad and working area and the lay-down area and accommodation site which will be adjacent to each

other. This would limit the environmental impact to a confined area of approximately 450m by 250m.

7.2.1.3 *Well design*

The most prevalent well drilling techniques used during exploration are directional and vertical drilling. While directional drilling can be undertaken to avoid a topographic or environmentally sensitive feature such as a water course or to reduce surface disturbance, some of its limitations are: it is more expensive and technical as compared to vertical drilling; and it results in difficulties during well casing and well logging.

7.2.1.4 *Drilling rig selection*

Rig selection depends on the depth of well and well construction. The rig must be set up with all the necessary components such as a derrick and a draw-works. Mobile rigs are more suitable for shallow depths and have high noise levels. Stationary rigs, generally, are used for equipment of draw-works over 1000HP.

7.2.1.5 *Drilling mud type selection*

There are two basic types of drilling fluids: water-based mud (WBM) and non-aqueous drilling mud (NADM). WBMs have either fresh water or salt water as the primary fluid phase, while NAMs have either refined oil or synthetic materials as the primary fluid phase. For many wells, drilling conditions (e.g. deviated, horizontal wells or active shales) often require the use of NADMs instead of WBMs for efficient, cost-effective operations.

WBM is the most commonly used medium in drilling operations, one of the reasons being that drilled cuttings from WBM are much less damaging to the environment when disposed of compared with oil or synthetic oil based fluids. However, water-based systems are not always as effective as oil- or synthetic-based fluids but NADM systems are generally only commercially attractive in operations with high day rate costs such as offshore drilling. NADM show improvements over standard water mud in the areas of increased drilling rate and bit life, reduction in drill-hole problems and torque, less sticking of pipe, and less hole-enlargement, but can be toxic to plants and animals, so its use is tightly controlled, and it can also be prohibitively expensive.

Synthetic Based Mud (SBM) is a relatively new class of drilling mud developed to combine the technical advantages of NADM with the low persistence and toxicity of WBMs. However, SBMs are prohibitively expensive and are not the best mud-system of choice.

7.3 'No project' option

The 'no project' alternative involves the rejection of the proposed project and all future potential field-level development alternatives. Should the 'no project' alternative be chosen, there will be no prospect for knowing or assessing Kenya's potential for bearing hydrocarbon resources in Block 10BA. In addition, the economic, financial and social benefits of oil and gas production as well as the possibility of a reduction in the country's heavy dependence on imported petroleum products will not be realised.

This option is not recommended for the following reasons:

a) Contractual reasons

- A Production Sharing Contract (PSC) with the Government of Kenya was signed on 17th September 2008, and an Exclusive Prospecting Right (EPR) over Block 10BA was obtained by Tullow. Therefore, rejection of the proposed project would be in breach of the PSC contractual agreement; Tullow are finalising the analysis of data acquired from seismic surveys and is committed to drilling at least one exploratory well within the block as per the PSC; and
- The PSC contract between the Government of Kenya and the proponent obliges the proponent to prospect for petroleum resources in the block.

b) Environmental and socio-economic reasons

- Similar projects in the country (e.g., CNOOC Africa Ltd., Bhogal 1, Merti within other Blocks; Tullow, Ngamia 1, Block 10BB Turkana South and Twiga 1, Block 13T) have shown that impacts are localized and mitigable;
- The proposed project will be vital in opening up the North Western Frontier areas of the country. The potential direct benefits to the region and the country at large are financial income and local business opportunities. Secondary indirect benefits are a potentially improved standard of living and better education, social services and amenities (for example, improved access roads);
- Kenya needs investments that can stimulate its economic development in order to achieve Vision 2030 and also be able to provide adequate, quality and affordable energy services;
- The project could be a source of revenues (adding to the Gross National Product) and foreign exchange;
- The project has the possibility for long-term technology and knowledge transfer, bringing economic development, enhancing capacity, and improving the quality of life; and
- No irreversible negative impacts that would render the project unfeasible have been found as a result of the environmental analysis conducted following previous drilling projects.

The only positive impact of choosing the "No project" alternative is that there will be no short duration impacts on the environment.

8. IDENTIFICATION OF IMPACTS AND MITIGATION MEASURES

8.1 Introduction

This Chapter identifies the potential environmental and social impacts of the proposed project, based on the components of the proposed exploratory well drilling (Chapter 2), in the context of the baseline conditions that have been established in Chapter 5, and with due regard to applicable legislation described in Chapter 4. The predicted impacts are then assessed using the methodology outlined in Chapter 3.

8.2 Project area of influence

The areas of influence of the Block 10BA exploratory drilling project include:

- the project footprint (access road, accommodation facilities and rig camp);
- the area within which dust may settle;
- the area in which air quality may be degraded as a result of a well test;
- the area within which noise may be audible;
- communities close to the drilling locations;
- the areas into which grazing herds may be displaced as a result of the basecamp or access roads;
- groundwater resources which may be degraded as a result of drilling or uncontained spillage;
- soils which may be degraded due to compaction and uncontained spillage; and
- the road network where construction traffic may result in a noticeable increase in traffic levels.

8.3 Summary of key issues

Table 8.1 presents a summary of the environmental and social components that will be affected by planned and unplanned activities, identified impact sources and potential impacts reviewed in Sections 8.4-8.6 which follow.

Table 8.1: Environmental components affected by sources of potential impacts

	Environmental or Social Parameter	Impact Source	Predicted Impacts
1	Physiography and Geology	<ul style="list-style-type: none"> • Access road construction • Rig site preparation and camp clearance • Improper handling of solid and liquid wastes generated • Exploratory drilling 	<ul style="list-style-type: none"> • Road crossings at luggas will alter the riverbank morphology • The landscape may be altered and rock materials excavated to pave the access ways • Tampering with geology while drilling and bringing up of geological materials from underground
2	Soils	<ul style="list-style-type: none"> • Construction of campsite and associated facilities • Clearing vegetation and excavation of surface soils • Vehicular movement during project operations • Oil or chemical leaks from vehicles and machinery, 	<ul style="list-style-type: none"> • Compaction of soils in the working areas and access ways changing percolation rates and drainage patterns • Disturbance of soil through construction and excavations • Possibility of enhanced gullying and erosion (wind and water) in constructed areas and access roads

	Environmental or Social Parameter	Impact Source	Predicted Impacts
		<ul style="list-style-type: none"> garage and storage areas Effluent leaks and/or contamination from waste pits Exploratory drilling 	<ul style="list-style-type: none"> Contamination of soils Possible caving in of soil in waste pits (near surface competence that bear on load capacity) due to soil stability factors Disposal of cuttings in the soil environment
3	Air Quality	<ul style="list-style-type: none"> Access road construction Rig site preparation and camp clearance Camp operations- sanitary facilities Well testing 	<ul style="list-style-type: none"> Pollution from exhaust emissions Fugitive dust generation from traffic Offensive odours Health risks GHG Emission of air pollutants due to well testing
4	Surface and ground water resources	<ul style="list-style-type: none"> Access road construction Rig site preparation and camp clearance Wastes: Hazardous waste; Non-hazardous waste; Wastewater and other effluent discharges and Drilling waste: WBM and cement; and drill cuttings Camp operations Exploratory drilling 	<ul style="list-style-type: none"> Possible contamination of water resources as a result of spillage and leakages Possible contamination of underlying aquifers with chemicals during exploration drilling Possible contamination of surface water
5	Terrestrial Environment (Habitats, Flora, and Fauna)	<ul style="list-style-type: none"> Access road construction Rig site preparation and camp clearance Drilling waste: WBM and cement; and drill cuttings Air emissions from engines, generator, flaring and venting of gas during well testing Noise and vibration 	<ul style="list-style-type: none"> Reduced vegetation cover Disturbance of wildlife (physical presence and noise) Contamination of the environment from wastes Land take Soil erosion
6	Land Resources and Protected areas	<ul style="list-style-type: none"> Access road construction Rig site preparation and camp clearance Exploratory drilling Noise and vibration 	<ul style="list-style-type: none"> Man-made structures may lower aesthetic value of landscape Disturbance of animals and vegetation Disturbance of grazing lands due to camp and access road construction
7	Archaeological, Historical and Cultural Sites	<ul style="list-style-type: none"> Access road construction Rig site preparation and camp clearance Camp operations 	<ul style="list-style-type: none"> Compaction by heavy vehicles and machinery may damage or deface cultural sites Conflicts with local communities
8	Visual Aesthetics	<ul style="list-style-type: none"> Access road construction Rig site preparation and camp clearance Camp operations Exploratory drilling Impact sources associated with accidents; road accident, spills, blowouts and fires 	<ul style="list-style-type: none"> Poor campsite design and access ways may lead to visual infringement and does not blend well with the environment
9	Noise, Vibrations	<ul style="list-style-type: none"> Construction operations Power Generators Vehicular noise pollution 	<ul style="list-style-type: none"> Piling activities increase levels of ambient noise Disturbance to humans, animals and livestock Disturbance to workers Occupational Health risks
10	Solid and Liquid Wastes	<ul style="list-style-type: none"> Campsite operations 	<ul style="list-style-type: none"> Pollution of surface and ground water Offensive odours Health risks Contamination of soil Solid wastes like plastics choking the

	Environmental or Social Parameter	Impact Source	Predicted Impacts
			environment
11	Social Characteristics	<ul style="list-style-type: none"> • Workforce influx • Activities at the proposed project site 	<ul style="list-style-type: none"> • Possible increase in crime rate and other social decadences • Erosion of culture, religious and social values as a result of intermingling with workers • May interfere with grazing lands • Improved security surveillance • Improved quality of life
12	Economic Characteristics	<ul style="list-style-type: none"> • Access road construction • Rig site preparation and camp clearance • Camp operations • Exploratory drilling 	<ul style="list-style-type: none"> • Short-term job opportunities • Improved short-term business opportunities for the locals • A more active local economy
13	Occupational Health and Safety	<ul style="list-style-type: none"> • Access road construction • Camp operations • Exploratory drilling • Air emissions from engines, generator, flaring and venting of gas during well testing • Noise and vibration • Impact sources associated with accidents; road accident, spills, blowouts and fires 	<ul style="list-style-type: none"> • Injuries to workers, visitors and area residents arising from project operations • Fire hazards • Other health risks and diseases • Motor vehicle accidents
14	Security and Public Safety	<ul style="list-style-type: none"> • Work force influx 	<ul style="list-style-type: none"> • Petty crimes • Improvement in security due to security enhancement for project activities
15	Construction of campsite	<ul style="list-style-type: none"> • Campsite construction 	<ul style="list-style-type: none"> • Disturbance to soils and vegetation during construction • Reduced landscape aesthetics due to stockpiling of excavated soils • Health and safety hazard due to poor campsite construction • Spillage of chemicals, oils and fuels from construction equipment and vehicles • Disturbance to communities • Insecurity • Health and safety hazard during campsite occupation •
16	Fuelling station	<ul style="list-style-type: none"> • Improper refueling practices 	<ul style="list-style-type: none"> • Fuel spills • Fire hazard • Fuel contamination •
17	Camp clinic	<ul style="list-style-type: none"> • Improper biomedical waste management 	<ul style="list-style-type: none"> • Pollution due to poor handling of biomedical and pharmaceutical wastes •
18	Water borehole drilling	<ul style="list-style-type: none"> • Improper cuttings management • Borehole site clearance 	<ul style="list-style-type: none"> • Disturbance to soils and vegetation during data acquisition and borehole drilling • Contamination during well development • Pollution/contamination of borehole/aquifer water
19	Unplanned Events	<ul style="list-style-type: none"> • Spills • Fires • Road accidents • Riots / demonstrations 	<ul style="list-style-type: none"> • Spillage may result in contamination of soils, local habitats, surface and ground water resources and subsequent impacts on flora and fauna

	Environmental or Social Parameter	Impact Source	Predicted Impacts
		/protests	<ul style="list-style-type: none"> • Blowouts may cause an uncontrolled release of hydrocarbons, uncontrolled oil spill and contamination of soils, water resources and fires if it comes into contact with a source of ignition • Conflicts between Tullow and subcontractors and locals in case of injuries or death to people or livestock due to accidents or fires • Damage of property in the campsite in case of fires

8.4 Environmental Impacts and Mitigations

During the exploratory drilling activities disturbance will come about via construction of the campsite, opening up or upgrading of existing access ways, vehicular movement during project operations, oil or chemical leaks from vehicles and machinery, garage and storage areas, construction of the well pad, drilling of the well, excavation of water storage, drilling cuttings and WBM pits, and disposal of waste associated with the project. The following sections provide details on the possible impacts of planned and unplanned activities on various parameters, the proposed mitigation measures and impact significance.

8.4.1 Physiography and Geology

8.4.1.1 Impact sources

The impact sources include:

- Access road construction
- Rig site preparation and camp clearance
- Improper handling of solid and liquid wastes generated
- Exploratory drilling

8.4.1.2 Impacts

- Road crossings at luggas will alter the riverbank morphology
- The landscape may be altered and rock materials excavated to pave the access ways

8.4.1.3 Mitigation measures

- Obtain adequate permits to use land for roads and campsite
- Use of existing access roads and old cut lines established during the seismic survey phase to the drilling site to the extent possible
- Plan the environmentally decommissioning and restoration of the site before starting decommissioning
- Break surface of rig site, remove concrete pads, restore original contours and drainage channels
- Fill excavated pits when contents have dried
- Spread topsoil conserved during site

- Preparation and seed with local species

8.4.1.4 Residual Impacts

The residual impacts on physiography and geology after mitigation include;

- Permanent loss of land resource in access road footprint
- Roads will benefit the locals in the area
- The abandoned well will be left on site

The residual impact significance for physiography and geology will be MINOR.

8.4.1.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Physical presence of roads and camp 	<ul style="list-style-type: none"> • Permanent loss of land resource in access road footprint 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Obtain adequate permits to use land for roads and campsite 	<ul style="list-style-type: none"> • Minor
<ul style="list-style-type: none"> • Change in access to land due to setting up of roads 	<ul style="list-style-type: none"> • Roads will benefit the locals in the area 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Use existing access roads and old cut lines established during the seismic survey phase to the drilling site to the extent possible 	<ul style="list-style-type: none"> • Minor

8.4.2 Soils

There are different types of soils in the project area, each with its own peculiar geological, textural and weathering/erosion-driven properties, as well as anthropogenic footprints such as compaction by grazing animals, that are relevant to a number of issues that would need to be considered when executing the project. These issues include: ecosystem services e.g. the role of soil in support of vegetation and higher food chain members; erosion and ponding potential, as well as surface runoff and their resultant geomorphological modifications; wind deflation, transportation and deposition of soil-derived particulates; organic matter content, surface sealing and capping; and agricultural potential.

In the areas where the soils have high sand content, particularly along the lake shoreline and the extensive east-west aligned seasonal alluvial drainage basins, compaction by vehicles and machinery will be slight. Soils of the plains and hills of the project area that are more susceptible to compaction due to their higher clay contents would likely be compacted to some extent.

8.4.2.1 Impact sources

- Construction of campsite and associated facilities
- Clearing vegetation and excavation of surface soils
- Vehicular movement during project operations
- Oil or chemical leaks from vehicles and machinery, garage and storage areas
- Effluent leaks and/or contamination from waste pits
- Exploratory drilling

8.4.2.2 Impacts

- Compaction of soils in the working areas and access ways changing percolation rates and drainage patterns
- Disturbance of soil through construction and excavations
- Possibility of enhanced gullying and erosion (wind and water) in constructed areas and access roads
- Contamination of soils
- Possible caving in of soil in waste pits (near surface competence that bear on load capacity) due to soil stability factors
- Disposal of cuttings in the soil environment

8.4.2.3 Mitigation measures

- Topsoil that is stripped and removed for construction should be preserved for rehabilitation of the constructed(campsite/drill rig) area at the end of the project
- Minimize vegetation clearance as much as possible when clearing the area for the drilling pad and campsite construction
- All fuels and other fluids to be stored in suitable banded enclosures
- Ensure that all vehicles and machinery are regularly serviced and maintained with no oil or other fluid leakages
- A plan should be prepared to prevent and contain accidental oil discharges or fuel spillages
- All equipment should be fitted with drip trays and stationary fuel storage facilities should have secondary containment
- Ensure that all drivers and technicians are familiar with drip-tray and spill-kit use through daily tool-box talks
- Ensure that all vehicles and machinery are well maintained with no leakages, and that any in-field refuelling or maintenance is performed while using a drip tray with a spill-kit available

8.4.2.4 Residual Impacts

- Enhanced ponding, gullying and erosion due to altered runoff and drainage patterns at local scales
- Clearance of vegetation may lead to soil erosion and or localised flooding
- Contamination of soils

The residual impact significance for soils will be MODERATE.

8.4.2.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
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Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Topsoil clearance and compaction 	<ul style="list-style-type: none"> • Clearance of vegetation may lead to soil erosion and or localised flooding 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Minimize vegetation clearance as much as possible when clearing the area for the drilling pad and campsite construction 	<ul style="list-style-type: none"> • Moderate
<ul style="list-style-type: none"> • Soil particulates erosion and deposition generated by wind and enhanced by low vegetation cover 	<ul style="list-style-type: none"> • Enhanced ponding, gullying and erosion due to altered runoff and drainage patterns at local scales 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Topsoil that is stripped and removed for construction should be preserved for rehabilitation of the constructed (campsite/drill rig) area at the end of the project 	<ul style="list-style-type: none"> • Moderate

8.4.3 Air Quality

On meso-to micro-scales, air quality variation relates primarily to changes in the wind speeds in the area and the associated particulate dust that the wind transports from one place to another. The winds can raise substantial quantities of dust. The disturbance of fine grained (fine silt to clay sized particles) soils by vehicles traversing the area will lead to small quantities of transient airborne dust being generated during windy conditions, but will be far less than the naturally generated particulate air loading in the area.

Project operations will affect air quality on a micro-scale, and in a transient manner, through exhaust emissions from vehicles and machinery as well as fugitive emissions (such as from leaking pipes and tubing, valves, connections, pump seals, compressor seals, pressure relief valves, tanks or open pits/containments, hydrocarbon loading and unloading operations, and poorly managed waste disposal and sanitary facilities).

8.4.3.1 Impact sources

- Access road construction
- Rig site preparation and camp clearance
- Camp operations- sanitary facilities
- Well testing

8.4.3.2 Impacts

- Pollution from exhaust emissions
- Fugitive dust generation from traffic
- Offensive odours
- Health risks
- GHG
- Emission of air pollutants due to well testing

8.4.3.3 Mitigation measures

- Limit traffic speed and restrict movement of vehicles as to minimize dust generation
- Field vehicles, trucks and any other machinery should be regularly serviced, well maintained, and switched off when not in use
- Use low sulphur fuels if available
- Employees working in dusty conditions must use appropriate PPE
- If litter is to be burned, it should be done at a time of low wind movement, and preferably in areas shielded from wind by vegetation
- Camp sanitation facilities should be properly installed, managed and maintained
- An efficient test flare burner head equipped with an appropriate combustion enhancement system should be selected to minimize incomplete combustion, black smoke and hydrocarbon fallout. Volumes of hydrocarbons flared should be recorded
- Flaring should adhere to Global Gas Flaring and Venting Reduction Voluntary Standard (part of the World Bank Group's Global Gas Flaring Reduction Public-Private Partnership (GGFR program) or equivalent industry standard)

8.4.3.4 Residual Impacts

- Short-lived change to local air quality

The residual impact significance on air quality will be MINOR.

8.4.3.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Rig site preparation and camp clearance 	<ul style="list-style-type: none"> • Pollution from exhaust emissions • Fugitive dust generation from traffic 	<ul style="list-style-type: none"> • Negligible 	<ul style="list-style-type: none"> • Limit traffic speed and restrict movement of vehicles as is reasonable to minimize dust generation • Use low sulphur fuels if available 	<ul style="list-style-type: none"> • Minor
<ul style="list-style-type: none"> • Well testing 	<ul style="list-style-type: none"> • GHG emissions • Emission of air pollutants • Health risks 	<ul style="list-style-type: none"> • Negligible 	<ul style="list-style-type: none"> • Employees working in dusty conditions must use appropriate PPE 	<ul style="list-style-type: none"> • Minor
<ul style="list-style-type: none"> • Camp operations-sanitary facilities 	<ul style="list-style-type: none"> • Offensive odours 	<ul style="list-style-type: none"> • Negligible 	<ul style="list-style-type: none"> • Ensure hygiene is maintained in the camp 	<ul style="list-style-type: none"> • Minor

8.4.4 Surface and Groundwater Resources

8.4.4.1 Impact sources

- Access road construction
- Rig site preparation and camp clearance
- Wastes: Hazardous waste; Non-hazardous waste; Wastewater and other effluent discharges and Drilling waste: WBM and cement; and drill cuttings
- Camp operations
- Exploratory drilling

8.4.4.2 Impacts

- Contamination of water resources as a result of spillage and leakages
- Contamination of underlying aquifers with chemicals during exploration drilling
- Contamination of surface water

8.4.4.3 Mitigation measures

- Vehicles should steer away from perennial/seasonal waterways as is practicable, but a buffer zone of 20m should be maintained except at crossing points-ephemeral luggas are expected
- Tullow and subcontractors should adhere to OGP standards and international best practices during drilling, cementing and casing of the exploratory well
- Monitoring should be done frequently to ensure no contamination occurs through tests
- Install and properly manage camp sanitation facilities
- Sewage system should comprise of a septic system with steel settling tanks instead of the usual soak pits due to the soil characteristics
- An efficient sanitation system should be put in place for camp workers to eliminate or minimise the levels of potential water pollutants from domestic effluents
- Tullow should aim to have the sewage system produce a waste stream or treated effluent that is of high enough quality to be or discharged back into the environment

8.4.4.4 Residual Impacts

- Residual impacts on surface and groundwater resources are not expected if the mitigations outlined above are effected

8.4.4.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Change in quality of water due to abstraction, • Spillage 	<ul style="list-style-type: none"> • Contamination of water resources 	<ul style="list-style-type: none"> • Major 	<ul style="list-style-type: none"> • Vehicles should steer away from perennial/seasonal waterways as is practicable • Monitoring should be 	<ul style="list-style-type: none"> • N/A

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
and leaks			done frequently to ensure no contamination occurs through tests <ul style="list-style-type: none"> • Install and properly manage camp sanitation facilities • An efficient sanitation system should be put in place for camp workers to eliminate or minimise the levels of potential water pollutants from domestic effluents 	

8.4.5 Terrestrial Environment (Habitats, Flora, and Fauna)

The region, though sparsely vegetated, has a number of varied habitats and some protected areas that are, as a result of their harsh climatic setting (high temperatures and low rainfall), sensitive to disturbance.

Shrubland, riverine forests and grassland are some of the habitats that exist within the project area of interest. The habitat harbours an array of fauna species ranging from insects, reptiles, birds and small mammals. Potential impacts to flora and fauna biodiversity could arise due to the physical and behavioural disturbance during the construction of the camp site and drilling rig area, and operation (drilling) phases of the project, but these are expected to be negligible because of the low areal coverage, site-specificity of the operation, and short duration of the project. Vegetation in the area may be impacted, insofar as it relates to construction and use of new access roads, if the proposed drill sites cannot be reached by existing routes.

8.4.5.1 Impact sources

- Access road construction
- Rig site preparation and camp clearance
- Drilling waste: WBM and cement; and drill cuttings
- Air emissions from engines, generator, flaring and venting of gas during well testing
- Noise and vibration

8.4.5.2 Impacts

- Reduced vegetation cover
- Disturbance of wildlife (physical presence and noise)
- Contamination of the environment from wastes
- Land take
- Soil erosion

8.4.5.3 Mitigation measures

- Pre-survey the route to avoid sensitive habitats
- Movement of the crews and vehicles should be restricted to the existing roads and within the operation sites to avoid creating unnecessary tracks and trampling of pasture around the camp sites
- Cut back vegetation by hand in the rig camp area
- Avoid cutting large trees (> 20cm diameter)
- Ensure that equipment are in perfect working order and cause minimal, if any, noise/air pollution nuisance to fauna
- Adopt a proper waste management system to avoid attracting scavenging animals and environmental pollution
- Avoid any land clearance/alteration as far as practicable when setting up the rig/camp sites
- Safety precautions should be put into place to ensure that no accidental fires are lit; smoking and disposal of lit cigarette butts and used match sticks in non-designated sites should be avoided
- Open water holding reservoirs should be fitted with screens to deter flocking of birds searching for water and also be well fenced-off to prevent access by mammals
- Vehicles should use already existing tracks, adhere to maximum speed of 40kph, and avoid unnecessary hooting

8.4.5.4 Residual Impacts

- Reduced vegetation cover around the drilling rig site; however, this will recover in a few years.

Residual significance on terrestrial environment will be MODERATE.

8.4.5.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Vegetation clearance 	<ul style="list-style-type: none"> • Clearance of vegetation may lead to soil erosion and or localised flooding • Loss of semi-natural habitat. • Reduced vegetation cover around the drilling rig site; however, this will recover in a few years. Given the small scale of vegetal matter removal, this impact is not considered significant 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Pre-survey the route to avoid sensitive habitats • Movement of the crews and vehicles should be restricted to the existing roads and within the operation sites to avoid creating unnecessary tracks and trampling of pasture around the camp sites • Cut back vegetation by hand in the rig camp area • Avoid cutting large trees (> 20cm diameter) 	<ul style="list-style-type: none"> • Moderate

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
			<ul style="list-style-type: none"> • Safety precautions should be put into place to ensure that no accidental fires are lit; smoking and disposal of lit cigarette butts and used match sticks in non-designated sites should be avoided • Open water holding reservoirs should be fitted with screens to deter flocking of birds searching for water and also be well fenced-off to prevent access by mammals • Vehicles should use already existing tracks, adhere to maximum speed of 40kph, and avoid unnecessary hooting 	

8.4.6 Land Resources and Conservation Areas

Pastureland and shrubs are a significant land resource in the area and support the pastoral livelihood of the local community. Access road and camp construction may interfere with land resources if sited in grazing areas.

8.4.6.1 Impact sources

- Access road construction
- Rig site preparation and camp clearance
- Exploratory drilling
- Noise and vibration

8.4.6.2 Impacts

- Man-made structures may lower aesthetic value of landscape
- Disturbance of animals and vegetation
- Disturbance of grazing lands due to camp and access road construction

8.4.6.3 Mitigation measures

- Vehicles should steer away from perennial/seasonal waterways as is practicable, but a buffer zone of 20m should be maintained except at crossing points - ephemeral luggas are excepted
- Minimize vegetation clearance as much as possible when clearing the area for the drilling pad and campsite construction

8.4.6.4 Residual Impacts

- Permanent loss of land resource in access road and campsite footprint

The residual significance on Land Resources and conservation areas is MODERATE.

8.4.6.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Change in access to land due to setting up of roads and camp 	<ul style="list-style-type: none"> • Permanent loss of land resource in access road footprint 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Vehicles should steer away from perennial/seasonal waterways as is practicable, but a buffer zone of 20m should be maintained except at crossing points - ephemeral luggas are excepted • Minimize vegetation clearance as much as possible when clearing the area for the drilling pad and campsite construction 	<ul style="list-style-type: none"> • Moderate

8.4.7 Archaeological, Historical and Cultural Sites

The project activities may lead to disturbance of gravesites, cutting down of special trees for initiation and other ceremonies, and erosion of the community culture due to influx of people from other areas. Tullow should consult the elders in the project area so that they can help locate grave sites and initiation places so as not to interfere with them inadvertently. Archaeological sites have the potential to be interfered with so Tullow should strictly implement its fossil avoidance procedure.

8.4.7.1 Impact sources

- Access road construction
- Rig site preparation and camp clearance
- Camp operations

8.4.7.2 Impacts

- Compaction by heavy vehicles and machinery may damage or deface cultural sites

- Conflicts with local communities

8.4.7.3 Mitigation measures

- All project field workers must be informed, before commencement of operations, that any disturbance to, defacement of, or removal of archaeological, historical, or sacred material will not be permitted
- Tullow should follow the fossil avoidance procedure strictly so that there is no damage to archaeological and cultural sites
- Consultations should be undertaken with local elders to help in identifying any sensitive cultural sites to be avoided when siting the campsite/drilling area and access ways

8.4.7.4 Residual Impacts

- Unknown cultural heritage artefacts or sites could be discovered or damaged during ground preparation.

The residual significance on archaeological, historical and cultural sites will be MINOR.

8.4.7.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Access road construction and use of vehicles 	<ul style="list-style-type: none"> • Compaction by heavy vehicles and machinery may damage cultural sites 	<ul style="list-style-type: none"> • Major 	<ul style="list-style-type: none"> • All project field workers must be informed, before commencement of operations, that any disturbance to, defacement of, or removal of archaeological, historical, or sacred material will not be permitted 	<ul style="list-style-type: none"> • Minor
<ul style="list-style-type: none"> • Damage of sites 	<ul style="list-style-type: none"> • Conflicts with local communities 	<ul style="list-style-type: none"> • Major 	<ul style="list-style-type: none"> • Consultations should be undertaken with local elders to help in identifying and avoiding any sensitive cultural sites during the proposed exploratory well drilling and construction of associated auxiliary 	<ul style="list-style-type: none"> • Minor

8.4.8 Visual Aesthetics

It is anticipated that there will be minimal impacts on the aesthetics of the pristine environment. The construction works of the campsite and the assembly of drill rig site will

have some impact on the outlook of the immediate area of operation. The camp facilities will be on ground floor only and the drill rig will be the only high rising feature that is visible. The impact will be transient as there are no permanent constructed features.

8.4.8.1 Impact sources

- Access road construction
- Rig site preparation and camp clearance
- Camp operations
- Exploratory drilling
- Impact sources associated with accidents; road accident, spills, blowouts and fires

8.4.8.2 Impacts

- Poor campsite design and access ways may lead to visual infraction and does not blend well with the environment

8.4.8.3 Mitigation measures

- Drill rig and campsite design should take into consideration the aesthetics of the selected area
- Minimise use of heavy machinery on the fragile environment and vegetation, especially during rehabilitation of the access road and camp site
- Drivers should be advised to stick to assigned access road and avoid off-road driving as is practicable

8.4.8.4 Residual Impacts

- No residual impacts are expected in this case.

8.4.8.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Physical presence of road and camp (excavations and vegetation clearance) 	<ul style="list-style-type: none"> • The proposed project has a limited time frame and is transient in nature, thus the visual intrusion shall be negligible. 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Drill rig and campsite design should take into consideration the aesthetics of the selected area • Minimise use of heavy machineries on the fragile environment and vegetation, especially during rehabilitation of the access road and camp site • Drivers should be advised to stick to assigned access road 	<ul style="list-style-type: none"> • N/A

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
			and avoid off-road driving as is practicable	

8.4.9 Noise and Vibrations

The proposed exploratory well drilling project shall involve mobilisation and transportation of equipment and machineries to the project site, an activity that will generate higher traffic and noise than is currently experienced in the affected routes and chosen project sites. Construction activities shall also generate noise. During drilling operations, the noise sources will be the rig, auxiliary equipment, and power generators, which shall all be within the rig site perimeter. Vehicles will be the main source of noise outside the rig perimeter. Potential impacts of noise emissions would therefore be highly localised.

8.4.9.1 Impact sources

- Construction operations
- Power Generators
- Vehicular noise pollution

8.4.9.2 Impacts

- Piling activities increase levels of ambient noise
- Disturbance to humans, animals and livestock
- Disturbance to workers
- Occupational Health risks

8.4.9.3 Mitigation measures

- Ear muffs/plugs and other protective devices should be used in noise-prone areas and as specified in the Occupational Safety and Health Act
- Power generators, drilling rig components and other equipment should be state-of-the-art and equipped with silencers/mufflers where the option is available
- Effect a noise mitigation policy for all operations in accordance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations
- Limit the duration of the well test flaring
- Avoid flaring at night if practical

8.4.9.4 Residual Impacts

No residual impacts are expected

8.4.9.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> movement of vehicles and machinery 	<ul style="list-style-type: none"> Piling activities increase levels of ambient noise Disturbance to humans, animals and livestock Disturbance to workers Occupational Health risks 	<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Ear muffs/plugs and other protective devices should be used in noise-prone areas and as specified in the Occupational Safety and Health Act Power generators, drilling rig components and other equipment should be state-of-the-art and equipped with silencers/mufflers where the option is available Effect a noise mitigation policy for all operations in accordance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations 	<ul style="list-style-type: none"> N/A

8.4.10 Solid and Liquid Wastes

As a result of the proposed project, it is expected that different forms of wastes will be generated. Wastes would emanate from the drill rig site as well as the base camp.

Liquid wastes expected at the rig site are mainly formation water which contains a mixture of inorganic and organic compounds; and residual chemical additives in drilling fluids and sewage water from the working area. Effluents generated from the accommodation area include sewage water, domestic wastewater (from showers and sinks), equipment and vehicle wash water and kitchen wastewater.

Much of the solid wastes would be expected from the rig site include drill cuttings, containers and packaging materials, miscellaneous wastes from equipment assembly and wastes from accommodation facilities including organic wastes, cans, wrappings, paper and plastics. Most of these materials will be transported off-site for disposal in NEMA approved facilities. Potential hazardous wastes include waste oil, oil contaminated rags, waste chemicals and used chemical containers, used batteries, industrial wastes such paints and paint containers, coatings, and spent solvents and medical wastes and if not well handled may pollute soil and water.

8.4.10.1 Impact sources

- Campsite operations

8.4.10.2 Impacts

- Pollution of surface and ground water
- Offensive odours
- Health risks
- Contamination of soil
- Solid wastes like plastics choking the environment

8.4.10.3 Mitigation measures

- A waste management plan documenting the waste strategy, storage (including facilities and locations), handling procedures and means of disposal, should be developed and should include a clear waste-tracking mechanism to track waste consignments from the originating location to the final waste treatment and disposal location;
- It is recommended that segregation of solid wastes at source is appropriately carried out and consideration given to re-use, recycling, or disposal as appropriate;
- Hygienic sanitation and disposal of grey and black water should be covered in the waste management plan in order to protect the general health of the workers and the general public;
- Ensure that solid waste is removed from site for recycling/disposal only by a NEMA-authorized waste handler;
- Fuel and other liquid storage areas should be bunded;
- Servicing of equipment should be carried out in a designated garage area which has regularly maintained oil drainage traps and readily available spill-kits; and
- Workers be trained and equipped to prevent and/or manage fuel/oil spills.

8.4.10.4 Residual Impacts

- Improper handling may lead to land degradation
- There is likely to be a positive impact through the improved capacity for solid and liquid waste management and improved waste management service provision in the project area.

8.4.10.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Wastes generated at the campsite and drill rig site 	<ul style="list-style-type: none"> • Pollution of surface and ground water • Offensive odours • Health risks • Contamination of soil 	<ul style="list-style-type: none"> • Major 	<ul style="list-style-type: none"> • A waste management plan should be developed • segregation of solid wastes at source is appropriately carried out and consideration given to re-use, recycling, or disposal as appropriate 	<ul style="list-style-type: none"> • Major

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
			<ul style="list-style-type: none"> • Hygienic sanitation and disposal of grey and black water • Ensure that solid waste is removed from site for recycling/disposal only by a NEMA-authorized waste handler • Fuel and other liquid storage areas should be banded 	

8.4.11 Occupational Health and Safety

The proposed project will involve around-the-clock operations at the rig site. Due to the nature of the work, workers shall be exposed to occupational and health hazards such as falling objects, malfunctioning machineries, well blowouts and hydrogen sulphide (H₂S) gas pollution, and therefore they must be appropriately protected. Visitors to the rig site may equally be exposed to these hazards.

8.4.11.1 Impact sources

- Access road construction
- Camp operations
- Exploratory drilling
- Air emissions from engines, generator, flaring and venting of gas during well testing
- Noise and vibration
- Impact sources associated with accidents; road accident, spills, blowouts and fires

8.4.11.2 Impacts

- Injuries to workers, visitors and area residents arising from project operations
- Fire hazards
- Other health risks and diseases
- Motor vehicle accidents

8.4.11.3 Mitigation measures

- Conduct a safety assessment to describe potential safety issues (rig site access, work practices, hazardous materials, security, entry into confined spaces, transportation and installation of heavy equipment, traffic management, emergency response procedures and fire control and management, among others) and measures to mitigate them
- Develop, continuously review as need may arise, and implement a health and safety program for all workers and visitors to the site, addressing all of the safety issues identified in the assessment and all applicable safety standards

- All operations will be conducted in compliance with Tullow EHS policy, international best practices and Kenya Government requirements (as set out in the Occupational Health and Safety Act and the Public Health. Only properly trained and authorised employees shall operate equipment or machinery
- Appropriate and well-stocked first aid kits and firefighting equipment should be available to all crew, and specific crew members should be trained on first aid administration and handling of firefighting equipment
- At all time crews should put on job-specific personal protective equipment; regular drills, training and tool kit talks should be conducted, and their use made mandatory in designated areas
- Environmental safety and health regulations and policies/plans must be adhered to
- A Base Camp Clinic is to be provided, manned by suitably qualified field medical staff, licensed as appropriate to operate in-country, equipped with equipment and medication as appropriate, including ambulance vehicle(s)
- Adequate warning or cautionary signage will be posted as required
- All electrical equipment shall be properly installed, earthed and regularly inspected, and where practicable will comply with IEE 17th edition regulations
- Provision of an Emergency Response Plan, Evacuation Plan, Medevac Plan, and a general communicable diseases education programme to be put in place

8.4.11.4 Residual Impacts

- No residual impacts are expected in this case.

8.4.11.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Drilling rig and campsite 	<ul style="list-style-type: none"> • Injuries to workers, visitors and area residents arising from project operations • Ground water contamination • Fire hazards • Other health risks and diseases • Motor vehicle accidents 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Conduct a safety assessment to describe potential safety issues (rig site access, work practices, hazardous materials, security, entry into confined spaces, transportation and installation of heavy equipment, traffic management, emergency response procedures and fire control and management among others) and measures to mitigate them. • A Base Camp Clinic is to be provided, manned by suitably qualified field medical staff, licensed as appropriate to operate in-country, equipped with equipment and medication as appropriate, including ambulance vehicle(s); 	<ul style="list-style-type: none"> • N/A

8.4.12 Security and Public Safety

The project site will draw a workforce from the project area as well as staff from without. These people will need to be assured of their security and safety. Similarly, equipment and facilities to be used at the project site must be guarded at the site and during transportation. Safe transportation of staff members to and from the project site is also paramount and their security while on transit must be assured. The security situation in the project area is generally okay in some sections (Turkana Central). Areas in Turkana North such as Todonyang are in a state of high insecurity and therefore exploration activities will have to be limited in such areas. Engaging with the Provincial Administration to coordinate security issues will enhance the security situation in the project area.

8.4.12.1 Impact sources

- Workforce influx

8.4.12.2 Impacts

- Petty crimes
- Improvement in security due to security enhancement for project activities

8.4.12.3 Mitigation measures

- Access to the project site must be controlled and all workers/visitors be identified by use of tracking cards
- Adequate security measures should be provided, e.g. construction of reinforced perimeter fencing, construction of earth berms, provision of safe havens and security manning around the project site on a 24-hour basis
- The company should liaise with the Provincial Administration, the Kenya Police, Kenya Police Reservists and other agencies to provide adequate security at the proposed exploratory well drilling site and while on transit
- Barriers and guards will be installed as necessary to protect employees and visitors from physical hazards and criminal activity
- Camp population will be restricted and will not be allowed to interact with the local populace while at the project site
- Camp will be located at a significant distance from any local communities
- Journey management policy and monitoring to be enforced

8.4.12.4 Residual Impacts

- Improved state of security in the area.

8.4.12.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
• Workforce influx	• Petty crimes	• Minor	• Barriers and guards will be installed as necessary to protect employees and visitors from physical hazards and criminal activity;	• Minor

	<ul style="list-style-type: none"> • Improvement in security due to security enhancement for project activities 	<ul style="list-style-type: none"> • Major 	<ul style="list-style-type: none"> • Adequate security measures should be provided, e.g. construction of reinforced perimeter fencing, construction of earth berms, provision of safe havens and security manning around the project site on a 24 hour basis 	<ul style="list-style-type: none"> • Minor
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8.4.13 Construction of the Drill site (including Accommodation Facility)

Tullow and subcontractors' staff will reside in the accommodation facility alongside the drill rig pad that will be constructed by a professional civil and building contractor with experience in setting up such camps. Issues such as camp security, provision of basic services (e.g. accommodation, water, sanitation, lighting, and health care), waste management, materials storage areas, etc., shall be incorporated in the camp design.

The possible impacts as a result of the drill site construction include disturbance of soil through excavations, dust generation, noise generation, damage of terrestrial environment and interference with grazing areas.

8.4.13.1 Impact sources

- Campsite construction

8.4.13.2 Impacts

- Disturbance to soils and vegetation during construction
- Reduced landscape aesthetics due to stockpiling of excavated soils
- Health and safety hazard due to poor campsite construction
- Spillage of chemicals, oils and fuels from construction equipment and vehicles
- Disturbance to communities
- Insecurity
- Health and safety hazard during campsite occupation

8.4.13.3 Mitigation measures

- Campsite will be constructed by the subcontractor who will be experienced in camp site construction and will utilise trained personnel. Camp construction will be supervised by the Proponents Consultants
- Excavated soil should be used in landscape design of the campsite rather than stockpiling;
- Construction of the campsite shall be undertaken during daylight hours only
- Construction equipment and vehicles shall be well-maintained, checked and promptly repaired to ensure no spillage of oils and fuels and to minimise gaseous emissions
- Adequate temporary housing and sanitation facilities shall be provided for the construction workers
- Company employees shall comply both with the relevant national legislation, and its own in-house environmental health and safety (EHS) policies

- Adequate warning signs and fire extinguishing equipment will be visibly and appropriately posted
- Use of an access card (e.g. T-card) system for access control within the campsite shall be enforced; and
- Use of appropriate Personal Protective Equipment to be enforced

8.4.13.4 Residual Impacts

- No residual impacts are expected in this case.

8.4.13.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Camp design and security, water supply, waste management, air quality socio-economic factors and occupational health and safety. 	<ul style="list-style-type: none"> • Disturbance to soils and vegetation during construction • Reduced landscape aesthetics due to stockpiling of excavated soils • Health and safety hazard due to poor campsite construction • Spillage of chemicals, oils and fuels from construction equipment and vehicles • Disturbance to communities • Insecurity • Health and safety hazard during campsite occupation 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Excavated soil should be used in landscape design of the campsite rather than stockpiling; • Campsite will be erected by a qualified and licensed civil and building contractor with workers who are qualified to carry out assigned tasks; • Construction workers shall use appropriate Personal Protective Equipment 	<ul style="list-style-type: none"> • N/A

8.4.14 Fuelling Station

A parking bay for vehicles will be demarcated within the campsite area, and it will have a fuelling station. Possible impacts may arise as a result of spillage which may contaminate soil and groundwater resources.

8.4.14.1 Impact sources

- Improper refueling practices

8.4.14.2 Impacts

- Fuel spills
- Fire hazard
- Fuel contamination

8.4.14.3 Mitigation measures

- The fuelling station will be underlain with a spill-containing liner
- The fuel storage area will be set at one end of the parking bay area, and will be bunded. The bunds should have the capacity to contain all the fuel stored inside the fuel bladder in case of leakage at 110% of the stored fuel volume
- The fuel storage area will have a tarpaulin covering to protect it from extremes of weather, and should be well aerated
- The fuel storage floor shall be concrete-based, and canvas-lined to capture minor spillages, with a structure measuring at least 12m x 8m x 0.05m
- The bladder will be charged with fuel ferried by tankers, and will be conveyed to the pump via an outlet hose
- Clearly marked spill kits will be placed adjacent to the refuelling area, and all staff involved in vehicle maintenance and refuelling will be trained in their use. Clear 'no smoking' signage shall be posted in this area
- Fire-fighting equipment will be placed at strategic places within the fuelling station and in other areas of the camp site
- All workers will be trained in the use of the installed fire-fighting equipment

8.4.14.4 Residual Impacts

- No residual impacts are expected in this case.

8.4.14.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Oil or chemical leaks from garage and storage areas, vehicles and machinery 	<ul style="list-style-type: none"> • Fuel spills • Fire hazard • Fuel contamination 	<ul style="list-style-type: none"> • Negligible 	<ul style="list-style-type: none"> • Fuelling station will be underlain with a spill-containing liner; • The fuel storage area will be set at one end of the parking bay area, and will be bunded. The bunds should have the capacity to contain all the fuel stored inside the fuel bladder in case of leakage 	<ul style="list-style-type: none"> • N/A

8.4.15 Camp Clinic

A fully equipped and staffed ambulance will be on standby in case of accidents or emergencies, and will be supported by a fully equipped and staffed clinic that will be located in the drill site. There will also be an on-call helicopter for crew movement and emergency evacuations. Possible impacts may arise due to inappropriate biomedical waste handling by the clinic staff.

8.4.15.1 Impact sources

- Improper biomedical waste management

8.4.15.2 Impacts

- Pollution due to poor handling of biomedical and pharmaceutical wastes

8.4.15.3 Mitigation measures

- Biomedical wastes generated at the facility will be handled as per NEMA Waste Management Regulations, 2006
- The wastes will be segregated, and disposed of in the waste disposal facility as provided for by the relevant Local Authority
- Biomedical waste will not be stored above 0°C for more than seven days without the written approval of the relevant lead agency, provided that untreated pathological waste shall be disposed of within 48 hours

8.4.15.4 Residual Impacts

- No residual impacts are expected in this case.

8.4.15.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> • Waste management and handling practices 	<ul style="list-style-type: none"> • Pollution due to poor handling of biomedical and pharmaceutical wastes 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Such wastes will be handled as per NEMA Waste Management Regulations 2006; • The wastes will be segregated, and disposed of in the waste disposal facility as provided for by the relevant Local Authority 	<ul style="list-style-type: none"> • N/A

8.4.16 Water Borehole Drilling

The groundwater in the project area is exploited mainly through boreholes and shallow wells excavated in *luggas*, and tend to have widely variable quality, from human-potable through livestock-potable to saline and non-potable. Tullow is expected to drill a water borehole to meet its water needs.

Borehole drilling will involve a hydrogeological survey for siting before actual drilling takes place. Possible impacts due to these activities include clearing of low-level vegetation along transects and soil disturbance.

8.4.16.1 Impact sources

- Improper cuttings management
- Borehole site clearance

8.4.16.2 Impacts

- Disturbance to soils and vegetation during data acquisition and borehole drilling
- Contamination during well development
- Pollution/contamination of borehole/aquifer water

8.4.16.3 Mitigation measures

- Minimise soil disturbance and vegetation clearance as is practicable
- Well development must be done with the Airlift method for at least 30 minutes or until the water is clear of drilling cuttings
- Great care should be taken that the water quality of the different aquifers is accurately determined. Upon the first strike, drilling fluids should be effectively flushed, and after sufficient time, a water sample should be taken of the air blown (rotary) or bailed (percussion) yield
- On-site analysis using an EC meter, and preferably a portable laboratory, is recommended
- Screen-off non-targeted aquifer(s)
- The services of an experienced hydro-geologist should be engaged during the drilling, design, installation, and testing of the borehole
- Drill cuttings from the borehole should be buried in clay or other suitably lined pit in the event that the borehole is successful, but if not successful, the drill hole should be refilled with the drill cuttings
- Drilling should be carried out at a diameter of not less than 6" using either a rotary type or percussion machine, to allow for casing, gravel packing and pump installation
- The borehole should be cased to the bottom using suitable non-polluting material, with screens at the aquifer position and plain casings at non-aquifer position
- The borehole should be bottom-plugged in loose formations
- The annular space must be gravel packed at the screen and aquifer position with durable and suitably sized material with respect to the size of the aquifer materials
- Grouting should be done by placing a concrete mixture up to 6m depth from ground surface
- Any drilling additives to be used (e.g. foam or polymer) must be non-toxic and biodegradable. Bentonitic additives should not be acceptable, as they may plug the aquifer zones and are extremely difficult to remove during development

8.4.16.4 Residual Impacts

- No residual impacts are expected in this case.

8.4.16.5 Impact Significance summary

Issue	Impact	Potential Significance Assessment	Proposed Mitigation Measure (Summary)	Residual Significance Assessment
<ul style="list-style-type: none"> Disturbance to soils and vegetation and contamination of water in the project area 	<ul style="list-style-type: none"> Disturbance to soils and vegetation during data acquisition and borehole drilling Contamination during well development Pollution/contamination of borehole/aquifer water 	<ul style="list-style-type: none"> Negligible 	<ul style="list-style-type: none"> Minimise soil disturbance and vegetation clearance as is practicable (no unnecessary vegetation clearance) Great care should be taken that the water quality of the different aquifers is accurately determined The Drilling Contractor should engage the services of an experienced hydrogeologist during the drilling, design, installation, and testing of the borehole 	<ul style="list-style-type: none"> N/A

8.5 Socio-economic impacts

8.5.1 Economic Impacts

8.5.1.1 Employment

The proposed project may create employment opportunities for both skilled and unskilled labour during its planning and construction phase. The rig operations that require professional skills will be provided by the contractor and these can be selected from the local community if a candidate meets the relevant qualifications. The local community stands to benefit mainly through recruitment of non-technical or unskilled personnel. Skilled labour may be sourced from the area if the residents are qualified for the required jobs. These employment opportunities may be limited and short-term because of the short period of the proposed project. Through the employment, various skills as required by the project operations will form a ground for exchange of expert ideas and skills. In addition the casual workers within the camp may also benefit from the numerous sessions of short-term training on Occupational health, Safety and Environment which will equip them with adequate knowledge and response techniques to hazards and risk monitoring. The community liaisons officers selected from the local community will undergo professional training in their field of work to make them competent. More competence will be developed with continuous practice in the field. The community members reiterated that equity should be ensured and locals should be given first priority during recruitment. The community was also concerned on the introduction and increase in cases of human rights violation in terms of labour exploitation, underpayment, child labour and abuse.

8.5.1.2 *Business Opportunities*

Tenders for transport, vegetables, fruits and other construction materials are other opportunities that are expected from the project by the locals. In addition the community members in Kalokol also expect that Lodwar Water and Sewerage Company be contracted by Tullow so that they can be in charge of waste management. Some members also suggested that tenders be rotational so that many people can benefit from the project. From the public meetings, most women anticipated that the proposed project would lead to creation of market for local goods and products such as baskets and mats.

8.5.1.3 *Assets*

The community feared that their grazing lands may be degraded by the activities of the project and that their land may be taken away without consent. They also mentioned that displacement of people will cause migration to other areas and further lead to pressure on resources.

If the activities of the proposed project will lead to dislocation of the local community at the drilling site, then it is likely to affect them in a number of ways:

- It may lead to loss of access rights to the site previously under their disposal including loss of homestead sites, farming areas;
- Loss of natural resources within the site e.g. trees, water points, stones, thatching grass, wild fruit and shrubs from which they derive raw materials;

The economy of the people in the project is driven by dependence on the locally available natural resources for nomadic pastoralists and seasonal agriculture. Once their survival is directly affected, it impacts heavily on their wellbeing and sustenance. The community relies heavily on raw materials such as wood, grass, stones for construction of their traditional household structures (manyattas) and for demarcation of their compounds and land boundaries.

8.5.2 Social Impacts

8.5.2.1 *Improvement of Living Standards*

The project has also a potential to directly and indirectly better the living standards and conditions of the local community. The community members mentioned that the social investment program that Tullow is currently carrying out in the region has tremendously impacted on their livelihoods. This is done through: construction and improvement of school facilities; scholarships and school fees bursaries for students from the region to institutions of higher learning; purchasing motor boats for the fishermen; drilling of water boreholes. The social amenities serve the community ensuring better education standards, access to proper healthcare and provision of clean water for drinking and livestock. They alleviate the negative impacts and related outcomes of extreme poverty. From the public and stakeholders meetings, the local community would like such projects to be increased in magnitude and handed over to the communities once the project ends. In addition the community also expects grants to be given to women and youth groups so that they can start business hence improving their living standards. The community members especially the fishermen

mentioned that they needed motorboats for rescue mission of the capsized boats and fishing accidents to be stationed in the area. This would help in curbing the insecurity in the area.

8.5.2.2 *Improvement of infrastructure*

A major impact also expected by the stakeholders and the community is the improvement of roads in the area. The proponent may be required to renovate the existing roads due to increase in truck traffic and transportation of heavy machinery and wide load to the site hence being beneficial to the community. As frequency of use increases with the operation of the project in the area, rehabilitation and improvement of the airstrips is likely to occur. Currently there exists only one tarmac road from Lodwar to Kalokol which is in bad state¹⁷ and cannot handle the magnitude of transport demand and use as required by the project. Other link roads to Kalokol, Eliye Springs, Lokitaung and Todonyang are in poor condition and are often cut off during rainy seasons by the multiple luggas that dot the region. They are extremely sandy and narrow which poses difficulty in vehicle navigation.

The in-migration of people to the region will increase demand for mobile phones and network communication which may then attract mobile phone service providers to set up base transmission stations in the block enhancing communication and network linkages. This will be good for business transactions and networking via internet.

8.5.2.3 *Lifestyle and customs*

The local communities have their own indigenous institutions and traditions that govern and control way of handling and addressing issues in the community which fosters harmony and respect within the community. The ethos clearly stipulate gender roles, way of dressing, conflict resolution and age set duties to the community. The community raised concerns that immigrants may bring with them new styles of doing things causing social disruption and disharmony. These may expose the indigenous community to foreign influences causing a decline and erosion to their culture. The sudden influx into a region that previously had less movement and activity may lead to practices such as theft, encouragement of commercial sex workers, divorces, abandonment of household roles, increased alcoholism, sexual exploitation, increase in school drop-out cases are the common adverse impacts likely to arise as feared by the community within the block. All these could pose a health and security threat to the community.

8.5.2.4 *Security*

The community raised concerns over increased levels of insecurity once the project is commissioned. They reiterated that the Kenya Police Reservists in the area will seek for jobs in the campsites hence leaving the community without weapons and expertise to deal with the frequent enemy attacks reported in the region. They also fear that the project may also increase conflicts over resources and attacks by the enemy (Merille) since they will be targeting to destabilize the local community and cause disruptions to the ongoing drilling operations.

¹⁷ The road has potholes, poor design, transportation being cut off at Lodwar during rains by a river across the road and wide cracks

8.5.2.5 Cultural heritage

Cultural sites such as grave sites, meeting places and initiation places under trees are feared to be destroyed by the activities of the proposed project if not properly marked. The community mentioned that they respect their dead and they would not want any activities around the gravesites. Also Turkana being a culturally sensitive place because of the archaeological sites, many archaeological finds and artefacts may be destroyed if the fossil avoidance procedure is not well followed and implemented.

8.5.2.6 Gender issues

From the focus group discussions held with some of the community members, it was mentioned that the women are allowed to work but only during the day. This may be a disadvantage to the women since the project activities are twenty four hour operation.

8.5.2.7 Health

During transportation of drilling equipment to the drill site, there will be increased truck traffic on the roads and access routes leading to the camp. This may generate increased levels of dust due to frequency of use and noise pollution by the vehicular movements. The rig operations will also introduce unfamiliar sounds of drilling into the serene environment and especially since it will be a twenty-four hour operation. Such unfamiliar sounds may cause anxiety and stress not only to the local community residents but significantly to their livestock that are not used to the noise.

The in-migration of people due the proposed project are feared by the community and they perceive that it may lead to uncontrolled social relations and sexual interactions which may increase incidences of communicable diseases such as tuberculosis and sexually transmitted diseases including HIV/AIDS.

8.5.3 Socio-economic Impact Significance

Parameter	Event	Magnitude		Probability	Receptor sensitivity	Significance
		Spatial scope	Timing and duration			
Social Characteristics	Workforce influx (possible increase in crime rate and other social decadence, erosion of culture, religious and social values as a result of mingling with workers)	Regional	Long term	Highly likely	Community	Negative
	Activities at the proposed project site (May interfere with grazing lands)	Local	Short term	Highly likely	Community	Negative
	Activities at the proposed project site (Improved security surveillance and improved quality of life)	Regional	Short term	Highly likely	Community	Positive
Economic Characteristics	Access road construction (opening up of local economy to more development)	Regional	Long term	Highly likely	Community	Major positive
	Workforce influx (Improved short term business opportunities for the locals)	Local	Short term	Possible	Community	Major positive
	Camp operations (Improved livelihood and living standards)	Local	Short term	Highly likely	Community	Positive
	Rig site preparation and camp clearance (Improved livelihood and living standards)	Local	Short term	Possible	Community	Positive
	Exploratory drilling (Improved livelihood and living standards, improved short term business opportunities as well as employment opportunities for the locals)	Local	Short term	Highly likely	Community	Major positive
	Exploratory drilling (differences in purchasing power may affect the local economy)	Local	Short term	Possible	Community	Negative
	Impact sources associated with accidents; road accident, spills, blowouts and fires (Loss of human lives and livestock, contamination of water sources)	Local	Short term	Possible	Community	Negative

8.6 Unplanned events

The planned project consists of exploratory drilling and testing activities. Unplanned events include: accidental spills, leaks and blowouts, injuries to staff or locals (campsite or traffic accidents) and fires.

Preventative measures and plans will be in place to avoid any fuel spillage or other accidental events during the proposed project, as described in this chapter. Plans and measures include: spill prevention plans, staff training, adherence to the safety management procedures, and drills. In the unlikely event of a spill, impacts will be minimized; including use of appropriate spill kits onsite.

8.6.1 Spill occurrence

The following spillage may occur during the project;

- Hydrocarbon spills and leaks i.e. diesel spill from storage tanks and fuel tankers;
- Blowout; and
- Non-hydrocarbon spills and leaks.

The receptors to oil spill or blowouts include:

- Terrestrial environment (flora and fauna)
- Physical environmental (soil and water resources)
- Communities around the affected areas

8.6.1.1 Diesel oil spill or leaks from storage tanks and fuel tankers

The spillage of diesel may occur within the storage area in the campsite or on transit to the camp. This spillage may result into contamination of soils, local habitats, surface and ground water resources and subsequent impacts on flora and fauna.

8.6.1.2 Blowout

According to IFC/World Bank EHS Guidelines, 2007, a blowout can be caused by the uncontrolled flow of reservoir fluids into the wellbore which may result in an uncontrolled release of hydrocarbons. This may lead to uncontrolled oil spill and contamination of soils, water resources and fires if it comes into contact with a source of ignition.

Blowout prevention measures during drilling should focus on maintaining wellbore hydrostatic pressure by effectively estimating formation fluid pressures and strength of subsurface formations. Tullow should therefore ensure: proper pre-well planning, drilling fluid logging; using sufficient density drilling fluid or completion fluid to balance the pressures in the wellbore; and installing a Blow Out Preventer (BOP) system that can be rapidly closed in the event of an uncontrolled influx of formation fluids and which allows the well to be circulated to safety by venting the gas at surface and routing oil so that it may be contained. Tullow and subcontractor personnel should conduct well control drills at regular intervals and training.

8.6.1.3 Mitigation

In order to control occurrence of spills or blowouts Tullow should ensure;

- Development of an Oil Spill Contingency Plan that identifies responsibilities of relevant personnel, defines spill response actions, describes actions to be taken in the event of spill, communication procedures, reporting procedures, including ensuring that spill response mechanisms are in place and located in a logistically suitable location that enables quick response time;
- Provision, implementation and training of all staff on an Emergency Prevention and Response Plans, including emergency training exercises;
- Ensure response equipment is available on site in areas identified as sensitive;
- Ensuring a model can be run live in case of a spill;
- Ensure of notices to other mariners of activities in the area; and
- Presence of support vessels to warn other vessels in the area.

In the unlikely event that a spill occurs after a blowout, necessary actions to control the spill is expected in order to limit the spread and the area of land affected by the spill. This may be done by; constructing dams and holding ponds or recovery to storage facilities.

It will be necessary to restore the land in areas affected by the spills. This may be done by; bio-remediation, soil washing, air sparging or thermal treatment.

8.6.2 Fire

Fire and explosions may occur as result of gas release during blowouts or when flammable materials come into contact with a source of ignition.

The IFC EHS Guidelines, 2007, provide that onshore oil and gas development facilities should be designed, constructed, and operated according to international standards for the prevention and control of fire and explosion hazards. The most effective way of preventing fires and explosions at oil and gas facilities is by preventing the release of flammable material and gas, and the early detection and interruption of leaks.

8.6.2.1 Mitigation

- Potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials, and between processing facilities and adjacent buildings, should be in place. Facilities should be classified into hazard areas, based on international good practice, and in accordance with the likelihood of release of flammable gases and liquids.
- The proposed rig site will be designed such that the in the event of a fire, it would not spread to the surrounding vegetation since vegetation next to the camp will be cleared and the camp will have a perimeter earth berm that separates the area from the surrounding.
- In the event of a fire, a fire management plan would be implemented that contains measures to be put in place to put it out. Tullow should also ensure provision, implementation and training of all staff on an Emergency Response Plan, including training exercises on emergencies.

8.6.3 Road accidents

Road accident may affect Tullow and subcontractor staff as well as the local community members. These accidents may involve vehicles and people or livestock.

8.6.3.1 *Mitigation*

- Tullow have a Driving Policy which should be adhered to by its personnel and subcontractor personnel.
- Speed limits should be put in place in areas with high human/livestock activities such as within the campsite, along highways or in market centres. This should be monitored to ensure adherence by all drivers.
- Tullow will implement a programme of awareness training to make drivers of project vehicles and local people aware of these risks.

9. CUMULATIVE IMPACTS

9.1 Introduction

Cumulative impacts are divided into two categories; additive and in combination.

- Additive impacts- these are impacts that may result from the combined or incremental effects of present and future activities. While a single activity may itself result in an insignificant impact, it may, when combined with other impacts (significant or insignificant) in the same geographical area and occurring at the same time, result in a cumulative impact that is significant.
- In combination-impacts occur where different types of impact from the project being considered are likely to affect the same environmental or socio-economic features. For example, a sensitive receptor being affected by both noise and dust during construction could potentially experience a combined effect greater than the individual impacts in isolation. Details of the various expected cumulative impacts are provided in the following sections

9.2 Temporal and spatial boundaries

The spatial boundaries within which a cumulative effect could occur are defined by the area of influence of the project. The temporal boundaries within which a cumulative effect could occur include: the period during which the construction and exploration drilling work is proposed to be carried out and the period of restoration thereafter.

9.3 Other projects

This section identifies developments that may interact, or whose impacts are considered likely to interact, with the Tullow exploration drilling project in block 10BA. There are six ongoing projects in Turkana and the neighbouring areas; wind power project in Loyangalani, gold mining and the current discovery of ground water reserves in Turkana. Other projects are Gibe dam III and Kuraz irrigation scheme in Ethiopia, BGP seismic survey in Turkana North and Central and the exploratory drilling in Turkana South. Cumulative impacts therefore may result because of these projects.

9.4 Assessment of potential additive impacts

Additive impacts that may arise as a result of the project activities are explained as follows:

- The combined impacts on terrestrial environment and vegetation clearance would be of low significance given the existence of large tracts of similar habitat in the area.
- Negative effects on air quality may occur from dust generated by project traffic, but these are will be of low significance, given the temporary nature of the exploratory drilling and the limited amount of additional traffic generated.

- An increase in traffic along the roads to camps could lead to an increased risk of traffic accidents.
- There is potential for cumulative beneficial impacts arising from employment of local people, but the overall impact will be low as the majority of the workforce needed require skills not available locally.
- There is a low potential risk of cumulative impacts on currently unknown tangible cultural heritage but this will be mitigated by application of a chance finds procedure to both projects.

9.5 Assessment of 'in combination' impacts

The assessment of the combined effects of individual impacts of a project relies on a qualitative assessment of potential interactions using available information and professional judgment and experience. Some types of impact are considered to have direct inter-relationships that could potentially occur interactively to generate a combined effect on sensitive receptors. For example, noise, vibration, traffic, dust and visual intrusion occurring together during construction have a combined effect. Some other types of impact have limited or no potential to have a combined impact on sensitive receptors. The key interactions are likely to be confined to effects experienced by local people and communities if the drilling site or access road is located in close proximity to dwellings.

If this occurs, they could potentially experience a combination of temporary effects associated with increased noise, vibration, localised dust generation, visual intrusion and risk of accidents with construction traffic

9.6 Cumulative social impacts in a wider context

The following are the existing projects in the area and the cumulative impacts they may have on the proposed project.

9.6.1 Discovered groundwater reserves

In September 2013, it was discovered that Turkana hosts a minimum reserve of 250 billion cubic meters of water, which is recharged mainly by the rainfalls of the Kenyan and Ugandan highlands at a rate of 3.4 billion cubic meters per year (RTI, 2013) that can supply Kenya up to 70 years (Standard media, 2013). Details on the water reserves are presented in Section 5.2.5 of this report.

Impacts on the Proposed 10 BA Exploratory Drilling Project

- The discovery of water reserves in Turkana County may lead to community members being engaged more in agricultural activities. This may increase agricultural commodities in the market that can be supplied to Tullow during the project period
- The engagement of community members to agricultural activities may lead to a shortage of labourers for the proposed project.

9.6.2 Gold Mining in Turkana

Gold mining has been prevalent in Turkana for many years. According to the unpublished Turkana County Profile (2013), the County is endowed with many natural resources including sun, oil and minerals like gold. There are many areas within the County where small scale gold mining is carried out. Currently gold mining, which is a secondary livelihood resource relative to fishing and pastoralism, occurs primarily in Nakoriyek (on the road to Kanakurdio), Kimagur (on the main road before Lokichar), Lokiriama, Namorupus and Nadunga (West of Nakoriyek).

According to GOK (2008), Lolupe community that is situated about 73 kilometres from Lodwar town in the North on the Lodwar-Lokitaung road is involved in gold prospecting in addition to other economic activities such as quarries and livestock keeping. Lolupe area was established as a settlement area around 1991 where the first pioneers were attracted by the gold rush when gold was discovered. Politically, Lolupe community is within Pelekech/Nakalale ward in Turkana North constituency. Administratively, the area lies in Nakalale location, headed by a chief who is supported by 3 sub-chiefs comprising of three sub-locations namely; Losejait, Nakalale and Kobuin. Initially there were some co-operatives that were set up by the gold prospectors in Kakamega, Migori, Turkana and West Pokot. Korpu co-operative society was operating in Turkana. However, these co-operatives collapsed due to institutional mismanagement and these gold prospectors could not be monitored by the Mining Department in Kenya. Hence, uncontrolled gold mining goes on in these areas with all the environmental hazards and deterioration unabated. The safety, health and environmental impact of these artisans in these areas are enormous¹⁸.

Mining of Gold plays a vital role in job creation and poverty alleviation (Marker, 2005). However, it is accompanied by a number of social and environmental consequences. These include landscape degradation through clearing of vegetation, soil erosion, soil, water and air pollution, mine safety (accidents such as cave-ins), security problems and child labour (Marker, 2005).

Impacts on the Proposed 10BA Exploratory Drilling Project

- Conflicts between the gold prospectors in the project area and the company might result, in case the camp is set up near their gold mines. This is because the locals engaging in mining consider it as one of their major economic activity and they may be protective of this livelihood resource.
- Gold mining in the project area is done in small scale and might contaminate the water aquifers. These might cause conflicts between the community and the company undertaking the exploratory well drilling where the community members might blame the company for the contamination.
- The exploratory well drilling might provide important information on the gold deposits in the project area.

¹⁸ <http://www.worldsummit2002.org/texts/KENYAMinerals.pdf> (retrieved on 25th September 2013)

9.6.3 Wind Power Project in Loiyangalani

The Lake Turkana Wind Power (LTWP) project which was commissioned in June 2013 consists of three interconnected components; the wind farm at Lake Turkana, Lake Turkana to Suswa transmission line and road adjustments, upgrades and construction. The Lake Turkana Wind Power project is of significant strategic benefit to Kenya, and one of the largest private investments in Kenya's history. It aims to provide 300MW of reliable, low cost wind energy to the national grid, equivalent to over 20% of the current installed electricity generating capacity. The wind farm site is located in Marsabit District in northern Kenya, approximately 50km north of South Horr Township and 8km east of Lake Turkana. The project will comprise a wind farm, associated overhead electric grid collection system and a high voltage switchyard.

The project also includes rehabilitation of the existing road from Laisamis to the wind farm site, a distance of approximately 200km, as well as plant and equipment lay-down areas, and access road network in and around the site for construction, operations and maintenance purposes. The proposed wind farm site is located approximately 1,200km from the seaport of Mombasa, from where the equipment will be transported to site by road. The generated power will be transmitted via a proposed 400kV transmission line that will run from the wind farm site to a new switchyard at Suswa, a distance of approximately 428km. The construction of the transmission line is the responsibility of the Kenyan Government through the state owned Kenya Electricity Transmission Company (KETRACO). KETRACO will own the transmission line and have a tolling arrangement with Kenya Power. (Updated Environmental and Social Impact Assessment Summary, Lake Turkana Wind Power Project, November 2011).

Impacts on the Proposed 10 BA Exploratory Drilling Project

- The LTWP project does not directly interfere with the 10BA drilling project. The present area of interest for the drilling is on the western side of Lake Turkana. The lake, therefore, forms a natural buffer zone between the two project areas, and therefore impact for on project is expected to be negligible.

9.6.4 Gibe Dam III and Kuraz Irrigation Schemes

The Ethiopian government has staked its political future on achieving highly ambitious economic growth targets and shifting the country to an urbanizing industrial economy. One of its major endeavours is the construction of Gibe dams on the Omo River. In 1996, the Ethiopian government prepared its Omo Gibe basin master plan (Woodroffe et. al.1996 cited by Avery 2012) which outlined the construction of hydropower dams along the Omo basin.

The hydropower schemes outlined in the master plan are five and their developments are as follows (Avery 2010):

- Gibe I hydropower schemes commenced in 2004
- Gibe II hydropower schemes was commissioned in 2010
- Gibe III scheme commenced in 2006 still under construction
- Gojeb and Halale/ Werebeshah-forseen upstream of Gibe III

- Gibe IV and V are envisaged further downstream

In addition to the above hydropower schemes is Kuraz sugar cane irrigation scheme which commenced in the lower Omo upstream of Omorate in 2011. This irrigation scheme covers an area of 74,000 ha of land in the lower Omo Delta. These schemes are all located in the southern end of the Omo and Mago National Parks and the Omo Delta, and are located either sides of the Omo River (Woodroffe, 1996). The irrigation scheme was facilitated by the storage created by the dams on the Omo basin. These dams are seen by the Ethiopian government as a key means of modernizing the country and extending its control over a region rich in water and land resources (and likely oil and other minerals), strategically located on its borders with South Sudan and Northern Kenya (Unknown writer- Published by International Rivers 2013¹⁹).

The Gibe III dam which is still under construction will be 243m high generating 1870 MW of electrical power (Avery, 2012). In addition it is the fourth highest hydropower dam in the world under construction. According to Avery (2012) the dam has attracted a lot of international controversy because there was no consultation with Kenyan stakeholders and no environmental and social impact assessment was done to ascertain its effect on Lake Turkana. The lake draws over 90% of fresh water and nutrients from Omo river hence any developments on the Omo river basin automatically affects the Lake.

Several scholars and organisations such as Avery 2010; ARWG 2009 and Mitchell 2009 (Africa Development Bank Group) have written on the impacts of construction of Gibe III dam on Lake Turkana. The following have been highlighted as the possible impacts according to the scholars:

- According to the ARWG (2009 cited by Avery, 2012), the reduction of the river flow may lead to elimination of riverine flow volume with accompanying destruction of forest biodiversity and virtually all riverine associated economic activities including human settlements.
- Mitchell (2009 cited by Avery, 2012) states that there might be water losses due to evapo-transpiration from the lake created by Gibe III translating into reduced flows to the lake which will shrink the lake and alter the lake chemistry.
- Avery (2010 cited by Avery, 2012) mentions that the influx needed to sustain Lake Turkana level is 19 cubic kilometres per year and the gross water storage to fill Gibe II reservoir is 16.3 cubic kilometres. The Omo River downstream of Gibe III is 600 kilometre and the mean annual inflow into Gibe III reservoir would deprive the lake 85% of its normal annual inflow in one year. In addition an Unknown writer (published by International Rivers 2013) says that the dam will hold a proportion of the total water in the Omo-Turkana watershed system. This will drop the lake level about 2m. He adds that the lake's level drops will be determined by how quickly Ethiopia chooses to fill the dam and the amount of rain that falls in the years in question. As a generalization, initial dam filling would radically reduce inflow for between one and three years and increase the level of salinity by a similar proportion.

¹⁹http://www.internationalrivers.org/files/attached-files/impact_of_gibe_3_final.pdf

According to Unknown writer "The Downstream Impacts of Ethiopia's Gibe III Dam East Africa's "Aral Sea" in the Making" Published by International Rivers (2013), the following are the effects of construction of the dam on Lake Turkana.

- The dam construction will dramatically change the annual flood cycle to the detriment of the lake as well as the Omo floodplain. Gibe III lies at a point in the Omo Basin where around 67% of the total river inflow can be captured. This means that about two-thirds of the annual flood cycle, and some proportion of the nutrients and sediment, would be curtailed during reservoir filling. This substantial reduction of the flood cycle will permanently transform and could ultimately devastate the primary productivity of the lake and its fish, bird, crocodile, lakeshore and other species. Research shows how plumes of fresher nutrient rich water penetrate far down the lake during this flood, and fishing communities at the southern end of the lake vividly link the seasonal fish breeding cycle to the annual lake level cycle, a fluctuation they perceive to be driven by changes in the stars.
- He also adds that the greatly diminished flood levels and interruption of the river's silt delivery will very likely make the river to scour an increasingly deep channel within the delta. This will, in effect, destroy much of the network of swamps and shallow pools that provide the largest fish spawning nurseries for the lake as a whole. These swamps and pools also provide grazing for wild and domestic species, flood-retreat agriculture, and feeding areas for water birds that use the lake for their annual migrations between Eurasia and Eastern Africa, and countless other species.
- According to the writer, the lowering of the lake level will lead to uneven consequences geographically in that it will shift the northern end of the Lake as much as 40km southward, creating a land bridge entirely within Kenya to the south of the current Dassanetch²⁰ territory in the Delta, bisected by a much-reduced river. Consequently this will force the Merille to follow the lake as it recedes southward into Kenya territory.

Impacts on the Proposed 10BA Exploratory Drilling Project

This significant reduction in the lake volumes will consequently lead to reduction of catch which will affect the livelihoods of the Turkana who depend on fishing. This together with the current BGP seismic survey along the lake may make the community attribute the reduced fish stock to the activities of the proposed project leading to resistance of the community to the proposed project.

The reduction of swamps by the reduced silt and flood level will affect grazing areas which are used by the Turkana community that live along the shores of the lake. This may affect the proposed project in that the community may link the destruction of the swamp to the activities of the proposed project hence having a negative attitude towards the project.

Lowering of the lake level which will lead to uneven consequences geographically and consequently forcing the Merille to follow the lake as it recedes southwards into Kenya may lead to insecurity among the Turkana communities that live along the lake shores. According to the Merille culture, for one to transit from childhood to adulthood he has to kill an enemy and in this case the enemies are the Turkana men hence the proximity of the Merille as they

²⁰ Locally known as the Merille

follow the lake in Kenya may pose a security threat in the area. This may affect the activities of the proposed project since the area of interest lies on the Western shores of the lake.

9.6.5 Seismic Survey by BGP

The activities of seismic survey by BGP companies have been said to pose socio cultural impacts to the residents within the Block. From the public meetings and stakeholders consultations in the project area, several negative impacts were highlighted and the residents feared that the proposed exploration activities may reinforce the impacts already caused.

The following are the issues raised.

- The seismic survey that is being carried out in Lake Turkana has affected the aquatic life. Due to the vibration of the machines, the fishermen claim that the fish which they largely depend on have migrated further in the lake and this has resulted in reduction in fish catch. The residents fear that the exploratory drilling might reinforce this impact hence losing their livelihoods. Tullow should sensitize the community and assure them further that the proposed oil exploration will be carried on-show.
- The community mentioned that BGP workers have relations with the community members especially women and girls and that it has led to social disruption. This may be reinforced if Tullow workers do not adhere to their work ethics policy hence it may end up impacting negatively on the project because the locals may form a negative attitude towards the exploratory project.
- Some members mentioned that employment at BGP camps was biased and some areas had not benefitted. This may make people resist the project if employment will not be fair. Tullow should encourage fair employment and tendering opportunities.
- It was also mentioned that the exploratory drilling in Turkana South had not employed people from that site hence this caused conflicts in the area. They also claim that people's land had been grabbed in Block 13T and this resulted to conflicts in the area.

9.7 Transboundary impacts

According to IFC Guide Note (GN) 36, transboundary impacts refer those impacts that extend to multiple countries, beyond the host country of the project, but are not global in nature. Some of the notable transboundary impacts include air pollution extending to multiple countries, use or pollution of international waterways, and transboundary epidemic disease transmission.

The proposed project area lies squarely in Kenya therefore no transboundary impact is envisaged. Lake Turkana which is shared in part between Kenya and Ethiopia will not have any project related activity taking place in it.

10. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP)

10.1 INTRODUCTION

Environmental Management Plan (ESMP) is an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented, and that the positive benefits of the projects are enhanced.

This Environmental and Social Management Plan (ESMP) has been set out to ensure adherence and future compliance with Kenya legislation, Tullow policies and standards, good environmental performance, and integration of environmental issues into the project decision. The ESMP provides the means of assessing the accuracy of the predicted project impacts and the monitoring of the effectiveness of the proposed mitigation measures contained in the ESIA study report. The ESMP should therefore indicate how the environmental concerns highlighted in the ESIA will be managed.

10.2 OBJECTIVES OF THE ESMP

The objectives of the EMP are to:

- Adhere to and address necessary legal frameworks and other requirements;
- Promote environmental management and communicate the aims and goals of the project EMP to all stakeholders;
- Incorporate environmental management into project design and operating procedures;
- Ensure all workers, contractors, sub-contractors and others involved in the project meet all legal and institutional requirements with regard to environmental management;
- Provide a framework for implementing commitments of the project (i.e. mitigation measures identified in the ESIA);
- Prepare and maintain records of project environmental performance (i.e. monitoring, audits and compliance rating);
- Prepare an environmental monitoring plan whose aim is to ensure that the negative environmental impacts identified are effectively mitigated by way of design, construction, operation and decommissioning stages of the project;
- Respond to unforeseen events; and
- Provide feedback for continual improvement in environmental performance.

10.3 PROJECT DESCRIPTION

A summary of the project is presented here so that this ESMP can be as a stand-alone document for ease of reference. For more details see Chapter 2.

Tullow is planning to undertake an exploratory oil and natural gas well drilling project to verify the presence of oil and natural gas in Block 10BA. Exploratory drilling is a necessary step in the development of commercial hydrocarbon production since seismic data are unable to show for sure whether oil and gas are present, what these quantities are and whether the hydrocarbons could be commercially extracted. The objective of the project is to check for the

presence of hydrocarbons based on the delineation of potential hydrocarbons traps deduced by analysis of recently acquired seismic data.

10.4 APPLICABLE LEGISLATION AND REGULATIONS

The spectrum of legislation and regulations that apply to the exploratory well drilling project has been detailed in Chapter 4. Some of the key national legislation that relate to the activity are the:

- Environmental Management and Co-ordination Act, 1999 and associated regulations and guidelines;
- National Environment Policy, 2012;
- National Energy Policy, 2012;
- Wildlife (Conservation and Management) Act, Cap. 376;
- County Governments Act, 2012;
- Climate Change Authority Bill, 2012;
- Land Policy (Sessional Paper No.3 of 2009);
- Water Act, 2002; and
- Occupational Safety and Health Act, No. 15 of 2007.

International Policies, Guidelines, Standards and procedures that relate to the ESMP include:

- Oil and Gas Industry Guidelines;
- The International Finance Corporation (IFC) Guidelines; and
- The World Bank Group's Environmental, Health and Safety (EHS) Guidelines.

10.5 TULLOW POLICIES AND PROCEDURES

Tullow adheres to international best practices and guidelines mentioned above among others. It has also aligned its company policies around such principles. The policies include:

- Environment, Health and Safety (EHS) Policy
- Driving Policy
- Corporate Social Responsibility Policy
- Malaria Management Policy
- HIV Policy
- EHS Management Standards
- Emergency Preparedness Incident Management and Business Continuity Standard
- Fossil Avoidance Procedures

10.6 ROLES, RESPONSIBILITIES AND TRAINING

Tullow will be responsible for the overall implementation, monitoring and quality assurance/quality control of this ESMP. It will be responsible for ensuring that the policies, management plans and actions to be implemented to avoid, reduce, mitigate, or compensate for adverse environmental and social impacts are adhered to. The proponent shall develop a clear command-chain framework for employee responsibilities, reporting and incident management, and shall ensure that all employees understand it.

Tullow will sub-contract certain aspects of the project. In such a case, the contractor will be responsible for the implementation and monitoring of the ESMP in their related work contract activity (and this condition should be built into the terms of reference for tendered work and the contract document). The contractor will also be responsible for the occupational health and safety of the workers and others who may be carrying out both related and un-related activities within and around the work sites. The proponent will be responsible for oversight compliance monitoring and periodic environmental inspections of the work and campsites in general. The contractors will also be responsible for implementing corrective actions that may be required by Tullow after these inspections.

The proponent will train its work force in order to equip them to carry out their duties under the scope of the ESMP. Contractors will likewise be required to do the same for their employees and in relation to the work component that they have been given to carry out (see the ESMP below). The workers shall be regularly informed on, and assessed for, their understanding of the various policies and plans that relate to their work environment. In addition, the proponent will constitute a competent and effective workforce, taking into account the skills required for each work component, and giving priority to local workers for employment opportunities in the semi-skilled and unskilled work categories. Suitable training and skill transfer will be provided, where required.

10.7 COMMUNICATION WITH STAKEHOLDERS AND GRIEVANCE MECHANISM

Tullow will develop and maintain a formal procedure for communication with various stakeholders to inform on the various stages of project activities, as well as to receive their views and concerns, if any. The proponent should maintain a written register of its interactions and discussions with the various stakeholders so that issues that require to be followed up are clear and well understood, and the outputs can be assessed.

The proponent will also establish a grievance mechanism to handle complaints from the stakeholders/residents of the area, as well as for its own and contracted workers. This mechanism will also include procedures for assessing any project-related damages to persons and properties and levels of compensation. Such a mechanism will be best established in consultation with officials from Government (Ministry of Energy, Community Leaders, and Stakeholder Group Representatives).

10.8 AUDITING

It is a requirement by law that any project activity being undertaken be audited after every year. The proposed exploratory well drilling will take a shorter time and will therefore be audited upon completion of the project. The auditing to be undertaken at the end of the project is to ensure that the project adhered to the ESMP as outlined in this project report and that corrective measures were put in place in cases where impacts were identified. If the audit findings indicate that there are impacts that were not corrected, then the proponent will be required by NEMA to undertake such corrective measures before the Authority signs off the project.

Besides the regulatory framework, Tullow will conduct regular internal audits covering all aspects of the ESMP during the course of the project operations. The audits will be performed by qualified staff and communicated to the proponent's relevant departments and NEMA.

10.9 ESMP

The ESMP for the drilling of the exploratory well addresses the following environmental and social issues:

- Physiography and Geology
- Soils
- Air Quality
- Surface and Groundwater Resources
- Water Quality
- Terrestrial Environment (Habitats, Flora, and Fauna)
- Land Resources and National Parks
- Archaeological, Historical and Cultural Sites
- Visual Aesthetics
- Noise and Vibrations
- Solid and Liquid Wastes
- Social Characteristics
- Economic Characteristics
- Occupational Health and Safety
- Security and Public Safety
- Construction of the campsite
- Fuelling station
- Camp clinic
- Water borehole drilling

The structure of the Environmental and Social Management Plan adopted for each of the environmental and social components addressed in it (below) is as follows:

1. Potential Impacts and Mitigations – These outline the impacts and mitigations that have been identified and that are peculiar to the project area (see Chapter 8 and 9).
2. Identification of Desired Outcomes, Objective Indicators, and Monitoring – The Desired Outcomes reflect what the project proponent and stakeholders would like to see once the operation has been completed.
3. The Objective Indicators indicate how the Desired Outcomes can be measured, and their success determined (either qualitatively, quantitatively, or both).
4. The Monitoring aspect is based on assessment of project operations *vis à vis* the Objective Indicators and the Desired Outcome, Responsibilities and Management.

siography and Geology

mpact sources from the project operations will include the mobilization of vehicles, machineries and drilling-associated equip
| operation sites.

Potential Impacts	Mitigation
ds geological materials (cuttings)	<ul style="list-style-type: none"> Obtain adequate permits to use land for roads and campsite; Use of existing access roads and old cut lines established during the : survey phase to the drilling site to the extent possible; Plan the environmentally decommissioning and restoration of the site before starting decommissioning; Break surface of rig site, remove concrete pads, restore original contours and drainage channels; Fill excavated pits when contents have dried; Spread topsoil conserved during site; and Preparation and seed with local species

ired Outcomes, Objective Indicators and Monitoring				
Outcomes	Objective Indicators	Monitoring	Responsibility Management and	Risk with Miti (High, Medium Low)
new access imized to the sible	<ul style="list-style-type: none"> 100% use of pre-surveyed access ways (Already done during the seismic shooting) and confirming the condition of the existing access roads on the ground Actions taken to minimise new access roads impacts are recorded 	<ul style="list-style-type: none"> Continuous 	<ul style="list-style-type: none"> The field operations supervisor will be responsible for the day-to-day monitoring and management, and will report to the Drilling Exploration Manager on a weekly basis, or immediately in case of an incident occurring 	<ul style="list-style-type: none"> Low

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Impact sources from the project operations will include drilling rig and associated equipment, transport vehicles, bulldozer and other equipment. Other sources will be oil or chemical leaks from vehicles, machinery, workshops and storage areas.

Impacts	Mitigation
tion; and 1.	<ul style="list-style-type: none"> • Topsoil that is stripped and removed for construction should be preserved for rehabilitation of the constructed (campsite/drill rig) area at the end of the project; • Minimize vegetation clearance as much as possible when clearing the area for the drilling pad and campsite construction; • All fuels and other fluids to be stored in suitable banded enclosures; • Ensure that all vehicles and machinery are regularly serviced and maintained with no oil or other leakages; • A plan should be prepared to prevent and contain accidental oil discharges or fuel spillages; • All equipment should be fitted with drip trays and stationary fuel storage facilities should have secondary containment; • Ensure that all drivers and technicians are familiar with drip-tray and spill-kit use through daily box talks ; and • Ensure that all vehicles and machinery are well maintained with no leakages, and that any in-field refuelling or maintenance is performed while using a drip tray with a spill-kit available.

Desired Outcomes, Objective Indicators and Monitoring				
Desired Outcomes	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium, or Low)
<ul style="list-style-type: none"> Minimal, (if any) compaction of soils where applicable; Minimal disturbance of soils especially on waterways and natural drains; Protection of surface soil from subsidence; and Zero spillage of chemicals and hazardous material on soils. 	<ul style="list-style-type: none"> 100% use of pre-surveyed access ways (Already done during the seismic shooting) and confirming the condition of the existing access roads on the ground; Soils characterized and pre-surveyed on the ground; and Appropriate campsites surveyed and selected 	<ul style="list-style-type: none"> Continuous duration of confirmation and establishment of route, adjusting and repairing where appropriate; Exploratory well site ground truthing; Onetime assessment and site selection of base-camps and pit sites; and Continuous monitoring and safeguard mechanisms established to check spillage. 	<ul style="list-style-type: none"> Tullow EHS field representatives will be responsible for the day-to-day monitoring and management, and will report to the Operations Manager on a weekly basis, or immediately in case of an incident occurring. 	<ul style="list-style-type: none"> Low

10.9.3 Air Quality

The impact sources from the project operations will include vehicles and machinery, sanitary systems and waste disposal points.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • Dust • Exhaust emissions 	<ul style="list-style-type: none"> • Limit traffic speed and restrict movement of vehicles as is reasonable to minimize dust generation; • Employees working in dusty conditions must use appropriate PPE; • Use ultra low sulphur fuels if available; and • Motors (vehicles, generators, etc.) must be properly serviced.

<i>Desired Outcomes, Objective Indicators and Monitoring</i>				
Desired Outcomes	Desired Outcomes	Desired Outcomes	Desired Outcomes	Desired Outcomes
<ul style="list-style-type: none"> ▪ Minimal pollution from exhaust emissions; ▪ Minimal dust generation from traffic; ▪ No offensive odours; and ▪ No health risks 	<ul style="list-style-type: none"> ▪ Number of equipment with low emissions; ▪ Use of low sulphur versus other fuels; ▪ Adherence to equipment maintenance schedule; ▪ Set speed limits are not exceeded (record incidents when speed limit is exceeded); ▪ No offensive odours recorded; and ▪ No violation of OHS requirements for dust impact mitigation (violations recorded). 	<ul style="list-style-type: none"> ▪ Malfunctioning equipment removed immediately from operations for repair; ▪ Compliance with use of low sulphur fuel (fuel supply tenders); ▪ Speed limit violations based on speed-tracking devices in vehicles, monitored at base camp; and ▪ Daily inspection of sanitary facilities and waste disposal points. 	<ul style="list-style-type: none"> ▪ The field operations supervisor will be responsible for the day-to-day monitoring and management of air quality issues in the field, while the camp supervisor will be responsible for monitoring the air quality at and around the campsite. The field operations supervisor and the camp supervisor will report to the Operations Manager on a weekly basis, and will immediately report on health risk incidents. 	<ul style="list-style-type: none"> ▪ Low

10.9.4 Surface and Groundwater Resources

The impact sources from the project operations will include: liquid effluent discharges from sanitation systems at the base camp and drilling site; oil or chemical leaks from garage and storage areas, vehicles and machinery operating in the camp and field.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> ▪ Natural drainage systems; ▪ Fresh water; and ▪ Sewage discharge. 	<ul style="list-style-type: none"> ▪ Vehicles should steer away from perennial/seasonal waterways as is practicable, but a buffer zone of 20m should be maintained except at crossing points-ephemeral luggas are expected; ▪ Tullow and subcontractors should adhere to OGP standards and international best practices during drilling, cementing and casing of the exploratory well; ▪ Monitoring should be done frequently to ensure no contamination occurs through tests; ▪ Install and properly manage camp sanitation facilities; ▪ Sewage system should comprise of a septic system with steel settling tanks instead of the usual soak pits due to the soil characteristics; ▪ An efficient sanitation system should be put in place for camp workers to eliminate or minimise the levels of potential water pollutants from domestic effluents; and ▪ Tullow should aim to have the sewage system produce a waste stream or treated effluent that is of high enough quality to be or discharged back into the environment.



Desired Outcomes, Objective Indicators and Monitoring				
Desired Outcomes	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium, Low)
<ul style="list-style-type: none"> ▪ No contamination of water supply source for the camp and ▪ No contamination of underlying aquifers in the project area. 	<ul style="list-style-type: none"> ▪ Camp water supply source is fit for human consumption; ▪ Camp water supply source is protected ; ▪ Zero spillage of chemicals and hazardous material on soils that may lead to surface/groundwater pollution; ▪ Waste pits and landfills are professionally sited; and ▪ Buffer zones are observed 	<ul style="list-style-type: none"> ▪ Physico-chemical and microbiological testing, weekly; ▪ Casing and cementing of borehole and wellhead area; ▪ Protocols for and conditions of oils and chemicals storage at the camp are adhered to; ▪ Professional recruited for the work; and ▪ Compliance with buffer zone requirements. 	<ul style="list-style-type: none"> ▪ The field operations supervisor will be responsible for the day-to-day monitoring and management of actions to protect water quality in the field, while the camp supervisor will be responsible for such actions at and around the campsite. The field operations supervisor and the camp supervisor will report to the Operations Manager on a weekly basis, and will immediately report on incidents of concern. 	<ul style="list-style-type: none"> ▪ Low

10.9.5 Terrestrial Environment (Habitats, Flora, and Fauna)

The impact sources from the project operations will include drilling rig and ancillary, transport vehicles, and physical presence of the workforce.

Potential Impact	Mitigation
<ul style="list-style-type: none"> • Vegetation clearance; • Disturbance of wildlife (physical presence; and behavioural changes) • Wildfires. 	<ul style="list-style-type: none"> • Pre-survey the route to avoid sensitive habitats; • Movement of the crews and vehicles should be restricted to the existing roads and within the operation sites to avoid creating unnecessary tracks and trampling of pasture around the camp sites; • Cut back vegetation by hand in the rig camp area; • Avoid cutting large trees (> 20cm diameter); • Ensure that equipment are in perfect working order and cause minimal, if any, noise/air pollution nuisance to fauna; • Adopt a proper waste management system to avoid attracting scavenging animals and environmental pollution; • Avoid any land clearance/alteration as far as practicable when setting up the rig/camp sites; • Safety precautions should be put into place to ensure that no accidental fires are lit; smoking and disposal of lit cigarette butts and used match sticks in non-designated sites should be avoided; • Open water holding reservoirs should be fitted with screens to deter flocking of birds searching for water and also be well fenced-off to prevent access by mammals; and • Vehicles should use already existing tracks, adhere to maximum speed of 40kph, and avoid unnecessary hooting.

Desired Outcomes, Objective Indicators and Monitoring				
Desired Outcomes	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium, or Low)
<ul style="list-style-type: none"> Minimal cutting of vegetation for construction purposes; No wildfire cases reported; Minimal disturbance of wildlife; No weeds or pests introduced into the area; and Minimal contamination of the environment; 	<ul style="list-style-type: none"> Construction of support camp and derrick assembly installation where minimal or no vegetation clearance is required; Number of wildlife encounters and actions taken recorded; All equipment (vehicles and vessels) are washed down and bio-fouling removed before being taken to the project area; and A material safety data sheet should be maintained for all potentially hazardous materials, as well as supporting documentation for the transport, use and disposal of such materials. 	<ul style="list-style-type: none"> Continuous, during base camp and derrick assembly preparation; Continuous, during exploratory well drilling; Inspection and certification. 	<ul style="list-style-type: none"> An ecologist may be designated to be in charge of the management and monitoring of the terrestrial environment, and would liaise closely with and advise the field operations supervisor on a day-to-day basis. 	<ul style="list-style-type: none"> Low

10.9.6 Archaeological, Historical and Cultural Sites

The impact sources from the project operations will include influx of people, access road construction and use of vehicles.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • Damage to Sites. 	<ul style="list-style-type: none"> • All project field workers must be informed, before commencement of operations, that any disturbance to, defacement of, or removal of archaeological, historical, or sacred material will not be permitted; • Tullow should follow the fossil avoidance procedure strictly so that there is no damage to archaeological and cultural sites; and • Consultations should be undertaken with local elders to help in identifying any sensitive cultural sites to be avoided when siting the campsite/drilling area and access ways.

<i>Desired Outcomes, Objective Indicators and Monitoring</i>				
Desired Outcome	Objective Indicators	Monitoring	Responsibility and Management	Risk with mitigation (High, Medium or Low)
<ul style="list-style-type: none"> • Negligible interference, if any, with historical and cultural sites. 	<ul style="list-style-type: none"> • No violations of buffer zone restrictions and 	<ul style="list-style-type: none"> • Cultural and historic sites are not interfered with; • Buffer zones are adhered to; and 	<ul style="list-style-type: none"> • Field operation supervisors shall ensure compliance and cultural site awareness creation to workers. 	Low.

10.9.7 Visual Aesthetics

The impact sources from the project operations will include campsite design, access-ways and rig site assembly.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • Visual. 	<ul style="list-style-type: none"> • Drill rig and campsite design should take into consideration the aesthetics of the selected area; • Minimise use of heavy machineries on the fragile environment and vegetation, especially during rehabilitation of the access road and camp site; and • Drivers should be advised to stick to assigned access road and avoid off-road driving as is practicable.

Desired Outcomes, Objective Indicators and Monitoring				
Desired Outcome	Objective Indicators	Monitoring	Responsibility and Management	Risk Mitigation (High, Medium or Low)
<ul style="list-style-type: none"> • Minimal vegetation cover removal; • Drilling rig and camp site design blending with the prevailing environment. 	<ul style="list-style-type: none"> • Camp site and drilling rig design enhance aesthetic value of the area; • Clearing of vegetation for creation of access roads minimized particularly in the conservancy area; and • No residual impacts. 	<ul style="list-style-type: none"> • Adhere to the approved camp site design and • Physiography, Geology and Soils sections apply here too. 	<ul style="list-style-type: none"> • Exploration Manager to ensure maintenance of aesthetic value at the site and project areas and • Design of the camp site and drilling rig to incorporate 'green' principle where applicable. 	<ul style="list-style-type: none"> • Low.

10.9.8 Noise, light and Vibration

The impact sources from the project operations will include drilling rig operations, generators and vehicular noise pollution.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • Noise; • Light; and • Vibration. 	<ul style="list-style-type: none"> • Ear muffs/plugs and other protective devices should be used in noise-prone areas and as specified in the Occupational Safety and Health Act; • Power generators, drilling rig components and other equipment should be state-of-the-art and equipped with silencers/mufflers where the option is available; • Effect a noise mitigation policy for all operations in accordance with the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations; • Reduce height of lighting poles; • Limit the duration of the well test flaring; and • Avoid flaring at night if practical.

<i>Desired Outcomes, Objective Indicators and Monitoring</i>				
Desired Outcome	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium or Low)
To ensure ambient noise levels of the project area are maintained near the baseline conditions during the construction	<ul style="list-style-type: none"> • Sound level measurement equipment installed to monitor noise levels; • Regularly serviced and efficient vehicle engines; • No disturbance to animals by vehicular pollution; and • Generators muffled to abate noise. 	<ul style="list-style-type: none"> • Review of design parameters as needed; • Monitor installed equipment; • Strict servicing work and schedule; and • Limit speed of vehicles to 40kph. 	<ul style="list-style-type: none"> • Managers in charge of drilling and transport. 	<ul style="list-style-type: none"> • Low.

Desired Outcomes, Objective Indicators and Monitoring				
Desired Outcome	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium or Low)
and operation stage.				

10.9.9 Solid and Liquid Wastes

The impact sources from the project operations will include the wastes generated at the campsite and drill rig site.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • Pollution of surface and ground water; • Solid waste; • Spills; • Laboratory and medical waste; and • Drill cuttings. 	<ul style="list-style-type: none"> • A waste management plan documenting the waste strategy, storage (including facilities and locations), handling procedures and means of disposal, should be developed and should include a clear waste-tracking mechanism to track waste consignments from the originating location to the final waste treatment and disposal location; • It is recommended that segregation of solid wastes at source is appropriately carried out and consideration given to re-use, recycling, or disposal as appropriate; • Hygienic sanitation and disposal of grey and black water will be covered in the waste management plan in order to protect the general health of the workers and the general public; • Ensure that solid waste is removed from site for recycling/disposal only by a NEMA-authorized waste handler; • Fuel and other liquid storage areas should be banded; • Servicing of equipment should be carried out in a designated garage area which has regularly maintained oil drainage traps and readily available spill-kits; and

Potential Impacts	Mitigation
	<ul style="list-style-type: none"> Workers be trained and equipped to prevent and/or manage fuel/oil spills.

Desired Outcomes, Objective Indicators and Monitoring				
Desired Outcome	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium or Low)
<ul style="list-style-type: none"> No pollution of soils and water ways; No offensive odours; No reported health risks; and No residual wastes in the environment. 	<ul style="list-style-type: none"> No leakages of oils, chemicals or liquid effluent reported; No blockages to sanitary and drainage system; Hazardous and non-hazardous wastes are properly disposed off and monitored; and PPEs appropriately used. 	<ul style="list-style-type: none"> Daily checks on sanitary and drainage system; Storage areas well secured and only authorized personnel allowed; Waste disposal done by registered waste handlers; and Adherence to HSE policy and use of PPEs monitored. 	<ul style="list-style-type: none"> Managers in charge of HSE. 	<ul style="list-style-type: none"> Low.

10.9.10 Social Characteristics

The impact sources from the project operations will include workforce influx and activities around the drilling sites.

Potential Impacts	Mitigation
<p>Positive</p> <ul style="list-style-type: none"> • Improvement of the existing infrastructure and a possibility of establishing other infrastructures in the area i.e., roads. • Provision of scholarships and bursaries to the needy. • They believe that through CSR, they will get water and other needed social amenities. • Improvement of living standards through employment and business <p>Negative</p> <ul style="list-style-type: none"> • Disruption of grazing patterns and water points for the animals. • Fear that the project might lead to environmental degradation if there will be poor waste disposal. • Security shortage because Tullow will absorb most of the available security personnel i.e., Kenya Police Reserve (KPR) • Influx of immigrants and the camp workers may lead to social vices such as prostitution, adultery and other common vices. • They did not rule out the possibility of their livestock being hit and/or getting injured as a result of running away from Tullow vehicles. 	<ul style="list-style-type: none"> • Tullow should ensure community participation and involvement in the project and always ensure that communities are aware of potential impacts, and engage the community in finding solutions to potential problems. • Tullow should ensure that access roads are not along livestock routes. • Tullow should ensure that vehicles are driven at no more than 40kmph, to lower the risk of accidents. • The proponent should engage the community in planning access roads to ensure they do not go through grazing land or near water points. • Vegetation should not be cleared as the area is already arid. • Consult with community organisations and local institutions in planning its activities. • Tullow should ensure that their sites are located away from areas of residence and minimise movement of their staff. • Tullow should sensitise its staff on the culture of the local community and promote good values. • The discretion of local community leaders should be used when offering employment; • Tullow should have best waste handling practices to avoid environmental pollution. • Tullow should discourage the use of charcoal as source of fuel.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • They feared that there might be cutting down of trees during construction of access roads and campsites • Unfairness in employment 	

Desired Outcomes, Objective Indicators and Monitoring				
Desired Outcomes	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium or Low)
<ul style="list-style-type: none"> • Preservation of cultural and social values • No interference with grazing/ pasture lands and watering points • No environmental pollution • Create business Opportunities • Discourage social vices due to influx of outsiders • Creation of employment 	<ul style="list-style-type: none"> • No violations of EMCA 1999 • No complaints from the locals on cultural or social values concerns relating to the workers • No complaints from the locals that they are not awarded tenders • No complaints on interference of with grazing lands and water points 	<ul style="list-style-type: none"> • Awareness of EMCA by workforce • Grievance mechanism in place and implemented • Related monitoring aspects are being undertaken • Procurement and supply Policy • Sensitization plan 	<ul style="list-style-type: none"> • A project grievance mechanism in line with the Project Grievance Management Plan should be put in place • Inform the community in the project area about the procurement and supply policy • Sensitize the workers about the culture of the community and put in place strict measures on how to interact appropriately with the people <ul style="list-style-type: none"> ▪ In consultation with key stakeholders sensitize the community about the influx of people due to the project. 	<ul style="list-style-type: none"> ▪ Low

10.9.11 Economic Characteristics

The impact sources from the project operations will include employment opportunities, tenders and supplies.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • They expect Tullow to award them employment and tender opportunities. • Feared that the noise from the Tullow vehicles will frighten their animals, which may end up getting injured or getting lost • There may also be an improvement in the provision of financial services, as in most areas, there are none. Banks and other financial institutions could be set up in the locations. • Employment being imported and tenders awarded to foreign companies may bring conflicts • They deem this project as a source of revenue to the government, county government and the host community. • Boosting of local business 	<ul style="list-style-type: none"> • Tullow should ensure that vehicles are driven at no more than 40kmph, to lower the risk of accidents. • Tullow should ensure that access roads are not along livestock routes. • Tullow should consult with chiefs and elders in communities to ensure equity in employment and awarding tenders • Tullow should have a procurement policy and committee where locals are also represented

Desired Outcomes, Objective Indicators and Monitoring

Desired Outcomes	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium or Low)
<ul style="list-style-type: none"> Improved economy and living standards. 	<ul style="list-style-type: none"> Number of locals recruited; Number and type of CSR projects that Tullow has done and commits to do; and Establishment of recruitment and tender committees. 	<ul style="list-style-type: none"> As needed. 	<ul style="list-style-type: none"> The project management should ensure community involvement in the establishment of recruitment committees to check on work influx, gender balance and potential conflict areas. 	<ul style="list-style-type: none"> Low

10.9.12 Occupational Health and Safety

The impact sources from the project operations will include the drilling rig and campsite.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> Injuries to workers, visitors and area residents. 	<ul style="list-style-type: none"> Conduct a safety assessment to describe potential safety issues (rig site access, work practices, hazardous materials, security, entry into confined spaces, transportation and installation of heavy equipment, traffic management, emergency response procedures and fire control and management, among others) and measures to mitigate them; Develop, continuously review as need may arise, and implement a health and safety program for all workers and visitors to the site, addressing all of the safety issues identified in the assessment and all applicable safety standards; All operations will be conducted in compliance with Tullow EHS policy, international best practices and Kenya Government requirements (as set out in the Occupational Health and Safety Act and the Public Health. Only properly trained and authorised

Potential Impacts	Mitigation
	<p>employees shall operate equipment or machinery;;</p> <ul style="list-style-type: none"> • Appropriate and well-stocked first aid kits and firefighting equipment should be available to all crew, and specific crew members should be trained on first aid administration and handling of firefighting equipment; • At all time crews should put on job-specific personal protective equipment; regular drills, training and tool kit talks should be conducted, and their use made mandatory in designated areas • Environmental safety and health regulations and policies/plans must be adhered to; • A Base Camp Clinic is to be provided, manned by suitably qualified field medical staff, licensed as appropriate to operate in-country, equipped with equipment and medication as appropriate, including ambulance vehicle(s); • Adequate warning or cautionary signage will be posted as required; • All electrical equipment shall be properly installed, earthed and regularly inspected, and where practicable will comply with IEE 17th edition regulations; and • Provision of an Emergency Response Plan, Evacuation Plan, Medevac Plan, and a general communicable diseases education programme to be put in place.

<i>Desired Outcomes, Objective Indicators and Monitoring</i>				
Desired Outcome	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium or Low)
<ul style="list-style-type: none"> • Improved economy and living standards • Employment • Thriving local business 	<ul style="list-style-type: none"> • Number of locals recruited • Number and type of CSR activities that the project undertakes and commits to • No complaints from locals on 	<ul style="list-style-type: none"> • As needed 	<ul style="list-style-type: none"> • Committees to address potential conflict areas. • In consultation with key stakeholders such as church leaders, the chiefs and women leaders, formulate an 	<ul style="list-style-type: none"> • Low

	employment No complaints on procurement issues		employment Plan • Engage the community in the procurement committee	
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10.9.13 Security and Public Safety

The impact sources from the project operations will be related to the workforce security needs.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • Petty crimes and • Improvement in security due to security enhancement for project activities. 	<ul style="list-style-type: none"> • Access to the project site must be controlled and all workers/ visitors be identified by use of tracking cards; • Adequate security measures should be provided, e.g. construction of reinforced perimeter fencing, construction of earth berms, provision of safe havens and security manning around the project site on a 24 hour basis; • The company should liaise with the Provincial Administration, the Kenya Police, Kenya Police Reservists and other agencies to provide adequate security at the proposed exploratory well drilling site and while on transit; • Barriers and guards will be installed as necessary to protect employees and visitors from physical hazards and criminal activity; • The camp will be located at a significant distance from any local communities; • The camp population will be restricted and will not be allowed to interact with the local populace while at the project site; • Journey management policy and monitoring to be enforced; and • Vehicle speed will not exceed 40 km/h, with all vehicles fitted with vehicle tracking and monitoring systems.

Desired Outcomes, Objective Indicators and Monitoring				
Desired Outcome	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium or Low)
<ul style="list-style-type: none"> No security related incidences and Adequate security for the workforce at the campsite and on transit. 	<ul style="list-style-type: none"> Number of security incidences recorded. 	<ul style="list-style-type: none"> Continuous monitoring and recording of security incidences during project life. 	<ul style="list-style-type: none"> Project manager to coordinate all security matters through security section and Liaison with provincial administration and Kenya Police will greatly enhance security at workplace and when on transit. 	<ul style="list-style-type: none"> Low.

10.9.14 Construction of the Drill site (including Accommodation Facility)

The impact sources from the project operations will be the camp design and security, water supply, waste management, air quality socio-economic factors and occupational health and safety.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • Disturbance to soils and vegetation during construction; • Reduced landscape aesthetics due to stockpiling of excavated soils; • Health and safety hazard due to poor campsite construction; • Spillage of chemicals, oils and fuels from construction equipment and vehicles; • Disturbance to communities • Insecurity; and • Health and safety hazard during campsite occupation. 	<ul style="list-style-type: none"> • Campsite will be constructed by the subcontractor who will be experienced in camp site construction and will utilise trained personnel. Camp construction will be supervised by the Proponents Consultants; • Excavated soil should be used in landscape design of the campsite rather than stockpiling; • Construction of the campsite shall be undertaken during daylight hours only; • Construction equipment and vehicles shall be well-maintained, checked and promptly repaired to ensure no spillage of oils and fuels and to minimise gaseous emissions; • Adequate temporary housing and sanitation facilities shall be provided for the construction workers; • Company employees shall comply both with the relevant national legislation, and its own in-house environmental health and safety (EHS) policies; • Adequate warning signs and fire extinguishing equipment will be visibly and appropriately posted; • Use of T-card system for access control within the campsite shall be enforced; and • Use of appropriate Personal Protective Equipment to be enforced.

Desired Outcomes, Objective Indicators, Monitoring, Responsibility, and Risk				
Desired Outcomes	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium or Low)
<ul style="list-style-type: none"> Minimal disturbance to environment during construction; Reduced potential for environmental pollution due to oil and fuel leaks and noise and gaseous emissions; Communities are not disturbed; No security-related incidents and No safety and health-related incidents. 	<ul style="list-style-type: none"> Soil and vegetation are not unnecessarily cleared; Maintenance schedule for equipment and vehicles adhered to and no pollution incidents reported; Number of community disturbance incidents reported; Number of security-related incidents recorded; and Number of safety and health-related incidents recorded. 	<ul style="list-style-type: none"> Continuous monitoring and recording of incidences. 	<ul style="list-style-type: none"> The construction of the campsite shall be supervised by the chosen contractor and overseen by Tullow Kenya B.V. Camp operations shall be supervised and coordinated by the Camp Manager. 	<ul style="list-style-type: none"> Low.

10.9.15 Fuelling Station

The impact sources will include oil or chemical leaks from garage and storage areas, vehicles and machinery.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • Fuel spills; • Fire hazard; and • Fuel contamination. 	<ul style="list-style-type: none"> • The fuelling station will be underlain with a spill-containing liner; • The fuel storage area will be set at one end of the parking bay area, and will be bunded. The bunds should have the capacity to contain all the fuel stored inside the fuel bladder in case of leakage at 110% of the stored fuel volume; • The fuel storage area will have a tarpaulin covering to protect it from extremes of weather, and should be well aerated; • The fuel storage floor shall be concrete-based, and canvas-lined to capture minor spillages, with a structure measuring at least 12m x 8m x 0.05m; • The bladder will be charged with fuel ferried by tankers, and will be conveyed to the pump via an outlet hose; • Clearly marked spill kits will be placed adjacent to the refuelling area, and all staff involved in vehicle maintenance and refuelling will be trained in their use. Clear 'no smoking' signage shall be posted in this area; • Fire-fighting equipment will be placed at strategic places within the fuelling station and in other areas of the camp site; and • All workers will be trained in the use of the installed fire-fighting equipment.

<i>Desired Outcomes, Objective Indicators, Monitoring, Responsibility, and Risk</i>				
Desired Outcomes	Objective Indicators	Monitoring	Responsibility and Management	Risk with mitigation (High, Medium or Low)
<ul style="list-style-type: none"> No fuel spills; No fires; and No fuel contamination 	<ul style="list-style-type: none"> Number of incidents recorded. 	Continuous monitoring and recording of incidences.	<ul style="list-style-type: none"> Proper operations in the fuel filling station shall be supervised and coordinated by the Camp Manager. 	Low

10.9.16 Camp Clinic

The impact sources for the project activities will be waste management and handling practices.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> Pollution due to poor handling of biomedical and pharmaceutical wastes. 	<ul style="list-style-type: none"> Biomedical wastes generated at the facility will be handled as per NEMA Waste Management Regulations, 2006; The wastes will be segregated, and disposed of in the waste disposal facility as provided for by the relevant Local Authority; and Biomedical waste will not be stored above 0°C for more than seven days without the written approval of the relevant lead agency, provided that untreated pathological waste shall be disposed of within 48 hours.

<i>Desired Outcomes, Objective Indicators, Monitoring, Responsibility, and Risk</i>				
				Risk with

Desired Outcomes	Objective Indicators	Monitoring	Responsibility and Management	Mitigation (High, Medium or Low)
<ul style="list-style-type: none"> ▪ No pollution from medical and pharmaceutical wastes. 	<ul style="list-style-type: none"> ▪ Number of incidents of improper disposal recorded. 	<ul style="list-style-type: none"> ▪ Continuous monitoring and recording of incidences. 	<ul style="list-style-type: none"> ▪ The operation of the medical clinic will be under the direct management of the Camp Doctor, and shall be overseen by the Camp Manager 	<ul style="list-style-type: none"> • Low.

10.9.17 Water Borehole Drilling

The impact sources for the project operations will be disturbance to soils and vegetation and contamination of water in the project area.

Potential Impacts	Mitigation
<ul style="list-style-type: none"> • Disturbance to soils and vegetation during data acquisition and borehole drilling; • Contamination during well development; • Drill cuttings from borehole; and • Pollution/contamination of borehole/aquifer water. 	<ul style="list-style-type: none"> • Minimise soil disturbance and vegetation clearance as is practicable; • Drill well development must be done with the Airlift method for at least 30 minutes or until the water is clear of drilling cuttings; • Great care should be taken that the water quality of the different aquifers is accurately determined. Upon the first strike, drilling fluids should be effectively flushed, and after sufficient time, a water sample should be taken of the air blown (rotary) or bailed (percussion) yield; • On-site analysis using an EC meter, and preferably a portable laboratory, is recommended; • Screen-off non-targeted aquifer(s); • The services of an experienced hydro-geologist should be engaged during the drilling, design, installation, and testing of the borehole; • Drill cuttings from the borehole should be buried in clay or other suitably lined pit in the event that the borehole is successful, but if not successful, the drill hole should be refilled with the drill cuttings; • Drilling should be carried out at a diameter of not less than 6" using either a rotary type or percussion machine, to allow for casing, gravel packing and pump installation; • The borehole should be cased to the bottom using suitable non-polluting material, with screens at the aquifer position and plain casings at non-aquifer position; • The borehole should be bottom-plugged in loose formations; • The annular space must be gravel packed at the screen and aquifer position with durable and suitably sized material with respect to the size of the aquifer materials; • Grouting should be done by placing a concrete mixture up to 6m depth from ground surface; and • Any drilling additives to be used (e.g. foam or polymer) must be non-toxic and biodegradable. Bentonitic additives should not be acceptable, as they may plug the aquifer zones and are extremely difficult to remove during development.

Desired Outcomes, Objective Indicators, Monitoring, Responsibility, and Risk				
Desired Outcomes	Objective Indicators	Monitoring	Responsibility and Management	Risk with Mitigation (High, Medium or Low)
<ul style="list-style-type: none"> • No disturbance to soil and vegetation; • No contamination of the aquifer during well development and post-development; • Non-target aquifer strata are protected; and 	<ul style="list-style-type: none"> • No unnecessary clearing of vegetation and soil disturbance; • No contamination of aquifers; • Aquifers, borehole and well-head are protected based on good construction practice; and • Drill cuttings are safely disposed 	<ul style="list-style-type: none"> • Monitoring during the drilling and well-head construction phases. 	<ul style="list-style-type: none"> • The Tullow Kenya B.V. EHS Representative should ensure all the protocols relating to environmental health and safety, and occupational health and safety policies are adhered to by the Drilling Contractor. Overall supervision will be the responsibility of the Camp Manager, who should also ensure that a qualified and registered hydrogeologist is available on site to supervise the drilling and well protection works. 	<ul style="list-style-type: none"> • Low.

10.10 OTHER GENERAL REQUIREMENTS AND TRAINING ISSUES

10.10.1 Occupational Health and Safety Plan

Tullow will develop an Occupational Health and Safety Plan (OHSP), based on Tullow Oil EHS and CSR policies, prior to commencement of the project operations. The OHSP will uphold Tullow's commitment to a safe environment for employees, contractors and visitors. The plan will also address all applicable legal requirements relating to health and safety. The OHSP will set out the framework under which health and safety on the project site, and to and from the site, will be managed. The roles and responsibilities of the company, manager, supervisors and workers will be set out under this plan.

A health and safety training programme will also be implemented at the site. The objectives of this training programme will be to:

- Provide appropriate orientation and support to all employees, contractors and visitors on site so that they can act in an appropriately safe manner;
- Provide on-going training to workers; and
- Inform at-risk workers to help attain a positive and safe work environment.

10.10.2 Vehicle Traffic Plan

The following guidelines will apply to vehicular traffic:

- All drivers will be properly licensed and trained according to specific vehicle type and operating conditions;
- Vehicle use will be determined by local ground conditions and access requirements;
- All local traffic laws and speed limits will be obeyed;
- Traffic on the rights-of-way will follow the posted speed limits, which might vary depending on site-specific conditions;
- All vehicular traffic will be confined to approved rights-of-way, workspace and access roads or trails; and
- Site-specific features of concern (e.g., archaeological sites, sensitive wildlife habitats) will be flagged, or otherwise designated, so that subsequent traffic can avoid these areas.

10.10.3 Materials Management

A Materials Management Plan will be developed that will identify handling and management of materials. Transportation, storage, use and ultimate disposal will be considered. Safety of the workers and the surrounding communities will be taken into account for all stages of materials handling during all project phases. The EHS officer shall consult with the local authorities to determine where and how the different types of wastes that will be generated during the project can be disposed of.

Employees who are tasked with receiving, off-loading and storing potentially hazardous materials or involved in the storage and shipment off-site of hazardous wastes should receive hazardous materials handling training.

10.10.4 Pollution Control Plan

A pollution control plan that includes an oil spill response plan will be developed. The objective of the spill response measures will be to ensure that where accidental spills occur, all available resources are used appropriately to minimize the extent and severity of their effect on the environment. All spills occurring on the project site will be responded to in a way that will uphold the following priorities: protection of human life and health; protection of the environment; protection of property; and minimized disruption to operational activities. At all times, applicable regulations will be used to guide response and clean-up activities.

At locations where the potential for spillage of hazardous material is highest, such as at the wellbore and fuelling points, spill control and containment means will be incorporated into the infrastructure during construction. The storage of materials will be tied in with the Hazardous Materials Management Plan (HMMP).

Spill response kits appropriate to the types and volumes of materials that will be used during the project operations will be specified, including the types of equipment that will handle or transport contaminant materials (including fuel). Spill response kits will be located at appropriate material handling and storage locations. The contents of the kits will be based on the potential risk associated with the material, volume of material, and environmental sensitivity of the area. General kit contents could include: oil absorbent pads; absorbent socks; granular absorbents; and protective equipment such as gloves, goggles and protective suits. All kits will be stored in a visible location, and in appropriate weather-resistant containers. Regular inspections of the kits will be performed to ensure that they are complete and all materials remain functional.

The contractors and all employees working at the site will undergo, as part of their orientation to the site, a training programme on spill-prevention and hazard-identification, as well as spill-response, containment and reporting procedures. Other aspects of the training will include education on the:

- Pollution prevention and control
- Applicable legislation
- Potentially affected environmental receptors (e.g. soil, surface and groundwater)
- Field application of appropriate spill-response techniques.

10.10.5 Emergency Response Plan

A more general plan that will deal with emergencies such as those related to accidents and personal injury, medical evacuations, fires, and escalating insecurity shall be put in place before the commencement of project operations. Issues to be addressed would include the capacity for response and management, and the support agencies that can be called in to assist (e.g. the Kenya Police, hospital staff, KWS, etc).

10.10.6 Decommissioning or Well Abandonment

Decommissioning is an important phase in the project cycle and comes last to wind up the operational activities of a particular project. It refers to the final disposal of the project and

associated materials at the expiry of the project lifespan. Alternatively, a decision may be taken to abandon the project at some stage. If such stages are reached, the proponent needs to remove all materials resulting from the demolition/ decommissioning or abandonment from the site. The following should be undertaken to restore the environment:

- i. Remove all underground facilities from the site;
- ii. The site should be well landscaped by flattening the mounds of soil;
- iii. Planting indigenous trees and flowers;
- iv. All the equipment should be removed from the site;
- v. Fence and signpost unsafe areas until natural stabilization occurs; and
- vi. Backfill surface openings if practical.

10.11 PROJECT COST ESTIMATE AND THE ESMP

It is estimated that the entire project will cost USD 25,000,000. The cost of implementing the ESMP will be borne by Tullow and the drilling contractors who will be tasked to carry out the various ESMP monitoring and evaluation activities. .

11. CONCLUSIONS

11.1 Proposed activity

Tullow is planning to undertake an exploratory drilling project comprising a number of exploratory wells to verify the presence of oil and natural gas in the project area of interest which lies within Block 10BA. The proposed site is on the western side of Lake Turkana and covers Turkana Central and Turkana North. The location of the proposed exploratory well has not been determined. An area of interest has already been identified but the site will be finalized taking into account the various environmental factors that must be adhered to.

An access road will be constructed from the main road to the selected drilling site. This will involve clearing the existing cut-lines and minimal vegetation interference. A level area inside a perimeter berm will be prepared to accommodate a drilling rig with a camp to accommodate the rig crew.

The rigging-up process involves the transfer of the drilling rig and other components to the drilling site and offloading them by means of the winch and skid technique using cranes. The drilling rig to be used will depend on the anticipated well depth, geological formations, downhole pressure and any other complications that may arise during drilling. A drilling rig of size 1,500 HP is likely to be used. It is anticipated that the rotary drilling with mud method will be used for the project. The well will be straight hole / vertical since the selected project sites are sparsely populated and are not built up which would call for the use of horizontal drilling. The drilling fluid to be used in this project will be water based mud (WBM) which is prepared by mixing mud additives and chemicals on site to the desired concentration in fresh water.

WBM is pumped from the mud tanks on the pad down the hollow drill pipe and exits the drill string through holes in the drill bit. It sweeps cuttings from the drill bit up the space between the drill string and the wall of the well to the platform deck. The mud/cuttings mixture is passed through separation equipment that separates the cuttings from the drilling mud, which is returned to the mud tanks for recirculation down-hole.

When the well has been drilled, testing will be undertaken to confirm if the hydrocarbon is available in quantities that can warrant commercial production. This will involve flaring the gas and oil. Should there be limited hydrocarbons; the area may be suspended pending further development in the area in which case some of the drilling location may be retained for subsequent operations. Alternatively, the area may be abandoned and the hole will be plugged with cements and the area restored to viable grazing land.

11.2 Legal framework

This ESIA has been prepared by RSK, based in UK, and Earthview Geoconsultants Ltd, based in Nairobi taking account of the constitution of Kenya, the Environmental Management Co-ordination act and the EIA Guidelines and Administrative Procedures. This ESIA has also been informed by the Kenyan legislation, regulations, standards and international conventions that demonstrated how Tullow will implement good international oil industry practices.

11.3 Baseline conditions

Turkana County is situated in North Western Kenya. It borders West Pokot and Baringo Counties to the south, Samburu County to the South East, and Marsabit County to the East. Internationally it borders South Sudan to the north, Uganda to the west and Ethiopia to the north east. The County shares Lake Turkana with Marsabit County. The total area of the county is 68,680.3 Km² and lies between Longitudes 34⁰ 30' and 36⁰ 40' East and between Latitudes 1⁰ 30' and 5⁰ 30' North.

The physiography of the project area comprises open plains with dunes, mountain ranges and hills, Lake Turkana and rivers. The main mountain ranges are Songot and Suguta in the North and Loima and Lorengippi in the South of Block 10BA. The ranges support economic activities such as honey production, grazing during dry season, water catchment areas, wood and charcoal production.

Low lying plains such as Lotikipi and Kalapata form part of the arid area and receive the lowest amount of rainfall. The plains consist of dwarf shrubs and grassland, which provide forage for livestock during and shortly after rainy seasons.

The area has pristine and rugged scenic beauty with hills, extensive plains, several sand rivers (luggas), and the emerald Lake Turkana with its three volcanic islands that are important natural heritage sites. The tourism potential is quite high due to these aesthetic features, but is today still underexploited on account of the poor infrastructure of this remote area.

Water sources include Lake Turkana, influent rivers (Omo, Turkwel and Kerio) and luggas, and a few small dams and water pans. Lake Turkana is an expansive water reservoir with a surface area of 6,750 km², has an average depth of 35m, and is mainly fed by the Omo River which contributes about 95% of the Lake waters. The Omo originates in Ethiopia. The Lake has no outlet. Turkwel and Kerio rivers also drain into Lake Turkana.

The Lake's water is generally not suitable for drinking by either humans or livestock. The Lake water is characterized by high pH (8.6-10.6), high content of sodium and potassium, and high content of total dissolved solids. The Lake's water also has high amounts of silt. This makes the water not potable, unfit for long periods of livestock watering and unfit for irrigation.

The groundwater in the project area is exploited mainly through boreholes and shallow wells excavated in luggas and springs. They tend to have widely variable quality, from human-potable and livestock-potable to saline and non-potable. In the project area, water is readily obtainable from shallow wells dug in the riverbeds. During the rainy season the locals also dig holes in luggas to obtain water. The groundwater is sensitive to rainfall fluctuations, and during the dry season the water level in these wells falls rapidly.

For most of the year, an easterly wind (the Low Turkana Jet Stream) prevails and is particularly strong near the lakeshore especially on the western side of Lake Turkana around Todonyang. Wind in the area travels at an average speed of 11.5 kph east.

The vegetation of the project area belongs to the Somali-Masai eco-region, comprising of deciduous bushland and thicket, semi-desert grassland and bushland with *Acacia* spp., *Commiphora africana*, *Balanites aegyptiaca*, *Euphorbiaceae*, and abundant dryland taxa. The

fairly high alkali content of the Lake's waters greatly limits the range of species of vegetation along its shoreline. *Salvadora persica* forms a bushland on Central and South Islands. The grasses, shrubs and trees of the ecoregion are fire-tolerant because fires are frequent in the dry season. The area, especially in the market centres such as Kalokol and Lokitaung', is dominated by the alien shrub known as *Prosopis juliflora*.

Mammalian population have become severely depleted in the project area such that existing mammals are protected with parks such as Sibilo and South Island National Parks which do not lie within the project area of interest. The area, however, has Silver-backed jackals (*Canis mesomelas*) and spotted hyenas (*Crocuta crocuta*). There are small mammals such as Ground squirrels, African hares and Dwarf mongoose.

The semi-arid to arid climate in Block 10BA creates suitable environment for reptilian life and thus it is expected that many amphibian such as eastern Groove-crowned Bullfrog (*Haplobatrachus occipitalis*), Mascarene Rocket frog (*Ptychadena mascariensis*) and Cryptic sand frog (*Tomoptrena cryptotis*) and reptilian species such as Kenyan dwarf gecko (*Lygodactylus keniensis*), Short-necked skink (*Mabuya brevicollis*), and Semi-ornate snake (*Meizodon semiornatus*) are present.

A rich birdlife thrives in the block, with the majority of the birds observed being water birds and a few Palaearctic migrants like the yellow wagtail observed at the shores of Lake Turkana within the bird breeding site in Namakat Area.

Culture is the way of life of a people, their behaviours, beliefs systems, values, and symbols that they accept and that are passed on by communication and imitation from one generation to another. Culture exists in tangible and intangible forms. Tangible forms of culture consist of immovable heritage sites such as burial and memorial places and places of worship. The intangible forms of culture on the other hand are manifested in oral traditions and expressions including social practices, rituals and festive events.

The main indigenous communities inhabiting Turkana North and Central districts include the Turkana and Elmolo. These communities are said to have all along been responsible for the preservation and maintenance of traditional knowledge and practices that are highly relevant for the sustainable use of biodiversity of Lake Turkana.

11.4 Public consultations

The ESIA team undertook consultations with various groups in Turkana Central and Turkana North. During the ESIA, meetings, interviews and discussions were held with local communities, the leaders, government officials and the NGO officials. The following areas were covered; Lodwar, Kalokol, Lobolo, Loyoro Lomopus, Eliye Springs, Kataboi, Kalimapus, Katiko, Lomekwi, Kang'aki, Nachukui, Narengewoi, Lowarengak and Lokitaung. Interviews were also held with officials from National Museums of Kenya, Ministry of Energy and Petroleum and other interested individuals in Nairobi.

The concerns expressed included:

- Tullow activities in the area may be erratic hence this may interfere with the grazing patterns and water points;
- The project leading to environmental degradation;

- Tullow has absorbed the few security personnel in their (Tullow) project to secure their campsites. This has left the community prone to attacks without defence;
- Effect on water aquifers will leave the community more vulnerable and susceptible to prolonged drought and famine;
- Noise pollution and air pollution likely to arise from the rig operations may disrupt the existing state of tranquillity and low levels of air pollution;
- Influx of immigrants and rig workers to the area will lead to social disorder; introduction of prostitution; intermarriages; exploitation of local community members and school dropout cases in search of employment.

11.5 Impact assessment

Aspects of the proposed activities that are likely to affect baseline conditions in the project area include:

- the project footprint (access road, accommodation facilities and rig camp);
- the area within which dust may settle;
- the area in which air quality may be degraded as a result of a well test;
- the area within which noise may be audible;
- communities close to the drilling locations;
- the areas into which grazing herds may be displaced as a result of the basecamp or access roads;
- groundwater resources which may be degraded as a result of drilling or uncontained spillage;
- soils which may be degraded due to compaction and uncontained spillage; and
- the road network where construction traffic may result in a noticeable increase in traffic levels.

Project operations will affect air quality on a micro-scale, and in a transient manner, through exhaust emissions from vehicles and machinery as well as fugitive emissions (such as from leaking pipes and tubing, valves, connections, pump seals, compressor seals, pressure relief valves, tanks or open pits/containments, hydrocarbon loading and unloading operations, and poorly managed waste disposal and sanitary facilities).

There are several potential point and non-point sources of pollutants that can be generated during the life cycle of the project and that can lead to contamination of surface and ground water at site-specific and local scales. During construction of the access road(s), campsite and drill pad areas, fluid leakages (e.g. accidental spillage of fuel, and lubricants from vehicles and other machinery being used in the construction process) may occur, and could eventually contaminate surface and groundwater.

The proposed exploratory well drilling project shall involve mobilisation and transportation of equipment and machineries to the project site, an activity that will generate noise. Construction activities shall also generate noise. During drilling operations, the noise sources will be the rig, auxiliary equipment, and power generators, which shall all be within the rig site perimeter.

As a result of the proposed project, it is expected that different forms of wastes will be generated. Wastes would emanate from the drill rig site as well as the base camp. Wastes expected at the rig site include drill cuttings and drilling fluids.

The activities of the proposed project are feared by the community to lead to disturbance of gravesites, cutting down of special trees for initiation and other ceremonies and eroding the culture of the community due to influx of people from other areas. Tullow should consult the elders in the project area so that they can help locate grave sites and initiation places so that they are not interfered with in any way. The specific archaeological sites may not be interfered with since Tullow has incorporated the fossil avoidance procedure hence preserving the sites. These procedures should be followed to the later in case one comes across the sites or fossil finds.

11.6 Environmental and Social Management Plan

The Tullow Oil's Environmental Standards will apply to the planning and execution of the drilling project.

Before construction starts, the Tullow must ensure that all the necessary permits have been obtained and that engagement with key stakeholders has been initiated.

Tullow will carry out pre-construction surveys of the access road routes and the drilling location and take photographs to record the conditions before the project. Tullow will ensure that a Waste Management Plan (WMP), an Oil Spill Contingency Plan (OSCP) and an Emergency Response Plan (ERP) are provided to all subcontractors before work begins.

During construction operations Tullow and subcontractors' EHS personnel will carry out inspections to verify that the access road and drilling location are constructed with the minimum of disturbance to local communities. They will also verify that construction reduces the cutting of dense shrubs and trees and avoids blocking natural drainage channels. Tullow will require the contractor to implement controls on traffic and construction plant.

When the drilling rig is mobilised to the drilling location, Tullow will carry out an inspection of the rig camp, drilling rig and their respective environmental systems and document the findings.

During the drilling programme, the focus of environmental management is on routine inspection of the drilling location and checking that the equipment and procedures are effective and recording actual environmental performance parameters.

Once the well has been tested and verified to be commercially viable, it will be completed or suspended to allow for future production. If little / no hydrocarbons are detected, the well will be plugged and abandoned. Once the well has been plugged (with cement), the casing will be cut below the ground level and a plate, made of steel, welded to the top of the casing. If such a stage is reached, decommissioning and camp clearance will be conducted.

In order to minimize on the project's impact on socioeconomic issues, several management plans concerning stakeholder engagement, gender, employment, resettlement, indigenous people, health and safety, road safety and grievance mechanism plan should be developed. The plans should aim to avoid or minimise any potentially negative impacts on the socio-economic welfare of local communities, in line with national legislation, Tullow policies and the IFC standards.

Tullow and subcontractors will ensure implementation and adherence to mitigation measures outlined in the ESMP in order to minimise negative impacts on parameters of the environment.

11.7 Conclusion

The proposed exploration project will have both positive and negative impacts. The assessment of the environmental and social impacts has found that Tullow has committed to implement mitigation measures that are effective in eradicating the possible negative impacts. The ESMP developed in this report should be strictly adhered to in order to ensure that the project remains environmentally and technically friendly throughout its course.

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13.APPENDICES

APPENDIX 1: IMPACT SIGNIFICANCE DETERMINATION (WITHOUT MITIGATION)

A) DETERMINATION OF EVENT MAGNITUDE

Parameter	Impact Source	Receptor	Extent/ Scale	Frequency	Duration	Intensity	Magnitude	Event Magnitude
Physiography and Geology	Access road construction	Ground	1	1	1	1	4	5 (Medium)
	Rig site preparation and camp clearance	Ground	1	1	1	1	4	
	Improper handling of solid and liquid wastes generated	Human Soil, Ground and Surface water	1	1	1	1	4	
	Exploratory drilling	Ground	1	1	3	1	6	
	Total							
Soils	Construction of campsite	Ground	1	1	1	1	4	5 (Medium)
	Clearing vegetation and excavation of surface soils	Soil Human	1	1	1	1	4	
	Vehicular movement during operations	Ground	3	3	3	1	10	
	Oil or chemical leaks from vehicles, machinery, garage and storage areas	Soil, Ground and Surface water	1	1	1	1	4	
	Effluent leaks and/or contamination from waste pits	Soil, Ground and Surface water	1	1	1	1	4	
	Exploratory drilling	Ground	1	1	3	1	6	

Parameter	Impact Source	Receptor	Extent/ Scale	Frequency	Duration	Intensity	Magnitude	Event Magnitude
	Total						32/6	
Air Quality	Access road construction	Ground	1	1	1	1	4	4 (Low)
	Rig site preparation and camp clearance	Ground	1	1	1	1	4	
	Camp operations-sanitary facilities	Ground Human	1	1	1	1	4	
	Total						12/3	
Surface and ground water resources	Access road construction	Ground	1	1	1	1	4	5 (Medium)
	Rig site preparation and camp clearance	Ground	1	1	1	1	4	
	Wastes: Hazardous waste; Non-hazardous waste; Wastewater and other effluent discharges and drilling waste	Soil, Ground and Surface water Human	1	1	1	1	4	
	Camp operations	Ground Human	1	1	3	1	6	
	Exploratory drilling	Ground	1	1	3	1	6	
	Total						24/5	
Terrestrial Environment (Habitats, Flora and Fauna)	Access road construction	Ground	1	1	1	1	4	6 (Medium)
	Rig site preparation and camp clearance	Ground	1	1	1	1	4	
	Drilling waste: WBM and cement; and drill cuttings		1	1	3	1	6	
	Air emissions from engines, generator, flaring and venting of gas	Human Air	2	3	3	1	9	
	Noise and vibration	Human Ground	2	3	3	1	9	
	Total						32/5	
Aquatic Environment	Effluents and solid waste from camps	Soil, Ground and Surface	1	1	1	1	4	7 (Medium)

Parameter	Impact Source	Receptor	Extent/Scale	Frequency	Duration	Intensity	Magnitude	Event Magnitude
		water Human						
	Fuel and oil leakages from vehicles	Ground	3	3	3	1	10	
	Total							
Land Resources and Protected areas	Access road construction	Ground	1	1	1	1	4	6 (Medium)
	Rig site preparation and camp clearance	Ground	1	1	1	1	4	
	Exploratory drilling	Ground	1	1	3	1	6	
	Noise and vibration	Human Ground	2	3	3	1	9	
	Total						23/4	
Visual Aesthetics	Access road construction	Ground	1	1	1	1	4	5 (Medium)
	Rig site preparation and camp clearance	Ground	1	1	1	1	4	
	Waste	Soil, Ground and Surface water Human	1	1	1	1	4	
	Hazardous waste	Soil, Ground and Surface water Human	1	1	1	1	4	
	Non-hazardous waste	Soil, Ground and Surface water Human	1	1	1	1	4	
	Wastewater and other effluent discharges	Soil, Ground and Surface water	1	1	1	1	4	

Parameter	Impact Source	Receptor	Extent/ Scale	Frequency	Duration	Intensity	Magnitude	Event Magnitude
		Human						
	Drilling waste: WBM and cement; and drill cuttings	Soil, Ground and Surface water Human	1	1	3	1	6	
	Camp operations	Ground Human	1	1	3	1	6	
	Exploratory drilling	Ground	1	1	3	1	6	
	Impact sources associated with accidents; road accident, spills, blowouts and fires	Human Ground	3	3	3	1	10	
Total							52/10	
Noise and Vibrations	Construction operations	Ground Human	1	1	1	1	4	7 (Medium)
	Power generators	Human Ground	1	1	3	1	6	
	Vehicular noise pollution	Human	3	3	3	1	10	
	Total							
Solid and Liquid Wastes	Campsite operations	Ground Human	1	1	3	1	6	6 (Medium)
Occupational health and safety	Access road construction	Ground	1	1	1	1	4	7 (Medium)
	Campsite operations	Ground Human	1	1	3	1	6	
	Exploratory drilling	Ground	1	1	3	1	6	
	Air emissions from engines, generator, flaring and venting of gas	Physical (ground and air)	2	3	3	1	9	
	Noise and vibration	Human	2	3	3	1	9	
	Impact sources associated with accidents; road accident, spills, blowouts and fires	Human Ground	3	3	3	1	10	
Total							44/6	
Security and	Workforce influx	Human	3	3	3	1	10	10

Parameter	Impact Source	Receptor	Extent/ Scale	Frequency	Duration	Intensity	Magnitude	Event Magnitude
Public Safety								(High)

B) DETERMINATION OF RECEPTOR SENSITIVITY

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity
Physiography and Geology	Access road construction	Physical Receptor/ Feature (Ground):	2	2	4	4	4 (Medium)
	Rig site preparation and camp clearance	Physical Receptor/ Feature (Ground):	2	2	4		
	Improper handling of solid wastes generated	Physical Receptor/ Feature (Ground):	2	2	4		
	Exploratory drilling	Physical Receptor/ Feature (Ground):	2	2	4		
	Total					16/4	
Soils	Construction of campsite and associated facilities	Soil	3	3	6	3	3 (Medium)
		Ground Water	1	1	2		
		Surface Water	1	1	2		
	Total					10/3	
	Clearing vegetation excavation of surface soils	Soil	3	3	6	3	
		Ground Water	2	2	4		
		Surface Water	2	2	4		
Total					10/3		
Vehicular movement during project operations	Soil	2	2	4			
	Ground Water	1	1	2			

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity
		Surface Water	1	1	2	3	
	Total				8/3		
	Oil or chemical leaks from vehicles and machinery, garage and storage areas	Soil	3	3	6	4	
		Ground Water	1	1	2		
		Surface Water	2	2	4		
	Total				12/3		
	Effluent leaks and/ or contamination from waste pits	Soil	3	2	5	3	
		Ground Water	1	1	2		
		Surface Water	2	1	3		
	Total				10/3		
Exploratory drilling	Soil	1	1	2	2		
	Ground Water	1	1	2			
	Surface water	1	1	2			
Total				6/3			
Air Quality	Access road construction	Biological/Ecological	2	2	4	3	2 (Low)
		Human	2	2	4		
		Soil	1	1	2		
		Ground water	1	1	2		
		Surface Water	1	1	2		
	Total				14/5		
	Rig site preparation and camp clearance	Biological/Ecological	2	1	3	2	
		Human	2	1	3		
Soil		1	1	2			

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity	
		Ground Water	1	1	2			
		Surface Water	1	1	2			
	Total					12/5		
	Camp operations-sanitary facilities	Biological/Ecological	2	1	3	2		
		Human	2	1	3			
		Soil	1	1	2			
		Ground Water	1	1	2			
	Surface Water	1	1	2				
Total					12/5	7/3=2		
Surface and Groundwater Resources	Access road construction	Biological/Ecological	2	2	4	5		
		Human	2	2	4			
		soil	3	3	6			
		Ground Water	2	1	3			
		Surface Water	3	3	6			
	Total					23/5		
	Rig site preparation and camp clearance	Biological/Ecological	3	2	5	5		
		Human	3	3	6			
		Soil	2	3	5			
		Ground Water	2	2	4			
		Surface Water	2	2	4			
	Total					24/5		
	Wastes: hazardous waste; non-hazardous waste;	Biological/Ecological	3	3	6		5 (High)	

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity	
	wastewater and other effluent discharges and drilling waste: WBM and cement; and drill cuttings	Human	3	3	6	6		
		Soil	3	3	6			
		Ground Water	3	3	6			
		Surface Water	3	3	6			
	Total					30/5		
	Camp operations	Biological/Ecological	3	3	6	6		
		Human	3	3	6			
		Soil	3	3	6			
		Ground Water	3	3	6			
		Surface Water	3	3	6			
	Total					30/5		
	Exploratory drilling	Biological/Ecological	1	1	2	5		
		Human	3	2	5			
		Soil	3	3	6			
		Ground Water	3	3	6			
Surface Water		3	3	6				
Total					25/5	27/5=5		
Terrestrial Environment(Habitat, Flora and Fauna)	Access road construction	Biological/Ecological	3	2	5	5		
		Human	3	2	5			
		Soil	3	2	5			

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity	
		Ground Water	2	1	3		4 (Medium)	
		Surface Water	3	2	5			
	Total					23/5		
	Rig site preparation and camp clearance	Biological/Ecological	3	3	6	5		
		Human	3	3	6			
		Soil	3	2	5			
		Ground Water	1	1	2			
		Surface Water	2	2	4			
	Total					23/5		
	Drilling waste: WBM and cement; and drill cuttings	Biological/Ecological	3	3	6	5		
		Human	3	2	5			
		Soil	3	3	6			
		Ground Water	2	2	2			
		Surface Water	3	3	6			
	Total					25/5		
	Air emissions from engines, generator, flaring and venting of gas	Biological/Ecological	3	2	5	4		
		Human	3	2	5			
		Soil	3	2	5			
		Ground Water	1	1	2			
		Surface Water	3	2	5			
	Total					22/5		
	Noise and vibration	Biological/Ecological	3	2	5			

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity
		Human	3	2	5	3	
		Soil	2	1	3		
		Ground Water	1	1	2		
		Surface Water	1	1	2		
		Total			17/5		
Aquatic Environment	Effluents and solid waste from camp	Biological/Ecological	3	3	6	5	5 (High)
		Human	3	3	6		
		Soil	2	2	4		
		Ground Water	2	2	4		
		Surface Water	3	3	6		
	Total			26/5			
	Fuel and oil leakages from vehicles	Biological/Ecological	3	2	5	4	
		Human	3	2	5		
		Soil	2	2	4		
		Ground Water	1	1	2		
Surface Water		3	2	5			
Total			21/5	9/2=5			
Land Resources and Protected Areas	Access road construction	Biological/Ecological	3	2	5	4	
		Human	3	2	5		
		Soil	1	2	3		
		Ground Water	1	2	3		
		Surface Water	3	2	5		
		Total					
						4	

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity
	Total				21/5		(Medium)
	Rig site preparation and camp clearance	Biological/Ecological	3	3	6	4	
		Human	3	3	6		
		Soil	2	1	3		
		Ground Water	1	1	2		
		Surface Water	3	2	5		
	Total				22/5		
	Exploratory drilling	Biological/Ecological	1	1	2	3	
		Human	3	3	6		
		Soil	2	1	3		
		Ground Water	1	1	2		
		Surface Water	3	1	4		
					17/5		
	Noise and vibration	Biological/Ecological	1	1	2	3	
		Human	2	3	5		
Soil		2	1	3			
Ground Water		1	1	2			
Surface Water		1	1	2			
Total				14/5	14/4=4		
Visual Aesthetics	Access road construction	Biological/Ecological	2	1	3	3	
		Human	2	1	3		
		Soil	2	1	3		
		Ground Water	1	1	2		

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity
		Surface Water	3	1	4		3 (Medium)
	Total				15/5		
	Rig site preparation and camp clearance	Biological/Ecological	3	3	6	4	
		Human	3	3	6		
		Soil	1	1	2		
		Ground Water	1	1	2		
		Surface Water	1	1	2		
	Total				18/5		
	waste	Biological/Ecological	1	1	2	2	
		Human	1	1	2		
		Soil	1	1	2		
		Ground Water	1	1	2		
		Surface Water	1	1	2		
	Total				10/5		
	Hazardous waste	Biological/Ecological	2	2	4	3	
		Human	2	3	5		
		Soil	1	1	2		
Ground Water		1	1	2			
Surface Water		1	1	2			
Total				15/5			
Non-hazardous waste	Biological/Ecological	1	1	2	2		
	Human	1	1	2			
	Soil	1	1	2			

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity
		Ground Water	1	1	2		
		Surface Water	1	1	2		
		Total			10/5		
	Wastewater and other effluent discharges	Biological/Ecological	2	1	3		
		Human	3	2	5		
		Soil	1	1	2	3	
		Ground Water	1	1	2		
		Surface Water	1	1	2		
		Total			14/5		
	Drilling waste: WBM and cement; and drill cuttings	Biological/Ecological	1	1	2		
		Human	1	1	2		
		Soil	1	1	2	2	
		Ground Water	1	1	2		
		Surface Water	1	1	2		
		Total			10/5		
	Camp operations	Biological/Ecological	2	2	4		
		Human	2	2	4		
		Soil	1	1	2	3	
		Ground Water	1	1	2		
		Surface Water	1	1	2		
	Total			14/5			
Exploratory drilling	Biological/Ecological	1	1	2			
	Human	2	2	4			

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity	
		Soil	1	1	2	2		
		Ground Water	1	1	2			
		Surface Water	1	1	2			
	Total					12/5		
	Impact sources associated with accidents; road accident, spills, b(Low)outs and fires	Biological/Ecological	2	2	4	3		
		Human	3	3	6			
		Soil	1	1	2			
		Ground Water	1	1	2			
		Surface Water	1	1	2			
	Total					16/5		27/10=3
Noise and Vibrations	Construction operations	Biological/Ecological	2	2	4	3		
		Human	2	2	4			
		Soil	1	1	2			
		Ground Water	1	1	2			
		Surface Water	1	1	2			
	Total					14/5		
	Power generations	Biological/Ecological	2	2	4	3		
		Human	2	2	4			
		Soil	1	1	2			
		Ground Water	1	1	2			
Surface Water		1	1	2				
Total					14/5			
Vehicular noise	Biological/Ecological	3	3	6		4 (Medium)		

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity
	pollution	Human	3	3	6	4	
		Soil	1	1	2		
		Ground Water	1	1	2		
		Surface Water	1	1	2		
	Total				18/5	13/3=4	
Solid and Liquid Wastes	Campsite operations	Biological/Ecological	2	1	3	5	5 (High)
		Human	3	3	6		
		Soil	3	3	6		
		Ground Water	3	2	5		
		Surface Water	3	2	5		
Total				25/5	5/1=5		
Occupational Health and Safety	Access road construction	Biological/Ecological	2	2	4	3	3 (Medium)
		Human	3	3	6		
		Soil	1	1	2		
		Ground Water	1	1	2		
		Surface Water	1	1	2		
	Total				16/5		
	Camp operations	Biological/Ecological	3	3	6	4	
		Human	3	3	6		
		Soil	1	1	2		
Ground Water		1	1	2			
		Surface Water	1	1	2		

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity
	Total				18/5		
	Exploratory drilling	Biological/Ecological	2	1	3	2	
		Human	1	1	2		
		Soil	1	1	2		
		Ground Water	1	1	2		
		Surface Water	1	1	2		
	Total				11/5		
	Air emissions from engines, generator, flaring and venting of gas	Biological/Ecological	3	2	5	3	
		Human	2	2	4		
		Soil	1	1	2		
		Ground Water	1	1	2		
		Surface Water	1	1	2		
	Total				15/5		
	Noise and vibration	Biological/Ecological	2	2	4	3	
		Human	2	2	4		
		Soil	1	1	2		
		Ground Water	1	1	2		
		Surface Water	2	1	3		
	Total				15/5		
	Impact sources associated with accidents; road accident, spills, b(Low)outs and fires	Biological/Ecological	1	1	2	2	
Human		2	2	4			
Soil		1	1	2			
Ground Water		1	1	2			

Parameter	Impact Source	Receptor	Presence	Resilience	Total	Average	Receptor Sensitivity
		Surface Water	1	1	2		
	Total				12/5	17/6=3	
Security and Public Safety	Workforce influx	Human	2	2	4	4	4 (Medium)

APPENDIX 2: NOTES OF STAKEHOLDER CONSULTATION MEETINGS

STAKEHOLDERS MEETING FOR GOVERNMENT OFFICIALS ON 1/08/2013 AT COUNTY PALACE HOTEL IN LODWAR

The meeting started with a word of prayer from Linda Were (SIA team). Prof Olago then asked the participants to introduce themselves. After the introduction he requested the participants to allow photos and video to be taken because they will aid in report writing. The stakeholders agreed. Prof Olago presented to the stakeholders the activities that will be involved in the drilling process and asked the participants to feel free to give their views and opinions about the proposed project.

The following are the concerns that were raised

Nature of Concern	Concern	Response
Question	One member wanted to know if production will be done at the same site.	Oil is usually produced from a well field as one point is not sufficient. During the oil production stage, there are issues of storage, construction of pipelines, oil refinery, oil deposits as well as enhanced airstrips which will require a separate ESIA.
Question	They wanted to know how many wells will be drilled.	The number would be determined by the oil drilling company. The well drilling will give the experts an overview of the characteristics of the area which has the potential of producing oil.
Question	Some members mentioned that land in Turkana belongs to the community who are pastoralists hence they wanted to know what plans were in place to make sure that the grazing lands are not interfered with.	Members were informed that seismic survey covers a huge land where the sedimentary basins have been identified. The drilling operation is usually point specific, and the area where the drilling will take place will be about 450 meters by 250 meters. In terms of impacts, we are looking at the specific views or opinions. When the process comes to oil production stage, another EIA will be done. If the pastoralists have a problem, then recommendations could be made for the pipeline to pass underground
Question	They also wanted to know whether drilling will be done on the lake.	The stakeholders were told that Tullow's interest was onshore drilling according to

Nature of Concern	Concern	Response
		the deposits present in the area. At the moment, there will be no drilling on the lake.
Question	They also wanted to know how experts come to a conclusion that oil has been found in a certain area and whether it is commercially viable.	They were informed that it depended on the flow rate of the oil. For instance, oil has been found in Lokichar basin but they are still at the exploratory stage.
Question	Members also mentioned that there was already resistance from locals in block 10BB and they wanted to know some of the mitigation measures being put in place.	They were told that Earthview was concerned about ESIA and not to act on behalf of Tullow.

After raising their concerns, the stakeholders were requested to fill in the environmental questionnaires and also to participate in key informant interviews. The stakeholders participated and thereafter, the meeting ended with a word of prayer from the SIA team.

Meeting with Government officials
at County palace, Ham

1st August 2013

**STAKEHOLDERS MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING**

List of Attendance

NO	NAME	INSTITUTION	CONTACT	SIGNATURE
1	VICTOR LEWATA	Mining Planning	0721862804	[Signature]
2	MALIBARI MANDORI	Development	072078220	[Signature]
3	YAMAEIWA LOVAI	TULLOW Co.	072639113	[Signature]
4	Jabuna Kaboo	WRD	072425401	[Signature]
5	JOHN D. MALALA	KMPRI	0710483520	[Signature]
6	DUNCAN M. SARISI	DCP	0710463295	[Signature]
7	KEVIN D. OBIRO	KMPRI	0723518505	[Signature]
8	CHRISTOPHER AJBLE	LIVESTOCK	0729207266	[Signature]
9	MICHAEL K. SAMBI	FICHEMS	0724451881	[Signature]
10	PAUL ALEX LUKINWENDA	FINANCIAL	0985051304	[Signature]
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MEETING WITH NGO STAKEHOLDERS AT 10.30AM AT COUNTY PALACE, LODWAR 2ND AUGUST 2013

Introduction

The meeting began with a word of prayer from the SIA team. The stakeholders and Earthview staff present introduced themselves. Prof. Olago did a power point presentation on the process of exploratory well drilling. He told the stakeholders to feel free and give their views and opinions on the proposed project. He also asked the stakeholders to allow photos and videos be taken because they would aid in report writing. The stakeholders agreed to this. Comments and questions included the following;

Nature of Concern	Concern	Response
Question	The stakeholders wanted to know whether explosives would be used during the process.	They were informed that the project had major funding from World Bank and hence they were adhering to high quality standards and had adopted the current technology.
Question	One stakeholder mentioned that most of the countries that produce oil are faced with major conflicts and what will the government do if such was the case.	They informed that the SIA team had social scientists that can help understand better the methods of conflict resolution. However, no response would be given right away since no conflict had occurred in the area so far due to oil exploration.
Question	One member wanted to know how land and vegetation that is cleared during the drilling process is valued.	The stakeholders were told that ESIA report just makes some recommendations on various issues. Other experts such as lawyers and land valuers are involved in the process of compensation.
Concern	One member mentioned that the current reports had not talked about forest destruction and she wanted to know what happens when a company takes on a new site for its operations.	They were informed that ESIA are not prescriptive and issues of compensation and deaths cross cut many aspects of law in Kenya. ESIA requires that mechanisms should be put in place to deal with issues developed by the company and the community members. They were informed that Earthview does not have any legal mandate to mention on compensation.
Question	Another member wanted to know whether the locals would be part of the ESIA team.	They were informed that Tullow CLO can translate and that young people would be trained in the interior to assist

Nature of Concern	Concern	Response
		in administering the household questionnaires in their local area.
Question	One member wanted to know if there were any plans to conduct a hydrological survey.	They were informed that Earthview had no capacity to do such surveys and that they could only give recommendations that the aquifers should not be affected.
Question	They wanted to know whether the community would benefit from the drilling process.	They were informed that there was a component of corporate social responsibility captured in the ESIA which is compiled from the views and opinions of the community members on what they want the oil company to do for them.
Concern	One member wanted to know if Tullow had HIV work related policies in place for the employees and if there was a plan to work with the existing health facilities.	They were informed that most of the employees in the camp have 6am-6pm strict rule. All the restrictions are in place. They were also told that Tullow can use the local health facilities if they are not strained for instance, treating of snake bites. And that in many cases, Tullow have their own paramedics.
Concern	They wanted to know what plans were there to ensure that rehabilitation is done after the seismic survey has been completed.	They were informed that vibroseis machine uses low impact tyres and the trucks are not allowed to be driven at high speed within the project area. Most the areas take between 6 months and 5 years to be completely rehabilitated. In addition, mulchers are used.
Concern	One member mentioned that trees were cut down in some places and they wanted to know how they would go about the issue.	They were told that once such a thing happens, the case should be reported to Tullow. In addition, seismic audits are coming up in 10BB to monitor Tullow activities. These audit reports go to NEMA. Thus, we work for the government to ensure that Tullow has laid-out procedures to protect the

Nature of Concern	Concern	Response
		environment and are followed.
Concern	One member wanted to know whether Tullow would carry out some social investment projects.	They were informed that there is a component of corporate social responsibility captured in the ESIA which is compiled from the views and opinions of the community members on what they want the oil company to assist them.
Concern	One member mentioned that the BGP camp is an attraction for children to get food.	They were informed that Earthview was mandated to do ESIA and not comment on Tullow activities.
Comment	One member wanted some comments on demobilization.	They were told that demobilization plan is done and sent to NEMA and has to be implemented once the project is done. Later, experts are sent to monitor the demobilization process.
Concern	One member mentioned that previously the consultants have not taken time to involve the community members. "Let's explore community participation from the grassroots level; let's participate and suffer together."	They were informed that ESIA was going to be inclusive because several methods such as focus group discussions, household surveys and public meeting were going to be used to meet the community.
Concern	One member mentioned that on leasing land, in Block 10BB, nobody has given the community information on the size of land that has been given to Tullow. In addition the Tullow movement plans are not known to the public hence these movements interfere with their grazing patterns and water points. They wanted to know the size of Block 10BA.	They were informed that the entire block covers the lake. The data should be generated for the whole block as required by PSC. In case, the oil companies have an interest in the lake, they will do a proposal which will require another separate ESIA to be done. In addition, the company is given conditions for working in certain area. The country is divided into blocks. The land belongs to the government and Tullow does not own land. If they take any piece of land for use, compensation should be done according to the act. Hence, there is no land

Nature of Concern	Concern	Response
		ownership in the area. It's a prospecting license and not a land title. If Tullow does not undertake any work for the time allotted to them in a particular area then the license is sold to another company.
Recommendation	One member mentioned that in some of the EIA reports, some of the responses at the back of the report look similar. Other people listed as interviewed in the report claim that they were not interviewed. Everyone's timing and availability for the interviews need to be put into consideration. The pastoralist's timing is different from the women's timing. Hence, the context and the content of the people to be interviewed need to be considered when doing ESIA.	They were informed that Earthview follow all the steps and try as much as possible to meet the communities in their context. They were also informed that the activities would take almost a month hence all the views of the people would be captured.
Concern	One member mentioned that they feared their land might be contaminated in the process.	They were informed that environment and development are inter-linked and that the best is done to minimize the negative impacts and where they occur we recommend the mitigation measures to be undertaken. For instance, mitigating the impacts of carbon dioxide on the environment. The earth is dynamic and we need to agree on what types of activities to accept or not. The reports show that oil has been found in Lokichar basin. Be assured that there will be no contamination with the current technology in use. We agree that technology has its risks and accidents do happen. However, when it comes to development projects there is some level of risks that the people should be willing to accept.

Additional Responses

- Prof. Opiyo informed the stakeholders that he is involved in another project where they are also prospecting for water. In the near future, water will not be a problem in Turkana. Water has been found in Lotikipi basin. In addition he informed them that Earthview had a big team comprising of social and environmental experts needed to do a good ESIA. EIAs are shared and wide consultations are needed. He also informed them that their contacts had been taken and so they would be informed when the reports are ready for public commentary.
- They were informed that the entire block covers the lake. The data should be generated for the whole block as required by PSC. In case, the oil companies have an interest in the lake, they will do a proposal which will require another separate ESIA to be done. In addition, the company is given conditions for working in a certain area. The country is divided into blocks. The land belongs to the government and Tullow does not own land. If they take any piece of land, compensation should be done according to the act. Hence, there is no land ownership in the area. It's normally called a prospecting license and not a land title. If Tullow does not undertake any work for the time allotted to them in a particular area then the license is sold to someone else.
- During Oil exploration, oil can be found or not. If not the area is demobilized. Oil has been found in Turkana, hence the Company can move to oil production stage after obtaining a license. Another ESIA will be done for the Oil production including the construction of good roads and wide consultation with foreign governments who are involved in the process.
- The stakeholders were also informed that normally the report is synthesized and validation is by reviewing the report. Once the report is submitted to NEMA then the public is invited to give comments about the report before it is endorsed by NEMA.
- NEMA officer reported lack of experts in Turkana to carry out EIAs.

After the responses were given by Prof. Olago, the members were requested to participate in filling in the environmental questionnaires and to be interviewed briefly about the project. The stakeholders agreed and participated and finally the meeting ended with a word of prayer from SIA team.

NGO officials 2nd August 2013 at County Palace Hotel Lodwar

STAKEHOLDERS MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	INSTITUTION	CONTACT	SIGNATURE
1	Kamukha Islem	At imaxicha	0718853990	[Signature]
2	James Ochi	Heritage Int'l	0723254278	[Signature]
3	Ignatius Lokoi	CLD Tullow	0726291131	[Signature]
4	Ikad Ang'alla	FOAT	0722343160	[Signature]
5	Ematho Nkamur	CEZAM-UCADF	0725254253	[Signature]
6	Peter Achelei	SAPCON	0707584536	[Signature]
7	Elivud Emen	TURKANA	071572196	[Signature]
8	ARIPATI LUCAS	Turkana	?	[Signature]
9		Civil		
10		Society	0702880853	[Signature]
11		platform	0702880853	
12	Peter LOCHUCH	CHILDREN KING	0722-702-348	[Signature]
13	ERIC WAREWA	EGIPAF	0719111496	[Signature]
14	Stephen Njau	World Vision (K)	0723129905	[Signature]
15	Sammy Ekai	TURKANA	0715776561	[Signature]
16	David Kamau	WFP	0707324240	[Signature]
17	DAVIDA WAKI	IAIS	0710603225	[Signature]
18	RICHARD KERING	NEMA	071231294	[Signature]
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MEETING WITH THE MEMBERS OF TURKANA COUNTY ASSEMBLY (MCAS) ON 2nd AUGUST 2013 AT COUNTY PALACE HOTEL.

TIME: 3.00PM

Prof Olago welcomed the participants to the meeting and asked for a word of prayer. He then explained the EMCA requirements and the drilling process. After the presentation the participants were asked to give their views concerning the project. They were also requested that photos and videos be taken so as to aid in report writing.

Question/concerns

Nature of Issue	Issue	Response
Concern	<p>MCA deputy leader of the majority raised a number of issues concerning Tullow and these included:</p> <ul style="list-style-type: none"> • Displacement • Environmental degradation • Employment being exported and the various contracts being awarded to foreigners (people not from Turkana region). • He felt that the local people do not gain from Tullow activities. • Cited that Tullow has meagre CSR • He also mentioned that Turkana faces a security shortage because the available security personnel are absorbed by Tullow and other local multinational companies. <p>The Deputy Governor was full of praise for the meeting quoting that other projects lacked such meetings that inform the locals.</p> <p>He also encouraged Earthview to write a detailed report that will capture as many views as possible.</p> <p>He encouraged the participants to engage Earthview as much as they can.</p> <p>He asked Earthview to be open for any information that will enrich their understanding.</p> <p>Lastly, he asked for a debrief</p>	<p>SIA team will note down their concerns.</p> <p>Tullow, through CLO, agreed to engage the local input in sub-contracting the locals.</p>

Nature of Issue	Issue	Response
	in the form of a report to show the findings.	
Concern	<p>MCA from Kibish stressed on the need for security now that the Block 10BA borders Ethiopia to the North.</p> <p>Mentioned that the project might lead to environmental degradation.</p> <p>And that the devolution has brought hiccups in terms of the process and roles that the officials have to play.</p> <p>He also mentioned that the side effects should also be captured as they are being sensitized.</p>	All the views were captured.
Concern	<p>The youth affairs representative mentioned that the issue of language barrenness in the interior and that it would be tough for the locals in such areas to successfully fill in the household questionnaires.</p>	<p>She was informed that Earthview will employ the locals to help fill in the questionnaires and to translate.</p>
Concern	<p>A nominated member of county assembly asked how the disabled will gain from Tullow activities. She also requested for the training and inclusion of the disabled so that they can benefit from the project.</p>	<p>They were informed that all the views would be put in the report and forwarded to Tullow.</p>
Concern	<p>Another member said that NEMA has never sent them any reports. He also said that the rig makes a lot of noise and shakes the ground and this makes people terrified. He also said that the seismic team carrying out survey in the lake and this makes the fish to migrate away. Lastly, he mentioned that the reports that they receive about Tullow Oil on the ground are alarming and that they are getting worried.</p>	<p>The environmental officer mentioned that the stakeholders do not ask for the EIA reports which are in his office and therefore they should accuse anybody of not getting reports</p> <p>They were also informed that negative impacts should be deliberated by the stakeholders as the slides are being presented. Some of the negative impacts might be as a result of the camp and drilling process. Tullow, however,</p>

Nature of Issue	Issue	Response
	<p>Wanted to know the benefits that will be accrued to the people and the negative aspects of the project.</p> <p>He cited that the security is getting compromised and that the majority of the KPR go to the camps to seek for employment.</p> <p>He asked to be clarified on the potential of an Oil spill.</p>	<p>minimizes the effects as much as possible and some of the ways include casing the drilling hole to prevent aquifer pollution. The drilling mud is also buried within the site to prevent any contamination and the use of up-to-date equipment.</p>
Clarification	<p>Another member wanted to know if Earthview is being funded by Tullow or government if the latter, are there chances of biasness when writing a report?</p>	<p>On issues of reports and funding the participants were told that according to the EMCA 1999, the proponent should cater for the fees of the consultant but the report is sent to NEMA for deliberation. He was also told that some copies will be sent to the County Commissioner and the public will be given some time to respond to the report.</p>
Concern	<p>Asked for the inclusion of Turkana in Earthview Company and wanted to know the exact location of the exploration site.</p>	<p>On employment, the members were informed that Earthview as a consultancy firm employs a limited number of personnel and when in the field, they try to absorb the locals to do other errands. He was told that Oil spill is usually a function of using outdated machines.</p>
Concern	<p>Asked Earthview to include the terms of employment in the report by Tullow company since they felt that they might be locked out of employment.</p>	<p>This request will be considered.</p>

After the deliberations and discussion about the project, the stakeholders were requested to fill in the environmental questionnaires and also be interviewed shortly about the proposed project. This was done and finally the meeting ended at 5.30pm.

County Palace Lodwar at 3pm on 2nd Aug 2013

MEMBERS OF COUNTY ASSEMBLY & DEPT GOVERNOR
STAKEHOLDERS MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	INSTITUTION	CONTACT	SIGNATURE
1	HON SARAH KAATHO	PWD REP	0712846080	[Signature]
2	HON CONCEPTA L ETANN	NOMINATED MCA	0704266511	[Signature]
3	HON David Ataya	MCA Kibabwi	0701830766	[Signature]
4		LOBFI	↓	
5	HON REBECCA A. RIBKON	NOMINATED		
6	HON REBECCA SPACKLONGETZ	M.C.A. KALRO	0718221464	[Signature]
7	HON Margaret Lobuk	M.C.A	0716383288	[Signature]
8	HON Margaret Eramram	M.C.A	0722625366	[Signature]
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10	HON REBECCA LONGOTZ	M.C.A	0715515640	[Signature]
11	HON Naomi Engang	MCA Youth Rep	0713055005	[Signature]
12	HON NATAN LONDOKAI	MCA-MARAKA	0722586474	[Signature]
13	HON James Henry Londei	MCA-Kericho	071335115	[Signature]
14	HON EWOL MICHAEL	MCA-LAPUR	070046113	[Signature]
15	HON NICHOLAS EWOL	MCA-MARAKA	070024418	[Signature]
16	HON BERNARD E. KISO (MCA)	TURKANA COUNTY ASSEMBLY	072944219	[Signature]
17	HON JACINTA A. MARAKA	MCA LAPUR	0729876857	[Signature]
18	HON MOSES LONDONGE	MCA LAKEZON	0725158258	[Signature]
19	HON MARYSTELLA E. EKUNDU	M.C.A LAPUR	0714009015	[Signature]
20	HON LOUIS NACHERE I OENYA	M.C.A LAKEZON	0718482259	[Signature]
21	HON JACOB MARIKA JAM	MCA KIBISHI	0725261281	[Signature]
22	HON JOHN LOLOMO	MCA KIBISHI	0728286507	[Signature]
23	HON SELINA LAKEDE	M.C.A. LAKEZON	0716640507	[Signature]
24	HON IMANA PATELE	County Assembly of Turkana	072988612	[Signature]
25	HON JACKSON LOMOT	MCA LOMOT	072021490	[Signature]
26	H.E. PETER LAKOAT	Republic of Kenya		[Signature]
27				
28	Sammy Lokon	P.A	0710388796	[Signature]
29	HON Rhonda Anne Loyot	MCA-KERICHO	072053062	[Signature]
30	MEE CAMAL	DRIVER	0711446400	[Signature]
31	Ignatius Lokoi	Choi Tullow	0711446400	[Signature]
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MINUTES FOR THE PUBLIC MEETING HELD AT KALOKOL ON 4TH AUGUST 2013 AT TURKANA FISHERMEN COOPERATIVE SOCIETY HALL AT 3.00PM.

PRESENT:

- Chief Kalokol- Mr. Samuel Lokoel
- 40 Community member
- 6 SIA team
- 2 Tullow CLO

The meeting started with a word of prayer from Riziki Sarah (SIA team). The chief then welcomed the people for the meeting and asked the SIA team to introduce themselves. After the introductions Riziki gave introductory remarks by explaining the EMCA regulations and asked the community members to take photos and recordings of the proceedings so as to aid in report writing. The members agreed that photos and video recordings can be taken, Erick one of the SIA member explained the drilling process. After the presentation Linda asked the community to raise any concerns or questions about the proposed project.

The following are the concerns raised by the community members

Nature of issue	Concern	Response
Suggestions	They requested Tullow to assist in the following ways: <ul style="list-style-type: none"> • Bursaries • Drilling boreholes for the community • Roads construction • Grants to be given to self help groups 	The community was assured that all the proposals would be included in the report.
Complain	They were concerned that Tullow promised to provide water to the locals and yet nothing has happened. They also said that the current committee that was formed to represent the community in Tullow is very corrupt and does not represent the views of the community.	The Tullow CLO, Mr. Ignatius Lokai, informed the community that a water borehole had been drilled in Kataboi and bursaries to children had been given out to the Diocese of Lodwar and other promised projects were still in the pipeline of delivery.
Question	They wanted to know what will happen to the grazing lands that will be affected by the proposed project.	SIA team mentioned that the proposed project will occupy a small piece of land and will be rehabilitated on completion.
Complain	One member mentioned that there is family that was affected by the vibrations during seismic in Nachukui and it had not been compensated yet.	The Tullow CLO told the community members that the said family had already been compensated and there is no damage caused by Tullow that has not been compensated so far.
Complain	One member mentioned that	Ignatius, the Tullow CLO

Nature of issue	Concern	Response
	Tullow always held meetings in the area with a lot of promises but nothing so far has been done in Kalokol. She mentioned that Tullow had built a primary school in Nachukui, drilled water in Kataboi and offered school bursaries but apparently members of the community of Kalokol had not benefited anything.	thanked the members for noticing what Tullow had done in Turkana and said that all the scholarships were being handled by Lodwar Catholic diocese and Tullow in conjunction with AMREF had built Toilets along the beach in Kalokol. He also said that the other promised things like boats were still being made in Mombasa and will be given to the fishermen once they are finalized. He added that Tullow had ways of implementing their projects and it would take some time before they are fully implemented.
Proposition	Land in Turkana is communally owned and people don't have title deeds hence Tullow should make sure that before the proposed project starts, the owners of the particular piece of land are talked to and negotiations made with Tullow.	The SIA team assured the community members that their recommendations were well noted and would be included in the report.
Question	The members wanted to know the time period of the project.	They were informed by the SIA team that drilling operation will take place for three to four months.
Question	They were concerned whether there will be any wells drilled in the lake.	They were informed that no drilling would take place in the lake.
Question	They were concerned whether people will be displaced during the drilling.	The SIA team informed them that at this stage there will be no displacement of people.
Suggestion	One member mentioned that the committee that will be formed should stay out of the camp so that they can channel their complaints better. In addition they also said that the committee should have their leaders; member of county assembly, the chief and the local leaders and in case the member of county assembly is replaced during general elections then he or she should	They were assured that all the recommendations and suggestions will be included in the report.

Nature of issue	Concern	Response
Recommendation	<p>be replaced immediately.</p> <p>The Member of the county assembly mentioned that the chief, assistant chief, village elders and the MCA should be fully engaged in Tullow activities that touch on the community. He also mentioned that compensation should be calculated by experts such as valuers so that people are not economically ripped-off. In addition he said the compiled report should be given to the public and communicated to the communities through <i>barazas</i> and local radios. He also suggested that the reports should be taken to the Governor's office because it will be easier to access it.</p>	<p>They were assured that all the recommendations and suggestions will be include in the report.</p> <p>The SIA team mentioned that after the report is compiled it is taken to NEMA then NEMA can distribute to the commissioners' offices.</p> <p>It was mentioned that Earthview did not have the mandate to distribute the report but would make a recommendation to the relevant institutions.</p>
Concern	<p>One member mentioned that he read in a local newspaper that oil will be transported to Mombasa for refining hence "their oil" would be celebrated by other people. He added that this would bring friction between the Turkana and the government. He added that refining the oil should be done in Turkana and if not he wanted to Know how they stood to benefit.</p>	<p>The SIA team mentioned that exploratory drilling was the third stage and in case oil quantities are found that are commercially viable another ESIA would be done before production commences.</p> <p>On the recommendations, the community members were assured that they were being noted and would be presented to the relevant authorities.</p>
Suggestion	<p>They suggested that Tullow should pay for occupancy fee to the owners of the land that will be involved and should source for local transport. That locals should be given priority in terms of employment and that the MCA ,the chief, the assistant chief, village elder, ward development committee and Kalokol advocacy group should be consulted before the exploratory drilling starts.</p>	<p>Recommendations noted.</p>
Concern	<p>One member mentioned that</p>	<p>The Tullow CLO mentioned that</p>

Nature of issue	Concern	Response
	<p>BGP had hired an exhauster truck from Eldoret to dispose-off black water and the exhauster truck disposed the water in the bushes within Turkana so that they can empty faster. They added that Lodwar water and sanitation company be licensed faster so that they can be the ones exhausting the wastes.</p> <p>Another member also mentioned that children were hanging around BGP camp in Nachukui to get left over foods and this was impacting on their health and education</p> <p>They also mentioned that the workers in BGP camp in Kalimapus did not have toilets hence they were defecating in the surrounding village.</p>	<p>their concerns had been noted and will be worked on.</p> <p>SIA team informed the community that their pleas would be put forward to the relevant authorities.</p>
Suggestion	<p>One member said that the drilling company should give tenders to local people and that they should be rotational so that many people can stand to benefit.</p>	<p>They were assured that all the comments and suggestions were noted and would be included in the report.</p>

Earthview SIA team thanked the local community for coming and assured them that all their concerns had been noted and would be presented to Tullow and NEMA. The chief thanked the members for turning up for the meeting and asked the SIA team to make sure that the concerns that were raised by the people should be put into consideration and actions made so that the people can feel the presence of Tullow in the area. The meeting finally ended with a word of prayer from one of the community members at 5.45pm.

Public Meeting at Kaiokol at 3.20pm

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	Ignatius Lokai	14448693	0719603514	[Signature]
2	James Lowalem	0611032		[Signature]
3	Peter Ekamais	7871318	0705546464	[Signature]
4	Emasa David	11512716	0710232300	[Signature]
5	SAMUEL EKONGAT	23263220	0704859471	[Signature]
6	Paul Obungon	4209085	0712886225	[Signature]
7	Paul Koriang	01443348	0712769083	[Signature]
8	Wale N Engole	10124762	0714405039	[Signature]
9	Joga Atuko		0728230601	[Signature]
10	Nachomo Ekaale	477864		[Signature]
11	CHARLES EDAP	061003	072453308	[Signature]
12	JOHN ETESIRO		0702981072	[Signature]
13	PETER EDUL			
14	COSMAS LOYOE	12907670	07229013871	[Signature]
15	MATHON	21349105	0710101815	[Signature]
16	PETER EKAL	22596376	0726268185	[Signature]
17	MALIBET KIPKUMBA	2 -		[Signature]
18	MARK EREGRE	23119336	0713127894	[Signature]
19	ELIZABETH ECIS	27266496	0712464581	[Signature]
20	Paulina Achuma	0719444080	ID No 1151335	[Signature]
21	Agnes Kuren			
22	Paulina Lokai			
23	PHILIP KIPKUMBA	4797098	0719622508	
24	Patric Komai	21521373	0703297477	[Signature]
25	Peter Marko Nykoro	24664802	0710250765	[Signature]
26	Peter John EKUTAN		0718861760	[Signature]
27	Lokwani Erat			[Signature]
28	Rev. Andrew Nwaha	3271716	07194741	[Signature]
29	Daullo Nanyayara			[Signature]
30	PHILIP KONYANG			[Signature]
31	PAUL ABUMAN	21326082	0714368802	[Signature]
32	SAMMY SUGARY	0146720	0713429234	[Signature]
33	SAMUEL LOKOEL	12911279	0719307658	[Signature]
34	HON JOHN KALIN	0145008	0728286947	[Signature]
35	PETER AREMAN	12434005	0728267901	[Signature]
36	JAMES LOPEO	11512065	0721471836	[Signature]
37	PAULINA LOKAI		0726628808	[Signature]
38	Isabel Ekert	20364737	0723552802	[Signature]
39	Mathew Momesse	13645035	0714766679	[Signature]
40	JOICE LOMOKAI	0611088		[Signature]
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MINUTES FOR THE PUBLIC MEETING HELD AT LOBOLO ON 6TH AUGUST 2013**MEMBERS PRESENT:**

- The area chief;
- Earthview SIA team;
- Tullow Kenya B.V. CLO's (Mr. Ignatius Lokai and Mr. Stephen Orborla); and
- The community members from Lobolo (67 members).

The public meeting started later than scheduled at around 10.15a.m. With a word of prayer from the SIA team. To note about the members present was the absence of women. There was no women representation because being a wet season, the womenfolk with the non-school going children were attending to the nearby farms. This was followed by self-introductions from the SIA team and the Tullow CLOs present. After brief remarks the Tullow Kenya B.V. CLO's begged to leave for other commitments. After the introductory session, the next session was description of the proposed exploratory well drilling project by use of charts; demonstrations; posters and analogy.

The following are the concerns raised.

Nature of Issue	Issue Raised	Response
Question	They enquired on the total number of wells planned to be drilled if the first well is not successful.	The exact number of exploratory wells to be drilled is not known as it will depend on economic viability of the prospects; but all exploratory wells will be planned for within the block 10BA.
Remark	They were glad that finally there was someone to elaborate and give facts on how exploratory well drilling projects are done; they had been misinformed by rumours and incorrect information on oil drilling happening in other areas. They were also happy that the base camp to be set up would not take up a large tract of land. They are also glad that the negative impacts would not be as adverse as they had been ill-advised and that there would be set in place mitigation measures for those that are unavoidable.	The team was grateful that the public had understood the project.
Question	If the oil prospecting exercise is finally successful how would the immediate local communities benefit from it? There was concern on the high level of illiteracy in the Lobolo area; and how it would affect the job employment opportunities. The entire project should be viable for it	They were told that the SIA team was present in order to take suggestion on how the local community wanted to benefit from the project. The community members were encouraged to give their suggestions on the same.

Nature of Issue	Issue Raised	Response
	to raise the socio-economic level of the local communities.	
Question	Which are the existing decisions making structures in the Lobolo community especially pertinent to land?	It is a decision making committee inclusive of the area chief and selected village elders.
Clarification and concern	<p>The community needed a clarification on the issue of displacement from homes and livelihood zones far from the site of the proposed exploratory well drilling. The major challenge facing the Lobolo community is drought and related famine. The land is fertile and especially in the farms that are supported by irrigation but due to water scarcity and aridity the community is left vulnerable to poverty spells.</p> <p>The neighbouring lakeshore has no fish hence no fishing is being done in the region; it is only found in the deep waters. The fishermen cannot carry out intensive fishing in the deep waters due to existing state of insecurity caused by frequent attacks by the Merille community a situation compounded by lack of Kenya Police Reserve (KPR) staff. They would therefore request the fishing industry to be considered in case of Community Social Responsibility (CSR). They request for water provision for the community.</p> <p>They were happy that the project on the proposed exploratory well drilling project would not displace community members from their manyattas (homes).</p>	<p>The issue on the maximum distance to the community residences from the base camp site of the proposed exploratory well drilling was clarified.</p> <p>The SIA team was glad that the community members were raising their concerns and areas of interest.</p>
Concerns	<p>Noise pollution and air pollution likely to arise from the rig operations may disrupt the existing state of tranquillity and low levels of air pollution.</p> <p>The influx of immigrants and rig workers to the area will lead to social disorder; introduction of prostitution; intermarriages; exploitation of local community members and school dropout cases in search of employment.</p>	<p>All levels of likely pollution will be considered in the Environmental Management Plan in the report.</p> <p>On the workers conduct, Tullow Kenya B.V. has strict policies on all its workers and personnel to limit meaningless and harmful relations with the local community members especially the vulnerable.</p>

Nature of Issue	Issue Raised	Response
Proposition	<p>Schools in the region are located in faraway places which poses long distances to the pupils attending the schools. This was proposed for CSR in case of any.</p> <p>There was a proposal for the existing BGP seismic camps on the shores to be donated for use by the Lobolo BMU (Beach Management Unit) on completion of the seismic operations.</p>	The proposal will be included in the report for further action and decision making.
Proposition	<p>They proposed for the construction of a dispensary and addressing of the water scarcity in the region. There exists a water pump line by UNICEF and Red-Cross but it is inconsistent in water supply and there is increased pressure for use by the residents. More for irrigation should also be pumped into the farmlands.</p> <p>More schools should be built for enhanced education and bursary allocation channelled because poverty makes school fees expensive for the parents to afford.</p> <p>On the inter-tribal conflicts by the Rendille and Borana at the Marsabit border in Lake Turkana; they propose for KPR personnel to be provided in the region during deep sea fishing to offer security.</p>	All their concerns and issues raised will be included in the report.
Proposition	<p>Access routes to be created and the existing road network to be enhanced.</p> <p>Motorboats for rescue mission of the capsized boats and fishing accidents to be stationed in the area.</p> <p>They have faith that the government cannot implement and allow for an economically and socially destructive project to be carried out in their area; therefore they believe the project will have a good socio-economic impact on their community.</p>	The SIA team received these proposals with gladness.
Concerns	<p>The livelihood sources in the Lobolo area are very few and limited.</p> <p>The youth do not have development and empowerment groups. Proposes for youth groups and women groups to be</p>	All these views will reflect in the ESIA report.

Nature of Issue	Issue Raised	Response
	empowered and supported for better living standards. The challenge of illiteracy and ignorance on a wide range of issues and development options. They propose for education programs to be set up.	
Concern	Health is a big challenge because of the strong chain of infection caused by livestock and poultry (chicken) feeding on contaminated feeds. The feeds are contaminated by human wastes that are carelessly disposed-off. They propose for more latrines to be set up in the villages.	The community views and suggestions will be included in the ESIA report.
Suggestion	In case the site of the proposed exploratory well drilling project will be located at Lobolo; the job employment opportunity should give priority to the local community.	Suggestion will be considered in the ESIA report.

With no further issue to be addressed and no other business to be carried out by the ESIA team at the public meeting; the team concluded the meeting with vote of thanks and closing prayer. The meeting came to an end at few minutes to noon.

Loboldo 6/8/2013 at the Community Public Meeting Place
 PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
 ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
 DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	JOHN EWAAR	11513678		<i>[Signature]</i>
2	PAULO EKARAN	26035811		-
3	EBEI NAPURUCHO	-		-
4	AKALES NANGOMO	10124884	-	-
5	ESINYEN EKWANGA			-
6	NGIKEEL EKWEE	2078485		-
7	ELEMAN LONGOL	-	0708138036	-
8	PETER LOKOPE	2028372	-	-
9	EKAI NANGOMO	24800598	-09158525	-
10	JOSEPHAT LOSIKE	31479971	0711165604	-
11	ETORITE EKALI	4779002	L	-
12	ECHARAIT ILUK	-	-	-
13	EKARAN EKITELA	2622704	-	-
14	LOKOPE KABEI	12910772	-	-
15	EYANAE AMOMI	24491807	-	-
16	WILLIAM EWOI	-	-	-
17	PETER EPENI	26036430	-	-
18	ASIPINYU EKUWOM	-	-	-
19	JOHN ETABO	-	-	-
20	AREMON AKWANYAM	10129961	-	-
21	PHILIP ELAIN	-	-	-
22	GABRIEL LOWANYANG	-	-	-
23	WILLIAM EYANAE	4793332	-	-
24	EMEKWI EMUTOND	20343269	-	-
25	SIMON EWESIT	-	-	-
26	IKAL EKATAPAN	-	-	-
27	THOMAS PAPAN	-	-	-
28	MOSES ESINYEN	-	-	-
29	PAULO EMEKWI	-	-	-
30	WILLIAM EBEI	26058962	-	-
31	MARK LOWOS	-	-	-
32	EKWE KANTHO	-	-	-
33	EPUYO MOKU	-	-	-
34	MICHAEL AYANGAN	-	-	-
35	EKWANGA AKULEU	-	-	-
36	LOPONGOSO LONGOLE	-	-	-
37	DAVID EKITELA	-	-	-
38	KABEI LOIMARENG	-	-	-
39	NANGIRO EKATAPAN	-	-	-
40	SIMON NAMUYA	-20797184	-	-
41	EKAL LOPONGOSO	-12910514	-	-
42	EIPA IKAL	-20742533	-	-
43	EPOREN LOSURON	-	-	-
44	EWAAR IKAL	-7071574	-	-
45	LAWRENCE LOSIKE	-26060807	-	-
46	EVOT KONYEN	-20789718	-	-

Lobolo 6/8/2013 at the Community Public Meeting Place

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	EKITELA IKHAL	-	-	-
2	JOHN EKARU	-	-	-
3	JOHN EPEM	24494009	0700059489	-
4	EKADELI EKWEE	-	-	-
5	EYANAE NANGIRO	24614330	-	-
6	KATIKO NANGIRO	20787129	-	-
7	JOSEPHAT EKAL	28060288	0710112118	-
8	JAMES EKALALE	2302771475	-	-
9	JOHN EPUYO	# -	0706701021	-
10	MICHAEL ETABO	26048911	-	-
11	EMMANUEL EPUT	-	-	-
12	PAUL EKATOROT	25014974	-	-
13	PETER ELAMR	31061855	-	-
14	PLATONIA EROT	20383755	0718241976	-
15	LORIKA KAABEI	-	-	-
16	JAMES EROT	-	-	-
17	PETER ESINYEN	-	-	-
18	JAMES AMERI	-	-	-
19	EPERIT PAMAM	-	-	-
20	LOKOTOR AYDMO	-	-	-
21	PETRO EMEKWI	-	-	-
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STAKEHOLDERS MEETING HELD AT THE TURKANA FISHERMEN CO-OPERATIVE WITH THE BEACH MANAGEMENT UNIT AT 9:00 P.M. ON 04th /08/2013.

The meeting started at 9:30 p.m. with prayers from one of our team members and some introductions from the SIA team and BMU members. SIA team then proceeded to give the presentation of the project activity. She then welcomed the BMU members to give their views and concerns about the project.

Members present:

- SIA Team
- BMU members(21 members)
- Two Tullow CLOs

The following were some of the issues raised:

Nature of comment	Issue	Response
Concern	One of the members informed us that Tullow have been making promises and not fulfilling them e.g. on benefits that the fishermen stand to gain from the project and the bursary funds that are to be released to further education. They want Tullow to uphold their promises because so far they have no confidence in Tullow and their activities.	The Tullow CLO informed them that as far as Tullow upholding their promises is concerned, bursary funds have been released to various schools.
Concern	They informed the SIA team that they expect more transparency and information from Tullow regarding their project activities. They lamented that Tullow's activities have been far more adverse than they had revealed in their previous exploration activities e.g. the seismic survey that was carried out in the block had an effect on the aquatic life which migrated further up north leading to a lower yield in fish production.	They were informed that the concerns had been noted.
Concern	They said that Tullow are leaving out the views and concerns of the local communities concerning the project activity.	SIA team responded by telling them that the purpose of the meeting was to collect concerns about the project and report them after which audits will be carried out to ascertain whether they complied to the recommendations.
Concern	They mentioned that they have not been able to gain access to any past project reports. This is because they are not able to meet the expenses of travelling to the respective offices to access the reports. They requested to have the reports delivered to them.	SIA informed them that they were not mandated to circulate reports. NEMA is the agency in charge of the circulation of reports to different agencies.
Suggestion	The members said that they expect Tullow	The SIA team informed them that

Nature of comment	Issue	Response
	to give them more employment opportunities.	all their concerns were noted and will be included in the report.
Concern	They complained that the sub contractors hired by Tullow did not comply with the standard rules and regulations pertaining to the environment.	SIA team informed them that environmental audits would be carried out to ascertain whether the proponent adhered to the environmental management plan that was meant to guide them.
Suggestion	They wanted one meeting to be held with the BMU leaders to raise their issues and concerns as a whole.	That would be impossible as some leaders would be required to travel very far distances to get to the venue.
Question	They wanted to know what actions would be taken should the oil be found off the shore.	We informed them that the drilling would not be done in the lake but if this was to happen, directional drilling would be done.
Question	They wanted to know what they stood to benefit from this exploratory drilling project.	They were informed that the proponent is required to undertake social investment projects as part of co-operate social responsibility.
Concern	They said that Tullow has channelled the security personnel in their region to secure their campsites. This has been to the detriment of the community.	The SIA team said that all the issues had been noted and will be sent to the relevant authorities.

The meeting ended at 12:15 p.m. with a word of prayer from the SIA team.

Meeting with Members of BMTU at KAIOKOL at 9.30am
4th/8/2013

STAKEHOLDERS MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	INSTITUTION	CONTACT	SIGNATURE
1	Stephen Ombira	Tullow CLO	0726391080	
2	GAMMY EMANIKOR LOKAI	NATIRAE Bank	0728567601	
3	JOE S. PUSIRE	NATIRAE Bank	0719206100	
4	JOHNSON E. EKAI	KALIMPOS Bank	0713559577	
5	SAMSON LOPEKIO	NATIRAE Bank	0716062839	
6	JOHN ESIRI	IPRIS Bank	071384159	
7	Josephus ESKYO	IMPRESSA	0711463507	
8	MARTIN EKAI	Diageo Bank	0716442200	
9	WESMUS M. LOLEO	Lowland Bank	0711623804	
10	NICHOLAS ATOK	Comm. Transport	0700108870	
11	IGNATIUS LOKAI	Tullow CLO	07060814	
12	Jedidiah Walingo	Commo	0722250268	
13	EKAI EUGENE PETER	representative	0729587998	
14	DOMINIC ETOOT	NARENSET	071190910	
15	MICHAEL L. EKARAN	NATIRAE	0708372220	
16	ROBERT EMURIA INGOLAN	NARENSET	0718249560	
17	MATHEW E. FREMON	NATIRAE	0707427980	
18	CARLTERS E. ETANN	NATIRAE	0701266679	
19	PETER AMARA NAKISI	NAMAKOO	0724601923	
20	PAUL EKIDOR	NAMAKOO	071957482	
21	KALAIAN JOSHUA	IMPRESSA	0714243251	
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MINUTES FOR THE PUBLIC MEETING HELD AT LOYORO ON 7TH AUGUST 2013**MEMBERS PRESENT:**

- The area chief;
- The SIA team;
- Two Tullow Kenya B.V. CLO; and
- The community members from Lobolo (83 members).

The public meeting started at 10.00a.m., with a word of prayer. Members of the community kept trickling in as most had taken their livestock for watering at the neighbouring water points. The SIA team together with the present Tullow Kenya B.V. CLO introduced themselves and gave brief opening remarks.

The proposed exploratory well drilling project was adequately described to give a foundation for the next session of questions and comments. However, due to a majority of the audience arriving late, the project description was done once more in between the questions and comments session for the benefit and better understanding of everybody.

MATTERS ARISING:

Nature of Issue	Issue Raised	Response
Question and remark	The first exploratory well drilling project at Natiir had no adverse negative impacts to the community; even the seismic survey conducted by the BGP had no negative impacts to the Loyoro community; however, rumours exist that people will be displaced to far areas away from the test well. If this displacement does not occur (as they have a strong attachment to their ancestral land), then the community is content with the project and it can proceed further.	The land used for the well rig operations will be less than an acre of land and all drilling operations shall be contained within besides transportation purposes. At this stage, there will be no displacement of residents and it shall not interfere with the households' manyattas and dwelling areas. It shall be located five kilometres away from dwelling units.
Clarification and remark	The first exploratory oil well by Kenya Oil didn't have any adverse negative effects. They mentioned that they have heard rumours that during the on-shore seismic survey by the BGP fishing nets were not allowed in the lake which paralyzed all fishing activities by fishermen; they expressed displeasure if the above was true. The off-shore seismic survey by the BGP was well conducted and had no negative impacts on the Loyoro community.	The CLO mentioned that fishermen were not chased away from the lake and their fishing activity was allowed to go on as long as they kept a distance of 500 meters from the hydrophone lines.
Development and Social investment areas	Main challenge facing the Loyoro community was famine due to prolonged drought periods and aridity spells. If oil prospecting is successful the community members should have a social fund through bank accounts to assist them make a living.	All their development priority areas shall be included in the report.

Nature of Issue	Issue Raised	Response
	The existing water at the lake and other water points should be channelled to farmlands for irrigation.	
Concern	There would be cases of theft of their livestock due to population influx by the immigrants in search of job opportunities. This is in case the site is located within their community.	They were informed by the SIA team that Tullow had policies to govern their workers.
Social investment priority areas	<p>The project CSR should construct a health facility within Loyoro to shorten the long distances to health facility at Kalokol and Lodwar. Emergency cases can therefore not be handled.</p> <p>Idle youth who are unemployed should be given job employment opportunities i.e. business grants.</p> <p>Water scarcity in the region to be addressed to cater for their household needs.</p> <p>Educated youth in the community should be given an upper hand in employment opportunities and tenders left for the local community.</p> <p>Emphasis on irrigation of farmlands together with the related infrastructure as this will improve their living standards and will make them not rely on relief services. They will be able to support themselves.</p> <p>The construction of roads and improvement of the existing routes.</p> <p>Construction and renovation of schools and necessary infrastructure and facilities e.g. solar panels, school fees and scholarships.</p> <p>Empowerment of women groups through business grants to enhance their small scale businesses.</p>	All these views will be included in the report.
Points of information	<p>The high levels of illiteracy in the region are as a result of extreme poverty causing school drop-out cases and this has continued to cripple the area development-wise.</p> <p>The existing base camp at Kalokol has so far not employed any resident of Loyoro. This is partly due to their illiteracy.</p>	The SIA team was grateful for their information.

Nature of Issue	Issue Raised	Response
	The community should be regularly updated and informed of all development projects in the region just like the ESIA team had done.	
Development priority areas	Creation of market for their local goods e.g. basketry, charcoal. Veterinary services for their livestock including animal health extension education and drugs to reduce the livestock disease cases in the region. Support for the early childhood development (ECD) education programmes in the area. The few ECD teachers are volunteers and are not paid; and ECD units have neither classes nor learning facilities. Diversification of domestic crops by provision of seeds from other breeds that are drought resistant e.g. maize. The only crop grown is sorghum. Provision of fishing facilities e.g. nets, light jackets, lines & hooks and motorised boats.	Their development priority areas shall be reflected in the report.
Complaint	The cases of BGP workers having relations with their community members has led to social disruption and reported cases of married women abandoning their household duties and business to offer sexual services to the workers in the camp.	Complaint noted.
Question	What are the expected types of pollution and levels likely to be encountered at this project stage?	Low levels of noise pollution arising from the rig operations which will be 24hours. Dust pollution from the transportation of rig equipment.

The area chief assisted in the translation being helped by a church pastor in the local area. The meeting was a success and the SIA team was grateful for the opportunity to listen to the Loyoro community members. Having no other business to address, the meeting was closed at 12.15 p.m. with a vote of thanks and closing prayer.

LOYORO PUBLIC MEETING

07/08/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	SAMSON EKITOE	31194917	0702801735	<i>[Signature]</i>
2	JAMES AMERI	2152885	0714467240	<i>[Signature]</i>
3	NICHOLAS ECKUUROTI	26024326	0703956373	<i>[Signature]</i>
4	MODING ELOTO	—	—	—
5	SAMUEL EMEKWI	24514801	0719397634	<i>[Signature]</i>
6	LMOE EKALI	5231290	0719230090	<i>[Signature]</i>
7	Lokoru CHOPER	—	—	—
8	Losonyaro EKALI	—	—	—
9	EPULO AKOL	—	—	—
10	IRENY KORODI	—	—	—
11	ROBERT LOLEM	—	—	<i>[Signature]</i>
12	Lomodesi EKALI	—	—	—
13	ECKUUROTI LOSIOYONO	—	—	—
14	KALOMADUS KORODI	—	—	<i>[Signature]</i>
15	NYANGA LAPAR	—	—	—
16	EIPA LOKWANI	—	—	—
17	EKAI ENYAR	—	0701241318	—
18	EKURE EKAL	—	—	—
19	NAKAMBALA LOLEM	—	—	—
20	ROBERT ERENG	—	—	—
21	SAMMY NAMOK LOKERIS	30834058	0707985238	<i>[Signature]</i>
22	DAVID ESUGURU LOKERITH	31485093	0719812127	<i>[Signature]</i>
23	EKIDAM EMUKON	—	—	—
24	ABIPUND KADDA	—	—	—
25	LOKIRIDI AMERI	—	—	—
26	EFANAE AMANI	—	—	—
27	GABRIEL EKIPEJOT	26089225	0727464322	<i>[Signature]</i>
28	JOHN LOKHONCOHERI	30624900	0715698550	<i>[Signature]</i>
29	JOHN ERUKUDI	—	—	—
30	ROBINSON LOKOD	2234993	0716800684	<i>[Signature]</i>
31	DAVID ESILENY	—	0715592853	—
32	AKULEU LOKIRIDI	1677504	0723227268	—
33	PETER KAPSO	11512041	0728142134	<i>[Signature]</i>
34	PAULO ESEKON	02513173	0719174049	—
35	SIMON EKAL	24504989	—	—
36	DAVID EMERWI	24493190	0701028458	<i>[Signature]</i>
37	SIMON ETABO	20416157	0712164897	<i>[Signature]</i>
38	JOHN LOKURUKA	30764863	0718243219	<i>[Signature]</i>
39	PETER EKEND	30765726	0701517027	<i>[Signature]</i>
40	EMANOMAN ESINYEN	—	07	—
41	KATABO EIPA	—	—	—
42	EKOER LOKGESAN	—	—	—
43	EKUNJI MORUKAPPA	1792530	—	—
44	PETER EJKON	—	—	—
45	JOHN JUMRU	—	—	<i>[Signature]</i>
46	PETERSON EKARU	—	0704227130	<i>[Signature]</i>

Loyoto Public meeting 07/08/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	MARY NARIWIKIYE	4772649	/	/
2	LEAH ASKON	3198625	/	/
3	ANDI ELDO	/	/	/
4	MARGARET KENUDIM	/	0729801502	/
5	ESTHER ARIWIRE	/	/	/
6	ANNA AKAL	8887973	/	/
7	MARGARET EKURU	/	/	/
8	AKIRU EKAL	/	/	/
9	SARAH KANBEI	/	/	/
10	Loopang Lobukae	/	/	/
11	CHRISTINE AKURON	/	/	/
12	PAULINA NUKASUKU	/	0708065110	/
13	REBECCA AKARU	/	/	/
14	PAULINA AKENI	20104809	/	/
15	ALICE ABEI	/	/	/
16	NAKAIN AKALES	/	/	/
17	MANJOL KATAROT	/	/	/
18	Lotto Napusiyie	/	/	/
19	TUKO KAI	/	/	/
20	KIZABETH NAPUSIYE	/	/	/
21	MAMILLAR IMONI	/	/	/
22	HELLEN EIDA	/	/	/
23	DAVID EKURON	35776908	0703227663	/
24	EKAL KORUMA	/	/	/
25	EDUKAN LONALAN	21281252	/	/
26	DANIEL NGAROTI	28058738	/	/
27	PETER BROTHOT	26064637	0714416281	/
28	JAKO EKURON	/	/	/
29	EVANAE ERGON	4778354	/	/
30	PHILIP EKARAN	9245011	/	/
31	EKIRU EKIRIEN	/	/	/
32	MICHAEL GORE	/	/	/
33	EPUYO ATOK	/	/	/
34	ATOK ELDO	/	/	/
35	EMEKWI LOKALE	/	/	/
36	AKUUTA CHORU	/	/	/
37	JOHN EKENO	2270336	0726435742	/
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PUBLIC MEETING AT ELIYE SPRINGS ON 8TH AUGUST 2013

The public meeting began with word of prayer from the local pastor. The chief gave an introductory speech and SIA team introduced themselves to the community members. SIA team made a presentation on exploratory well drilling and then invited the community to give their views, comments and opinions. Questions were also welcome concerning the intended exploratory well drilling. They were also requested to allow the SIA team to take photos and video so as to aid in report writing. The community members agreed.

Members present;

- Earthview SIA team
- Tullow Community Liaison Officers
- Eliye Springs' community members

Matters arising include:

Nature of Issue	Issues Raised	Response
Comment	The community members were happy about SIA team visitation and the possibility of oil production in the area.	
Suggestion	The community members mentioned three sources of livelihoods in the area namely; forests, livestock and the lake. They said that they would like the camp to be demarcated from the rest of settlement area for the community. This will enhance their harmonious co-existence with the camp employees. In addition, the lake should be taken care of since their livestock depend on it.	The SIA team said that they will include the suggestion in their recommendations when compiling the ESIA report.
Suggestion	Provision of employment opportunities in the area was mentioned as one of the perceived benefit of the project to the community members. Another benefit mentioned by the community members was the possibility of supporting business development such as basket weaving in the area through funding and training to improve skills.	The SIA team was grateful to the community members for giving their views on how they expect to benefit from the project.
Complain	The area lacks good road network and this hampers their accessibility to the markets. For example, they stated that the women in the area are involved in basket weaving and since there is poor road network, they can't access good markets for their baskets. In addition, the livestock can't be transported for sale to other areas due to poor roads. The fishermen in the area outlined a	It was clarified that the SIA team came to collect their views and opinions concerning the project. In case of the challenges, the community members were invited to suggest how these challenges could be dealt with.

Nature of Issue	Issues Raised	Response
	number of challenges facing them too such as lack of motor boats and other fishing equipment. There is a low transition rate from secondary school to higher institution of learning as well as from primary school to secondary level of education.	
Proposition	The community members wanted their access roads to be improved in the area since the place is inaccessible and has some tourist attraction sites such as Eliye Springs.	These propositions were noted down by the SIA team.
Question	The community members wanted to know how Tullow planned to benefit the community by the project.	The SIA team responded by encouraging the community members to share their views on the perceived benefits of the project in the area.
Question	They inquired on the possibility of being compensated in case their trees are destroyed during the project operation especially if Tullow vehicles run over their livestock while driving and Tullow boats destruction of their fishing nets.	The SIA team pointed out that Tullow Oil has a driving speed policy which regulated their speed where human settlements are concentrated to avoid accidents.
Question	They wanted to know whether everyone will be considered in terms of the available job opportunities in case the camp where the drilling will take place lies on the border of any two locations e.g. the BGP camp situated on Namukuse-Kalokol border.	Tullow CLO assured the community members that everyone who lies in the block will be considered for employment opportunities.
Question	The community members wanted to know how the aged people in the area will benefit from the project.	They were encouraged to give suggestion on how they elderly would benefit to be included in the report.
Question	One of the community members said that he had gotten some reports that drilling will be done on the lake.	The SIA team emphasized that the lake will not be interfered with during the exploratory well drilling in the block.
Suggestion	In case, an accident occurs such as the knocking down of a goat by the Tullow vehicles, the community members said that they would like to receive some compensation. The compensation should be twice the price of the goat since the owner did not intend to sell it in the near future. When a local person is involved in an accident with the Tullow vehicles, then they will let the law take its own course. If nothing is done by the law enforcers, then	The SIA team stated that all their views in terms of suggestions, complains and questions were being recorded to constitute the recommendation of the NEMA report.

Nature of Issue	Issues Raised	Response
	there will be conflicts between the community and Tullow oil.	
Concern	<p>The community members raised alarm over some negative impacts that resulted from the past exploration activities by Kenya Oil in the 1990s.</p> <p>Kenya Oil staff used to put paraffin in their left-over food and dispose the food off where the local people used to hang around the camp. In addition, the camp employees used to sexually abuse girls and married women in the area.</p> <p>The community members present in the meeting wanted to know how such issues would be dealt with in case they arise during the implementation of the exploratory well drilling.</p>	<p>The SIA team insisted that they would like the community members to suggest some mechanisms of dealing with such issues in case they arise. However, it was clarified that the camp personnel will be working within their camp and this will reduce the possibility of any form of inappropriate social interaction with the local people in the area</p>
Expectation	<p>The community members hoped that the project would create some job opportunities. The recruitment process should be on merit and taking of bribes by the recruiting officers should be avoided at all costs. They said that they will appreciate whatever type of employment they are offered, even if they will be contracts instead of permanent jobs.</p> <p>In addition, all the groups of people in the area should be factored in the employment.</p>	<p>The SIA team appreciated their comments and noted them down.</p>
Question	<p>The SIA team wanted to know what would be done to curb the cases of sexual abuse, food poisoning as well as taking bribes during the recruitment process in the area once the camp is in place for the drilling operation.</p>	<p>The community members suggested that a person who impregnates a girl will be required to cater for the upkeep of the girl and the unborn child.</p> <p>The community members said that they do not anticipate that taking of bribes will happen during the recruitment process. However, if it happens, the person involved should be withdrawn from the recruitment committee. The community members said that they can protest or bring the CLO if the members of this committee try to cover up the issue. In addition, they can</p>

Nature of Issue	Issues Raised	Response
		convene a <i>baraza</i> to openly reprimand the two parties involved.
Suggestion	The community members suggested that a conflict resolution committee be constituted in the area to deal with any conflicts that may arise between the community and the company.	This suggestion was recorded by the SIA team present.
Compliment	One of the community members acknowledged that Tullow had approved five water wells to be drilled since they began working in the block. Diocese of Lodwar was granted tender to drill these wells in the area. In June this year, Tullow gave 18 students in Kanatosa location scholarships. Each sub-location got six positions. These scholarships were awarded depending on the intensity of vulnerability of the student.	SIA appreciated these compliments.
Suggestion	The community members wanted one well in the area to be re-drilled since they lacked water in the well when they tried to drill in the past.	This was noted down by the Tullow CLO present in the meeting.
Question	The community members wanted to know what happens when someone is displaced from their home to pave way for the drilling operation or the current seismic survey.	Tullow CLO said that the company has some offset procedures in the built areas. It is usually 200m from the settlement areas.
Concern	The community members were concerned over a number of meetings that had been convened at the same venue and promises of development were made to them which have never been fulfilled so far. They appreciated the idea of Tullow working in the area and expected Tullow to work without causing harm to the locals.	This was noted.
Question	One of the people present in the meeting stated that they are two groups of people in the area: those expecting to benefit from the drilling operation in the area and on other hand, those doubting whether this drilling will be of any benefit in the area. Some community members questioned the possibility of having conflicts in the area once the oil is discovered just like some oil producing countries such as Nigeria. The people are positive about some of the	One of the SIA team members advised the community members to learn from the oil producing countries such as Ghana and Uganda where there are no conflicts related to oil production.

Nature of Issue	Issues Raised	Response
	developments that might result from the drilling process and at the same time, they are worried about the possibility of experiencing major conflicts in the area.	
Suggestion	The people present in the meeting wanted the company to leave their projects running once they complete their drilling operation. Tullow should involve the area chief for effective communication in the area. Tullow should increase the number of scholarships offered in a certain area so as to reach out to a larger number of people in the community.	This suggestion was noted down by the SIA team to be included as a recommendation in the report. Tullow CLO made a distinction between three types of scholarships/bursaries offered by Tullow. These include: those offered to students to study in universities abroad, those offered to students studying in local universities and those offered to students at the secondary school level of education
Question	The community members wanted to know the progress of the proposal they had done in the past for a hospital.	Tullow CLO said that he is going to do a follow-up since the CLO working in the area at the time of the development of the proposal was transferred to another block.
Comment	The area chief cautioned the people in the area claiming that Tullow Oil has not done anything for the community. He went on to name a number of things that Tullow has done; drilling a borehole in Etiriwaye, scholarships for students and employment of Kenya Police Reservists. The chief advised the community members to have their facts right before spreading any information to the community.	This was noted by SIA team.
Suggestion	One of the community members suggested that the area chief should be informed of anything that is intended in the area so that he or she can inform the villagers.	Suggestion noted.
Complain	The fishermen present in the meeting complained over the time they usually take to mend their worn-out fishing nets once they are destroyed by Tullow boats in the lake. Tullow Oil usually compensates them by giving them some threads to mend their fishing nets which take close to two days. They wanted to know whether Tullow	Tullow CLO clarified that there two ways of net compensation; net to net compensation and cash compensation. 10 percent of the cash compensation is meant for pay for the work of mending the fishing nets.

Nature of Issue	Issues Raised	Response
	considers the amount of time spent mending these nets when giving them the compensation.	
Question	Some of the community members wanted to know how Tullow intends to dispose their wastes from the camp.	Tullow CLO said that the company usually digs some pits for waste disposal outside the camp (15 km from the camp). These pits are usually fenced and two locals are employed to guard the pits to avoid any form of interference from the community members.

The community members through the area chief appreciated the SIA team for educating them on exploratory well drilling in Block 10BA. SIA team gave a vote of thanks and the public meeting was concluded.

ELIYE SPRINGS 8/8/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	PAUL ERUPU BOMBAT	31072158	0724312717	
2	PASCAL EKUUM LOR	31071521	0740479107	
3	LENDX LEVIS LUCHAP	35057751	0714465053	
4	LODEYA WESLEY	29770525	0707890950	
5	MWALANG FRANK	2795665	0816092520	
6	PAUL ONYANGO OYISA	23414276	0711403113	
7	JAMES LORUBIAN	11513669	-	
8	JAMMY SIKE	20344100	0707568967	
9	LORE ETABO WASHINGTON	31336107	0712577198	
10	FRANCIS L. DAKSAY	25709810	0714976432	
11	SAMUEL ELAAR	25119134	0701437115	
12	STANOUS LOTEM LIKO	27816182	0726644190	
13	JOCKIM NGURETIN	-	-	
14	LOWADAB AWOL EMANIMAN	2078630	-	
15	JOHN ERU	-	-	
16	LOUISA AKHKA	-	-	
17	GABRIEL LOKALE	-	-	
18	HERREW RATTI	-	-	
19	PETER EKAI	-	-	
20	JOHN LOKAMAR	-	-	
21	ISAAC ETIIR	-	-	
22	JOHN EMURIA	-	-	
23	MARY JAKINYANG	-	-	
24	FLORENCE AMURIA	21420717	-	
25	JOSEPHINE AKAI	-	-	
26	MARGRET MUYA	-	-	
27	PETER IPUR	-	-	
28	FELIX KUREN LOR	3105445	-	
29	FRANCIS EKO ETIIR	2541074	-	
30	JOHN KAI	-	-	
31	EKAI EMURIA	317107071	-	
32	EBBI LOKAI	207107017	-	
33	PETER ESIMYEN	25071421	-	
34	MARY KAI	11270701	-	
35	HELLEN LOPUA	-	-	
36	ROBERT	-	-	
37	BENARD LOKOYO	31191372	0701878931	
38	FRANCIS EKAI	21070471	-	
39	JOHN LOTIIR	214171427	-	
40	JAMES LOPIDIG	31072701	-	
41	MARGRET AWENT	22710710	-	
42	HELLEN AWOL	21710472	-	
43	JOSEPHINE PETER	117107410	-	
44	IMMACULET NAKU	27412471	-	
45				
46				

ELIYE SPRINGS 8/8/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	MARIKO KILELEM	02296722	0719766663	<i>Mariako</i>
2	JOSEPH LOYAT NATINI	4397205		<i>Loyat</i>
3	EYANAE LALEM	0635553		
4	LOPEYO LOTDYA LOTONIA	9829966		
5	LOKOLI EKENO KORUKA	25055740	0707680440	<i>Lokoli</i>
6	EDUKAN ALAPATU LOPANGO	31189974		<i>Edukan</i>
7	AREGAE ALUMUM	2077349		<i>Aregae</i>
8	LOSIKE LOKENY	4796923		<i>Losike</i>
9	ELIZABETH AKAI	4796724		<i>Elizabeth</i>
10	MOHAMED ETAKO	11532663		<i>Mohamed</i>
11	MUSA NAAKU	27195673	0715097662	<i>Musa</i>
12	PETER EJUKO LOMALA	30357414		<i>Peter</i>
13	MICHAEL ESEKON LOMALA	30384157	0719158923	<i>Michael</i>
14	REBEKA LOMAR	4773633		<i>Rebeka</i>
15	LOKATEKEL EKENO ESEKE	21349217		<i>Lokatekel</i>
16	SELINA AMUN AMAI	25109938		<i>Selina</i>
17	PETER NANGOLE NYANGA	20021132	2502432	<i>Peter</i>
18	JOHN KAI	20752994	07047356	<i>John</i>
19	LOKASINYEN PETER			
20	JAMES EYEN LUKANBWA	20744742		
21	EKIDOR NGILEBEI			
22	JOHN LUKAMAR	23414080	0723542420	<i>John</i>
23	DUMAS EYANAE	0146593		<i>Dumas</i>
24	MICHAEL EDAAN		0700904364	<i>Michael</i>
25	DAVID EKERU LOMALU	26017678		
26	ACHUKA BENKON	29481415	0707162182	<i>Achuka</i>
27	LELE EDUKON KANAK	26017708		
28	JOSEPH EMINTAG TUIKE			
29	DANIEL EKARU		0726858658	
30	DAVID EMURIA	25110017	0704690515	
31	KENNEDY EPA AKOR	71654458	0700572270	<i>Kennedy</i>
32	PETER LOYLO	30769908	07260726173	<i>Peter</i>
33	DAVID KINYIKI			
34	ELAK AKULET EKARU			
35	NANCY ASINYEN			
36	EKITELA MERUMIC			
37	EKOROT ERWAN			
38	ERAMAN IBEI	23449507		
39	GABRIEL ESEKON	28135825	0703878044	<i>Gabriel</i>
40	MICHAEL LOKOLI	31072874		
41	LOKURUA NGAKO	4793977		
42	REBECCA ATIIZ			
43	PRICILLA ASINYEN			
44	REGINA AMEKON			
45	MARY AKHWA			
46	JESCA AKALICH			

ELIYE SPRINGS 8/8/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	MARGRET ASUKUKU			
2	NAKALEI NAKAMU			
3	ESTHER EYANAE			
4	REBECCA ANWEST			
5	MARGRET NGASIVE			
6	CECILIA LUREM			
7	TECENTA LORHOTO			
8	MARY NANGOLE			
9	AGNES KIMANIKOR			
10	AKIRU MURIANI			
11	ABEKON REGINA			
12	AGNES KYANAE			
13	HEBERENS RAITI	25021007	0700256084	<i>[Signature]</i>
14	LOKAMU LOKWAMEKNI			
15	EMAMMAN KURLANG			
16	EMURIA JOHN			
17	EROT MICHAEL AKLA		072007196	<i>[Signature]</i>
18	ESEKON KOPITO	25118926		
19	JAMES EKAL			
20	MARAKA KOTOME			
21	AWGI EMANANANA			
22	EKARU LOKHAN LONTIROO	24489645		
23	JOHN AWGI EDEGAE	24526714		
24	BENEDICIO RAITI	2509810	07497600	<i>[Signature]</i>
25	LORE ETABO WASHINGTON	31336107	071259195	<i>[Signature]</i>
26	NABENYO FESTUS		072072911	<i>[Signature]</i>
27	LOIROT EKARAN			
28	ERUPS EDANU	4775175		
29	EKUNYIK LOLE			
30	DETER ETABO			
31	EMAR EKWANGA ELA	25719173		
32	EKIRU ESIGITE			
33	LOKAWANG EDEKE			
34	THOMAS DAYEN			
35	LOKOTOR NAFURUKHO			
36	LODAN LONKORUS			
37	SIMON LOTANAKOI			
38	EMILIN WILLIAM	25110060		
39	ALBERT AYEN	13425098		
40	EKAMAS DAVID	20520887	0718036029	<i>[Signature]</i>
41	ISHAEL EMANUEL ETIR	23151350	0923788066	<i>[Signature]</i>
42	MARY CHACHA	12910505	07	<i>[Signature]</i>
43	FRANCIS ETIR	30582166		<i>[Signature]</i>
44	WILLIAM ANIAM			
45	EMEKWI ETELON			
46	EKAL ROBERT	20372510	0717650963	

MINUTES FOR THE PUBLIC MEETING HELD AT LOMOPUS ON 9TH AUGUST 2013

PRESENT

- The area chief: Mr. Batholemeu Elimlim
- Tullow Kenya B.V. CLO
- The Earthview Geoconsultants Limited SIA team
- 84 community members

The meeting was called to order by the area Assistant Chief at 11:05 am who then invited a member of the public to lead in a short worship song and then say an opening prayer. The chief appreciated him and gave thanks to Akuj (God) for the day and the journey mercies. The chief gave a brief opening remark after which he declared the meeting officially opened and invited the SIA team leader, Linda Were, to introduce her team. Linda thanked everyone for sparing their time to attend the meeting which she described as an extremely important forum for the public to air their views, opinions and suggestions on the proposed exploratory drilling in Block 10BA.

SIA brought to the attention of those present the EMCA 1999 and subsequent regulations with their requirement that Environmental Impact Assessment be carried out before any development project. They were also informed about the drilling process right from site preparation to suspension or abandonment of the well. After the detailed description, the plenary was opened for the public.

MATTERS ARISING:

Nature of Issue	Issue Raised	Response
Comment	A member of the public said he was sure oil would be found because other areas of Turkana had yielded promising results.	The team informed him that with oil exploration, there is no surety that oil must be found and that's why an exploratory well has to be drilled to ascertain the presence of hydrocarbons.
Comment	They were aware of the ongoing seismic survey on in the block 10BA by BGP.	The team explained to them that Tullow Kenya BV contracted BGP to carry out seismic survey on its behalf.
Question	They feared possible displacement as a result of the proposed project. Despite their reservation, they showed willingness to move so long as tenable agreement is reached between the community and Tullow.	They were informed that the proposed project isn't land intensive as it only requires 250m x 350m piece of land and that no one will be displaced.
Question	The community was in agreement that the proposed project should continue and sought to know who will own the oil once its presence and commercial viability is established.	They were informed that the oil belongs to all Kenyans and that the government is preparing guidelines to govern the sharing of the proceeds.
Question	The community members wanted to know how they stood to benefit from the	The team informed them that it could not answer that

Nature of Issue	Issue Raised	Response
	project.	because the team needed suggestions from them on the same. Tullow CLO informed the community about Tullow's activities such as bursaries, employment of local people, construction of classrooms and many more in the pipeline.
Concern and suggestion	The community was concerned about possible destruction of property belonging to the community by Tullow workers including inappropriate relations with the local women. They suggested that they be allowed to arrest and kill anyone who is found or report the person to police.	The team informed the community that Tullow has policies that guide relationships between its employees and the host community and that should such an incident occur then law would take its full course. The community was however, warned against taking the law into their own hands by the area chief.
Concern	The community was concerned about a possibility of HIV/AIDS infection in the area rising due to the influx of people into the area during the implementation of the proposed exploratory drilling.	The community was informed that it would be next to impossible for that to happen.
Clarification and concerns	They informed us that they had heard of rumours that the proposed exploratory drilling is not good for human health because it would lead to displacement of people, still births, disability due to frequent accidents, pollution, and destruction of water aquifers as well erosion of their culture.	SIA team clarified that no displacement would take place and that the drilling project is very friendly since the technology involved has been used elsewhere and proven effective. The team further informed them of casing that is meant to protect the water aquifers. In addition, they were informed about Tullow EHS policies meant to ensure safety of workers.
Concern	The community was concerned about effects of noise pollution of the behaviour pattern of their livestock. For example, they said that their livestock were not familiar with noise and therefore any slight noise in the community might make their animals run away and get lost.	On noise pollution, the community was informed that the only possible cause of pollution would be vehicular movements and that very minimal noise would be produced during the drilling and that the base camp will be located at least 5km from

Nature of Issue	Issue Raised	Response
		human settlements.
Suggestion	The community suggested that there be transparency and free flow of information from Tullow to the community and vice versa.	The SIA team thanked the community for the suggestion and assured them that it would be included in the report to NEMA and Tullow.
CSR Suggestions	The community suggested that Water projects, health facilities and school infrastructure development be given first priority in the area. Other development priority areas included payment of school fees, electricity, employment opportunities, irrigation projects and access to revolving funds.	All development priority areas were noted down.
Suggestion	The community suggested that a committee be constituted to be in-charge of every community dealing with Tullow Kenya BV including recruitment of labour, flow of information among others.	The suggestion was noted.
Suggestion	The community suggested that before the project begins, the community elders be informed first since they are the ones who would decide on the appropriate site for base camp location. They said that one way of avoiding conflicts during the exercise is keeping the elders close.	The suggestion was noted.
Concern	The community was concerned about labour recruitment exercise. They argued that there were some kinds of work that do not require academic qualifications to perform e.g. sweeping, cutting down of trees, cleaning of latrines, wiping of chairs and tables. They therefore suggested that those without academic qualifications be given an opportunity to offer their labour in such areas.	The concern and suggestion was noted.
Suggestion	The community suggested that their vulnerable groups such as the blind, the physically challenged as well as the deaf be given food and money to enable them start income generating activities for sustenance.	The suggestion was noted.
Suggestion	The chief suggested that those living with HIV/AIDS also be assisted to	The suggestion was noted.

Nature of Issue	Issue Raised	Response
	enable them lead fulfilling lives. He also brought to the attention of SIA team of the existence of epileptic children in the community. He suggested that Tullow comes to the aid of such children by sponsoring their medication.	
Suggestion	A community member suggested that Tullow assist the community in accessing veterinary services for their livestock as well as sponsor their insurance so that should the animals die during drought, they can be bought for new herds.	The suggested was noted.

The SIA team leader gave a vote of thanks to the community for their active participation during the meeting. She gave an assurance that all the suggestions would be included in the final report to NEMA and Tullow. There being no any other business for the day, the meeting ended with a word of prayer at 1:35 pm.

LDMOPUS AREA

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	EROT EPORON EGELAN	9244833		EROT
2	MUTEE LOMITR LOITAKIT	210616552	0704211317	
3	NANGOLEL EWOI	29312730	0714319198	
4	PAULO LOOYA	2048334	0704010982	
5	NAKAMU ERIKIK TIKO		0711972963	
6	SARAH LOKWANI			
7	IUTAI EPUYO			
8	REBECCA AWAR			
9	PAULINA EPUR			PREY
10	VERONICA LOPONKO			
11	NAROGI LANGOLEL LOSRY	29760001		
12	PAULINA EPEYON			
13	MARY LOYO			
14	LOKHEI NAFAS			
15	ALICE AWOI			
16	HELLEN AKAI			
17	ALMILIM EBAN			
18	APEN EMEHEK			
19	LONGOLAN LODUNGO NANGIRO			
20	AYINNE LODUNGO			
21	ASINYEN LOKOL			
22	AMEKUI LOYO			
23	MICHAEL EBEL EMOGH			
24	LANGOLEL LOSENY EKORI	10122230	0708128492	
25	THOMAS LOKITRUM LOKUMWI	0146668		
26	ATON EGILAN OKUCHA	7618372		
27	SAMUEL AMBIT	12484343	070430865	
28	ESBITAR LOPU ECHWAA		071538516	
29	KIAPA ESEKON IMVA			
30	CHARLES NAKUCHO	20260375		
31	DAVID EKIDOR			
32	NAKUNAN LORENKO			
33	JAMES BAPAL			
34	MIGOLAN LOKWIR OUBOR	23782706	0712563536	
35	MICHAEL EKABELI EYINNE			
36	LOYO LOWOYA LOWOYA		07075628304	
37	ERAND LODUNGO LORENKO	13431390	0700061750	EPUYO
38	CHARLES EKUMON	2504110		FAS
39	ALANY EMEHEK ALIO			
40	EMEKUI EREMAN	23551234	0710652346	
41	EMEKUI LONAMIO	23495035	0726345016	
42	NAKUNY EKORI ALIGO	3562989		
43	ADUNG MABAWA AKABELI	6574870		
44	LORET NARCO			
45	ARODE TANDE APIANGIMOR	23951206	0728578476	
46	JERENTA LOKALE		071698974	

E LOMOPUS AREA.

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	LOBUNGO KIAPA ESEKON			
2	ARUKUBI ETOLE			
3	KIMAT AMOI			
4	NAMARIKO LOKURU ERUPE			
5	LEPOO EKAI ERESAE			
6	ANANGOLE KIAPA ESEKON			
7	NASIKE NAROO			
8	ENGER EAGE			
9	SIKE LOPII ECHWA			
10	PETER LOONGO NANGIRA	8562817		
11	ERUKUBI LONGATUNYO			
12	EJUI MUSEMAMBI			
13	TEGERE LOKWAM MARIETWA	4799078		
14	EMAI ESEKON			
15	EIPA EJUI			
16	VERONICA LOPII			
17	PAULINA ESEKON			
18	ETIR LOPONGOI			
19	LONGATUNYO EKAMIALS			
20	LONGATUNYO LONGATUNYO			
21	EMASE EPERIT EJUI			
22	ERAGE LOPONGOI			
23	NAMAMU NANGOLEL			<i>Down</i>
24	AKOLONG ERUPE AHIGO	12911480	0701168433	
25	NGAMOR LOKOL			
26	EKERERU NAFOKOL			
27	MARY AMART			
28	NICE NASIPAN			
29	MARGRET LOWOYAMBI			
30	LOYO EVANAE EKILWAA		0703669861	<i>Down</i>
31	JOHN EKAI	25045701	0705165069	<i>Down</i>
32	PAULINA LOKATO			
33	REBECCA AMOIT			
34	ETHER NAKUBI			
35	EREE EJARI LORENGO			
36	ETIR LOJARI LORENGO			
37	KALIAPUS ERESAE ERONGWA	13648376		
38	AWAAB EHAAN			
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MINUTES FOR THE PUBLIC MEETING HELD AT KATABOI ON 11TH AUGUST 2013**MEMBERS PRESENT:**

- The area chief Mr. Fransis Naseki;
- The Earthview Geoconsultants Limited SIA team;
- Tullow Kenya B.V. CLO (Mr. Ignatius Lokai); and
- The community members from Kataboi (120 members in total).

The public meeting started at 10.35a.m., with a word of prayer from a community member. The area chief gave opening remarks and introduced the SIA team to the community. The Tullow CLO gave a welcoming note to all those attending to feel free and part of the meeting. The Social Impact Assessment team from Earthview Geoconsultants Ltd presented the project to the audience. The project cycle and especially everything required for the exploratory well drilling stage was described in-depth. This was the basis for the public to express their opinion and issues affecting them that are likely to impact on the project or vice versa. After the introductions session, the public expressed their views and concerns as noted below.

MATTERS ARISING:

Nature of Issue	Issue Raised	Response
Comment	They were skeptical about the seismic survey and its negative impacts on their environment but besides the vibration, there was no other adverse impact on the environment at Kataboi.	The team appreciated the seismic work conducted by BGP.
Questions	To Tullow: they said that Tullow promised equal job opportunities for the entire block 10BA seismic survey but why were there few chances given to Kataboi community. The community was concerned about rumours that an oil refinery will be built in Marsabit hence they wanted to know why that would be the case and yet oil will be produced in their area. One member said that there were rumours that 40 million had been set for the refinery in Marsabit.	The CLO assured the community that Tullow will follow up on the issue with BGP as it was contracted to carry out all operations relating to seismic processes. Their suggestions will be put forward.
Consent note	They said that they have agreed that oil exploration and production is a profitable venture with no adverse negative environmental destruction to the community.	The SIA team acknowledged the opinion.
Clarification and concerns	The community echoed that they are glad that the oil exploration will eventually uplift the economy of the local community and entire country like in Libya.	The SIA team thanked the Kataboi community for their views and opinions and promised they would be included in the report.

Nature of Issue	Issue Raised	Response
	<p>They reported that they had no information on displacement of the community whether it would happen or not but now they know. They are happy that consultations with the public are being made.</p> <p>On job employment and recruitment, the community members reported that during the seismic survey, BGP had called for ten people from Kataboi to be forwarded for further check-up. Those selected were, however, dismissed on health and unfitness grounds. No replacement was made after that.</p> <p>On the drilling exercise the community conceded to have no problem. They are ready to allocate land for the project site but all agreements (between investor and local community) made should be honoured by the investor.</p>	<p>Tullow to look into the issue with BGP.</p> <p>The Tullow CLO informed them that for the exploratory drilling done by Tullow, it promised to honour all the agreements to be made with the community.</p>
Questions	<p>The community pointed out their lack of knowledge on the location of the base camp site where the rig would be put up; if it were to be located at Kataboi, what measures would be taken to mitigate the exhaust fumes.</p> <p>If the fumes released by the rig (as they hear rumours) would affect the health of the people and livestock leading to death and extreme health eventualities how will this be handled? Will the entire community be wiped out to death before they even see the said oil?</p> <p>Will the proposed project displace them from their ancestral land?</p>	<p>The SIA team clarified that on displacement; no one will be displaced from their land.</p> <p>On toxic fumes released by the rig, there is no such negative impact.</p>
concerns	<p>They were concerned about where will they feed their animals especially during dry seasons. They rely on Acacia fruits as feed for their livestock.</p> <p>During the 1980's exploration by Kenya Oil, the seismic routes and access roads didn't consider people's homes and manyattas and trees were cleared along the way.</p> <p>For tree clearance they suggested reforestation measures to be taken.</p>	<p>The SIA team said the community concerns and opinions shall be reflected in the report.</p>
Questions	The community wanted to find out what	The SIA team said that all

Nature of Issue	Issue Raised	Response
and Remark	<p>is Tullow's Community Social Responsibility for the Kataboi community.</p> <p>They inquired on where Tullow had reached on delivering drilled water project for the Kataboi community.</p> <p>They are grateful that Tullow delivered the school bursaries which benefited twenty five students from Kataboi.</p> <p>The community wants job employment chances to consider gender balance. The jobs advertised so far only required male applicants.</p> <p>Casual jobs advertised should not be strict on educational levels as competence is gained through experience.</p>	<p>views expressed will be helpful to those concerned with the various sectors.</p> <p>Tullow CLO informed the community that the water drilling project will commence in the week to come as the contractor together with the relevant equipment was already on the way to Kataboi.</p> <p>The SIA team encouraged the community to voice their opinion on the development priority areas to be considered by the Tullow CSR plan.</p>
CSR Suggestions	<p>The community suggested the following development projects to be considered in the CSR:</p> <ul style="list-style-type: none"> • The construction of a security fence around the girls' dormitory at Kataboi primary school; • Construction of dormitories, teachers' quarters and dining hall at Kataboi secondary school; • A hospital to be constructed to handle referral cases and relieve pressure from the Kataboi dispensary; and • Business grants and boosts to be allocated for the youth, elderly, and fishermen. 	<p>The SIA team assured the members that all development priority areas were noted down.</p>
Concern	<p>They raised a concern that since the Kataboi community has been receiving funding and social relief from humanitarian aid agencies and NGO's will the discovery of oil resource in the region block out the investors. Is there a means to offset such an eventuality?</p>	<p>Tullow CLO responded that the government of Kenya has sent emissaries to other oil producing countries in Africa to monitor and collect views on how the resource benefits the local community at source. Their report will then advise the government on what to do.</p>
Clarification	<p>The community sought a clarification on the tendering procedure and which tenders were allocated to Kataboi during the seismic survey.</p>	<p>The area chief responded to this query. Kataboi was awarded the tender for meat and specifically goats that were</p>

Nature of Issue	Issue Raised	Response
		<p>to be transported and slaughtered at Lowarengak. However, there exists conflicts with the Lowarengak community as they want to supply the meat too as the base camp is in their locality. They agreed to alternate in weekly supply of the meat with the Kataboi community but they are still not satisfied. There exists a conflict of interest.</p> <p>The area chiefs and local leaders at Kataboi and Lowarengak are the lead people awarded tenders and they are not representing the local community and giving them an equal chance.</p>

The area chief gave a vote of thanks and was especially grateful to the SIA team for informing his local community. He insisted on how the government cannot approve a project that will harm its citizens and how the community has a right to voice their opinions. He called for honesty and transparency between the local community and investor as they continue to work together. If the community will be provoked, they will retaliate. The area chief also assisted in the translation of the entire session. The meeting was a success and the team is grateful for the opportunity to listen to the Kataboi community members. Having no other business to address, the meeting was closed at 12.15 p.m.

Katabori Location 11/8/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	JOTA LOKULAK NAIT	0777222	0700304847	
2	MARTIN BIKAT AMORU	24037074	071125017	
3	Jacqueline Louwren	23158805	0137178720	<i>[Signature]</i>
4	Matthew Adu	21528102	0711239065	<i>[Signature]</i>
5	EBEL NAKULAN	23968349	0710959678	
6	JOHNAT KITAO	23915448	0719766542	<i>[Signature]</i>
7	ISENYO - L ZACHARIAM	2071536	N/A	<i>[Signature]</i>
8	Samant Alcia	429204	N/A	<i>[Signature]</i>
9	STEPHEN INO	23565195	0713533020	<i>[Signature]</i>
10	HUSSEIN HASSAN	4797810	0719212700	<i>[Signature]</i>
11	HENRY LODOKETA ALEX	29209680	N/A	<i>[Signature]</i>
12	ELIZABETH ERDT	4778538	N/A	ERDT
13	PAUL LOKRID	4796613	0702277854	<i>[Signature]</i>
14	MARGRET NAMOI	10125333	0717591456	<i>[Signature]</i>
15	IPAS JOSEPHINE	24693771	0729005193	<i>[Signature]</i>
16	SEPHORIK EXAROKET	24866769	0703796744	<i>[Signature]</i>
17	EMERILU IDITA		N/A	
18	AKILA ILENY	47777325	N/A	
19	PAUL KINYEN	0610705	N/A	<i>[Signature]</i>
20	KAMASAN TAPKOL	0611210	N/A	
21	WILMUNA AKAZAPAN	35169175	0718591366	<i>[Signature]</i>
22	JOSOLINE WAMAR		0701046578	<i>[Signature]</i>
23	SYBERLYNE ADRE	21357257	0703796798	<i>[Signature]</i>
24	DEBORAH WATLICO	34261939	0712222967	<i>[Signature]</i>
25	CHARLES LOPEYO	25867910	0719501889	<i>[Signature]</i>
26	ETHER AZULU			
27	PAULINA ALI	11513462	0704731281	<i>[Signature]</i>
28	CHARLES ERDI LATO	13425485	0718250303	<i>[Signature]</i>
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11/04/2013 : KATABOI LOCATION

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	MUSA AKOM			
2	SELINA ATABO			
3	ESEKON MORU			
4	JOHN EKAL LOMACHAKA			
5	PAUL EBENYO			
6	BENARD EBENYAT	27683507		
7	EBEI EKAI			
8	SIDEON EKAI			
9	GABRAH NAKWAKA			
10	EQUELAN FRENK			
11	ELIM NGILIMO			
12	AGNES ARKUDI			
13	ELIM INGELAN			
14	DOROTHY KATIKO			
15	NGAIKE IMO			
16	ABUKAN LOMUPA			
17	CHARLES KARE			
18	AKATAPAN ELICE			
19	PAULINA AKWOM			
20	ESTHER IDEYA			
21	ATORE EPIDING			
22	AKAME ALFA			
23	TIKRO MORU			
24	LOWATA EKAL			
25	ATACH EYEN			
26	LOTIKEI LUBIN			
27	SPENZIA AKAI			
28	PATRICK EBENYO			
29	EKWOM DAVID			
30	ALIO GABRIEL			
31	KEING KIMBERSONGOK			
32	ARKUDI WUKLAK			
33	JOSEPH EBEI			
34	PATRICK EBENYO		07 03600776	
35	REBECCA ARWANBORAM			
36	JOSEPHAT LOPEII			
37	KADALI LOWOTON		0712537331	
38	NAIBETO WUKLAK			
39	FRANCIS NABEKI			
40	EKAI CHODOKORI			
41	ZIPPORAH ETABO			
42	PRISCILLA KAPELO			
43	ABEKUN EKUNOIT			
44	EYARAN EKAI		0721101138	
45	ELIMIM EKOMWA		0713339768	
46	SHADRACK EWOL		0715975265	

11/08/2013 KATABOI LOCATION
 PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
 ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
 DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	NAPETET KEEM			
2	CHRISTINE AKIDUR	20723245	0700293882	
3	HANNAH NAPETET			
4	REGINA NAVI LOCHIPO			
5	MABRET ALEMU			
6	AIPA EDUNG			
7	REBECCA EYANGAN			
8	CONCEPTA APEM	24087055		
9	REBECCA ADAMAI			
10	MARY NARON			
11	ESINTEN KATIBOI			
12	JECINTA LONGOR			
13	TERESA AKIRU			
14	ETOOT STEPHEN	27688521	0799188523	
15	LUCAS LOWOTO	109877249	0707890913	
16	JANUCCA EMALIZI	1012261339	0734112639	
17	DERCAS NABEI			
18	JOSAPHINE LOSURU			
19	ANCI TOPOS			
20	SARDINA AKIRU			
21	EKIID ESEKON			
22	AROT EWOTON			
23	REBECCA LOMCOK			
24	AYOE NALIDA			
25	JOSAPHINE AKAI			
26	EVALDI EMATA	21529016		
27	FRANCIS EKWAR	20919542		
28	INDRAI EKEI	13647662		
29	TALIAN EWOL			
30	SAMUEL EWOTON	21341991	0714184887	
31	FRANCIS LOKMOROK	27688510		
32	SILVESTER LOKAI	25255626		
33	NABURET LOKORIO			
34	DMONGIN KORTA BIDEON	29209830	0706338991	
35	ANNA ARON EBUTE			
36	ERET ALIX EBBYIO	28226309	0719284928	
37	TOPOS GABRIEL LONOS	28758349	0703720523	
38	JOYCE MANMAN	28324280	0702366904	
39	HANNO LONGOR PAUL	30910668	0712537331	
40	LOKAELELO KITEO	070717160		
41	EKLONY EWOL			
42	Peter Engale	020145002		
43	CHRISTOPHER AKILA	29209770	07192172	
44	JOSEPH LOKOBA			
45	JOHNSTONE EKWOM	20540111		
46	EKWISA PHILIP			

NARENG'WOI PUBLIC MEETING ON 18TH AUGUST 2013

The meeting began with a welcoming speech from the area chief and Tullow Community Liaison Officer then Earthview SIA team present introduced themselves. A presentation on exploratory well drilling was made by Kennedy Ochieng'.

Members present;

- Area chief
- Tullow CLO
- Earthview SIA team
- Community members

Matters arising;

Nature of Issue	Issue Raised	Response
Comment	The community members were happy about the meeting and especially the presentation on how the exploratory well drilling will be done.	
Suggestions	<p>One community member made the following remarks;</p> <p>The locals have a problem with paying school fees for their children especially at the college or the university levels</p> <p>The community members walk for long distances (15 kilometres) to access health facilities. They would like Tullow to assist them construct a hospital in the area.</p> <p>They said that they do not have some stores for their charcoal especially during rainy season.</p> <p>The community members would like to have nursery schools in every location to promote education in the area</p>	<p>One of the SIA team thanked the community members for their suggestions and that they were going to be forwarded to Tullow through the report. Tullow CLO added that the company offers 3 million per district for bursaries and scholarships. Recently, the amount was increased to 5 million to cater for more students. Tullow CLO told the community members that the children who do well in their national exams should bring their result slips to the chief's office for them to be considered for the scholarships and bursaries.</p>
Question	<p>In the past survey, the community members said that the operation went through someone's homestead. The community thus wanted to know what can be done in case such an issue arises again during exploratory well drilling</p>	<p>The SIA team clarified that the exploratory well drilling would be done on a small piece of land unlike the seismic survey which is done on a vast land.</p> <p>In addition, Tullow CLO said that in case such issues arise, they should be reported so that Tullow can take action.</p>
Complain	The community members insisted that	

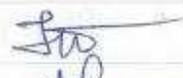
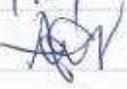
Nature of Issue	Issue Raised	Response
	the 5 million is still not enough to cater for the needy students in the district since the number is increasing.	
Suggestions	The community mentioned that there is water shortage in the area. In addition, the water is salty and the water points are quite far and the locals would like to be assisted to solve the problem. Fishing in the lake is quite difficult since the fishermen lack an engine boat	
Suggestions	The youth in the area insisted that they would like the education facilities to be improved. The schools can be installed with solar panels for studying. The groups in the area should be supported to empower people in the area.	
Suggestions	The community members said that they are faced with droughts and famine in the area. In addition, they would like to be offered some job opportunities by Tullow. They also need good mobile network connectivity in the area.	
Compliment	The locals appreciated that there is no displacement of people that will be done during the drilling operation.	
Question	One of the locals present for the meeting began by appreciating Tullow Oil for intending to carry out an exploratory well drilling in the area. They further pointed out that they have heard rumours that oil will be refined far away from the place of production.	One of the SIA team responded by saying that there are certain stages followed during the process of oil prospecting. Currently, Tullow Oil is intending to undertake an exploratory well drilling in the area which requires community involvement. At every stage of the oil prospecting process, an environmental and social impact assessment is done where the views, opinions and comments of the locals are sought concerning the process. Hence, the community members were made to understand that not much can be talked about concerning oil

Nature of Issue	Issue Raised	Response
		production and refinery since there was no assurance that oil is present in the area
Suggestions	The community members mentioned that they would like the road from Kalokol to Todonyang to be constructed for easier accessibility.	
Suggestion	One of the BMU members said that lives are lost in the windy season in the lake. Hence, they would like to be provided with an engine boat and life jackets for use during emergency situations. In addition, they said they would appreciate if Tullow could build for them a BMU office.	
Suggestion	The community members wanted the camp personnel movements to be restricted so as to avoid the inappropriate interaction between the personnel and the locals.	The SIA team informed the community members that Tullow has policies in place to ensure such interactions are avoided.
Question	The SIA team wanted to know how such an issue can be dealt with in case it arises.	The community members said that those who will go against Tullow polices should be sacked. After sacking, the individual should then come to the community so that they can deal with him/her. The area chief and the village elders should be involved. The child involved in inappropriate affair with Tullow workers be educated by the said person up to the highest level of education. Tullow personnel should have a meeting daily and sensitization should be done to ensure that they understand the magnitude of getting involved in such issues. Those who break the law should go to court and if found guilty, should be jailed accordingly.
Suggestion	The community members mentioned that they needed jobs from the project activities.	

Nature of Issue	Issue Raised	Response
Complain	They mentioned that cases of sexual exploitation were reported during the seismic survey. For example, the BGP employees used to leave the camp at 5pm and move into the camps where they would engage in decadent behaviours with the locals. This led to spread of related diseases in the area. Another community member lamented that their children are going out to look for these camp employees.	The area chief told the community members that parents should take care of their children to avoid such cases.

The meeting was concluded with a vote of thanks from the SIA team and a word of prayer from a local leader.

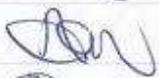
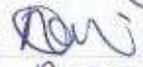
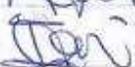
Public Meeting 18th Aug 2013
Narengewoi Public Meeting

Name	ID Number	Signature
1) DEBUKON ESEKON		
2) JAMES TIKO	23808563	
3) Josephat LOTOO	25263362	
4) Charles NATEUK		
5) MOSES EWEEC	25265706	
6) Lomilo PERRO		
7) JACKSON ETENAE	25264162	
8) LOTUI MESHACK	24917644	
9) KOLE LOPEYO		
10) MARY AMENIKUR.		
11) REBECCA LOLEM.	21364676	
12) EWALIN REGINA.		
13) MAGRET. IKOOMWA	20405189	
14) SELINA NA-IANITE.	27697232	
15) MAGRET ASUKUKU.	20715708	
16) AKAI LOMEKUA		
17) NANGOLOL EPEM.		
18) MARY AKALALE.	30764151	
19) AKAI LOTIPUWA	20777822	
20) REBECCA ALELEKINI		

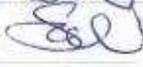
Narengewodi Public Meeting

NAME	ID	Sign
21) AKAI EDAPAL		
22) LOKALIBAN LOUDI	8663523	<u>Lee</u>
23) ESTHER ABEN	11513449	<u>(Signature)</u>
24) EKENO SEKON	25265139	
25) SUSAN AREE	30763447	
26) ANGEL ASBINU	11513487	
27) NANOK NADOPUA	21026125	
28) PATRICIA ATABO	23536097	
29) ALFMAN NAPERIT	4807958	
30) AKUWOM ATESIHO	20741819	
31) ALICE NGIMLOI	21724016	
32) AKIDOR EITWAN	5231877	
33) EKENO COCTEMIN		
34) REBECCA AROO	25264904	
35) ABULON ASEKON	8594258	
36) LEYA AWEET		
37) HAIRIEN EKAKU	30834189	
38) MAGRET WAKOYEN	21354991	<u>(Signature)</u>
39) EWOL ATABO		
40) EKAL KALO		
41) MAGRET AKAI	25264627	

Narengena Public Meeting

NAME	ID	Signature
42) REGINA EKALE	23558079	
43) HELEN EKIDOR		
44) LONASURU LUTAKORI		
45) ARBO ESURU		
46) AKATOLOT EBONGON	20741578	
47) ANNA KATABOIT	20741419	
48) MARY EBONGON	25522176	
49) IRO LONGORIKOU	26899106	
50) VERONICA AYANAE	27687995	
51) ESTHER AKWANGA	21418199	
52) AKAMAN AYANAE		
53) ELIZABETH POOSI	24239121	
54) SOLOME AKAI	20615370	
55) ARIS LONGORIKOU	4807836	
56) EMILUB NAKWAWI	25265281	
57) ANNAH AKAL	25263496	
58) JOYICE NABENYO		
59) KALE EPUH		
60) MAGRET ARASO	21263546	
61) REGINA AKIDOR	30759640	
62) CICILIA ASIN-LEW	25257704	

NAME		Mawengcha Public Meeting	
		ID	SIGNATURE
60)	JOSIPHEN AKA.		
61)	PAULINA ETELOW		
62)	VERONICA AKA	2100752	VEL
63)	RODA KUYA.		
64)	AKADAN EBEI		
65)	NYIPA EBEI		
66)	ESTHER AKIYEDOT.		07071662
67)	LOUREN AKURE		27343795
68)	AKENO JUIPHEN		
69)	RODA LOMUNYUK		25259337
70)	NGERINYANA ECHERAN		
71)	SANDRA ALIMILIM		
72)	KERIO EKAI		
73)	AKAPUA EKWEE		
74)	AKITAPAN IMUTON		
75)	ESEKON LOBEI		8594557
76)	AKALACE NAPAJA		
77)	EKITELA LOMUNYUK		30762186
78)	AYANAE NAPAIAN		25263829
79)	ALANR AIANGIN		27697171
80)	AKADELI ATHARAKIN		
81)	ATIIR EDUNG EKUS		30763859

Nawarongwi Public Meeting		
NAMPE	ID	Sign
83) LOCHUCHI NAZIMI	25263774	
84) ABETI NANGODIAN	4807941	
85) SELINA APUA	20751816	
86) SELINA AKENU	21341850	
87) AKUNGOL LOMUKUNY	8594024	
88) JOYCE ASUKUKU	21263741	
89) IKENY SEKON	0219351	
90) AWEET. NAMOJONG		
91) AKAI EBOT	27688015	
92) ANGOLOL LOMA		
93) AGNES IROPI		
94) PATRICIA AKAL		
95) LONGIRA EKAI		
96) AKENGAE LONGIRA		
97) NGOLEUNO LOMALIRETT.	4807348	
98) AYANAE EKAI		
99) ESTHER AKAI	1151344	
100) AKARU EKOOYEN	2605289	
101) ALICE NGIDATA	1291052	
102) MARIAN ANGOMO	25262663	
103) JECINTA AKAI		

Nawengwori Public Meeting		
NAMP	ID	Smu
104) AKATOKUT APUNGURE		
105) EKALF EKAI	20720116	Ⓚ
106) AREF EPUNGURE		
107) LACHRINA AROT.		
108) PAULINA KALEAPA	2356212	Ⓚ
109) REBECCA AMANIKOR	25570844	
110) AKUWOM ESEKON	25265721	Ⓚ
111) LOKAI NAMUNGELU	5594377	
112) ESTHER LOBE	0610230	Ⓚ
113) LOKWAWI ANGORIA.	8594232	
114) NAJANENGOL AKAI.		
115) AMEKWI APOSU	9007342	
116) ASIMYEN LONGORIKON		
117) SARAIT APILI	25263649	Ⓚ
118) ESTHER NACIPANU	20695036	Ⓚ
119) EKENO LOCHUM	9828060	
120) ABEN EKAI	4806889	Ⓚ
121) ASIMYEN MORUNOLE	23751252	Ⓚ
122) ESTHER AKARU	90298193	Ⓚ
123) ATIK EWOI		
124) WUPYOK EKAMATE.		

Nawerengayi Public Meeting		
NAME		Signal
125) AKARU PATRICIA		
126) ESTHER NASURU	23519680	
127) KORICH MAAKOIS	2137657	
128) SELINA LOKOPU	20363408	
129) ELIZABETH LOMINYI	2130148	
130) SARAMAI EPU	2071426	
131) AKAI EKAMAI	20287211	
132) ETHEKON EWOI		
133) AWESIT REILE		
134) SARAH ATIA-	26056214	
135) AMEKWI EPUNGWI	22723957	
136) MARGARET ELOLOI	23565760	
137) NAKOLONTOI KOLE	8594269	
138) ARUT EDUNG-		
139) AKAI KALEPU		
140) NAMONI EMATIT	0739068	
141) MARY IKA	2099223	
142) AKIRU EKA	23547362	
143) MARGARET AKIRU	2071589	
144) ETABO NGIGWA	364780	
145) AMEKWI EDUNG-	023930	

Nawaragoni Public Meeting

146)	AKIDON EYOMO	8566524
147)	ESTHER LAMPWEITCHA	
148)	APAU ECHUBALI	
149)	ARUKUDI LUCUKU	9010657
150)	RUTH AKAI	023285
151)	PAULINA ATABO	11513451
152)	AGNIS APEBIT	93162507
153)	AMPKWI SELINA	
154)	PAULINA ABET	2346250
155)	AKAZALE ACHARAB	31525917
156)	JECINTA AKAI	2452168
157)	RUTH EKENG	9526502
158)	AGNIS KATHO	
159)	ESTHER AKAI	
160)	AMANA KATAISO	
161)	PETRU ESIRITE	
162)	NAKALI EWO	27694071
163)	SELINA LOKWAWI	
164)	EPOKUTO KABEI	
165)	MARICAH MARONGOS	
165)	NAPETET. EKAL	

Nawarengoua Public Meeting

10

- 166) EMITA ESINYEN
 167) THOMAS EKADEN 25263856
 168) MARITIN EYENAE
 169) EBIA LOKALALE
 170) ESINYEN ETELON
 171) DAVID EWOL 20779309
 172) PUAKOU NAPERITI 20741711
 173) MERY APEM
 174) EWAAI POSI KABEI
 175) NAPUSIE NGIKEL LOLEM
 176) NAKOL NANGIRO
 177) LOKALALE LOKALA
 178) EDOR ESESON
 179) ESIKITE NANGOLI
 180) ESUNGUKU EPEM
 181) PETER KINGOLE
 182) EKAI ESINYE
 183) MICHAEL TEKŌ
 184) APUN EKUSI
 185) SAMWEL EBEL
 186) MICHAEL LOKIMOLUM 2526422

Nawerangpur Public Meeting

10

- 187) LOKURUKA LUTIT.
- 188) A HELEN NANGOLO.
- 189) JOHN EMURIA 85359173
- 190) ALICE EKAMAS 13647605
- 191) NACHEM NAJIKA.
- 192) ABEI NAJIKA.
- 193) PATRICK MANILA 0610147
- 194) SARAH AROO
- 195) EBE NAJIKA
- 196) JAMES FIENAC
- 197) AKAL LOKURUKA
- 198) A-IANGAW LOKURUKA
- 199) ADOKET. EBULON
- 200) AROTO LOKURUKA-
- 201) AKINGOL LOMUKOMY.
- 202) ARUKO LOMUKOMY
- 203) EZEKIEL ERINYOK 8288414
- 204) NAWOT. EPORUTO
- 205) KABEI ELIMILIM
- 206) JOHN EKAMAS 13647931

PUBLIC MEETING AT KATIKO SHOPPING CENTRE ON 12TH AUGUST 2013 AT 10AM

The public meeting began with a word of prayer from a village elder. The presentation on exploratory well drilling was done by Sarah Riziki. The SIA team also requested the community members to allow them to take photos and videos of the public meeting.

Members present;

- SIA team
- Tullow Community Liaison Officer (CLO)
- Katiko community members

Matters arising;

Nature of The Issue	Issue Raised	Response
Comment	The community members appreciated the SIA team for educating them on exploratory well drilling. They said that they were praying to God that oil will be found in the area for oil production purposes.	
Suggestion	The locals wanted their youth to benefit from the project. In case, some job opportunities come up, they said that they would like a youth from every household to benefit. In addition, they recommended for a dispensary to be constructed in the area since the nearest health facility is Kataboi dispensary which is kilometres away	They were informed that all their concerns and suggestion will be given to Tullow for consideration
Suggestion	They also need their education facilities improved. The current primary school runs up to class six and the classrooms constructed only serves pupils up to class three. They also need dormitories and teachers quarters in the school and also wanted to get bursaries for their children in school.	They were informed that all their concerns and suggestion will be given to Tullow for consideration
Concern	One of the community members was concerned that BGP just came into the area and set up a camp without convening any public meeting to explain to the locals what the company was intending to do in the area They were grateful that Tullow activities will act as an eye opener in the area.	
Suggestion/concern	The community members raised	They were informed by the

Nature of The Issue	Issue Raised	Response
	<p>another concern over the lack of clean drinking water in the area. They said that they depend on the lake for water which is salty. This contributes to the spread of some diseases such as coughs and diarrhea. Hence, they said they will appreciate if Tullow can drill water wells far from the lake where they could get fresh water.</p> <p>They insisted that they would like these suggestions to be put into action by Tullow.</p> <p>They claimed that BGP had promised to construct some schools in the area but nothing has been done so far.</p>	<p>SIA team that all their concerns were recorded and would appear in the report</p>
Concern	<p>The locals were worried that Katiko area had been neglected in terms of employment by BGP hence they would not want such to happen again.</p> <p>They said that they expected the drilling company to empower them.</p>	<p>They were informed by the SIA team that all their concerns were recorded and would appear in the report</p>
Comment	<p>The locals said that the BGP company has been in the area twice and they have not involved the community in any way in their activities.</p>	
Question	<p>The community wanted to know whether the drilling company can assist the women, the youth and the aged with some capital to start up some businesses in the area</p>	<p>The SIA team stated that they only mandated to recommend such suggestions in the report and that they could not promise the community members anything.</p>
Suggestion	<p>They need improved road network in the area for easier accessibility. They also mentioned that they need water pans for their livestock. The fishermen on the other hand mentioned that they need some motor boats to enable them fish in the deeper parts of the lake where there is plenty of fish</p>	<p>The community was assured that their suggestions would be noted in the report.</p>
Suggestion	<p>The community members wanted Tullow to assist them improve the living standards in the area. They said that they have form four leavers and class eight leavers in their midst whom they wanted to be assisted advance their education. The insisted that the company should put into</p>	<p>The SIA team clarified that Earthview had been contracted to conduct an Environment and social impact assessment on behalf of NEMA. That the team had come to collect their views, opinions and comments</p>

Nature of The Issue	Issue Raised	Response
	action what they promise since they are used to being promised some developments in the area which do not happen	concerning the drilling operation and they were not mandated to promise the community anything. However, they were informed that there suggestions would be included in the report.
Question	The locals present at the meeting wanted to know what will happen if the drilling site is located inside someone homestead.	The SIA team informed the community that the drilling site will be set up 5 kilometres from the settlement area and it will utilize less than 1 hectare of land. Hence, the drilling operation does not intend to displace people since its less land invasive
Compliment	The community members thanked the SIA team for involving the community in the exploratory well drilling process. They said the Tullow has not behaved like BGP who just come into the area and started working without consulting the community on what they were doing.	
Question	One of the community members wanted to know what will happen when the drilling site is found in a place where there are large trees used as shade and a meeting place for the village elders	The SIA team responded by stating that the village elders will be involved at every level of the drilling process. Hence, they will be made aware of any intention to cut down trees and then the two parties will reach a consensus on what is to be done concerning the issue.
Question	The locals inquired on how the aged people and women in the area would benefit from the project	Tullow CLO clarified that a committee will be constituted comprising of the chief, religious leaders, women, men and youth to discuss how to distribute any benefits arising from the project.

The meeting was concluded by the area chief who thanked the community members for turning up for the meeting and contributing to the discussion of the issue at hand. The local pastor said a closing prayer.

Katiko public meeting at 10 am on 12/08/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	MOSES MUDANG	20739041	0707460247	<i>mudang</i>
2	JACKSON LOROT	20717123	0713379193	<i>lorot</i>
3	MARARA EPUR			<i>marara</i>
4	EKULEU KARADI	4797969		
5	GILIV LOKAO	24354499		
6	ADUA EKUSI	13647559		
7	MARK LOKWALAP	4797619		
8	NANJER KALONG			
9	MARLING LOLEM			
10	NAKUTAN LOKHUPA			
11	ADAPAL EITOLI			
12	LADYANGALE LOKWAR			
13	JOSEPH LABURAS	4807292		
14	MARKO CHAI	49073023		
15	LOPEYOK IDEYA			
16	INGOLE EPUR			
17	NAYANAC LOWOOT			
18	ANNA AMONI	4807648		
19	ANDES ALIMLIM	2071625	0714615539	
20	ADOME LOKURE	4807739		
21	NACHYO EMERKWE	21600168		
22	ASINYEN LOMENATHE	479393		
23	ADUNG LOGONG			
24	TIKA LOGOT	0238580		
25	EBCI KATAROI	4906581		
26	IDEYA GPUR	4907978		
27	EKIYA ADAPAL	21597901		
28	AKALAPATIAN NARAYANNE	2525716		
29	FRANCIS LASIYU	0610525		<i>Francis</i>
30	ANDRWE ELOLA	4807379		
31	TERESA ESEKON	2405612		
32	PAUL EJIKON	20732439		
33	PAUL ERATOROT	31534800		
34	AKUYOM CHRISTINA	20732495		
35	MARY NIASIKE	28759175		
36	EKA1 LOBALI	4806476		
37	MARY EKAL	20721808		
38	EKOLOM ACHILA	4807899		
39	MARY NASIL	20818613		
40	PAULINA ASINYEN	20795137		
41	AKIPAK EMERKWE	9829661		
42	AKINGOL SARABA	25258947		
43	NAKIOALEM TULELE	4806906		
44	MARTHA ATAN	24354501		
45	MARY AMAGAL	26649632		
46	JOSEPHINE AKAI	24085690		

Katiko Public Meeting at 10am on 12/8/2018

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	Poseline Asimit			
2	Wanica Akizow	24087005	0717391301	Wan
3	Brenda Akaj	30771221	07 -	B
4	CKAROM Lokom	24075948		
5	Jecinta ATAO	21528155	0727958777	
6	EPUNURU LOSINYON	10125642		
7	MARY AMANIKOR	20713328		
8	MARY AKINJOL	24085576		
9	EVELYN AKON	24084577		
10	MARIEIT EKUMIL	4793104		
11	AKICAP NIKMINAS	24354564		
12	FRANCE ILE	24075602		
13	Immanuel Kai	20723276	0713418808	
14	ALIKALIM PEULINA	3075539		
15	Immanuel ekadete	2666361		
16	Selina ekal		0706712496	
17	PAMELA AKASIKI	12910343		
18	Bila apochut	25262646		
19	BILIS ATAO	25258403	0711165771	
20	ANNA ASINYON	24086767	0705912437	
21	SUSAN AIPEN	23565786		
22	SUSAN ATOT	25263178		
23	Susan NIASINYON	2282160054	0712243965	
24	MARILINE JAMES	25263197		
25	MIRIAM ABESII		0712258769	
26	Jecinta ABU	30770555		
27	NGAIKE EIRAI	12910896		
28	PAULINE AKICU	25263284		
29	NAKIBAN LOKORO	48068777		
30	ENIOMO EKANT	21528233		
31	ANANAY AROI	9827309		
32	ABUNYI IRACH		0707562593	
33	MARIEIT NIKOLATT	30759234		
34	Peter E. ATAO			
35	MARY AKONO	24078151		
36	BOENAS ASIKON	26107788	0728389582	
37	PAUL ELIMILIM	30758712		
38	SOSOPHAT LOKARO	21780517		
39	ANNY AGNES ABBI	24085721		
40	MARIEIT ATAO			
41	JOSEPHINE ASIBIINA	25259123		
42	NAIKALEI LOSIKIRIS	7071918		
43	ALIZA AROI	22844079		
44	ELISABETH AKUNEM			
45	JANEI AKAI			
46	ALIS EKIBAL			

PUBLIC MEETING AT LOWARENGAK ON 15TH AUGUST 2013

The meeting started at 9:50 a.m. with prayers from one of the members of the community. One of our SIA team members, Kennedy introduced the rest of the SIA team and then proceeded to give the presentation of the project activity. He then welcomed the members of the Todonyang and Lowarengak communities to give their views and concerns about the project.

Members present

- SIA Team
- Members of Lowarengak and Todonyang community.

The following are some of the issues that were raised:

Nature of Issue	Issue	Response
Question	The wanted to know the mechanisms that would be used to allocate the bursary funds. They also suggested that the criteria to be used in selecting the beneficiaries be determined by the chief of that area since he is more familiar with the children in need of bursaries in the area.	The Tullow CLO informed them that the Diocese of Lodwar receives the education funds from Tullow and that the elected MCAs were responsible for the allocation of these funds and any complaints on allocation should be presented to them.
Question	One of the members wanted to know the effect of exploratory well drilling on the physical and human environment	The SIA team informed them that the impacts of the project were both positive and negative. They were informed that the drill site would be located 5 km from any buildings or homestead to ensure minimal interference with the human environment. The expected impacts on the physical environment included destruction of vegetation when constructing access roads and air and noise pollution generated by the drilling machinery.
Question	They wanted to know whether members from Todonyang and Lowarengak communities would be part of the 250 personnel that would be employed at the drill site	The SIA team informed them that Tullow are required to employ some members of the community to work at the drill site
Suggestion	One of the members suggested that Tullow drill water boreholes as they drill the oil wells. This will benefit both the community and the proponents as they carry out their work.	They were notified that the suggestions will be included in the report.
Question	They wanted to know whether	The Tullow CLO informed them that

Nature of Issue	Issue	Response
	another ESIA will be carried out before actual drilling of oil commences. They want transparency and proper consultations before the projects starts.	before actual drilling starts another ESIA would be conducted and members from the community where the drill site would be identified would be consulted prior.
Question	They wanted to know whether compensation would be awarded in the event that the drill site was identified on settled, cultivated or grazing land	The SIA team informed them that in the event that the drill site was identified on grazing or settled land, proper negotiations would be conducted between the land owner and the proponent to determine the compensation mechanisms to be used
Suggestion	One community member mentioned that most of the Turkana population consisted of illiterate people and as such proper mechanisms should be sort on how to sensitize them on the benefits of the project as well as the negative impacts to be expected	
Suggestion	They also suggested that Tullow should hire security personnel (Kenya Police reservists) from areas where the drilling would be conducted as they are more aware of the security situation in the area.	The Tullow CLO informed them that he would report these recommendations to Tullow
Comment	They informed that they had no confidence in the current District Advisory Committee and also wanted their period of stay in office reviewed as most of them had been in office for a long period and yet ineffective.	
Comment	The community members also reiterated that Tullow should maximize on their security options to avoid frustrations when carrying out their project. He said that this would probably be the biggest challenge they would face when working on that area since it borders Ethiopia.	
Comment	One of the members mentioned that the reeds growing on the lake shore near the Ethiopian Border are used as hiding grounds by the Merille who attack the Turkana fishermen once they approach the shore. They suggested that the reeds should be eradicated from that area as a	The SIA team informed them that this would be included in the report for NEMA to review.

Nature of Issue	Issue	Response
	mitigation measure to the insecurity. They wanted Tullow to provide speed boats to be used for patrolling the around the lake.	
Comment	One of the community members requested the SIA team to inform NEMA that the locust infestation in the area was getting out of hand. Their grazing lands are slowly deteriorating. They would like NEMA to take this issue seriously and assist them in eradicating this problem.	
Question	They wanted to know what mechanisms would be used in compensating and resettling displaced persons who do not own title deeds for their land as it is communally owned	The SIA team informed them that Tullow and the government are well aware that land is communally owned in the area and this would be taken into consideration when resettling and compensating the people
Question	They wanted to know what percentage of oil would be allocated to the local community once the oil is produced.	The Tullow CLO informed them that they would be allocated 5% of the total revenue from the oil that would be produced.
Question	They wanted to know whether it would be possible for the proponent to leave some of the sheds at the drill site that had been putting up during the drilling process for the fisher folk to use them	SIA team informed them that NEMA rules and regulations require the proponent to decommission and abandon the area upon completion of the project. Going against this would be considered breaching of the agreement.

The meeting ended at 11:45 a.m. with prayers from one of the community members.

PUBLIC **LOWARENGAK/TODONYANG 15/08/13**
STAKEHOLDERS MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	INSTITUTION	CONTACT	SIGNATURE
1	PATRYK M. KARUTO	TEKONYANG	0700094279	[Signature]
2	CHARLES L. MAROK	LOWARENGAK	0700672177	[Signature]
3	CHRISTOPHER L. AKAMNY	LOWARENGAK	0705507494	[Signature]
4	LOKIDIIR KATI KOLINO	LOWARENGAK		[Signature]
5	EMEBUKA PROO		0717220710	[Signature]
6	ESEKON BONITAE	LOWARENGAK	N/A	[Signature]
7	MAYAN MUDANOD	LOWARENGAK	0719847157	[Signature]
8	PAUL ELOT	LOWARENGAK		[Signature]
9	Abdi Isack Ahmed	TODONYANG	0718603116	[Signature]
10	DAVID ERIPON	LOWARENGAK		[Signature]
11	GEORGE TALVIN	LOWARENGAK	90232070	[Signature]
12	Edato Lovess MUSA	LOWARENGAK	0718342577	[Signature]
13	Edianto Santos	LOWARENGAK	0922813027	[Signature]
14	Eljah E. CHADAMAZ	LOWARENGAK	0713214082	[Signature]
15	EROD ARUS	LOWARENGAK	0710332221	[Signature]
16	LORONGI FAMIL	LOWARENGAK	0718241973	[Signature]
17	ZAKARIAH LOKOLONGI LOKUN	TODONYANG	N/A	[Signature]
18	MUSAI ELOI	LOWARENGAK	N/A	[Signature]
19	BENJAMIN EWOLO	LOWARENGAK	070509852	[Signature]
20	MAGNUS GUN	LOWARENGAK	0701654971	[Signature]
21	PUS CHICHI	Office of president	0714310430	[Signature]
22	Clement KAKIM	HT-FOGARI	0720155024	[Signature]
23	ETHEL WOLIN	SECURITY COMD	072832885	[Signature]
24	BENJAMIN ELEMEN	LOWARENGAK	0710666814	[Signature]
25	PETER EWUOL		0705586334	[Signature]
26	JOSEPH LONDEL	KANAMKUM	0728349667	[Signature]
27	DAMIS ADIANGILI	KANAMKUM		[Signature]
28	MRS ELOM	" "		[Signature]
29	NAMBA LOKURUKA	PIRICAN		[Signature]
30	BRENT NAJIKI	LOWARENGAK	071822204	[Signature]
31	GEORGE L. LOGECHUSA	AG/CHIEF	070580251	[Signature]
32	MICHAEL EGELAN	C/DE TURKANA NORTH	0715097936	[Signature]
33	DORAS HUKWI PILI	TODONYANG	0703174000	[Signature]
34	MICHAEL AMO	TODONYANG	0707562581	[Signature]
35	MARY ELOI	LOWARENGAK	071820858	[Signature]
36	PHILIP KEBURE	LOWARENGAK	0707597373	[Signature]
37	NANCY KARIO	LOWARENGAK	N/A	[Signature]
38	NASIRU EPEL	LOWARENGAK	N/A	[Signature]
39	LORDIA LONCHU	TODONYANG	N/A	[Signature]
40	LARRY LOSIKI	TODONYANG	0718242720	[Signature]
41				
42				
43				
44				
45				
46				

LOHARUNGAR/TUDUNYANG 15/02/13
**PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
 ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
 DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING**

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	MOSES EKUER ERU	22666760	0729284993	[Signature]
2	STEPHEN EKIRI KACHIL	20340250	0711971042	[Signature]
3	SIMON LAGAN/LOUSA	27362424	0706188196	[Signature]
4	JAMES LOKIYOTO	28007570	0707554565	[Signature]
5	FRANKLINE EJRE	22994422	0701124122	[Signature]
6	JOHN KAKHA EKAL	2535651	0724114703	[Signature]
7	LONAPA EKIRU	28276341		[Signature]
8	KINE GIARD MANICE	27691151	0707284955	[Signature]
9	KAPUGO STEVE	30869766	0727057770	[Signature]
10	DOMINIC LOKER	21588913	0723276878	[Signature]
11	PAUL MARIYANG	25104488	0715239754	[Signature]
12	JAMES LOPETO		0714238631	[Signature]
13	JAMES ANJOSAN	27492796	0715437220	[Signature]
14	LONAPA EKOTOM			[Signature]
15	JOHN ECHMAA	23552075	0713594489	[Signature]
16	EDWARD MUKHNDI	25220731	0716444141	[Signature]
17	ALEX EKENO		0719332768	[Signature]
18	JOHN MEYAN		0719322768	[Signature]
19	LOYU LOMINAE			[Signature]
20	EKARU EKIDOR	2245025	0707133166	[Signature]
21	LOKONYEN EKAMAS			[Signature]
22	DISMUS NARANAA	10256541	0743258961	[Signature]
23	AUGUSTINE ERUKUDI			[Signature]
24	EDUNG TATA			[Signature]
25	EKAL LOKOR			[Signature]
26	PETER EKARU	20695032	0728611178	[Signature]
27	EKONDM KONERT			[Signature]
28	NGIGENYO ERGO	20686790		[Signature]
29	LOBUR NANYANG			[Signature]
30	LOGRON LONYPKOL			[Signature]
31	EDOKET LONAPA			[Signature]
32	JOHN EKURAT			[Signature]
33	ERU/ MOSEKE ILOKIM	28009495	0716665327	[Signature]
34	ERKON JOSEPH			[Signature]
35	JOHN LOMOGOL			[Signature]
36	JOHN ESINYEN			[Signature]
37	LONOLOK MACHU			[Signature]
38	PAUL ENDI			[Signature]
39	JOSEPH LOMAAKA	25104587	0728789285	[Signature]
40	PETER LONGOMO		0719864097	[Signature]
41	SAMUEL PATRICK	2492264		[Signature]
42	JOSEPH KOTARTEI		0726831417	[Signature]
43	LECHAAN LONGOMO	20304226		[Signature]
44	PETER LOKWIRAS	20379280	0718457925	[Signature]
45	MOSES EKALALE	13647585		[Signature]
46	JAMES ERU		0714685740	[Signature]

TUDONTANG / LOWARENGAR 19/05/13
 Public meeting
 STAKEHOLDERS MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
 ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
 DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	INSTITUTION	CONTACT	SIGNATURE
1	SARSON EBENYO			
2	IMMAVABU EWAHAN			
3	LOTEDE EKIRU			
4	LOMINAN LOYOTO			
5	LOJORE ELOTO			
6	KOTOME ERENG			
7	LOLIM LONGELBOT			
8	LOTADE TOPOS			
9	EKA EKIRU			
10	EKITELA ETABO			
11	MARIKO ETIIR			
12	KALLENB EWOJON			
13	MARAKA LORRE			
14	TIMOTH ESEKON			
15	MICHAEL EKA		0107684549	
16	JAMES EWDI			
17	MOSES EKIRU			
18	ETABO ELOTO			
19	EZEKIEL ETABO			
20	EKITELA ETIKON			
21	SARAH ENOI			
22	ERUKODI NANA			
23	ETIIR EKIRU		071718605	
24	TIMOTH EKENO			
25	EKITELA SEKON			
26	ETIKON LOROT			
27	EKARU KIMAMAM			
28	MICHAEL EKENO			
29	MAURICE ERIPON			
30	ECHAKAI LOROR		0702467787	
31	NACHOL EPOJ		0708511794	
32	NAKIMAT LOMEDEX			
33	FLORAH EPETET			
34	VERONICCA AKENO			
35	REBECCA EKENO			
36	ATABO EBENYO			
37	SAMUEL ABONG			
38	LAURENCE EKA			
39	LOKALE NARAKA			
40	LOKLE ELOTO			
41	MUHAMMED TOPOS		0718250332	
42	ROBINSON LOCHERIA		0718406857	
43	JOHN EKAMAS			
44	WILLIAM EKWAR		0711996931	
45	SILVESTER KATMAN		0707081268	
46	PHILIP EKENO			

PUBLIC MEETING AT NACHUKUI ON 18TH AUGUST 2013

The meeting started at 9:30 a.m. with prayers from one of the members of the community. One of our SIA team members, Eric then introduced the rest of the team and proceeded to give the presentation of the project activity. He then welcomed the members of Nachukui area to give their views and concerns about the project.

Members present

- SIA Team
- Members of the community from Nachukui including their chief

The following are some of the issues that were raised:

Nature of issue	Issue	Response
Question	They wanted to know what mechanisms would be put in place to relocate and compensate the community members who would be displaced in the event that the drill site was identified on their land. They also wanted to know how they would be compensated for destruction of grazing land	SIA team informed them that proper negotiations would be conducted with the land owners to determine the proper mechanisms to be used in compensation and resettlement
Question	They wanted to know what mechanisms would be used to control the noise and air pollution that is likely to occur during the drilling of the well and the construction of access roads.	They were informed that proper recommendations would be stated in the environmental management plan for the proponent to adhere to during the project activity
Comment	They informed the team that the means of wastes disposal that have been used by Tullow sub contractors in the past have been improper. The food waste is thrown into pits which attracts young children.	The SIA team informed them that they would recommend proper waste disposal mechanisms in the environmental management plan for Tullow to adhere to during the project activity.
Comment	The community members mentioned that the criteria used to employ people to work at the drill site needs to be corrupt free and consider members of the local community for employment.	They were informed that their concerns would be include the project report
Comment	They requested Tullow to improve the infrastructure in the area by constructing schools and hospitals and drilling water boreholes. They also wanted Tullow to increase the amount of bursary funds allocated to schools in the local community	
Comment	They informed the SIA team that they expect Tullow to give jobs to the people from the local community if the drill site is identified in their area. If they bring in	

Nature of issue	Issue	Response
	labour personnel from other areas this would likely generate conflicts between the local community and the proponent.	
Concern	They were concerned that during the oil drilling some of the oil would spill into the underground water aquifers and cause contamination of the water.	They were informed that during the drilling process, a casing would be used to prevent the hydrocarbons from flowing into the underground water aquifers
Concern	They were concerned that the personnel that would be working in the camp were likely to cause a change in social lifestyle and this would lead to erosion in social morals	They were informed by the SIA team that Tullow had policies relating to social behaviour and that the workers would adhere to the set rules.
Question	They wanted to know what percentage revenue would be allocated to community once the oil was produced	Tullow CLO informed them that 5% of the revenue from the oil produced would be allocated to the local community
Comment	They felt that 5% was too little to benefit the community	
Question	They wanted to know how long the exploratory well drilling would take	They informed them that it would take about 3 to 4 months
Comment	They informed us that they would like to see the ESIA report after it had been written	SIA team informed them that a copy would be sent to NEMA and that anyone who has interest in reading the report has the right to do so as stipulated by law.

The meeting ended at 11:15 a.m. with prayers from one of the community members.

Public Meeting in Nachukui on 17th/5/2013
 STAKEHOLDERS MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
 ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
 DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	INSTITUTION	CONTACT	SIGNATURE
1	ESEKON KALOTUM			
2	LOKOOKMOE MORU			
3	TOONI NAMUTON			
4	NASURU LOWDON			
5	DAVID ALILA			
6	ESINYEN LOOCHERAT			
7	VERONICA AKAI			
8	ELEMAN LOPEYOK			
9	LOUREN SAMAL			
10	NATOD LOBUIN			
11	AMUS NANSOLIA			
12	LOKINEE LOREE			
13	FAITH ALIM			
14	ARALATUR ESINYEN			
15	FRANCIS EKIDOR			
16	DARE AYIEN ESINYEN			
17	MARY LOKWAR			
18	TERESA NAPUA			
19	ABEI MORU			
20	TERESA ATARO			
21	ELIZABETH EMURIA			
22	AGNEE TIKO			
23	AKOLONYO LOMONGIN			
24	ASEKON EWAT			
25	MUYA ESTHER			
26	NAMUTON SIMON			
27	PAMELA APUA			
28	AKAI SUSAN			
29	ATARO INOK			
30	ANNA SAMSON			
31	AKAI LOKICHILIO			
32	LEAH NASURU			
33	PAULINA AMANIKOR			
34	JERINTA AVODE			
35	LURRY ATARO			
36	VERONICA AKARU			
37	CATHERINE AVANAE			
38	JOHN EYANAE			
39	SCOLAR NAKUTAN			
40	KODETO LOKHIO			
41	REBBEA ERIPON			
42	EKOYEN AKOSWAN			
43	DORCAS EKIDOR			
44	EVERLYN EKARU			
45	ELIZA NAKURUKA			
46	ABEI IKAI			

Public meeting in Machukui 17th/8/2013
 STAKEHOLDERS MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
 ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
 DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance
 ID No.

NO	NAME	INSTITUTION	CONTACT	SIGNATURE
1	MARCO LOMUNYIN			
2	ELALO KINEI			
3	RICHARD NAUT			
4	TIONO LOUCHUM			
5	WILLIAM ERUPE			
6	GABRIEL EBENYO			
7	JOHN ESUSUP			
8	DANIEL EKURI			
9	PETER ETUPAT			
10	ESINYEN EKEND			
11	ESTHER AGETET			
12	LUCAS PORE			
13	RODRIK EMURIA			
14	CHARLES WALE			
15	STEPHEN ESINYEN			
16	NANTAL NANGOLLA			
17	ENAT LOITANGOLE			
18	ESTHER NAPEYO			
19	KEVIN ESINYEN			
20	ALICE ASUKUKU			
21	APAS LOKULO			
22	MOIT EKULEU			
23	KACHAEL AKUNYUK			
24	HELLEN AKIDOR			
25	ATABO MURIAM			
26	NAXIMATI AKUNYUK			
27	NGASIKE ETIR			
28	PETER EKALALE			
29	AKADEL ETIR			
30	ASUKUKU KOROB			
31	MARGRET DISI			
32	ABEL EWAT			
33	AKITELA EKAL			
34	NANCY NATIIN			
35	BELINDA KINEI			
36	SIMON NAMUTON			
37	MACHARIA NAROLE			
38	PHILIP KOROB			
39	JACINTA ASIRITE			
40	STEPHEN ETOOT			
41	ESINYEN MACHARIA			
42	ESINYEN EKAL			
43	LILIAN LOCHIO			
44	LOBEI LOMONUN			
45	EXAM IKENY			
46	NANDROGO LOUCHUM			

KALIMAPUS PUBLIC MEETING on 10-8-2013

The meeting started at 9.50am after a word of prayer from one of the community members. The area chief was not present but one of the elders welcomed us. The SIA team introduced themselves and through a translator, the community was informed on the ESIA that Earthview was conducting on behalf of Tullow. It was emphasized that the said project will only be an exploratory endeavour to determine if there are enough hydrocarbons to warrant commercial production.

After the community was informed about the project, they raised the following concerns.

Concerns and Responses

Nature of the Issue	Issue	Response
Suggestion	The community members wanted to be considered in employment opportunities among the approximate 250 workers in the exploratory oil drilling camp.	The CLO (Community Liaison Officer) assured the community that they will get employment opportunities to offer services such as cleaning the camp, offering security and secretarial activities in the campsite. He, however, cautioned them that the drilling experts will not be among the 250 employees. He also emphasized that there will be an employment committee within the community that will be mandated to employ qualified community members. Should the community members lack the required skills; the opportunity will be announced within the neighbouring region.
Question	One member asked if they will be displaced should oil be found within the settlement.	ESIA responded by assuring them that there will be no any displacement of people and that the camp will be 5 km away from the settlements.
Question	One member wanted to know how the host community will gain financially should oil be found.	The CLO voiced that the host community will gain. He said that the government will get 70% of the proceeds, Turkana County will get 25% and the host community will get 5%. He, however, cautioned them that it was too early to discuss the revenue allocation because the current project is only undertaking hydrocarbon exploration.
Suggestions	One member requested Tullow to invest in education to benefit both children and mainstream the adults too. They also requested Tullow to build a high-school in the area as there was no secondary school in the whole division.	They were informed that their requests will be put in the reports for Tullow to look into

Nature of the Issue	Issue	Response
Request	Requested for more water drilling in Kalimapus sub-location because the available water tank is serving the whole community which is vast and some members have to go through long distance to access the water tank.	The CLO informed them that water drilling will take place in Kataboi as from September 2013 after their written proposal was accepted by Tullow. He, however, told the community to be open and air their views to Tullow should they be in need of any other services.
Concern and suggestion	<p>The high noise level produced by the drilling machine and the moving vehicles may impair hearing of the local community. Their livestock especially sheep and goats may be frightened and run away and even get lost.</p> <p>If Tullow vehicles will be moving around, water should be sprinkled on the roads to minimize dust that will be produced.</p>	They were informed that Tullow has driving speed limits in that the speed limit on a good road is 60 km/hr on poor roads is 40km/hr and finally, the driving speed limit within settlement is 5km/hr. This would minimize road accidents, noise pollution and dust levels.
Question	One participant wanted to know how the old stood to gain from the project. He specifically mentioned that failure to engage the old might lead to a curse from the old.	The CLO mentioned that Tullow will engage in culture festivals and invite the old men in the host community to bless the Oil wells. He also reiterated that Tullow will hire the old men to guide the waste pits used to dispose wastes.
Concern	They reiterated that the fly camp in Kalimapus does not source tenders from the locals to supply the needed commodities such as food stuffs, goats and other animals. They therefore want the camp that will be constructed to source tenders from the locals.	The Tullow CLO informed them that a committee will be constituted to oversee tendering activities. He, however, cautioned them that tenders will be awarded to individuals who can demonstrate consistency in supplies.
Suggestions	In the event that an animal will be hit by a vehicle under Tullow, they would like compensation.	
Question	They wanted to know what will be the next step should Tullow find other minerals apart from hydrocarbons.	They were informed that Tullow has a license to explore hydrocarbons but should they find other minerals, they will write a report and inform the government of their findings and it will be upon the

Nature of the Issue	Issue	Response
		government to take the necessary action.
Comment	They fear that oil might turn out to be a curse in the community like other oil producing countries.	They were informed that their exist also other oil producing countries that there are no conflicts and hence they should not fear but give their concerns so that such things may not happen
Request	One member requested Tullow to supply the locals with farming equipment such and irrigation facilities.	
Concern	Going by Jet camp experience, the community felt that the vulnerable girls will be abused sexually by the workers from the camp and that married women also engaged in sexual affairs and this led to alarming divorce rates in the area.	The CLO reiterated that the camp has strict policies and that such vices will not occur. He mentioned that workers are not allowed to leave the camp past 6.00pm.
Suggestion	Should Tullow agree to compensate the locals for any loss, they want the company to deal with a community-select team. This should be the case in replacing the nets. They believe that the said committee has experience on the needs of fishermen and other groups.	They were informed that all their concerns and suggestions will be given to Tullow.
Request	On member mentioned that livestock diseases in the area are still common and asked for assistance. He also asked if water pans could be sunk to provide water for the livestock.	They were informed that all their concerns and suggestions will be given to Tullow.

The meeting ended at 12.20pm by a word of prayer from the community leader.

Kalimapus 10/8/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	PALLO EWOI	4056893		
2	MICHAEL EKWEE	25259001		
3	PETER EKIRU	26188317		
4	JOHN LODOME	93361888		
5	LUPERITO NDIRUKANI	4204476		
6	JOHN TIROO	25588537		
7	IPES MARAKA	20527478		
8	TERENYAT EKITEKA	10125455		
9	MUSA KAPAL	30764045		
10	HARDET LOARU	27267047		
11	PETER ESINTEN	21406414		
12	EWOI LODOME	23971785		
13	DANIEL ERAT	9336147		
14	ATEA NANDIK	-		
15	LOVIN LOKALA	-		
16	Stephen Lokate	-		
17	John L. Odoi	9336148	0705661920	
18	Josephat EKALE	-		
19	EWEITE ESEKON	-		
20	JOHN EZELET	-	0704139694	
21	LAWRENCE EKUNU	20506454	0729525662	
22	SAMUSON EKENO	-	0703308917	
23	JUSTUS NAYELO	24100275	0713193253	
24	PAULINA AMURUA	-		
25	REGINA KIVANGA	-		
26	MARY NASOPO	-		
27	COSMUS MZEE ESINTEN	20511905	0719678891	
28	SEMON ELIM	-	-	
29	DANIEL ERATUOM	-	-	
30	EKOEL NATCO	-	-	
31	ILUK EKWAAR	4797703	-	
32	EMMETHE MUYA			
33	LOKIRIMMET ERIKA			
34	EKKLE ECHOTO			
35	AKOL LONKADA			
36	LOCHON TARCH			
37	LOKALA ABONG			
38	PATRICK NABIAA			
39	NAKUNAWI LONKADA			
40	NARAVITOO KOBETEL			
41	NARWANI MARAKA			
42	LOKURUKA LOKALA			
43	NAYELEL AYAN			
44	SILAL ENKOLEMUNA			
45	MARK EJACO			
46	JOSEPHAT. N. KATAAT			

Kalimapus 10/8/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	Evans Kosuru			
2	John Elinim			
3	ASMIT EBENYO			
4	SELINA AKOT			
5	VERONICA EKOTE			
6	Alice ARATA			
7	ANNA NYARAA			
8	JOSEPHINE NARAYOK			
9	MARIBREI KOMUTON			
10	MARY AMANMAN			
11	SARAH ATAB			
12	ELIZABETH AWOSIT			
13	LEAN LOUADILIO			
14	NANLY AKORI			
15	ESTHER EKOTO			
16	MARGRET MANA			
17	ROSE AKOT			
18	NATOMBE LOUREN			
19	LUCY AMEET			
20	SUSAN EBEL			
21	AKALALE LOTIANGA			
22	SAMUEL NAMAA			
23	AMOS LOUWALA			
24	EMANIKOR LOTIANGA			
25	PHILIP KOTRE			
26	CHARLES ADIR			
27	MAKENDAKELAN AKIDOR			
28	MARY NAKILAE			
29	APAS CICILIA			
30	AKOLONG LOUWALA			
31	NALWA NAKANATOD			
32	PAULO KODUKOT			
33	KOCHODO ESEKON			
34	PETER EBAAK			
35	MARIKO KOCHAMPA			
36	EVALYRE EGIALAN			
37	LOTIANGA LOMILO			
38	LOUWALA KALENG			
39	KOMORI BAPPA			
40	CULUMBU ATAB			
41	NAKITO KOCHILIA			
42	MARY ABUKON			
43	VERONICA AMEKWI			
44	ELIZABETH ABUTE			
45	CHARLES BUIS			
46	JOHN NAKALALE			

Kalimapur 10/8/2013

PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Attendance

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	MICHAEL ERRE			
2	EREGAE LATWEL SYLVA	29209326	0716299440	
3	SAMUEL EKOMWA			
4	WILLIAM EKASROT			
5	LOKUI KONGOR			
6	ESIBATAR LOTAROK			
7	ADWELINA ABU			
8	TECINIA AMULANDU			
9	PAULINA AKHADA			
10	ALICE ANAM			
11	EMILY ESUGURU			
12	SEKINA AMEKUI			
13	CHRISTINE ATIRAT			
14	REBECCA EROT			
15	RUTH EMIEKUI			
16	RODA AROT			
17	MARIANA ATARAE			
18	JUDYCE AKENO			
19	ALICE KAADU			
20	PAULINA GIDDA			
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KANG'AKI PUBLIC MEETING ON 18TH AUGUST 2013**Members present;**

- Nachukui chief- Mrs. Esther Mana
- Tullow CLO
- Earthview team
- Community members

The meeting started at 9:50 am after a word of prayer from one of the community leaders. The CLO (Community liaison Officer) welcomed the Earthview team.

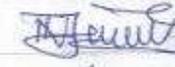
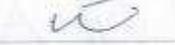
Erick Ochieng (Earthview Geoconsultants) sensitized the community on the role of the Earthview insofar as the environmental and social impact assessment is concerned. He informed them of the process and activities that are involved in exploratory drilling. He also asked the community to allow the SIA team to take photos and video recordings that will aid in report writing. He further urged the community to feel free and give out their views concerning the project.

Nature of the Issue	Issue	Response
Concern	They reiterated that The previous exploration exercise which was carried on-shore by BGP in Kang'aki had said that they would leave no wastes behind. However, BGP used duom palm trees and tanks and left them on various routes.	ESIA informed them that Tullow will follow all the NEMA regulations insofar as waste management is concerned and that when the activities are finished Tullow will rehabilitate the area of exercise and leave it as it was before.
Suggestion	He requested Tullow B.V Kenya to engage the locals in employment opportunities.	
Suggestion	One member also raised concerns that Kang'aki school has classes that run from classes 1 to class 5 and so Tullow should build more structures.	On the school issues, Tullow CLO told them that they will forward their recommendations.
Comment	One member mentioned that unlike the previous exploration companies, Tullow conducted an ESIA study and this pleased the community members.	
Suggestion	They requested Tullow not to demolish their structures unlike BGP in Kang'aki that demolished their used structures and left 3 structures after a tussle with the community members. They said that the structures will help them run their activities such as fishing.	On reserving the used structures, they were informed that it was the requirement of NEMA to rehabilitate the place and leave it as it were previously. The ESIA team, however, told them that they will file a report to both Tullow and NEMA.
Suggestion	They also want a health centre	They were informed that their

Nature of the Issue	Issue	Response
	in the area since the nearest available hospital is in Nachukui at the mission and it is a long distance from Kang'aki.	views will be put in the report
Concern	One woman reiterated that Tullow should discourage immorality in the area especially child abuse should they camp in Kang'aki. She further mentioned that the former employees of BGP in Kang'aki exploited the children and women due to poverty hence luring them into prostitution.	The participants said that should a school going child be impregnated, the victim should be jailed for 20 years. The young boys who go to the camp should be caned and deterred from access the areas near the camp.
Request	One member mentioned that BGP workers did not allow the community members not to go near the camp where they used to get the duom palm; this really inconvenienced the locals as the Doum palm tree is their source food. She therefore requested Tullow not to deter them from access the tree should it be near the camp.	
Request	They mentioned that they needed water since they depended on <i>luggas</i> .	They were informed that all their requests will be reported to Tullow for considerations.
Suggestion	One member mentioned that should Tullow decide to engage the area chief to source for employees in the area, the chief should be impartial in giving the opportunities but not give the jobs to his/her allies as was the case previously where the gainers were the members of Lomekwi, Nachukui and the Lowareng'ak.	<p>The Nachukui chief assured them that the host community will receive the employment opportunities and should there be fewer employees in the area, they will source for employment from the neighbouring regions such Nachukui.</p> <p>She also encouraged the community members to invest in commodities that will enable them to compete for tender opportunities from the said company.</p> <p>She also said that a committee will be formed that will include the chief, a member of the church to ensure that the right individuals are awarded the</p>

Nature of the Issue	Issue	Response
		<p>tender without any bias.</p> <p>She, however, insisted that the jobs that require skills will be given to the technocrats who have the required skills while the unskilled job opportunities will be given to the locals depending on the available skills including the women.</p>

The meeting ended at 11.06am.

Kangaki Public Meeting 18 th Aug 2018		
Name	ID Number	Signature
1. FREDRICK EKAKOTAN	25333976	
2. ESINYEN CHUCHU	25073110	
3. LOMEYAN JAMES	30000051	
4. JOHN EMEKWI	—	
5. EKAL EGIKON	—	
6. MARIKO LOBORUK	20395770	
7. MOSES LOKAPITEI	30771351	
8. MARTIN EKIRU	21523897	
9. LOTONIA MAAROK	—	
10. JAMES EKENO	25258864	
11. EWOI MONITI	—	
12. EPARAN PAULO	—	
13. SAMUEL EGIKON	—	
14. GASIKE EDONG	—	
15. KITOKLE ECHWA	—	
16. GABRIEL EKOWOM	—	
17. PETER EKAI	14448480	
18. ETABO ESINYEN	27693533	
19. SAMUEL NGAMANAT	—	
20. STEVEN ECHAKAN	30758602	
21. EKAI IDEYA	30760676	

Kangaki Public Meeting 18/8/2013

22. IRENE AKINGIOL
23. ESTHER AKOTOROT
24. PAULINA ASINTEN
25. SILVIA ASINTEN 25268015
26. JOSEPHINE AKIRU
27. ANNA AITE
28. EBONGION EKALALE
29. NACHOK EKEND
30. ABULON CHOPER
31. ALICE AKAI
32. MARY NAROGO
33. ESTHER NACHUCHO
34. REBECCA LOYEE
35. SUSAN AKOWON
36. AKIRU LOKOLU
37. LUCY AKAI
38. CHRISTINE EMOJA
39. MARY NAPETOK
40. ESTHER AKIDOR
41. MARY AKAI
42. WILLIMINA ESEKON

Kangaki Public meeting 18/8/2013

- 43. SELINA RE
- 43. REGINA MONTI
- 44. SUSAN EMEKWI
- 45. VERONICA AJIKON
- 46. PAULINA EKENO
- 47. TOKO LOCHOAN
- 48. LUCY EKAI
- 49. MIRIAM ABEI
- 50. MARY AWOI
- 51. JAMES MONTI
- 52. MARICO IMOJONGU
- 53. JECINTA ATABO
- 54. MICHAEL LOSURU
- 55. EUGENI PAULO
- 56. VERONICA ABEI
- 57. AGNES AKARO
- 58. ESTHER APUA
- 59. AROD REBECCA
- 60. ANNA ASEKON
- 61. AKAI DAPAL
- 62. SUSAN AYANAE

Kangaki Public Meeting 28/8/2013

63. PHILIP EKALALE

64. SELINA NARE

65. APUWA LOCHILIA

66. AJIKON EKAPEL

67. AGNES NAKODONYANGI.

68. LEAH AKARU

69. JEREMIAH LOPIDINGI.

70. DAVID EKARU

71. ELLEN ALIM.

72. PAULINA NATAPPA

73. ~~REGINA ASIP~~

74. DINAH ASIBITAP

75. JUMAPILI EPEN.

76. SARAH AKATORO

77. NGUICAALA NGASIKE

78. LOKOTON SALONDE

79. MARY ALIMIM.

80. SELINA AKAPATAN

81. SELINA AWOI

82. ADAPAL LOPETOK.

83. NGUMUSEI LOPETOK.

MINUTES FOR THE STAKEHOLDERS' MEETING HELD AT LOKITAUNG ON 16TH AUGUST 2013

MEMBERS PRESENT:

- The Earthview Geoconsultants Limited SIA team;
- Tullow Community Liaison Officer, Mr. Ignatius Lokai
- Government stakeholders from Turkana North District (14 members in total).

The stakeholders' meeting started at 10.20a.m. It was opened with a word of prayer. This was followed by introductions by everyone present.

The Social Impact Assessment team from Earthview presented the project to the audience. The members were also requested if photos and video clips can be taken for the report. The stakeholders agreed to that. After the presentation the stakeholders raised the following concerns.

MATTERS ARISING:

Nature of Issue	Issue Raised	Response
Question	They wanted to know where the specific site will be located at Turkana North.	The SIA team informed them that the site maybe located anywhere especially on the western side along the shores of the lake.
Question	They sought to find out the aim of the stakeholders' meeting at Lokitaung.	The SIA team informed them the meeting was to inform the key leaders of the proposed exploratory oil well drilling project and to collect their views especially representative of the local community.
Commentary	<p>They felt that the proposed project may have both positive and negative impacts. The positive impacts as stated are:</p> <ul style="list-style-type: none"> • Job creation opportunities; • Opening up of economic activities which includes creation and expansion of existing trades; • Source of income generation for both the county and national government; • Improvement of existing infrastructure and additional of new ones; and • Future employment of the sponsored students and TKBV scholarship beneficiaries. <p>The negative impacts pointed out are:</p> <ul style="list-style-type: none"> • The compulsion of the local communities to shift out of their land to other areas away from the project area due to 	The SIA team acknowledged all the issues raised and informed them that they will be reflected in the report.

Nature of Issue	Issue Raised	Response
	<p>disturbance of their lifestyle;</p> <ul style="list-style-type: none"> • There are no established permanent and stable sources of water and geological disturbances of any kind will render some water points dry; • Local community may resist the project; • Interference with existing ecosystems which is made up of scanty vegetation and dwarf plants; and • Rise of insecurity at the Northern borders by the neighbouring warring communities. 	
Question	<p>The person in charge of security detail within Turkana North district wanted to find out how many wells are likely to be drilled within the district so as to assist him organise and mobilise for personnel and logistics for the camp security. They also prefer members from the local community to carry out escort work owing to their in-depth knowledge of the local area.</p>	<p>The SIA team thanked them for their recommendation and promised to include them in the report.</p>
Concerns	<p>They pointed out on the current oil exploration that is on-going within the larger Turkana; the drilling rigs are put up in numbers to cover huge chunks of land; the seismic lines clearance and vibration has destroyed people's household structures hence raising a lot of conflicts. The land is individually owned and is not free for disposal and ready use. The ongoing projects cause stress to the society and livestock. They mentioned that the local community needs adequate information and education on the oil exploration activities. They also reiterated that destruction of grazing lands and fodder may cause conflicts with the nomadic pastoralists.</p>	<p>The SIA team appreciated the stakeholders' inputs and insisted on the exploratory well drilling project being site specific.</p>
Questions	<p>They needed to find out how livestock accidents both directly (being knocked down by moving machines) and indirectly (injuries as a result of running away from moving machines) will be handled and how the disturbance will be</p>	<p>The SIA team thanked the members for their input.</p>

Nature of Issue	Issue Raised	Response
	addressed. They recommended that all such cases should be reported to the area chiefs immediately by the offender to avoid conflicts. The chief will then direct the conflict resolution and settle disputes.	
Question	They wanted to find out if there will be any chemicals emitted to the environment from the oil rig operations.	They were informed that no emissions will be released to the environment as the drilling mud will help prevent air pollution from dust and casing will prevent contamination of water aquifers.
Concerns and recommendation	<p>They were concerned about the social impacts associated with the project. Especially to do with the influx of workers and other immigrants in search of opportunities. They pointed out that there is a lot of expectation on job employment and other business opportunities to be opened up by the proposed project. They needed to find out if there were any measures in place to curb social evils like child labour and exploitation, adultery, prostitution and spread of HIV/AIDS and other STI's.</p> <p>Various recommendations were raised to mitigate these impacts. The first recommendation was jail sentence to the offender in case of child defilement; if it results to pregnancy, the offender must take care of the school fees of the offended once she resumes school.</p> <p>The second option was besides legal measures to be taken on an offender, there should be a provision for a child fund set aside for the offended which is to be deducted directly from the offender's salary. But this is subject to other administrative measures.</p> <p>The last option is create public awareness and sensitization on the social evils likely to occur in the community. This should be done regularly by the local area chiefs through educative barazas. However, the chief's activities should be facilitated by Tullow due to the long distances to</p>	The SIA team was grateful to the members for flagging out all likely impacts and providing local solutions to minimise the impact on the community lifestyle.

Nature of Issue	Issue Raised	Response
	be covered in passing information.	
Concern	They reported of rumours that during oil production there will be an estimated 20km circumference of human settlement and activities away from the drilling rig. This is due to toxic emissions released during production of oil which may cause health hazards and death to livestock and human beings.	The SIA team confirmed to them that it was not the case and the activities will be 5 kilometres away from settlements
Complaint	They complained of the use of charcoal by the BGP camps as a source of fuel. This will eventually cause deforestation of their already bare land and especially since the drilling site will be of a much larger scale than the seismic BGP camps. The use of charcoal if it cannot be avoided should be kept minimal.	The Tullow CLO pointed out the use of electricity and cooking gas within the Tullow drilling sites. However, the complaint was noted.
Question	They needed information on how waste disposal and especially of non-biodegradables like plastic, water bottles is done within the camps.	The SIA team informed them of the compressing technology and the waste being returned to the manufacturer for recycling.
Question	They wanted to know of any effects and contamination of the underground water aquifers during drilling.	The SIA team explained how well casing takes place and how it will help to prevent contamination.
CSR priority	They asked Tullow to drill water boreholes for the surrounding communities around the rig areas to provide water for re-vegetation and irrigation to replace any vegetation cleared as the camp was being set-up.	The SIA team was grateful and they took note of this.

Environmental questionnaires were then administered to the stakeholders. After this exercise, the SIA team thanked everybody present and for their inputs during the meeting. Having no other business to address, the meeting was closed at 12.20 p.m.

Lokitanyi on 16th - 8-2013 - GOK officials

**STAKEHOLDERS MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING**

List of Attendance

NO	NAME	INSTITUTION	CONTACT	SIGNATURE
1	Geoffrey Ewai Lowota	o.o	0726680570	
2	BERNARD NYAKWANA	ICPB	0733515160	
3	TOM WERI Konyelo	D.O.T	072082409	
4	ELAR F. NAMOE	D.F. Office	0719111922	
5	Daniel Echor Jorikwama	MOH	0727767922	
6	Richard Othool	S/d.A.P.C	072166053	
7	RICHARD OKOBET	O.C.S	0725834554	
8	JACKLINE LOPOSH	Procurement Dept	0720469113	
9	John Ekiela	D.A.E. office	0724766213	
10	PHILIP LOKONYURO	T.S.C	0710312082	
11	ELIZABETH Kariua	MOH(P.H.S)	0727320799	
12	PETER ABGI EKEND	M.O.F.	0726210094	
13	Ignatius Lokoi	Tullow Co	0726391131	
14	MICHAEL MESHACIC	TULLOW CO	0700884188	
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MINUTES FOR THE PUBLIC MEETING HELD AT LOMEKWI**PRESENT**

- Tullow Kenya B.V. CLO (Mr. Ignatius Lokai)
- The Earthview Geoconsultants Limited SIA team
- The community members

The meeting began at 10:06 am with a brief introduction from the Tullow CLO. He then invited the SIA team to do self introduction. After the introduction, Grace Mugo was invited to give a detailed description of the drilling process as well as inform the public about EMCA 1999 and the Environmental Impact Assessment and Audit Regulations of 2003. They were also requested to allow the SIA team to take photos and video which will be used in the reports. The community members agreed to that

After the presentation, the community members were asked to air their views, opinions and suggestions on the proposed exploratory drilling in Block 10BA.

MATTERS ARISING:

Nature of Issue	Issue Raised	Response
Comment	A community member talked about the activities of Tullow in the area. He informed the SIA team about the good relationship that exists between Tullow and the community. He went further to inform the team that there are a total of 4 seismic lines within Lomekwi village.	The team took note of the comment.
Request	The community suggested that Lomekwi be assisted to get potable water. They said that for a long time, the community has depended on the waters of Lake Turkana which they described as not good for human consumption.	The SIA team assured the community that the request would be put as part of recommendations to Tullow in the final report.
Comment	A community member appreciated Tullow for promising to help in the construction of two classrooms to help their school. She informed us that their only prayer is that Tullow succeeds in getting oil which is commercially viable.	The Tullow CLO informed that community that already the head teacher of Lomekwi primary school had done a proposal and the chief wrote a cover letter which had been approved by the head office. He went further to tell them that already a contractor has been identified and he'll be coming to the school the following week to identify a suitable site for the construction of the said classrooms. The community members applauded him for that.

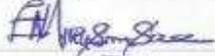
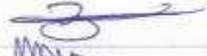
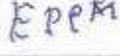
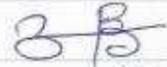
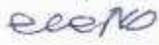
Nature of Issue	Issue Raised	Response
Concern	A youthful community member was concerned about a possibility of air pollution and earthquake taking place during the proposed project.	SIA team brought to the attention of the community that the only form of pollution likely to occur would be in the form of dust resulting from vehicular movement during the transportation of the drilling equipment and the company employees. This would felt especially during site preparation. The team also informed the community that during drilling no pollution would take place since measures shall be put in place to avoid any form of pollution to underground water as well emissions into the air.
Question	The community members wanted to know how they stood to benefit from the project.	The team informed them that it could not answer that because the team needed suggestions from them on the same. Tullow CLO informed the community about Tullow's activities such as bursaries, employment of local people, construction of classrooms and many more in the pipeline.
Concern and suggestion	The community was concerned about possible destruction of property belonging to the community by Tullow workers including misbehaving with their women. They suggested that they be allowed to arrest and kill anyone who misbehaves with their women or report the person to police.	The team informed the community that Tullow has policies that guide relationships between its employees and the host community and that should such an incident occur then law would take its full course. The community was, however, warned against taking the law into their own hands by the area chief.
Concern	The community was concerned about a possibility of HIV infection in the area rising due to the influx of people into the area during the implementation of the proposed exploratory drilling.	The community was informed that it would be next to impossible for that to happen.
Clarification and concerns	They informed the SIA team that they had heard rumours that the proposed	SIA team clarified that no displacement would take place

Nature of Issue	Issue Raised	Response
	exploratory drilling is not good for human health because it would lead to displacement of people, still births, disability due to frequent accidents, pollution, and destruction of water aquifers as well erosion of their culture.	and that the drilling project is very friendly since the technology involved has been used elsewhere and proven effective. The team further informed them of casing that is meant to protect the water aquifers. In addition, they were informed about Tullow EHS policies meant to ensure safety of workers. On erosion of culture, the community was told not worry as chances were minimal for that to occur. However, they were encouraged to suggest ways to deal with such an occurrence in any event it occurs.
Concern	The community was concerned about effects of noise pollution of the behaviour pattern of their livestock. For example, they said that their livestock were not used to noise and therefore any slight noise in the community might make their animals run away never to be found again.	On noise pollution, the community was informed that the only possible cause of pollution would be vehicular movements and that very minimal noise would be produced during the drilling and that the location of the base camp would ensure that none or very minimal noise reaches the people.
Suggestion	The community suggested that there be transparency and free flow of information from Tullow to the community and vice versa. This they said would	The SIA team thanked the community for the suggestion and assured them that it would be included in the report to NEMA.
CSR Suggestions	The community suggested that Water projects, health facilities and school infrastructure development be given first priority in the area. Other development priority areas included payment of school fees, electricity, employment opportunities, irrigation projects and access to revolving funds.	All development priority areas were noted down.
Suggestion	The community suggested that a committee be constituted to be in-charge of every community dealing with	The suggestion was noted.

Nature of Issue	Issue Raised	Response
	Tullow including recruitment of labour and flow of information among others.	
Suggestion	The community suggested that before the project begins, the village elders be informed since they are the ones who would decide on the appropriate area to locate the base camp. They further added that this would help to reduce conflicts between Tullow and the community.	The suggestion was noted.
Concern	The community was concerned about labour recruitment exercise. They were particular on employment of locals and not outsiders especially the unskilled labour.	The Tullow CLO informed the community that Tullow shall appoint a recruitment committee consisting of the chief, village elders and other local leaders to oversee the recruitment exercise for Block 10BA
Appreciation, comment, concern and request	A member of the public expressed his happiness with Tullow Kenya BV and informed the SIA team that the actual number of Lomekwi residents is high although many migrated to other areas. He was, however, concerned that in the event that oil is discovered in the area, many of those who had moved to other places would troop back to the area. He therefore requested that those people be welcomed back and granted job opportunities like any other community member.	The appreciation was acknowledged, comment, concern and request noted.
Appreciation and recommendation	A community member appreciated the Tullow CLO for his hard work and openness in dissemination of information to the people. He recommended that the community members be considered during tendering and supplies to the base camp.	The SIA team noted the recommendation.
Suggestion	The community requested for scholarship for their children who qualify to join secondary schools as well as colleges and universities.	The suggestion was noted.
Concern	A member of the public expressed concern about the BGP activities on the lake especially during the marine seismic survey. He said that there was a	The concern was noted.

Nature of Issue	Issue Raised	Response
	lot of noise produced during the survey. This he claimed led to fish migration and disturbance leading to reduction in fish population.	
Concern	The community was concerned about how they stood to benefit should oil of commercial value be realised in block 10BA.	The SIA team informed the community about the government sharing plans where the national government, Turkana county share as well as the host community would get there share.
Concern	The community was joyous about the proposed project. They were, however, skeptical because of the frequent skirmishes in the oil producing areas. A community elder was apprehensive of possible outbreak of wars in the area after oil is discovered. He told the SIA team that the community lacks weapons to protect themselves from any act of aggression.	The SIA team asked the community to suggest possible measures to be put in place to ensure everyone's safety during and after the exploratory drilling.
Suggestion	The community suggested for more public sensitization on the project to keep the public aware of the progress of the project.	The suggestion was noted.
Request	The community, through the Lomekwi Beach Management Unit Chairman, requested that Tullow help the fishermen get engine boats to help them in rescue missions. He cited a case in 2003 when a boat capsized leading to the death of 3 fishermen. The deaths were attributed to delayed rescue of the victims. He also informed the SIA team that after the deaths, the bodies remained in the lake for several days as it was very hard for to retrieve them.	The request was noted.
Request	The Beach Management Unit members requested that Tullow help construct for them an office.	Request was noted.

The meeting ended at 12:09 am with a word of prayer from a community member.

Public Meeting		
Name	ID. No.	Signature
Joseph Ewaku	20687889	
Moses Ekwuata	N/A	
GODFRET Ewaku	20716868	
Thomas Itekepa	13910282	
Simon Ekwuom	21212744	
William Okwang	25290519	
Charles Enekeji	N/A 21529149	
John Ekeamas	N/A 10987310	
JOHN EKATOROT	25268789	
Joseph Lotukoi		
Thomas Esinyen		
Musa Kole	N/A	
Daniel Esinyen		
Gabriel Nangoli	25263687	
Epen Ekei		
Ekinion Longoh		
Samuel Ekena		
Lokol Ekali		
Lucas Lotanuk		
Ikimat Ekwari		
Ekel Ebeji		

LOPEAT KALINGAPUS 9672800 ~~9672800~~
JOSEPH ALILA 25257599 ~~25257599~~

Lomekwi Public meeting

Name	IDNO	SIGNATURE
ESURUT DOKO		
Koula Logesan		
Charles Loumwi		<i>[Signature]</i>
Mona Lorariyeng		
AKIDAM LOJOME		
Fred Emunia		10123268
Charles Ekai		5231758 <i>[Signature]</i>
Thomas Ewaat	25357277	<i>[Signature]</i>
Emmanuel Ekero	23019231	<i>[Signature]</i>
Ekai Apodon	N/A	
Joseph Ekakutan	25517148	<i>[Signature]</i>
Achuma ALFRED	31065512	<i>[Signature]</i>
MATHIAS EKERO ATOL		<i>[Signature]</i>
Peter Loro	N/A	<i>[Signature]</i>
Hendry Ekai	N/A	<i>[Signature]</i>
Eyanae Monkoyan	N/A	<i>[Signature]</i>
JOHN EPEM	27683562	<i>[Signature]</i>
Margaret Nungbe	12910292	<i>[Signature]</i>
Ekai Ewaat Nade	N/A	<i>[Signature]</i>
Gabriel Elimlin	9828678	<i>[Signature]</i>
Rebecca Nakweei		<i>[Signature]</i>

Ikomkwi Public meeting

Name	ID	SIGNATURE
Etoot Loumoi	N/A	
Christine Natoncia		<i>[Signature]</i>
AKARAN EMEKWI	N/A	
Anna Akal	N/A	
Joyce Ayangae	N/A	
Selina Losokona	N/A	
Joyce Elizabeth Ayangae	N/A	
Esther Achila	N/A	
Esther Longoni	N/A	
Mary AKUWOM	N/A	
ELIAS ESKUKU	N/A	
PATRICK EKOMWA	N/A	
EPUGUTIE LOUMOI	N/A	

FOCUS GROUP DISCUSSION IN LOBOLO ON 6TH AUGUST 2013

Participants

- 12 Lobolo members
- SIA team

The session began with a word of prayer after which participants did self introduction. The session was moderated by Grace Mugo. Linda requested for consent to take photos and record videos during the session. The request was granted.

Clans found in the area include:

- Ngissiger
- Ngikomoso-roko
- Ngiduya
- Ngiponga
- Ngimeturuana
- Ngineripur
- Ngipacho

Of the above listed clans, Ngineripur doubles up as the larger as well as one of the two indigenous clans inhabiting the area. The other indigenous clan is Ngiponga.

Decision making

Among the Turkana, there exists division of labour, where every age group and gender has well defined roles.

The key decision makers in the community are: -

Chiefs/Assistant Chiefs

Elders

Apart from decision making, the elders perform other duties including:

- Solving of conflicts;
- admitting visitors to the community;
- expelling strangers from the community; and
- Counselling troubled community members.

On the other hand, women have well defined roles in the community including:

- Weaving of baskets;
- Construction of *manyattas* (their traditional houses);
- Charcoal burning;
- Taking care of the children as well as the homestead; and
- Preparation of food.

Roles of the youths include:

- Fishing
- Tending livestock
- Provision of security to their sisters
- Charcoal burning
- Going to school for those of school going age.

The young children do not have a specified role although ranging from household to household; the parents may assign chores to them. For instance, they may look after young goats as well as go to school.

The Turkana community is socially stratified. There exists social hierarchy where the senior most elders, the chief and diviners form the highest social class. The other members of the community derive their status depending on the time and age of initiation.

Causes of conflicts in the community

- Notable causes of conflicts among the inhabitants of Lobolo Village include:
- Trespass especially when an individual's livestock strays into another person's *boma* or farm and destroys property;
- Teenage pregnancies that may lead to brothers of the pregnant girl waging war against the responsible man that may culminate into death or bloodshed;
- Theft; and
- Wrangles extending from children playgrounds into the families.

Conflict resolution mechanisms

Appreciating the inevitable occurrence of conflicts in the community, the Turkana of Lobolo villages have developed mechanisms of dealing with such eventualities. In case a conflict occurs and depending on the magnitude of the conflict, different methods and people get involved in determining the best possible solution. These include:

Reporting to the elders who give direction on the way forward as well as prescribe befitting punishment including but not limited to paying fines;

- Criminal acts get reported to the chief who is then expected to follow the law of the land in dealing with the matter; and
- Petty conflicts may be solved at personal level through negotiations.

Migration

As a pastoralist community, the Turkana have from time to time had to move from place to place due to various reasons some of which include:

- Search for pasture and water for their animals;
- Livestock disease outbreaks;
- Famine; and
- Conflicts such as cattle rustling.

Main sources of livelihoods

- Livestock keeping
- Fishing
- Charcoal burning
- Weaving of baskets
- Selling of firewood
- Small scale farming of sorghum

It was noted that during very hot and dry seasons the women, who remain behind when the men have moved with the animals, rely heavily on money realized from the sale of baskets. When the season is favourable, some families plant sorghum on designated farms.

Roles of specific animals in the community

Among the Turkana clans of Lobolo village, dowry payment can be made in the form of cattle, camel, sheep, donkey or a combination of a number of livestock. The Turkana use a number of livestock for food including donkey, sheep, camel, cattle and goat. During burial ceremonies, cattle, camels and goats may be slaughtered to feed the mourners.

Whenever a new born baby is delivered, an animal is slaughtered to celebrate. The choice of the animal depends on the clan, however, goats are preferred. The Turkana prefer giving birth to baby girls as opposed to baby boys. This is because; the girl child is a source of wealth to the family in the form of bride wealth.

Cultural sites

Areas of cultural significance among the inhabitants of Lobolo Village include:

- Graves sites;
- Prayer shrines (usually under big trees);
- Initiation places (*ekitoe angasapanet*); and
- The diviners' *manyattas*.

The community also holds the following beliefs:

- Adultery is forbidden; an adulterous woman is sent to bring a camel from her father for cleansing; an adulterous man on the other hand is fined a given number of animals;
- The man is the head of the home thus all the decisions rest with him;
- Women are forbidden from giving their daughters hands in marriage;
- Girls are forbidden from deciding the man to marry; and
- In the absence of the father, the first born son takes over the leadership of the family.

Skills found in the Area

The village has the following skills and expertise:

- Mechanics
- Masons
- Motorboat captains

It was, however, noted that the above mentioned skills have been acquired through apprenticeship and therefore the individuals lack paper evidence/certificates.

Development priorities in the area include:

- Education through building and improving of school infrastructure;
- Water projects;
- Irrigation projects; and
- Provision of fish nets and fishing gears.

Knowledge of previous exploration activities

A number of the participants could easily recall the activities of a company known as Kenya Oil which did exploratory drilling at Natiir in the 1990s.

From that exploration, the community benefitted in a number of ways namely:

- Drilling of water boreholes at Natiir;
- Creation of employment opportunities;
- Business opportunities such as supply of meat and other products; and
- Food aid from the base camps.

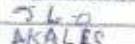
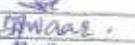
On the other hand, the community was negatively affected in the following ways:

- Family breakups due to prostitution among the workers and the local women and girls
- Hungry children fed on spoilt food leftovers which were carelessly disposed off on open fields leading to outbreak of diarrheal diseases; and
- Some students and pupils dropped out of school to look for employment opportunities as well as food from the base camps.
- The discussion ended with a word of prayer from one of the participants.

FGD at Lobolo 6th Aug 2013.

FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Participants

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	JAMES AMERI	21150855		
2	JOSEPHAT LOSIKER	31475471		
3	AKALES DANLAWO ETADIN	10134834		AKALES
4	SIMON EUDOSIT	284315		
5	JOHN EPOM	24494009		
6	JOHN KWAA	11513678		
7	EMEKWI EMUTONO	20343269		
8	SIMON NAMUYA	60758415		
9	ATANI IKAAL			
10	Lokaale Lopongeso			
11	Nakamu ASURIN			
12	David Ekitela	4793844		
13				
14				
15				

FOCUS GROUP DISCUSSION IN KALOKOL ON 4TH AUGUST 2013

Participants

12 Kalokol members

The SIA team

Linda Were opened with a word of prayer and the participants introduced themselves. Grace Mugo, who was the moderator informed the participants that Tullow intended to undertake an exploratory drilling in Block 10BA which covers both Turkana Central and North and they have commissioned Earthview Geoconsultants to conduct an ESIA in the area. She added that it was important to know the way of life of the people in the area so that the proponent of the proposed project can know how to handle them when the project proceeds. She then asked the participants to contribute willingly and freely to the discussion. She also requested that the team be allowed to take photos and video during the discussion, which was granted.

Community organization

The community is subdivided into clans and some of the clans include:

- *Ngimataperi*
- *Ngilthiger*
- *Ngilukumong*
- *Ngiramuk*
- *Ngikwatialia*
- *Ngiyapakuno*
- *Ngibochores*

The largest clan in the region is the *Ngimataper* who together with the *Ngiramuk* are a fishing community. The other remaining clans practice pastoralism. All the clans mentioned above co-exist harmoniously and share a common culture. Burial and birth rituals are the same among the clans. It was noted, however, that individuals from the same clan do not intermarry.

Decision making

At the village level, the person in charge is known as the *Ngikosikou* who is the village elder. In any conflict, they arbitrate and give their verdict. The verdict given may be in form of paying a given number of goats to the accuser, killing a goat to the *Ngikosikouarurum* (council of elders) or being caned. The *ngikosokuarurum* can also include women in the unit. The Turkana, however, have strong moral laws and children cannot abuse their elders. In case of any intervention to be introduced in the area, the elders, chief and the councillors must be consulted and after that, they will inform the community about the project.

Roles of different members of the community

Every age group has a different role to play in the community depending on the age and the hierarchy which is awarded culturally. When one marries through traditional marriage for instance, he becomes older than the bachelors irrespective of the age difference.

The function of the elders include among other things:

- delegating duties to the women and the children;
- providing security for the family;
- figures of authority; and
- decision making.

Women's roles include:

- building the house;
- milking the livestock;

- cooking, fetching water and child rearing;
- carrying their husband's stool, drinking water and other belongings; and
- When travelling, the woman cannot walk in front of her husband. She will always tag behind the man.

The male youth's roles involve:

- aiding the father with his activities;
- offer security to the family;
- look after the animals; and
- protect their sisters.
- The girls:
 - graze the goats;
 - help their mothers; and
 - in the absence of the male youths, the girls are allowed to take care of the property.

The youths gain their age-set by collectively killing goats to the elders under a shrine. Transforming from childhood to adulthood is known as *aspan*. Before you become a man, you cannot sit in the Turkana traditional stool which is called *ekichala*. The young men are also involved in finding their sisters in case they are kidnapped by other men for marriage. Upon finding her, the brothers will tell the responsible family to pay the dowry as demanded by the tradition.

Finally, the children look after the young animals' i.e. kids and they also do petty errands around the homestead.

Sources of conflict

The community around Kalokol depends on Lake Turkana for their livelihood i.e. fishing and the resultant fish trade. Any activity that interferes with their activities around the Lake will therefore cause conflict.

Kalokol is also subdivided into various territories. Encroaching each other's territory will lead into conflict. It should be noted that the territory extends even to the lake in that every territory has its share. The locals say that in as much as there is a vast land in the area, each piece is owned by someone. The ownership is through inheritance from the ancestors. They do not, however, have any title deeds. The individuals who own land within Kalokol town and its environs, however, have an allotment letter which is renewable every year by paying the local administration a given fee. Scrambling for other communities pastures is another source of conflict and so are the family feuds.

Migration patterns

Being nomads, migration patterns depend on the season. Should a particular area get dry, they move to another area that has pasture and water for their animals. It should, however, be noted that it is the young men who move about with the animals leaving behind the children and the aged.

Livelihoods

The community around the lake practice fishing and other related fish trade. They also sell firewood and charcoal at the Kalokol market and along the road to attract the vehicles passing-by. Women are involved in basket weaving and sell some basket along the roads. Duom palm trees which are common in the area are also sold. Generally, there are no skilled professions in the area because there are no major companies to provide employment. They also engage in selling goats. Fishing is done throughout the seasons during drought and rains.

Roles of animals

Donkeys are used to carrying property when migration. One participant mentioned that donkeys have the best meat for consumption. Camels are also used in carrying properties during migration and they also carry old men. Cattle, goats and sheep are used to pay the bride price and the ram with a fleshy tail being at the forefront. The cattle are involved during wedding ceremonies.

Land ownership

Land ownership in the remote areas is communal while land ownership in Kalokol town and its neighbourhood is via an allotment letter which is renewable yearly at a given fee payable to the county government. The land in the remote areas has owners and you must consult the elders who know the history of a given piece of land and the specific individual that it belongs to.

Cultural sites

The cultural sites around Kalokol include:

- Central Island which was declared a world heritage;
- Namorutung'a is another cultural site found approximately 5 km from Kalokol BGP campsite; and
- Namorutung'a has basically curved stones.
- Areas that they do not want interfered with include:
- Wetlands which include Napasinya river mouth which is a breeding site for fish;
- Areas along Lake Turkana which are also breeding sites;
- Eliye Springs;
- Nameritaba waterfalls which is found in Kalimapus;
- Grazing lands especially near luggas;
- Kadokornyang which is a source of water; and
- Lake Turkana.

Foods not eaten

Even though they started eating kales (*Sukuma wiki*), it is still regarded as animal feeds by some people. They also complain that the relief food brought to them is sometimes of a lower quality i.e. the sorghum and the yellow maize provided is unlike what they eat. Lastly, there is a fish species known as the *Lokuui* which they do not eat. They say that this type of fish is characterized by swelling once caught by the fish nets. They therefore, return it back into the Lake.

Available labour

There is a variety of skills in the area ranging from driving, basket weaving, mechanics, wiring, welding, plumbing, masonry, carpentry, doctors, nurses, small-scale business, and security divers to coxswain. They also say that women nowadays perform tasks which were reserved to the men folk.

Development priorities

The development priority in Kalokol division according to the participants of the focus group discussion include provision of water in the villages since the area is dry and water is not readily available, improving the Lodwar-Kalokol road which is dilapidated. Education should also be given priority due to a lack of enough schools in the region. Other priorities include:

- The weaving industries should be given enough support;
- veterinary services to the animals;

- develop and improve infrastructure for tourism;
- animals to be registered and the owners to be helped to restock during or/and after drought;
- renovate the fish cooperative society at Kalokol town;
- should hydrocarbons be discovered in commercial quantities, a refinery plant should be constructed in Turkana but not transport Oil to be refined in Mombasa;
- electrification program should be started;
- Women should also be given employment opportunities especially the widows; and
- An orphanage centre should be constructed to train and educate the orphans.

The meeting ended at 5:43pm. Grace thanked the participants and she closed with a word of prayer.

Kalokol 5th - 8 - 2013

**FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING**

List of Participants

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5 ✓	IPULO PETER	22596296	0726568185	<i>[Signature]</i>
6 ✓	GRACE NAKENO	10124752	0714408039	<i>[Signature]</i>
7 ✓	JOYCE NGATUR	4787374	0728230681	<i>[Signature]</i>
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FOCUS GROUP DISCUSSION HELD AT LOYORO VILLAGE ON 7TH AUGUST 2013

Participants

12 Loyoro members

SIA team

The session began with a word of prayer after which participants did self introduction. Riziki moderated the session. Erick requested for consent to take photos and record videos during the session. The request was granted.

Clans found in the area include:

- *Ngipucho*
- *Ngikomoso-roko*
- *Ngiduyia*
- *Ngiponga*
- *Ngimacharimukata*
- *Ngimeturuana*
- *Ngineripur*
- *Ngidocha*

Of the above listed clans, Ngipucho is the largest whereas Ngimeturuana is the indigenous clan.

Decision making in the community

Among the Turkana, there exists division of labour, where every age group and gender has well defined roles. The key decision makers in the community are Chiefs/Assistant Chiefs and selected elders.

Apart from decision making, the elders perform other duties including:

- Job distribution in the family;
- solving of conflicts;
- head of their respective families;
- admitting visitors to the community;
- expelling strangers from the community; and
- counselling of troubled community members.

On the other hand, women have well defined roles in the community including:

- Weaving of baskets;
- construction of manyattas;
- charcoal burning;
- fetching water;
- taking care of the children as well as the homestead; and
- preparation of food.

Roles of the youths include:

- Fishing;
- Tending livestock;
- Provision of security to their sisters;
- Girls help with cooking;
- Charcoal burning; and
- Going to school for those of school going age.

The young children do not have specified roles although ranging from household to household; the parents may assign duties to their children. Children upon attaining 6 years are sent to school.

Causes of conflicts in the community

Notable causes of conflicts among the inhabitants of Loyoro Village include:

- Irresponsibility among children hence creating frictions between them and their parents;
- trespass especially when an individual's livestock strays into another person's boma or farm and destroys property;
- struggle over water and pasture for the animals;
- teenage pregnancies that may lead to brothers of the pregnant girl waging war against the responsible man that may culminate into death or bloodshed;
- rape cases;
- theft; and
- Wrangles extending from children playgrounds into the families.

Conflict resolution mechanisms

Cognizance's of the inevitability of conflicts in the community, the residents of Loyoro have put in place the following measures to manage conflicts:

- Negotiation;
- involvement of elders and chiefs; and
- involving the police in extreme cases of criminal offences.

The elders many a times ask for fines in the form of livestock after delivering their verdict on cases handled.

Migration

Like many other Turkana the community migrates from time to time due to various reasons some of which include:

Search for pasture and water for their animals;

- livestock disease outbreaks;
- famine; and
- conflicts and cattle rustling.

Main sources of livelihoods

- Livestock keeping
- Fishing
- Farming during rainy seasons
- Charcoal burning
- Basket weaving
- Selling of firewood and duom palm fruits

Roles of specific animals in the community

Among the Turkana clans of Loyoro village, dowry payment can be made in the form of cattle, camel, sheep, donkey or a combination of a number of livestock. The Turkana use a number of livestock for food including donkey, sheep, camel, cattle and goat. During burial ceremonies, cattle, camels and goats may be slaughtered to feed the mourners. In some cases, animals are used as gifts to people and visitors.

Whenever a new born baby is delivered, an animal is slaughtered to celebrate. The choice of the animal depends on the clan, however, goats are preferred. The Turkana prefer giving birth to baby girls as opposed to baby boys. This is because, the girl child in a source wealth to the family in the form of bride wealth.

Cultural sites

Areas of cultural significance among the inhabitants of Loyoro Village include:

- graveyards;
- sites of prayers; including places for offering sacrifices (usually under big trees); and
- initiation places.

The community also holds to the following beliefs:

- Women are not allowed to give away family livestock to anyone;
- Men do not enter the kitchen to cook;
- Theft is not allowed;
- Girls are forbidden from accepting poor men as marriage partners;
- Adultery is forbidden; an adulterous woman is sent to bring a camel from her father for cleansing; an adulterous man on the other hand is fined a given number of animals;
- Women are forbidden from giving drinking water to the men with their *lessos* knotted; and
- The man is the head of the home thus all the decisions rest with him.

Skills

The village has the following skills and expertise:

- Mechanics
- Business skills
- Basic computer skills
- Drivers
- Masons
- Motorboat captains

We were informed that some of the above mentioned skills have been acquired through apprenticeship and therefore the individuals in question lack certificates to show their expertise.

Development priorities in the area

- Education through building and improving of school infrastructures;
- water projects;
- construction of warehouses for finished baskets awaiting selling;
- irrigation projects; and
- provision of fish nets and fishing gears.

Previous exploration activities

A number of the participants could easily recall the activities of a company known as Kenya Oil which carried out seismic surveys in the 1990s and the community never benefitted in any way.

Loyole 7/1/2013

**FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING**

List of Participants

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5	EKWAR KKALI LOMDEI			
6	NAYANAG AKENO			
7	NATHUR ATOK LOMILO			
8	RKUWIM RKAL			
9	JAMES KBEI	20521295	0700262101	[Signature]
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12	SAMAL IKUKU	0611608		
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FFOCUS GROUP DISCUSSION HELD AT KATIKO ON 12TH AUGUST 2013

Participants:

13 Katiko Members

SIA team

Community Organisation

The community at Katiko sub-location is made up of five clans, namely:

- Ngissiger
- Yapakuno
- Kwatela
- Bochoros
- Lukumong

The largest clan is the Ngissiger and it is also the most indigenous.

Decision making

The council of elders is the main decision making organ on matters affecting the community and development agendas. These are selected elders from the community according to their ranks in the community. Council of elders include women in their decision making process. The decision making organ is made up of the chief, council of elders, the youth and the women.

Differentiation of roles

The role of community elders include:

- Offering security and protection to the community, they watch out for newcomers and visitors to their community. They are the custodians of the wellbeing of their community and they treat any form of intrusion with skepticism;
- they also promote education in all families of the community by monitoring the school going children;
- they take care of and conserve their natural resources; and
- they advise the youth and handle conflict resolution;
- Roles of the men include:
- Taking care of the family;
- educating the children;
- providing basic needs and clothing; and
- advises the family on good moral values and initiates members of his family to take over his duties.

Roles of the Women include:

- taking care of the family; and
- carrying out household roles e.g. businesses, food preparation, supports the household head, milking goats, fetching water, collecting firewood and allocating duties.
- Children in the community fetch water, attend schools, herd goats, collect water and other minor home chores.

Conflicts

The main causes of conflicts are theft and disputes over water wells.

Other sources of conflict include:

- Disagreements and fights between children causing disagreements between parents;
- marriage without parent's consent; and
- theft and other social evils.

They reported no inter-clan conflicts. Conflict resolution is done by the council of elders. The Kenya Police Reservists are also used to contain evildoers. Especially the unruly, they are captured and brought forward to the council of elders.

Economic activities

The economic activities that sustain the community at Katiko include:

- Livestock keeping
- Fishing
- Basketry

Livestock keeping is the main engagement and it has continued to be over the years followed by fishing which is carried out in Lake Turkana. Katiko borders the lake and this resource has greatly benefited the local residents as it is also the main source of water for domestic use and for watering their livestock. Basketry is carried out by women and they fetch the reeds along the lakeshore. The finished products are readily available and sold at the local markets or transported to neighbouring bigger trading centres like Kalokol.

Other income generating activities include: charcoal burning; selling of firewood and reliance on government relief food in extreme conditions.

The busiest season of the year is the dry season when the community has to travel long distances in search of water. During this time the older boys take the livestock far away from home in search of pasture and water for the livestock. They continue moving as far as possible until the end of the drought when they travel back home to reunite with their families. Main activities during the dry season are fishing (deep waters), basketry and charcoal burning. During the wet season they rely on livestock and livestock products e.g. selling milk.

Culture

The community observes an important initiation ceremony-*Asapan*-which is strictly observed and determines the leadership rank in the community. On initiation, the family decides and it also depends on the individual. It is done during rainy season when the community is back around the homes. Initiation is started by purchase of decorations (beads, clothes, kanga, feathers, shoes) needed for the ceremony, a community gathering then follows with the community elders. The one being initiated then present a goat to the elders. The elder in the community gives a blessed spear to the one being initiated and given rights to kill the goat. After the goat eating ceremony the godfather then takes him to his home before being released back to their home. During this stay, they are taught crucial skills and information on the community. They are then given a traditional stool (*akicholong*) which symbolizes their changed status into adulthood and rights to sit with the elders.

According to the customs, the women cannot hold the initiation spear, it is taboo. The right hind legs of a goat once slaughtered are preserved for the man. It is also taboo for men to deliver a baby or be near a place where a woman is delivering a baby. Once initiated, the men cannot bury the dead, however, close they may be to the departed.

Cultural sites

There exist two cultural sites in the area: the Kobosan cave and the Lomariaribo graves. The Kobosan cave is a historical site which came to be revered by the community members after an inter-community battle. The caves were used as a hiding place during the battle but the enemy came to know of it and ended up killing all those who had gone to hiding. That is why

the community fears it because they believe that since their ancestors dead bodies were left in there, that's where they live to date. The Lomariaribo graves were a mass grave for those killed during similar inter-tribal clashes in the community.

Development priority

The major development priorities in the community are:

- construction of a health facility;
- water provision; and
- Construction of schools.

Migration

The main reason for migrating from place to place is in search of water and pasture. They normally use donkey to transport loads and weak livestock. They return home during the rainy season. Due to climate change dry season is no longer predictable. Women, elderly and children stay behind as youth move to look for pasture.

Busy season is during dry season as the community travel for long distance to fetch water.

Labour skills available

- Basketry
- Swimming
- Construction of houses
- Livestock preparation
- Teaching
- Veterinary and medical doctors
- Engineering
- Driving

However, there are a number of individuals with competent skills but certifications or proof of training. Women are allowed to be employed in both formal and informal jobs.

Past exploration activities

Activities were done by Kenya oil in the 80's. Few casual jobs were offered to the community members. There was no community social responsibility carried out during the exploration activities.

The main negative impact by the exploration was vegetation clearing.

Katiko FGD on 12th August 2013

FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Participants

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6	SIMON LOGOWAT	24076530		[Signature]
7	JESENTA ATARO			
8	JACKSON LOLOT DOROL	20717123	0713379193	[Signature]
9	ELIZABETH ARINBAE			
10	LESSAY EKOMWA			
11	AKAL LOKONY			
12	VERONICA AGIRON	24087005	0717591501	[Signature]
13	EMBI LOBINGO	5231778	0700910507	[Signature]
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FOCUS GROUP DISCUSSION AT LOMOPUS ON 9TH AUGUST 2013

Participants:

- 15 Lomopus members
- SIA team

Community organization

The community at Lomopus is made up of fourteen clans under the Ngikajik sub-tribe, namely:

- Emachari
- Ngimaturein
- Ngissiger
- Ngikomoso-roko
- Ngiduiya
- Ngisalika
- Ngipucho
- Ngithaparakolong
- Ngikalesio
- Ngidocho
- Ngipongo
- Ngingolerot
- Ngikatap
- Ngimacharikwa

The largest clans are the Ngissiger and Ngipucho as it is not clearly known which is larger than the other while the indigenous clan is the Ngipucho.

The council of elders together with the area chief are the main decision makers on matters affecting the community and development agendas. The council sits down and consults each other until a unanimous agreement is arrived at.

The role of women is to assist community development through giving their views and voicing their opinions for or against development projects. Alongside this, the traditional woman at Lomopus community is also required by customs to perform certain tasks. These are:

- food preparation;
- constructing of manyattas (their traditional houses);
- taking care of the home;
- looking after children and the children;
- fetching water; and
- collecting firewood for fuel.

The role of the youth in the home is to assist their parents and especially the boy child looks after the livestock in dry season going long distances in search of pasture and water. This can even take as long as three months away from their homes.

The traditional man in the Lomopus community is also cut out roles by the customs. The man is involved in herding livestock and all decisions concerning the livestock. He is the sole breadwinner of the home.

The women are allowed to be employed in formal and informal jobs but with consent from the husband. They have to decide who of the two should stay at home and take care of the home duties and look after children and livestock.

The role of community elders is to offer security and protection to the community. They also solve community disputes and forward the difficult cases to the office of the chief.

Conflicts

There are various causes of conflicts within the Lomopus community. The major one is theft of livestock especially by the immigrants. Immigrants who do not uphold community standards and engage in activities like theft, adultery, rape are excommunicated from the community. The other major cause of conflicts is land grabbing which has to do with the intrusion or tampering of clan land boundaries. Theft and grabbing of other people's property is not tolerated at all so is adultery. According to traditions, the price of adultery and rape is death of the offender. But the community shall allow for payment of fines and jail sentencing.

Livelihoods

The economic activities in the area include livestock keeping, farming and basketry. Farming is mainly carried out during the wet season and it happens through irrigation. The crop mostly grown is sorghum. Livestock keeping and herding is carried out throughout all seasons but the distance from the homes varies with season. During rainy seasons animals are just let out to nearby grazing lands but during dry season they are taken far away from the homes. Basketry is mainly carried out during the wet season as the women are generally relaxed. In the dry seasons the women move around in search of wild fruits to feed the family. Migration of the community members from place to place is caused by prolonged dry season. The community is forced to move out of their ancestral in search of pasture and water for their livestock.

Religious and cultural beliefs

Animals kept by the community are used to serve several functions which include:

As a source of food and especially during the dry season (the Lomopus community feed on cattle, sheep, goats and donkeys. They believe donkey meat is medicinal. The only animals not consumed are: dog; frog; and snake.);

- As tokens and gifts exchanged for a favour or to a close relation and courtesy visit;
- They are slaughtered to mark key ceremonies and give meaning to the function depending on the type of animal slaughtered;
- Livestock are used for payment of dowry; and
- They are given out as fines to settle a dispute.

There exists a cultural site at Narowebey Lokodongany where the first resident of Lomopus died and was buried. His graveside exists to date. He was a great diviner and is still revered by the Lomopus community. The public is not allowed to visit the site and only the elderly are given permission by the elders in charge of taking care of the site. There is a protocol set in place for those who go to visit the place. The activities carried out during such visits include performing of rituals, dancing, offering sacrifices and traditional cultural prayers. When calamities befall the community they arrange a visit to go and seek petition at the site. The site is marked by stone pillars piled up on top of each other.

Labour requirements

The busiest season of the year is around July which is normally a dry season when people travel long distances from home in search of pasture for their livestock and the women look for wild fruit in the bushes.

The skills found in the Lomopus community include watchmen, cooks, latrine construction, cleaning jobs and drivers. However, there are students at all levels of learning and especially form four leavers who are idle.

Development priority

The major development priorities in the community include:

- construction of a health facility;
- water provision;
- construction of a boarding school; and
- Irrigation schemes for the farmlands from the river Turkwel.

Previous exploration activities

There was an oil exploration survey carried out in the late 1980's by Kenya oil. They dug an exploratory well at Natiir. The community benefited from employment jobs to some of their residents and a water borehole that was constructed for them. There was no prior public awareness on the project and the community was not informed on any progress. Through interactions and relations by the workers with the community there were cases of pregnancy reported.

FGD Lomopus - 9/8/2013
**PUBLIC CONSULTATION MEETING ON ENVIRONMENTAL AND SOCIAL IMPACT
 ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
 DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING**

List of Attendance

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3	AKOLONG ERUPE	12911480	0706811433	<i>[Signature]</i>
4	LODUNGO NANGIRO	8562817		
5	NAKAMU ERIKIRIK	8730288	0711972763	
6	JECINTA LOKALEI	29914700	0716198974	<i>[Signature]</i>
7	KEBE EWOLEBIT	4781629		
8	HADUNG MABAKMA	6574870		
9	KIAPA LONDA	4806665	0719324799	<i>[Signature]</i>
10	THOMAS LOKITANG	0146668		
11	LOKALE NAPAS	4729815		
12	WILSON EKAMAS	10124758	0726741285	<i>[Signature]</i>
13	ASURDI NARO KWE	7489234		
14	BARTHOLOMEW E ELIMUM	3499334	0713571114	<i>[Signature]</i>
15	LOKKAWI ARUPE			
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FOCUS GROUP DISCUSSION AT KALIMAPUS ON 10TH AUGUST 2013

Participants:

- 12 Kalimapus members
- SIA team

The session began with a word of prayer after which participants introduced themselves. The session was moderated by Linda.

Community Organisation

There are 6 clans in the area, namely:

- *Ngilukumong*
- *Ngissiger*
- *Ngiyapakono*
- *Ngikwatela*
- *Ngibochoros*
- *Ngimataperi*

Ngissiger is the largest and indigenous clan in the area. These clans interact through intermarriages and carrying out their daily activities such as fishing and herding.

Decision making

Decision making involves the entire community with the chief and elders summoning the community before any decisions are made. Every member in the community is allowed to take part in the decision making process.

Roles of various people in the community

The elders in the community are in charge of solving any conflicts in the community and protecting the community against any forms of attacks from neighbouring communities. The men are in charge of providing food for the family, constructing permanent houses, educating the children and solving any conflicts that may arise within the family. The women's roles include weaving of baskets, fetching water and firewood, constructing animal sheds, sorghum farming and taking over the man's role in his absence. The children on the other hand go to school; catch fish or graze the animals.

Traditional hierarchy of leadership is according to age sets and time of initiation. The main symbol of initiation is the stool sat on. This rite of passage involves killing of a goat using a spear and serving it to the clan elders. After this is done, the boy is required to shave the hair on the front part of his head and apply some oil on it. He is then taken away from his home for about three to four days to mark the climax of his initiation. When he returns home, he is to come back with the stool and take good care of it. Any damage or loss of the stool is considered a bad omen and as such he must undergo the ritual of killing another goat.

Sources of conflicts

Some of the sources of conflicts within the community include:

- cattle rustling among community members from different clans;
- premarital affairs among youths;
- drunkenness of some community members which causes them to behave irresponsibly; and
- trespassing of clan members into each other's territories to steal their food and valuables.

The conflicts in this area are resolved by convening a meeting with the two parties that are having the conflict. If the families know each other, they hold a meeting among themselves

and have negotiations upon which resolutions are made. The chiefs and elders are, however, in charge of solving livestock conflicts. If one goat is killed or stolen, compensation involves repayment with two or three goats.

Migration Patterns

The community members only migrate temporarily to areas with greener pastures and water. Mostly, they migrate to Kakuma and Lokichar. The young boys migrate with the livestock and leave behind the women and elders. This mainly happens in the months of July and August.

Livelihoods

Their main sources of income include charcoal burning; fishing and basket weaving. During the dry season, they rely on charcoal burning and basket weaving as their main source of income. During the wet season, they rely on selling livestock products and sorghum as a source of income.

Religious/ Cultural beliefs

This community has a number of cultural and religious beliefs which include:

Collecting stones and placing them on a hill for worship. When one passes by that hill, he or she is required to pick a stone and place it on those grounds. This is carried out on a hill known as Kalimapus Hill.

They also highly value grave sites and do not condone any foreign activities on them. They maintain that these sites remain sacred.

They highly condemn adultery and believe that calamities occur upon families of the adulterous persons such as loss of livestock and other valuable resources.

Their animals (i.e. goats, camel, sheep and donkeys) serve them a number of functions such as dowry payment, a source of food, welcoming a new born into the clan and marking the death of a community member.

They have reservations when it comes to eating the various parts of an animal. For example, the men eat the goat's head and legs, the boys eat the breast area to the rear end and the women are left to eat the rest.

Labour requirements

The people in this community are busy throughout the year but during dry seasons they are the busiest because they go long distances in search of pasture and water. Skilled labour found in this area includes drivers; fishermen and boat sailors. The women are allowed to be involved in jobs but should not do jobs that have them staying away from the house for long periods. These jobs can either be formal or informal.

Development Priorities

The community encourages the following developments in the area:

- Provision of school bursary funds to further the education of the children;
- Improvement of infrastructure in schools such as classrooms and dormitories;
- Water provision in form of hand pumps and tapped water; and
- Employment opportunities both skilled and unskilled.

Previous exploration activities

The community is aware of past exploration activities carried out by Kenya Oil. This company constructed a straight road which runs all the way from Kerio to Todonyang. The road is still in use. They also provided employment opportunities for the community members. Some

negative impacts also arose from this project such as forceful eviction of people from their homes. They also did not provide water like they said they would.

FGD at Kalinapur Area on 10th August 2013

FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Participants

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5	JOHN LOBOME	9336185	0718250780	
6	ANGELINE AKIELA	26665630	0707171009	
7	LOSEKON KWDI	24406414	-	
8	PETER KIABO	21406414	0712487394	
9	ARNDTO BENITO	-	-	
10	DANIEL EROT	9336147	0216136267	
11	ELIZABETH AIBA	9244773	072402551	
12	NANCY AKOBI		0706267006	
13				
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FOCUS GROUP DISCUSSION AT ELIYE SPRINGS ON 8TH AUGUST 2013

Participants:

- 11 Eliye Springs members
- SIA Team

The session began with a word of prayer after which participants introduced themselves. The session was moderated by Linda.

Community Organization

There are over 10 clans in this area, namely:

- *Ngikatap*
- *Ngimosoroko*
- *Ngissiger*
- *Ngiponga*
- *Ngisaliua*
- *Ngipucho*
- *Ngiduya*
- *Ngimeturana*
- *Ngilukumong*
- *Ngitoropauolong*
- *Ngibochoros*

Ngissiger is the largest clan in the area. *Ngibochoros* are the indigenous inhabitants of the area. They comprise of a number of clans who live by the lake side. The clans interact through intermarriages, fishing in the lake and even doing business together.

Decision making

Decision making in the community is done by the council of elders. The council includes both men and women. They are approximately 12 in number including the chief.

Roles of various people in the community

Besides being the decision makers in the community, the elders also assume the following roles:

- conflict resolution and peacemaking;
- advising communities on issues such as chaos or wrong practices in the community; and
- protecting and safe guarding the community and its natural resources.

The men are in charge of:

- livestock rearing;
- educating the children; and
- solving conflicts within the family.

The roles of women include:

- weaving of baskets;
- fetching water and firewood;
- construction of animal sheds; and
- sorghum farming.

The youths are in charge of fishing and livestock herding while children are mandated to go to school and carry out errands at home.

Sources of conflicts

Some of the sources of conflicts within the community include:

- cattle rustling among community members from different clans;
- premarital affairs among youths;
- drunkenness of some community members which causes them to behave irresponsibly; and
- trespassing of clan members into each other's territories to steal their food and valuables.

The village elders and council of elders are involved in the conflict resolution mechanisms. If the village elders are not able to solve the conflicts, the council of elders intervenes. They are required to be unbiased during the decision making. They are also required to be eloquent in speech, well respected by the community and non-biased. There should also be equality in selecting the decision makers such that each village should have a representative.

Migration Patterns

The community members only migrate temporarily to areas with greener pastures. Most of the time, they migrate to Kalokol. The young boys are in charge of moving the herds to these greener pastures while the rest of the clan members are left behind.

Livelihoods

The sources of income for the community members include weaving of baskets, fishing, sorghum farming, livestock rearing and charcoal burning. During the dry season, their main source of income is weaving, fishing and charcoal burning. During the wet season, they rely on sorghum farming, milk from animals and fishing as an income source.

Religious/ Cultural beliefs

Their animals serve various functions such dowry payment, source of food and marking certain marriage ceremonies e.g. a male bull and camel is killed to mark the climax of the traditional wedding. A fat ram is taken to the girl's father as a gift of appreciation.

They have a few cultural sites in the area such as a shrine at Kalulaswe. Stones and thorns are used to fence these areas. In one of these shrines, the passersby are required to pluck a leaf and throw it on the grounds of that shrine as a ritual. There are no special grave sites for this community. They bury their dead close to their homesteads

Labour Requirements

The main seasons of rainfall are in April to around June and this happens to be the time people are involved in planting sorghum. During this time people are not very busy because the animals are just grazed around the homes. In the dry seasons people travel far to get food and pasture for the animals hence this is the busiest time. Some of the skilled labourers found in the area include drivers, fishermen and mechanics. Cooking and craftwork is also done by the women.

Past exploration activities

They are aware of past exploration activities carried out by Kenya Oil in 1992. Some of the developments done by this company include construction of boreholes and provision of security in the area. Some of the negative impacts caused during this oil exploration activity included bringing venereal diseases to the community and adultery.

Development Priorities

Some of the development priorities that may benefit the area include:

- construction of roads;
- health facilities and schools;
- provision of water; and
- improving telecommunication services.

Ehye Springs 8/8/2013

**FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING**

List of Participants

NO	NAME	ID NO	CONTACTS	SIGNATURE
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5	JOSEPH LOMYAT NATINI			
6	CICILIA LOREM KVAI	23717258	0703867373	Cicilia
7	MICHAEL ESEKON LIMAA	20384157	0719158921	
8	SAMMY EJIE LORU	8561806	0711310829	
9	Samuel LORU	26544100	0701523967	Samuel
10	Robert Karima		0709326557	
11	BENEDICTO PAITI	25105510	0714326432	
12				
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FOCUS GROUP DISCUSSION AT LOMEKWI ON 13TH AUGUST 2013

Participants:

- 13 Lomekwi members
- SIA team

The meeting began with prayers from the local pastor. The FGD participants and the SIA team introduced themselves.

Clans in Lomekwi area include:

- Ngissiger
- Ngilukumong
- Ngibochoros
- Ngiyapakuno
- Ngikamatak
- Ngikwatela
- Ngissiger is the largest and the most indigenous clan

How the clans interact

The participants outlined that the clan interacts through inter-marriage, businesses and initiations (*asapan*). In addition, they share livelihoods such as the lake, grazing land; churches bring them together and scholarships for advancement of education.

Decision making

The community members, village elders and the area chief are involved in decision making at the community level.

Roles of various people in the community

- Village elders:
- Decision making;
- Dispute resolution;
- Ensuring community values are upheld and observed; and
- Assist the area chief in discharging other duties in the community.

Roles of men in the household include:

- Provision of security to the family members;
- Provider of the family's basic needs;
- Fishing;
- Taking care of the girls so that they get married in wealthy homes; and
- In the past, the men used to discipline their wives whenever there were conflicts between them.

Roles of the women in the household include:

- Basket and mat weaving;
- Preparing the children for school;
- Fetching water;
- Cooking;
- Burning charcoal for sale;
- Construction of manyattas; and
- Taking the children to hospital in case they fall sick.

Roles of the youth:

- Grazing livestock
- Fishing
- Performing other household duties as instructed by their parents

Roles of children:

- Sweeping the compound
- Fetching water
- Cleaning the house
- Clearing shrubs around the homestead

Traditional hierarchy of leadership in the area

- Village elders (male or female)
- The married men and women (Those who have undergone traditional marriage)
- The initiated youth
- Those youth involved in grazing (those unmarried and uninitiated youth)
- Children

Conflict

- Common sources of conflicts in the area:
- Competition over the water points in the area especially during the dry seasons
- Conflicts over grazing lands when one community invades the other community's territory
- Stealing of livestock by some children
- The rich despising the poor in the community brings conflicts
- Fishing; sometimes there is too much wind blowing in the lake which results to some fishing nets covering another person's nets. The owner of the fishing net that has been covered destroys the other person's nets which results to conflicts
- Business; some people set the prices of items higher than others which brings conflicts
- Some boys elope with the girls. The father of the girl takes the livestock of the boys' family
- Some community members launch new churches in the neighbourhood, they want all their relatives to attend those churches
- Conflicts over power; the chief might come from the largest clan in the area and choose leaders in the community from the same clan. This means that the other clans will be discriminated against when it comes to handling conflicts in the area.

Conflict resolution mechanisms

When conflicts arise in the community, they are reported to the village elders first. If they can't be resolved by the village elders, then the area chief is involved. For example, when someone elopes with a girl, the two families are involved if the boy and the girl agree. If the father of the girl does not like the boy, the two families distance themselves from each other. If the father likes the boy, he asks for livestock from the boy's family. If it is a rape case, there is compensation in form of livestock and if the two families can't agree the area chief is involved.

Migration patterns

The community members migrate during dry seasons (April-August) in search of water and pastures. The youths are involved in migrating to graze livestock in places where it has rained while the rest of the family members are left at home.

Sources of income:

- Fishing
- Basket and mat weaving

- Sale of livestock
- Sale of milk during rainy season
- Sorghum farming during rainy season

Sources of income during the dry season:

- Charcoal burning
- Fishing (It is difficult since the fish are less)
- Mats, baskets and broom making
- Sources of income during rainy season:
- Sorghum farming

Functions of specific animals

The community keeps goats, sheep, camels and donkeys. Cattle are not found in the area. They are found in the borders where there is plenty of pasture.

The following are the Main functions of livestock:

- They can be sold to pay school fees and medical bills
- Consumption
- Payment of dowry
- Fines during conflicts
- Male goat and sheep is used for initiation
- Goats are slaughtered when a child is delivered while a sheep is slaughtered when the mother is leaving the house after delivery.

Cultural sites

There are no such sites in Lomekwi but they are many grave sites in the area. Grave sites should not be interfered with in case a project comes up in the area. Also the sorghum farms should not be interfered with.

Cultural beliefs

Parts of the goats that are served to men when it is slaughtered include the head, breast, front legs and four ribs. The woman can't eat these parts unless if allowed by the husband. Women are served with the back part of the goat, large intestines and hind legs. Children are served with the small intestines and the heart.

Other cultural beliefs include:

- The men should never cook in the household;
- Men should not construct manyattas, they are constructed by women only;
- Women can't be involved in the branding of the animals only men; and
- Men should not commit adultery. Adultery is a highly fined vice in the community

Labour requirements

People in the area are usually busy during dry seasons since there is too much work involving moving with livestock in search of pastures and water. During the rainy season, there is plenty of milk from livestock and livestock diseases such as foot and mouth are common in the area

Some of the skills found in the area include:

- Fishermen
- Sorghum farmers
- Catechist
- Pastors
- Medical practitioners
- Women are allowed to engage in formal jobs if they are trained on the same

Development priorities:

- Improve the education facilities in the area through supporting the students with bursaries and scholarships to advance their education;
- Supporting groups in the area to boost their business;
- Provision of health facilities, the dispensary in the area is non-operational;
- Provision of adequate water;
- Promotion of irrigation to produce food and fodder for the livestock; and
- Promote fish farming in the area through setting up fish ponds.

Previous exploration activities

The FGD participants said that some exploration had been done in Lomekwi in the past. Kenya Oil was working in the area in the year 1984-1985. They did benefit from some security jobs offered to few people in the community to guard the cables installed in the area. They employed people in each area where they worked for instance, they employed security personnel in Katiko and when they moved to Lomekwi they would employ people from Lomekwi area. In Lomekwi, one of the FGD participants who was a beneficiary of the jobs said that four security personnel were employed. In addition, the company constructed a straight road from the area up to Todonyang.

There was no displacement in the area and they did not buy any goats from them. Back then, the FGD participants said that they did not know about charcoal burning.

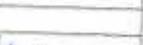
The FGD was concluded and Linda gave a vote of thanks. A local pastor closed the meeting with a word of prayer.

LOMEKIWI FGD

13/03/18

FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Participants

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5	REBECCA LOUMOI IKIMAT	30961019		
6	GOSFREY EWALAN	20716868	0716284908	
7	LOUMOI LOKERIS ENESTHE	4807617		
8	LUCAS LOTARUK EDEMOMI	444800		
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14				
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FOCUS GROUP DISCUSSION AT LOKITAUNG ON 16TH AUGUST 2013

Participants:

- 16 Lokitaung community members
- SIA team

The meeting started at 2.04pm. One leader opened with a prayer. Grace Mugo took the time to inform the participants the aim of the meeting. She informed them that Earthview Geoconsultants was there to take their views in regard to environmental and social issues that may result from the exploration activities of Tullow in Block 10BA. She asked the participants to be open and feel free to share their views without fear

Clans

The three clans in the area are:

- Ngissiger
- Ngiyapekuno
- Ngikwalela

The oldest and the indigenous clan is the Ngissiger.

Relation among the clans

The participants admitted that the clans interact freely with each other. During drought, one clan can take their livestock to graze in the other clans grazing lands without any tussles with host clans. They share food, inter-marry and there is no any form of discrimination.

Decision-making

The decisions are made by the elders and the area chief.

Other functions of elders include:

- Conflict resolution;
- They are key-decision makers; and
- Provide security.

Role of man at home

- They are the providers of food and other basic needs
- They provide security in case of an attack from the neighbouring communities
- They herd the animals
- They are decision-makers
- They act as vigilantes to detect any security threat. Before and during the journey, they go ahead and assess the security situation.

Role of the women

- They construct houses. This is the sole work of the women in the households.
- Drawing water for animals
- Do the household chores which include cooking, cleaning and making sure that everything in the house is in order
- Looking after the children interest i.e. feeding the children and making sure that they are healthy

Role of the youth

- Herding animals
- Move with animals from one place to another. The elderly and the children remain behind
- They also act like messengers to pass across any messages and one of their destinations includes Todonyang.

Role of children

- Looking after the young livestock
- Doing other small errands around the homestead like being sent to the shops.

Sources of conflict

- Scrambling for pastures and grazing lands
- A step parent discriminating other children
- Scrambling for water points
- Stealing and killing another person's livestock for food
- Rape cases
- Spread of diseases among other animals

Conflict resolution

The village elder is concerned with conflict resolution. He may refer the case to the area chief in case he cannot solve it.

Migration

They migrate during the drought to look for pasture and water. Insecurity might be another reason why they migrate, an example being the migration from Todonyang to parts of Lowarengak due to insecurity in Todonyang.

Income generating activities

- Milk from camels, goats, cows and even donkey
- Forest fruits
- Weaving and making ornaments such as necklaces
- Depend on the children who work
- Food for work from organizations such as the Oxfam
- Availability of funds to old men who are 65 years and above
- Allowances for the disabled
- Fishing activities
- Barter trade i.e. they take empty jerry cans and soap to Merille and they get sorghum as an exchange.
- Gold trade from Sasame
- Charcoal burning
- Selling firewood
- Aloe Vera business for trade i.e. Sugar

The common sources of income though are goats, charcoal and fishing. Livestock kept include camels, goats, donkeys, cattle and chicken.

Cultural roles of livestock

The bride price includes camels, cattle, goats, donkeys and sheep. When a child is born, they kill a goat. During pre-wedding, they take a goat and during initiation (asapan) the subjects kill a goat which the elders eat.

Lokitany 16/8/2013

FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Participants

NO	NAME	ID NO	CONTACTS	SIGNATURE
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2	JOHANNUEL BOKOR	8663321	CHAIRMAN	<i>[Signature]</i>
3	ANNON ABEMON	0149750	CHIEF	<i>[Signature]</i>
4	PAUL ERAT KORWA	95053256	CHAIRMAN	<i>[Signature]</i>
5	ALIAS FERU	2423902	COMMUNITY	<i>[Signature]</i>
6	LOKNER EBONDON	85601415	MREE CHIEF	<i>[Signature]</i>
7	JOHN EKURAU			
8	JOHN KORWA		MREE CHIEF	<i>[Signature]</i>
9	JOHN LOSO NGUBETO	0451662	CHAIRMAN	<i>[Signature]</i>
10	AKAI ROBO	070258131	070258131	<i>[Signature]</i>
11	PETER LOTILWA	0149738		<i>[Signature]</i>
12	JOSEPH EKALE KOMILO	20781356	0712148871	<i>[Signature]</i>
13	ALIAS LOSO	2423902	070258131	<i>[Signature]</i>
14	JOHN EKURAU	2317856	D.P.	<i>[Signature]</i>
15	NEWIENES ERAT KAMAS	10125857	0726858614	<i>[Signature]</i>

PETER Lotilage
ALIAS

16. EKIBOR EREGAB

EKIBOR

FOCUS GROUP DISCUSSION IN TODONYANG ON 15TH AUGUST 2013

Participants

7 Todonyang members

SIA team

The session began with a word of prayer after which participants did self introduction.

Clans found in the area include:

- *Ngissiger*
- *Kwaleta*
- *Yapakuno*
- *Bochoros*
- *Ngilukmong*

Of the above listed clans, *Ngissiger* is the major indigenous clan inhabiting the area. The other clans migrated to Todonyang in 1958 because of drought. The *Ngilukmong* are originally from Kakuma; *Kwaleta* from Lokichogio and Kibish; *Yapakuno* from Kaaleng' and *Bochoros* from Kerio.

Clan interaction

- They fish together;
- They graze together;
- There is intermarriage, their cultural rites are similar; and
- They do business together

Decision making in the community

Chief and elders are the main decision makers but other people such as youths, youth groups, women and religious leaders are consulted before any decisions are made.

Role played by elders (comprised of both men and women) include:

- decision making;
- resolution of disputes;
- advice on several issues in the community;
- educate people on the traditions of the community; and
- consulted on historical things and ways of lives from the past so that it informs the present.

Role of men include:

- Making sure the family and the society is safe;
- providing food for the family; and
- herding of livestock and fishing.

Role of women include:

- Domestic chores such as fetching firewood, water and provide for the family in case the husband is not around;
- to take care of children and make sure that children go to school;
- make sure the home is clean; and
- build traditional houses and the fence; build animal sheds in the homes.

Roles of youths

Men Youths are expected to:

- Assist their fathers in terms of taking care of animals and fishing;
- take the position of their fathers in case father is not around to ensure security; and
- look for food in case the father is not around.

Women youth are expected to:

- Assist in domestic chores which include: fetching for water, firewood, cooking and take care of children;
- milk the animals; and
- help in the building of the manyattas.
- Role of children include:
- Schooling; and
- Taking care of kids (goats) and calves.
- Traditional Hierarchy of leadership

The elderly people especially men who have undergone a sap (initiation) are regarded as the leaders and must be 50 years and above. They are highly respected and are the first to do anything like eating before anybody else.

The second are those who have wedded traditionally. Despite the age and the *Asapan* there is also *Ngimor*, *Ngirisae*, and *Ngisaali*. *Ngimor* are the most respected, they are the ones tasked with all traditional activities such as giving advice and guiding in everything that happens in the community.

Sources of conflicts include:

- Theft of animals by Ethiopians from the Turkana in Todonyang hence conflicts;
- Clans fight over fish, other clans want to fish where there is a lot of fish than indigenous clans of the place;
- Other clans from other areas come for pasture and water hence there are fights between clans;
- Marriages- Ngissiger clan is rich hence most of the time they restrict their daughters from marrying people from other clans who are poor hence bringing issues; and
- Theft of fishing nets, fish and animals among the people.

Conflict resolution

- Where there is conflict, the elders are informed and they solve it. Some of the solutions include:
- In cases of grazing disputes, they decide that other clans should be allowed to use the land because they will also go and graze on their land.
- If involved in kidnapping and impregnating a girl, the punishment is to pay 31 goats and a 1 cow.
- If you abuse a person who is older, one is supposed to pay a fine of 3 sheep that will be given to all the age mate sets *Ngimor*, *Ngirasae* and *Ngisali*.
- In case of adultery the man involved is to be fined all his animals which are eaten by everybody in the community.
- In case a young person is involved in any dispute, he is beaten by his age set who are called upon by the elders.

Livelihood

- Fishing
- Selling of fish
- Livestock herding
- Selling of firewood, charcoal burning during dry seasons
- During the rainy seasons the animals are fat and can be sold at a good price, they also produce good quantity of milk

Religious & cultural beliefs

Cattle

- During traditional weddings the bull is killed to mark the climax of the wedding.
- Provide milk & meat.

Goat

- Used during asapan
- For eating and selling
- Dowry
- Provide milk

Sheep

- Provide Milk
- Given to mother in-law as an appreciation for taking good care of the daughter (wife) before wedding. During wedding 3 sheep are given to the wife's father.
- Cleansing the homes
- Provide Cooking oil.

Camel

- Dowry
- Meat
- Milk helps especially during drought because they are normally milked six times a week. The milk is also used to treat blood pressure

Donkey

- Carry luggage
- Dowry
- Source of meat

Cultural sites

- The diviners collect people to pray and ask God for blessings. This is normally done under trees or besides the hills but there is no specified place.
- Areas that should not be interfered with
- Grazing areas such as the base of the hills
- Fishing areas and fish landing sites
- Water points such as boreholes and water pans

Cultural beliefs

- They do not tolerate people who eat dogs and human beings. Such kinds of people are not welcomed in Todonyang.
- They don't like their women having sex with anybody. Any Turkana woman should be married officially in the traditional ways.
- Fornication and adultery are not accepted.
- In case a Turkana woman gets a child out of wedlock, the child is highly respected because he or she takes the position of the mother but the mother is considered an outcast.
- Orphans are taken good care of by the community.
- The community is mandated to punish children who are indiscipline.

Labour requirement

Drought is the busiest season, men and youth go to look for water and pasture while women and girls go to burn charcoal. Young people also go for fishing. Women are allowed to work but those who are officially married are not allowed to work at night.

Skills found in the areas

- Mason
- Social work and community development
- Drivers
- Cooks
- Launderers
- Casual workers

Development priorities

- Irrigation schemes
- Security
- Road infrastructure
- Water
- Fish ponds
- Communication networks

Previous exploration activities

In 1985 Kenya oil (AMACO) did seismic survey, the local community did not benefit in anyway.

The company destroyed grazing land, grave sites, houses and trees; and also caused a lot of dust pollution hence a lot of TB cases and flu were reported.

In 2008 CAMAC was working in Kaaleng, Lokichoggio and Kakuma.

BGP and Tullow did seismic survey. The community members mentioned the following positive impacts

- Employed people;
- provided bursaries;
- gave tenders to the community especially food supply;
- provided 600litres of diesel to the community generators to pump water;
- provided generators to the community for pumping water; and
- paid the community water attendants at the community water points.

Negatives:

- The big trucks have destroyed grazing lands;
- the vibrator scares away animals;
- they have also destroyed fishing nets and scared away fish; and
- caused a lot of dust pollution making the animals to cough.

FGD Participants in Tadamang on
15th / 8 / 2013

Name	I.D no.	Signature
Ekori Ekuwom		- Ekori
Makwaare Wakaale		- Makwaare
Patrick Lochoto	10123799	- Patrick
Daniel Lohamin	11513221	- Daniel
Dorcus Enokwisi	27472122	- Dorcus
Joyce Enurria	24976202	- Joyce
Ernus Ati	10124508	- Ernus

FOCUS GROUP DISCUSSION AT LOWARENGAK ON 15TH AUGUST 2013

Participants:

- 8 Lowarengak members
- SIA team

Clans

The available clans in the area are:

- Ngissiger
- Ngilukomongo
- Ngikwatelo
- Ngiyapakuma
- Ngibochorasi
- Ngikamatak

The indigenous and common clan in the area is the *Ngissiger*. The clans have been in Turkana from 1968 during the droughts. Other clans came in during the drought of 1980s. They depended on fish from Lake Turkana and relief food from available organizations.

Interaction among the clans

The clans interact socially and they have same language and traditions. The clans can also inter-marry. They do not fight each other and they have been living together since the late sixties without any fights. They say that the other tribes are slowly amalgamating into Ngissiger. They, however, have different branding marks.

Decision-making

There are different stakeholders insofar as decision making is concerned. Some of the stakeholders are:

- Religious based organizations
- Women representatives
- Administration

The overall in charge though is the chief. He recommends a given project on the community. This will follow the set hierarchy and proceed to the county and then to the National government.

Role of the council of elders

- Solve cattle rustling conflict;
- Solve land disputes;
- Refer assault cases to the chief, they cannot, however, solve weighty issues and refer these to the chief;
- Provide security because the area is prone to net-stealing; and
- Solve marital problems.

The role of men:

- Head of the family;
- Bread winner;
- Provide Security; and
- Solving issues in the family before referring them to the next level.

The role of women

- Household chores;
- Aid the husband at home;
- Advice the husband in the house;

- Store-keeper;
- She trains the children on how to eat, dress and behave and also discipline them;
- Draws the water for animals to drink;
- Custodian incase the husband is away; and
- Sometimes raid in case of an attack.

Role of the youths

- Provide security; and
- Take the food to other youths herding animals.

Role of children

- Take care of the young goats and take them to the water points but some go to school;
- Do minor errands like being sent to the shops; and
- Wash utensils.

Sources of conflicts

- Disputes due to drunkenness
- Land boundaries since most of the land is not adjudicated;
- Inter-clan conflicts although this is slowly fading away since most clans are slowly getting amalgamated to the Ngissiger;
- Drug abuse;
- Stealing;
- Inter-tribal wars which can be in the form of land disputes, animal theft, fishing net disputes, grazing land disputes, water points disputes and water disputes; and
- Attacks by Merille.

Conflict resolution

The involved parties are summoned and asked to give their sides of the stories to the elders. If the elders are unable to sort out the issue, it will be taken to the chief and should the chief not be able to assist, it will be taken to the police.

Migration patterns

During dry seasons, the youths move with their animals but the children and the adults are left behind.

Sources of income

- Fishing
- Pastoralism
- Trading
- Charcoal burning
- Firewood selling
- During dry seasons, their main source of income is relief food from the government and fishing.

Religious and cultural belief

- Donkeys are used for bride price and carrying luggage
- Goats are used during wedding ceremonies
- They eat all the domestic animals and they claim that donkey has the best meat and camel can treat illnesses such as asthma, measles, malaria and TB
- They also sell their animals and use the proceeds to pay school fees, treatment and cater for other personal use. The women are not allowed to slaughter cattle and camels.

- The children should not stay with the elders when the elders are eating.
- A married woman is given a ring by her husband. This ring should deter other male counterparts from having any sexual affairs with her. Should she have extra-marital affairs though, the repercussions will be grave. She will bleed in her private parts. A woman is allowed to have sexual affairs with another man if her husband is unable to father any child but this has to happen after the consent of her husband.
- Should a woman loose her husband, her step-son can inherit her.
- If the stool (*ekicholong*) falls down, the victim must kill a goat to the elders to avert any eminent curse.

Protected areas

- Their ancestors' graves near Lapur
- Northern Island in Lake Turkana
- The water points
- The places that were previously occupied by the seers.
- The graves should also be left untouched because they visit the graves every year.
- The big trees where the old sit and play a game known as '*ajua*' and relax.
- Turkana boy site which is in Nariokotome.
- Fluorspar which is found at Nanyangakipi.

Skills

Skills found in the area include masonry, carpentry, ECD teachers, education, accounting, plumbing, community development and doctors. Women are unrestricted to do the jobs that were traditional reserved to their male counter-parts.

Development priorities

- Increase the number of the water tanks in the region;
- Provide fishing gears;
- Provide boats for deep fishing;
- Employment opportunities;
- Capacity building;
- Improve Network;
- Health;
- Electricity;
- Modern market;
- Provide veterinary services to the animals; and
- support the elderly through the social funds.

LOWARENGAK FGD 15/08/2013

FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT
ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH
DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Participants

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	PIUS CHUCHU	0239630	0714310428	
2	TERESA E. MUMBA	3033030	0726138398	
3	BRENT ELIHAN NAJIRA	22573935	0718222624	
4	MAURICE ERIPON	20331451	0718215570	
5	REXIEL SMALL	10986490	0714569474	
6	Nancy MUKOO	11573384	0703855351	
7	Benjamin L. PLOMIN	10987895	0710666814	
8	Agnes EMMUDA	10446785	0713328785	
9				
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FOCUS GROUP DISCUSSION AT NACHUKUI ON 17TH AUGUST 2013

Participants

- 10 Nachukui members
- SIA team

The session began with a word of prayer from Charles Kaale after which participants did self introduction. The session was moderated by Riziki Sarah who also requested for consent to take photos and record videos during the session. The request was granted.

Some of the clans found in Nachukui include:

- *Ngiponga*
- *Ngissiger*
- *Ngipucho*
- *Ngimeturuana*
- *Ngineripur*
- *Ngiduya*

Ngissiger is the largest as well as the indigenous clan in the area. It is believed that the other clans might have split from the Ngissiger clan.

The clans share same language and initiation rites (asapan). Although the clans ascribe to the same cultural practices, every clan has its own way of marking tattoos. The tattoos are different symbols from clan to clan.

Decision making in the community

The key decision makers in the community are the elders, chief and assistant chiefs. The elders do sit together with the chiefs to make major decisions affecting the community.

Other than decision making, the elders perform other duties such as conflict resolution, preservation of the people's culture and advising the community. They are also the custodians of the community land. Additionally, the elders may either admit or expel a stranger from the community.

Married men who have not yet attained the age to be regarded elders perform such duties as:

- Taking care of the animals;
- Advising the unmarried men on the qualities of a good wife;
- Fending for their families through fishing, hunting, grazing animals etc;
- Carrying out of hard labour; and
- Protection of the community from thieves and external aggressors.

On the other hand, women have well defined roles in the community including:

- Taking care of children;
- Food preparation;
- Taking care of small animals e.g. goats, sheep, calves etc;
- Fetching firewood;
- Welcoming of visitors to the homestead in the absence of the husband;
- Construction of the manyattas;
- Construction of the kraal; and
- Weaving of baskets.

The unmarried men like the married ones carry out the following duties:

- Tending the livestock;
- Protection of the home from any form of aggression;
- Fishing;
- Going to school; and
- Walking with animals from place to place in search of water and pasture.

Common duties performed by small children are:

- Taking care of the young livestock especially the young goats (kids);
- Going to school;
- Fetching water; and
- Getting fire from neighbouring manyattas during migration.

Conflict

The major causes of wrangle between the community members are alcoholism, children quarrels and fights, boundary issues, bhong smoking and theft. Others include favouritism in employment, bad debts and stigma.

Causes of intercommunity/clan conflicts include: boundary extension, theft, incitements by those in leadership positions, poor leadership and nepotism. Stigma related to animal diseases has also in the past contributed to conflict.

Conflict resolution mechanism

Elders arbitrate between the warring sides

In cases where arbitration has failed, the local administration is involved

Migration

Causes of migration

- Drought;
- Search for grass and water for the animals;
- Insecurity;

During migration, the women and children remain behind at home while the men migrate with the animals;

In case of insecurity, everyone moves with the women and children in front;

Economic activities

- Fishing;
- Charcoal burning;
- Weaving of mats;
- Making of bracelets/bungles;
- Brewing of alcohol;
- Livestock keeping (including sheep, goats, donkey and camels);
- Small scale business;
- Gathering of wild fruits;
- Borrowing of food from friends;
- Growing of sorghum during the rainy seasons; and
- Selling milk (during rainy season).

It was gathered that during severe drought, the community depend entirely on aid from Oxfam GB and proceeds from selling the livestock.

Use of animals

The donkey helps in transportation while the Camel/sheep/goats/cattle are used to pay bride price. During raids, cattle songs are sung. Sheep is used in courting or asking for a girl's hand in marriage and is also used for cleansing especially after accidents, jail terms and raids etc. Nobody is allowed to enter the home before cleansing is done especially after raids.

Cultural sites

Under trees are the major sites for sacrifices and rituals. Some of the notable places with cultural significance are gravesites, Kaikore, Lokichoggio etc. Other historical sites include Nariokotome (Turkana Boy site) and Nachukui 6 (site where artifacts/tools associated with the stone age period were found).

There are specific places in the home for family members to sleep: Aperot for the man of the homestead and the goats' kraal for the youths. Women are not supposed to eat the head and neck of the goats. During ceremonial feasts, no mistake is allowed hence should there be, the one responsible must replace the goats.

The community members are busy during drought because they have to do a lot to make ends meet. The animals are divided and taken to different places to get pasture. Women may go looking for water over long distances. Women who get employed are closely monitored lest they mess up their families.

We also gathered that, over the seismic survey period many girls were enticed with touch screen phones within the base camps.

Development priorities in the area include

Water projects, hospitals, ECD schools and patrol boats and fishing gears.

Previous exploration activities

Kenya oil did seismic survey in the 1980s. Roads were made from Ille (Eliye Springs) to Todonyang. They also did exploratory drilling. No one from the area got employed. The seismic lines were straight hence many homes, graves and pasturelands were interfered with. They have also heard about CAMAC activities in Ngolor Kaalong. They never benefitted in any way. Tullow activities at Lokichar were also known to them including schools scholarship programmes.

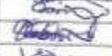
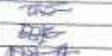
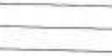
The discussion ended at 1:09pm with a word of prayer.

7/08/2013

NACHUKUI SUB LOCATION

FOCUS GROUP DISCUSSION ON ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT IN BLOCK 10BA IN TURKANA CENTRAL AND TURKANA NORTH DISTRICTS FOR THE PROPOSED EXPLORATORY DRILLING

List of Participants

NO	NAME	ID NO	CONTACTS	SIGNATURE
1	ESTHER MANDI	0239652	34 LODWAR	
2	Simon Ngunjiri	0238897		
3	PROFIT EMMERIA	0235286	34 Lodwar	
4	CHARLES KALE	11513277	34 Lodwar	
5	DARICIA KAPOKO	20824007	34 Lodwar	
6	PETER ETUPAT	2278476	34 Lodwar	
7	JECENTA ASIRITE	10124707	34 Lodwar	
8	Thomas NAINKOLE	23527486	34 Lodwar	
9	Mwiko ABET	9245778	34 Lodwar	
10	Peter KALANG	28619880	34 Lodwar	
11				
12				
13				
14				
15				

0208398

13.1 KEY INFORMANT INTERVIEW NOTES

RESPONDENT: MR. DARUSI
DESIGNATION: DC, TURKANA CENTRAL,
INSTITUTION: OFFICE OF INTERIOR AND CO-ORDINATION OF PROJECTS

Security

Turkana is unique as it is not only a porous international border but also faces the problem of cattle rustling. Time and again, the Turkana have had conflicts with the neighbouring communities such as the Pokot and Samburu within Kenya and the Merille from Ethiopia, among others. In addition, the area also experiences infiltration of illegal fire arms.

The district has Security committees comprising:

- The District commissioner;
- The district Intelligence;
- The Criminal Investigation Department (CID); and
- The Officer Commanding Police Division (OCPD);

In addition to the district security committee, there exist similar peace structures at divisional, locational, sub-locational and village levels. The latter is made up of village elders, local leaders as well as other influential community members who value peace.

Challenges in the area

The area experiences a number of problems, including:

- Poor transport and communication networks(poor infrastructure);
- Harsh climatic conditions;
- Inadequate resource allocation by the government; and
- Insecurity.

Potential impacts of the proposed project

According to Mr. Darusi, listed below are the possible impacts of the proposed project:

- Economic opportunities;
- Development of infrastructures;
- Social dynamics - learning of new ways and technology;
- Displacement of population;
- Conflicting cultural orientations between the project workers and the local communities; and
- Strain on security operators because the proponents will need security escort and guarding of the base camps.

Environmental impacts

Possible environmental impacts may include:

- Destruction of pasturelands; and
- Interference with water aquifers.

Proposed Mitigation

To curb possible negative impacts that may arise during the implementation of the proposed project, the DC suggested the following mitigation measures:

- Capacity building of the communities and their leaders;
- In case of displacement, proper compensation plans should be put in place;
- Modern ways of pollution prevention, especially environment, water and air pollution should be adopted;
- Efficient machinery should be used to reduce the level of carbon dioxide emission into the environment;
- Government should invest in security apparatus because of the increased needs; and
- Priority should be given to infrastructural developments.

Social investment projects

The DC suggested that Tullow should consider investing in the following projects:

- Due to high illiteracy level they should expand the school facilities, i.e. build schools, enhance retention, enrolment and scholarships for colleges, among others;
- Should initiate preventive health care;
- Public health;
- Maternal health; and
- Projects on campaigns on livestock immunization.

Concerns about the project

The following concerns were raised by the DC:

- Employment related conflicts are likely to occur as was the case in Block 10 BB;
- Contracts are likely to be awarded to outsiders-for example, meat is supplied from Kitale instead of from the locals;
- BGP does not enter into employment contracts with their employees (contracts are open ended);
- Tullow formed an advisory committee to deal with issues of contracts and employment. The committees comprised of politicians who do the supplies alone. Tullow should have a procurement committee to avoid conflicts of interest;
- There were no terms of reference (TOR) for the advisory committees. Tullow should reconstitute the committee and bar politicians from such committees; and
- Councillors were members of the ineffective advisory committees. The committee should be representative of stakeholders and not just the political class.

EarthView Geoconsultants Ltd.

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Email: Earthview@geologist.com
Website: www.earthviewgeoconsultants.com

To,
The District Commissioner,
Turkana Central District,
Lodwar.

24/7/2013

Dear Sir,

REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA Turkana

Tullow Kenya B.V., a subsidiary of Tullow Oil plc, is an Oil and Gas exploration company licensed by the Ministry of Energy to carry out exploration activities in Block 10 BA. The proposed activity is an exploratory well drilling for oil and gas. The Environment Act requires that before any project is implemented, an Environmental and Social Impact Assessment (ESIA) must be carried out in the intended project area to ascertain the environmental and social impacts such a project might have on the surrounding area.

Earthview Geoconsultants Limited is a firm licensed by NEMA to carry out Environmental and Social Impact Assessments. The company has been commissioned to conduct an ESIA for exploratory well drilling in Block 10BA which covers parts of Turkana Central and Turkana North districts on behalf of Tullow Oil.

Exploratory drilling is undertaken to verify if geological formations have accumulations of hydrocarbons, and if the site can produce enough oil and gas to make it economically viable to proceed with further development. The exploratory drilling activities will include the construction of access roads, drill pads, drilling and well-test. The drill pads will include contingent areas that will serve as the lay down and camp.

These activities may affect the biophysical and social environment in different ways. The Social Impact Assessment aspect of the ESIA requires us to capture the views of all the stakeholders in this venture. For this, Earthview will conduct public meetings and consultations with Government officials, NGO officials and community members. Structured questionnaires and interviews may also be used at the household level.

To this effect, Earthview Geoconsultants Limited kindly request for your input relating to the proposed project. As a stakeholder, we would like to request for your attendance at a stakeholders' consultation forum on 1st August 2013 at County Palace Hotel in Lodwar town at 9.00am

Your views will form part of the ESIA report and recommendations thereof will be part of the Environmental Management plan (EMP) for the project in Block 10 BA.

Yours sincerely,



Professor Opiyo-Aketch
Director/Lead Consultant

DISTRICT COMMISSIONER
TURKANA CENTRAL.

RESPONDENT: DANIEL KIPTOO-0722477520
DESIGNATION: OPERATION OFFICER, TURKANA CENTRAL
DEPUTY OCPD, TURKANA COUNTY
1ST AUGUST 2013 TIME: 3.00 PM

Relationship between the police and the community members

There exists good relationship between the community and the police. This has in fact made it easier for members of the public to access police services.

Security

The most common crimes in the area include cattle rustling and assault. He mentioned Kangir site as a volatile area which is prone to cattle rustling. He however cited the KPR (Kenya Police Reserve) as a body that is helping them towards alleviating crime and keeping peace in the remote areas.

He said that the general security of the area is calm and that security had been intensified along the routes.

There are approximately 80 police officers. Kalokol has 1 police post and there is 1 police station in Lodwar. He mentioned that there are many KPR officers to provide security in the remote area.

Challenges faced

The challenges facing the area include a difficult terrain. The Turkana Central and North districts are generally hilly and vast. This makes it hard to recover animals stolen by the rustlers. The security personnel here need a surveillance helicopter to cover as much ground as possible in combating cattle rustling. Poor climate is another challenge. The temperatures are usually very high. When it rains, the luggas are filled with water, hence rendering transportation impossible across the luggas.

Conflict resolution mechanism

The court system is most preferred for conflict resolution. The police opt for the court to solve both civil and criminal offences. He however, mentioned that the police only handle reported cases unless it is a grave case like murder. He said that the community has freely accepted Tullow activities and projects in the area. He expected the community to respond positively to the project since they stand to gain. He mentioned that any negative response is a function of bad politics.

Vulnerable groups

The poor individuals in the community (hunger). Relief food is provided but it is never enough.

The major social investments that Tullow should initiate

Hospitals are limited and the locals walk for long distances to access the available facilities. Road construction.

Key human rights issue

The major key human rights issue is poor access to justice. He said that many criminal cases go unreported, hence human rights are violated.

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26/7/2013

To
Whom it May Concern,

Dear Sir/Madam,

**REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA
Turkana**

Tullow Kenya B.V., a subsidiary of Tullow Oil plc, is an Oil and Gas exploration company licensed by the Ministry of Energy to carry out exploration activities in Block 10 BA. The proposed activity is an exploratory well drilling for oil and gas. The Environment Act requires that before any project is implemented, an Environmental and Social Impact Assessment (ESIA) must be carried out in the intended project area to ascertain the environmental and social impacts such a project might have on the surrounding area.

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To this effect, Earthview Geoconsultants Limited kindly request for your input relating to the proposed project. Your views will form part of the ESIA report and recommendations thereof will be part of the Environmental Management plan (EMP) for the project in Block 10 BA.

Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant

O.C.P.D
TURKANA CENTRAL DIVISION

RESPONDENTS: VICTOR LEKERAM
ALBERT MAKORI
DESIGNATION: DISTRICT DEVELOPMENT OFFICERS
ORGANISATION: TURKANA CENTRAL & NORTH DISTRICT
1st August 2013

The planning officers interviewed work under the Ministry of Devolution and Planning. They are based in Lodwar.

Their main areas of interest include:

- Coordination of all development projects;
- Planning;
- Monitoring and Evaluation;
- Conducting pre-feasibility projects; and
- Conducting needs assessment for specific projects.

How will Tullow activities influence their planning activities?

Tullow usually comes to work in the area with other partners. This spurs economic growth since they procure goods from the locals. Hence they contribute to the development of the county. Tullow has a corporate social responsibility which involves construction of schools, improving road network and provision of employment opportunities. They usually take both skilled and unskilled labour.

Main environmental impacts mentioned by the respondents included:

- Mass displacement of people;
- Loss of communal/ancestral land; and
- Minimal air pollution.

Mitigation measures for the negative impacts

To mitigate the possible negative impacts, the respondents suggested that:

- alternative settlement areas be identified for the persons displaced;
- loss of communal/ancestral land: alternative settlement areas for the persons who lose their land; and
- pollution: Air pollution- use of the most efficient and modern technology was recommended. Water pollution- have an expert use the best technology to avoid oil leaks to the water points. Soil pollution is minimal. When Tullow constructs good roads, this reduces soil erosion. Noise pollution is minimal since it only applies to the people living in the camp during the drilling operation.

Possible social impacts:

The respondents mentioned the following as the possible social impacts of the proposed project:

- Improvement of health and education facilities as well as provision of water. Corporate Social Responsibility (CRS) may help improve the community well-being;
- Offer scholarships to students which are advertised in local newspapers;
- Social degradation, since the company employs locals and are not used to a lot of money; and
- Capacity building is necessary to ensure people understand the whole process of exploration.

Impacts on cultural and archaeological sites

The respondents suggested that before the exploratory drilling is undertaken, Tullow should gather information about the intended site so that they do not interfere with cultural and archaeological sites present in the project area.

Development priorities in the area

The respondents suggested that the proponent needs to:

- Improve infrastructure in the area; construction of classrooms in the existing schools, improve the existing health facilities and road network;
- Provide scholarships for students in the area from secondary level up to higher institutions of learning to cover tuition and boarding costs;
- Build and equip village polytechnics to cater for the youth who have not proceeded to tertiary colleges;
- De-silt the available water pans;
- Small irrigation schemes to give alternative sources of food, for instance, sorghum and maize do well in the irrigated areas;
- Use the locally available materials to provide source of income for locals. For instance, when they need brooms, they could procure from the locality;
- Give tenders to the local people to supply the locally available materials such as meat;
- Employ the locals in the camps for the unskilled labour such as drivers and non complicated mechanical repairs; and
- Source for transport services locally.

Additional concerns

The respondents had the following additional concerns on the proposed project. He suggested that, Tullow should:

- Make sure the community is aware of the positive and negative impacts as well as the possible mitigation measures;
- Enhance its communication strategy which he said is not effective. They should setup a liaison office in Lodwar for efficient communication and answering the questions forwarded by the community members; and
- Work on changing the attitude of the local People towards the project. The presence of Tullow is not being felt in the region.

EarthView Geoconsultants Ltd.

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Website: www.earthviewgeoconsultants.com

1/8/2013

To
District Development Officer,
Lodwar.

Dear Sir,

REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA Turkana

Tullow Kenya B.V., a subsidiary of Tullow Oil plc, is an Oil and Gas exploration company licensed by the Ministry of Energy to carry out exploration activities in Block 10 BA. The proposed activity is an exploratory well drilling for oil and gas. The Environment Act requires that before any project is implemented, an Environmental and Social Impact Assessment (ESIA) must be carried out in the intended project area to ascertain the environmental and social impacts such a project might have on the surrounding area.

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To this effect, Earthview Geoconsultants Limited kindly request for your input relating to the proposed project. Your views will form part of the ESIA report and recommendations thereof will be part of the Environmental Management plan (EMP) for the project in Block 10 BA.

Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant



RESPONDENT: MR. KABOGO (0724234071)
INSTITUTION: WATER RESOURCES MANAGEMENT AUTHORITY (WARMA)
1ST AUGUST 2013

The Water Resources Management Authority (WARMA) is mandated to carry out the following duties:

- Provision and supply of water;
- Prospecting for water in the Turkana County;
- Carrying out research and water testing wells;
- Drilling boreholes;
- Conservation of water aquifers; and
- Handling conflicts over water resources.

WARMA is however faced with the following challenges:

- scarcity of water resources in the region;
- extreme desert conditions;
- scanty and little rainfall;
- lack of drainage systems in the county;
- pollution of water luggas by human waste due to poor sanitation practices, e.g. lack of latrines in the homesteads, hence improper disposal of human waste; and
- pollution of the lakeshores from poor fish handling.

According to the respondent, the main sources of water in the region are the underground boreholes. These water projects are initiated by NGOs operating in the area. There are a total of about twelve boreholes in the county.

The main conserved and key water areas of operation are:

- Lake Turkana
- Lodwar aquifer at Lokori
- Kalokol extension from Lodwar aquifer
- Lokitaung extension from Kakuma aquifer
- Eliye Springs
- Lobolo Springs.

The anticipated impacts of the proposed exploratory well drilling:

The respondent anticipates that if all is not taken care of well, there is a possibility of the following negative impacts occurring due to the proposed project:

- Pollution of underground water resources;
- Conflicts over water sources around the base camp;
- Contamination and disruption of aquifers;
- Interference with breeding zones (birds, crocodiles, fish) around the lakeshores and basin;
- Conflicts over grazing land in the dry and wet season grazing fields; and
- Soil pollution due to oil spillages.

He therefore suggested a number of mitigation measures to help in curbing the negative impacts. They include:

- Drilling water boreholes for the community;
- Keeping groundwater contamination at minimal; and
- Involving the community in the project, and especially in conflict resolution.

The respondent named the following NGOs as the ones involved with water projects in the region:

- Red Cross
- IRC: International Rescue Committee
- Oxfam GB
- Practical Action.

Proposed social investment project:

The respondent cited infrastructural development (including construction of roads and access routes) as the best social investment gift that Tullow could give to the people in the project area.

EarthView Geoconsultants Ltd.

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Website: www.earthviewgeoconsultants.com



To
The Sub-Regional Manager Lower Turkwel,
Water Resource Management Authority
Lodwar.

Dear Sir,

**REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA
Turkana**

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Yours sincerely;

Professor Opiyo-Aketch
Director/Lead Consultant

RESPONDENT: MR.ALEX LUKHWENDA
DESIGNATION: DISTRICT FISHERIES OFFICER
MR. MICHAEL SAINA
DESIGNATION: DEPUTY DISTRICT FISHERIES OFFICER
ORGANISATION: FISHERIES DEPARTMENT IN TURKANA COUNTY

Brief description

The fisheries department in the region is based at Kalokol with a sub-station at Lodwar. The unit is the overall overseer of fishing activities which are:

- coordination of fishing activities;
- management of fishing zones; and
- provision of fishing equipment.

Challenges to the department

The challenges facing the fisheries department include, among others:

- Insecurity on the Northern side at the Kenya-Ethiopia border;
- Inaccessibility of the fishing zones and poor road infrastructure;
- Poor fish handling practices by the fishermen; and
- Water pollution from the fish handling units at the shores.

The respondent informed the SIA team that the only protected fish breeding area along the lake is found within the Sibiloi National Park on the eastern side of the lake. Conflicts are handled by the Basin Management Unit.

Possible impacts of the proposed project

According to the respondents, some of the anticipated impacts from the exploratory well drilling project are:

- Creation of alternative livelihood sources which will relieve pressure from the lake resources;
- Migration of workers from the fishing industry to provide labour force to the base camp drilling operations; and
- Oil spillage and subsequent water pollution on the lake water.

Mitigation measures

They suggested the following mitigation measures to curb the potential negative impacts. Tullow should:

- Ensure there is no water abstraction; and
- Avoid the fish breeding areas (this must be guided by the fish breeding zones map).

Proposed social investment project

They suggested social investment projects such as:

- Provision of proper fish handling facilities at the beach;
- Construction of a fish banda (traditional stalls);
- Foster proper sanitation through building of toilets and latrines;
- Construction of a manufacturing industry for fishing gear; hands-on skills training; and purchase at a subsidized fee;
- Construction of a rescue centre for the fishermen to address the accidents and emergency cases at the lake, and provision of proper personal protective equipment for the fishermen; and
- Drilling of boreholes for water provision.

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24/7/2013

To,
The Deputy District Fisheries Officer,
Turkana Central District,
Lodwar.

Dear Sir,

**REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA
Turkana**

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Yours sincerely,



Professor Opiyo-Aketch
Director/Lead Consultant

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To,
The District Fisheries Officer,
Turkana Central District,
Lodwar.

DISTRICT FISHERIES OFFICER 24/7/2013
LAKE TURKANA FISHERIES STATION
P.O. BOX 23 KALOKOL.

Dear Sir,

REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA
Turkana

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Yours sincerely,



Professor Opiyo-Aketch
Director/Lead Consultant

RESPONDENTS: MR. ELIUD EMERI (0715772196)
ORGANIZATION: TUBAE AFRICAN DEVELOPMENT TRUST
MR. ARIONG LUCAS (0702880853)
ORGANIZATION: TURKANA CIVIL SOCIETY PLATFORM
MR. PETER ACHELEI (0707584530)
ORGANIZATION: ST. PETER'S COMMUNITY NETWORK (SAPCONE)

Brief description of the organizations

Turkana Civil Society Platform focuses on lobbying and advocacy on general issues affecting Turkana, including: environmental governance; human rights campaigns; food security; land issues; civic education and peace building initiatives.

TUBAE African Development Trust carries out the following activities: water provision through construction of water pans, irrigation schemes, tree planting, shallow wells, rehabilitation of water boreholes; environmental education; health and sanitation education in schools and communities; guidance and counselling; conservation education; career development; and value addition in the aloe cottage industries.

SAPCONE: the areas of interest are: provision of education scholarships; civic education on the Kenyan constitution; and fostering cross-border dialogues.

Challenges facing the organizations

The organizations experience such challenges as:

- Low literacy levels;
- Extreme poverty;
- Poor communication and road infrastructure networks;
- The vastness of land, hence wide coverage area;
- Environmental destruction, especially through charcoal burning as a source of livelihood;
- The general absence of government impact due to its remote location; and
- Insecurity in the region.

Views and opinions on the past exploration activities by Tullow and issues arising on the proposed well drilling project:

According to the respondents, the past exploration activities by Tullow and the proposed project have the following issues surrounding them. They include:

- The community feels like they are not adequately involved in the project with little consideration of them as the affected community, and perceive the operations as government-led decisions;
- There is lack of understanding and knowledge gaps on the drilling stages and advancing operations;
- Dilemma caused by the land tenure system in the region and fear of displacement;
- Destruction of community livelihood on the fishing areas in Lake Turkana due to the noise vibrations generated during seismic survey;
- Increased school drop-out cases as pupils seek to offer services to the base camps;
- Emerging cases of divorce due to wives opting for prostitution as they pursue the base camp personnel;
- Increased value of land around rig zones which leads to unaffordable high prices of land for the local residents; land grabbing by the leaders; abuse of office in granting of favours, and influx of foreigners to the region due to immigration;

- Fear of increase in diseases i.e. HIV/AIDS; and
- Increased crime rates and theft as the community is left without security owing to the few available being taken up as security personnel for the base-camp.

Anticipated impacts

The respondents anticipate that the following resource-specific impacts are likely to occur:

Impacts on Water sources

They foresee

- Underground water pollution;
- Leakage of fuel from the engines and machinery;
- Stress on scarce water resources; and
- Increased pollution on the community wells due to influx of herders around the base camps.

Impacts on designated lands and reserves for grazing lands, breeding zones and fishing areas

On this, the respondents anticipate:

- Displacement of pastoralists from their grazing fields, pushing them to insecure zones;
- Interference of the existing ecosystem interdependence;
- Interference of livestock migratory routes and fish breeding sites;
- Vegetation destruction due to clearance for base camp set-up and access routes;
- Disruption of wildlife; and
- Risk of extinction of endangered species(flora and fauna).

Impacts on culture and cultural sites

According to the respondents, the proposed project may have the following impacts on the local culture and cultural sites:

- Immigration of people leads to culture erosion;
- Increased tourism activities to key historical sites i.e. the cradle of mankind;
- Westernization and shift from traditions e.g. marriages and initiation rites;
- Abandonment of pastoralism as a way of life; and
- Emerging trends of the aged in society taking up herding of livestock as the young seek better job opportunities.

The respondents informed the team that there exist shrines within Block 10BA which include Namortunga near Kalokol and Choroo Island (within Lake Turkana), among others.

The suggested mitigation measures for the above impacts are:

They suggested that there be:

- A clear policy framework to guide exploration activities;
- increased community awareness campaigns and education programmes on drilling operations;
- a clear compensation, eviction and resettlement plan that the community should be made aware of prior to the commencement of the proposed project;
- a clear system and emphasis on a working conflict resolution mechanism;
- proper communication on the actual size of land leased to Tullow for the base-camp site and project operations;
- a clear information dissemination and sharing channel on matters pertaining to the proposed exploratory drilling operations. This they suggested may be done through:
 - Use of local FM radio stations;

- Community Liaison Officers; and
- Establishment of a central community information centre.

Note

They recommended that the corporate social responsibility should be community driven and those charged with their implementation be empowered through proper training.

Social investment projects

They recommended that Tullow should consider investing in education improvement with priority given to Tertiary education (60%); Secondary education (30%); and Primary education (10%).

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25/7/2013

To,
The Chairperson,
Greater Turkana Civil Society Network,
Lodwar.



Dear Sir,

REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA Turkana

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Your views will be part of the ESIA report. If you have any queries, please contact the Project Management team.



RESPONDENT: MR. SAMMY EKAL : 0715776561
ORGANISATION: TURKANA PASTORALIST DEVELOPMENT ORGANISATION
(TUPADO):

Areas of interest of the organization

TUPADO has interest in:

- peace building and conflict resolution in Turkana north, Turkana south and Turkana east;
- Reproductive health in Loima, Turkana South, Central and North districts;
- Strengthening livestock marketing, majorly in Turkana west at Lapur, Kakuma, Kalobeyei, Lokichoggio and development of the associated infrastructure; and
- Micro-credit scheme for the Livestock Marketing Associations (LMA).

It also deals with water and sanitation projects in the entire Turkana County, especially among the pastoralists. In this regard, TUPADO, helps in the construction of water dams and shallow wells. In addition to the already mentioned projects, the organization is also involved in:

- Ongoing behaviour change communication in reproductive health in Turkana central, Turkana north, Turkana south and Loima districts, ending in 2015; and
- animal health sector which has ongoing activities in the provision of veterinary drugs in communities; setting up of community drug stores; training of community animal health workers.

Challenges facing TUPADO

The following were identified as the major challenges facing the above sectors in the implementation of their mandate, and they are unique to each sector:

Challenges facing the reproductive health sector

These were mentioned to include:

- Extreme poverty, making maternal care unaffordable;
- long distances to homesteads, coupled with poor road infrastructure, making health care extremely inaccessible;
- Poor attitude and cultural barriers in family planning; and
- wide area of coverage, hence the organizations have to incur huge travel costs.

Challenges facing the SLM Sector

These were cited to be:

- Inaccessibility of the markets;
- cultural barriers and affinity to their attitudes;
- long distances to terminal markets and lack of transport facilities;
- lack of fodder for the livestock leads to drop in profits and death of livestock; and
- lack of ready market for the livestock.

Challenge facing the Peace building sector

This sector faces the following major problem:

- Increased conflict of interest among the pastoralist groups.

Challenges facing livestock health

Livestock health sector was said to face the challenges below:

- Poor cost recovery of the drugs due to barter trade;

- shortage of drugs with no replenishment;
- trans-boundary diseases, hence faster spread of diseases;
- inadequate veterinary personnel; and
- poor storage of vaccines due to extremely high temperatures and inappropriate storage facilities.

Challenges facing water and sanitation

Despite the importance of water in society and the need for proper sanitation, the respondents brought to our attention the following challenges facing this critical sector:

- Absence of water harvesting structures (hand pumps; rock dams);
- lack of funds for construction of the mentioned facilities; and
- Poor maintenance of the available water points, leading to presence of many 'white elephant water pumps'.

In general, the area experiences a number of other challenges including:

- rising levels of insecurity. This poses serious danger to the organization's personnel; and
- poor linkages between cross-border communities, especially due to communication network inaccessibility.

Anticipated impacts

The anticipated impacts associated with the proposed well drilling project revolve around:

- the fear of loss of land and destruction of property including homesteads; and
- increased conflicts over land resources due to land grabbing and purchase by the private sector.

Mitigation measures

The above anticipated impacts may be mitigated through:

- Setting up of acceptable code of conduct for the camp workers;
- Establishing a good rapport and increased dialogue between Tullow and the host community; and
- Encouraging the use of the "DO NO HARM" policy which involves identification of social connectors and dividers. This emphasizes on maximizing input into the connectors while avoiding as much as possible the dividing elements;
- Extension of social services offered at the base camp to the neighbouring communities; and
- Community involvement in the management of community social responsibility projects.

Key Human rights issues

The following were mentioned to be the key human rights issues by the respondents:

- Right to education;
- Right to shelter;
- Right to security; and
- Right to food and clean water.

Social investment projects

The respondents were of the opinion that Tullow should:

- Improve the water sector; and
- enhance economic empowerment through grants, and by empowering women groups.

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1/8/2013

To
The Project Manager,
Turkana Pastoralist Development Organization,
Lodwar.

Dear Sir/Madam,

**REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA
Turkana**

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Yours sincerely,



Professor Opiyo-Aketch
Director/Lead Consultant



RESPONDENT: MR. DENNIS MILEWA
INSTITUTION: NATIONAL MUSEUMS OF KENYA (NAIROBI)
DESIGNATION: CARTOGRAPHER/GIS EXPERT

Cultural heritage in Turkana

Turkana Basin is entirely a fossil bed and acts as a buffer zone for Sibiloi Park. The museum is therefore directly involved in the drilling process and is required to be present to check for any exposed fossils in the excavated soil. In places where fossils are considered significant for archaeological study, the proponents are required to engage the museum workers and avoid carrying out any developments in that area. If a different site cannot be identified, rescue excavation is carried out to excavate the fossils on that site.

Cultural places in Turkana

Renowned archaeological/historical sites in Turkana include:

- Nariokotome
- Lomekwi
- Kokiselei
- Lothagam
- Kalokol
- Kalodirr
- Lorecharangan
- Muruarot
- Loperot
- Eliye Springs
- Nkawai
- Napudet
- Ekora
- Kanapoi
- Losodok
- Lodwar

Past exploration activities

The respondent could easily recall that about 20 years ago, a company carried out oil exploration in Turkana. Though no destruction of monuments was reported, it is likely that fossils were destroyed during this exploration activity as no environmental management plan was in place to monitor the effects of the project on the physical environment.

Expected impacts from Tullow exploration activities

According to the respondent, some of the possible impacts of the proposed project in the project area may include:

- Erosion of social morals caused by possible introduction of a new lifestyle in the community;
- influx of people who will depend on the limited resources; and
- destruction of fossils during drilling of the well.

Mitigation measures

He suggested that,

- Archaeologists should be present during the drilling to check for the presence of fossils and avoid their destruction;

- the community should be sensitized on the project activity so that they will know what to expect and how to manage it; and
a rescue excavation be conducted in case they discover fossils in an area that is to be drilled(rescue excavation ensures that the fossils in the site are taken out before any project commences)

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To:
The Director
Sites and Monuments,
National Museums of Kenya,
Nairobi.



Dear Sir/Madam,

REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA Turkana

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Yours sincerely,

Professor Opiyo-Aketch
Director/Lead Consultant

James Mulewa

*Dear Sir
as appropriate*

James 27-08-2013

RESPONDENT: MR. JOHN KEMBOI
DESIGNATION: ADMINISTRATION POLICE, LODWAR

Services offered to the community

The Administration Police offers security services to the community with assistance from the Kenya Police Reservists (KPRs) who are well conversant with their areas.

General security status of the area

A number of police posts have been established to facilitate reporting of cases. There are currently 6 police posts in Turkana Central and 2 in Turkana North, with 3 under construction. Cattle rustling in Turkana Central is common, especially at Kangero area. Pasture and grazing land are the main sources of conflicts, especially when clans migrate in search of pasture.

Challenges faced by the police

The respondent mentioned the following as the major bottlenecks facing the police in their work :

- Difficulty in accessing some areas due to the rough terrain;
- Transport problems; and
- Few personnel, resulting in heavy workload.

Vulnerable groups in the area

The respondent mentioned the illiterate people as the most vulnerable group in the community. This has made them reject most development projects as they are not in a position to see the benefits that come with the projects.

Social Investment Projects

The following were suggested by the respondent to be the key social investments:

- Construction of hospitals;
- Construction of schools;
- Improvement of roads; and
- Provision of jobs for the youth.

Key Human Rights Issues

According to the respondent, political interference by some leaders is the outstanding key human rights issue. This, he said, has misled the locals and some have not been given the right to express themselves.

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[Handwritten signature]
7/8/13
DISTRICT AV. COMMANDEE
TURKANA CENTRAL.

7/8/2013

To
DAPC,
Lodwar.

Dear Sir,

REF: REQUEST FOR SECURITY

Tullow Kenya B.V., a subsidiary of Tullow Oil plc, is an Oil and Gas exploration company licensed by the Ministry of Energy to carry out exploration activities in Block 10 BA. The proposed activity is an exploratory well drilling for oil and gas. The Environment Act requires that before any project is implemented, an Environmental and Social Impact Assessment (ESIA) must be carried out in the intended project area to ascertain the environmental and social impacts such a project might have on the surrounding area.

Earthview Geoconsultants Limited is a firm licensed by NEMA to carry out Environmental and Social Impact Assessments. The company has been commissioned to conduct an ESIA for exploratory well drilling in Block 10BA which covers parts of Turkana Central and Turkana North districts on behalf of Tullow Oil. The areas of our activities will include Loyoro, Loyolo, Lobolo, Eliye spring, Lomekwi, Lomapus and Kataboi.

We therefore request security backup as we undertake our activities. If possible, we will be in need of two administration police officers for the period from 5th to 13th August 2013.

Your assistance will come in handy towards completing our project.

Yours sincerely;

[Handwritten signature]

Sheena Ogutu
Project coordinator

RESPONDENT: CHRISTOPHER JELE
DESIGNATION: COUNTY DIRECTOR OF AGRICULTURE, LIVESTOCK AND FISHERIES

Brief description

There are two committees working under the office of the county director of agriculture, livestock and fisheries, namely livestock service providers and the district steering committee.

Livestock Service Providers

This committee is charged with providing the relevant services in the livestock sector. Their meetings are held twice a year unless urgent issues arise upon which emergency meetings may be called to address such issues. Some of the issues discussed in these meetings include managing and controlling livestock diseases, and dry seasons which cause pastoralists to migrate in search of water and pasture for their livestock.

District Steering Committee

This committee monitors the fisheries and agriculture committee. Its meetings are held monthly.

Grazing patterns and demarcated grazing areas

The grazing pattern of the area is largely dependent on rains. When the rains start, the pastoralists move westwards with their livestock, towards the borders. The respondent informed us that there are permanent pastures in the west. In terms of livestock distribution, he informed us that goats and sheep are largely found in the plains while cattle are kept by the communities living along the borders as well as around water bodies.

According to the respondent, there are an estimated 5 million goats, 3.5 million sheep, 1.5 million cattle, 900 camels and 3000 donkeys in Turkana County.

Livestock Development trends

The respondent informed the SIA team that the national government does not sufficiently support the livestock sector in Turkana. An estimated Kshs. 200,000 is allocated quarterly to the department which is only sufficient for fuelling of vehicles and provision of water and electricity. On the other hand, the agriculture sector gets an allocation of Kshs. 800,000. With livestock being the main source of livelihood in the county, the respondent suggested that priority should be given to it.

A number of NGOs have been in place to assist in this sector. This has been achieved through carrying out training on livestock handling, and conducting vaccination programs for the livestock. Some of these NGOs include VSF Belgium, Practical Action, Oxfam GB, National Development Management Authority, World Vision which introduced new productive cattle breeds, and Diocese of Lodwar which introduced a new breed of goats.

Past exploration projects in the area

The respondent informed the team that in the past, exploratory drilling for oil and gas was carried out in Turkana North in the 1990s

Expected impacts

The respondent mentioned the following as the most probable impacts of the proposed project:

- There may be displacement of persons from their land;
- Environmental Pollution may occur. He was particular that the project, if not conducted cautiously may interfere with the vegetation in the area. Certain plant species may be affected by the chemical pollutants that may be emitted or released into the air and soil during drilling. The pollutants may also affect the health of the workers in the site; and
- The public is likely to show resent towards the proposed project if sensitization on its benefits is not properly carried out.

Social Investment Projects

The following social investment projects were suggested by the respondent:

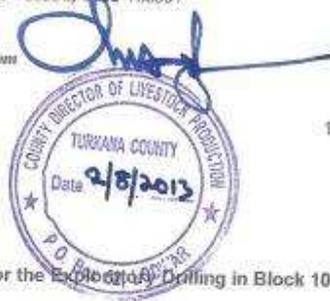
- Rangeland development – this can be achieved by enclosing an area and preventing the livestock from grazing on that land to allow for plant regeneration;
- drilling of boreholes;
- irrigation schemes for both crop and pasture production;
- improved animal breeds should be introduced through cross breeding to improve the quality of livestock breeds in the project area;
- vaccination programmes should be introduced to curb the rising cases of animal disease attacks in the area; and
- provision of bursary funds for secondary and college students.

Vulnerable groups in the area

The respondent mentioned that the proposed project is likely to increase the vulnerability of the community. This he attributed to the possible change in lifestyle once the immigrants get into the project area, which may lead to erosion of social morals.

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1/8/2013

To
Turkana County Livestock Officer,
Lodwar.

Dear Sir,

REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA Turkana

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These activities may affect the biophysical and social environment in different ways. The Social Impact Assessment aspect of the ESIA requires us to capture the views of all the stakeholders in this venture. For this, Earthview will conduct public meetings and consultations with Government officials, NGO officials and community members. Structured questionnaires and interviews may also be used at the household level.

To this effect, Earthview Geoconsultants Limited kindly request for your input relating to the proposed project. Your views will form part of the ESIA report and recommendations thereof will be part of the Environmental Management plan (EMP) for the project in Block 10 BA.

Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant

RESPONDENTS: ABEL OTIENO
IKAL ANGELEI
ORGANIZATION: FRIENDS OF LAKE TURKANA

Activities carried out by the organization

The organization has interests in the following areas:

- Conservation and protection of Lake Turkana;
- advocating for human rights;
- carrying out research on issues affecting the Turkana Basin; and
- advising the community on environmental conservation policies.

Their main focus is on Lake Turkana Basin. They have partnered with other organizations which have supported them in their development projects, some of which include Equity Bank and other microfinance institutions.

Challenges facing the organization

In its daily operations, the organization has to address such challenges as:

- Too many expectations from the community; and
- Overdependence on food and health aid by the community.

Expected Impacts

The respondents mentioned the following as the most likely impacts of the proposed project:

- Pollution of the environment, e.g. air, water and noise pollution during construction of access roads and drilling of oil wells;
- Destruction of vegetation;
- Increase in human population once the area opens up. The current infrastructure may not be able to support the influx;
- Insecurity; and
- Conflicts due to displacement of people from their land.

Proposed mitigation measures

Respondents suggested the following as the best ways to mitigate the negative impacts:

- The proponent to hold continuous dialogue with the community members to encourage transparency and to avoid misinformation which may lead to conflicts;
- Wastes to be disposed of properly to counter pollution; and
- Conduct hydrological surveys periodically to counter water pollution.

Vulnerable groups in the area

The following groups were mentioned to be most vulnerable in the project area:

- Women (who are often excluded from making decisions concerning the community);
- Immune-compromised people (who may face stigmatization);
- Disabled persons;
- Youth (who may get involved in drugs);
- Poor people (who may be exploited for cheap labour);
- Fisher folk; and
- Illiterate people (who will be locked out from acquiring skilled jobs).

Social Investment Projects

According to the respondents, Tullow should invest in the following areas:

- Provision of proper healthcare facilities;
- Intensively support the fishing industry by providing fishing equipment and vessels; and

- Construction of learning institutions from primary to tertiary colleges.

Key Human Rights Issues

The respondents identified the below mentioned to be the key human rights issues in the project area:

- Raids are not taken seriously and yet many are losing their lives during these attacks;
- Young girls are being forced into early marriages due to poverty;
- Girls are facing rejection from their families because of unplanned pregnancies; and
- Handicapped people are being stigmatized by other people due to backward culture.

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26/7/2013

To
Whom it May Concern,

Dear Sir/Madam,

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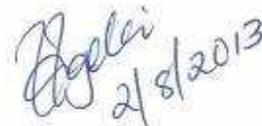
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Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant



RESPONDENTS: GEOFFREY SANG & ELIZABETH MORAA
DESIGNATION: HEALTH OFFICER, KATABOI DIVISION
INSTITUTION: KATABOI DISPENSARY

General characteristics of the facility

The dispensary attends to an estimated 100 patients per day on a busy day but on a regular day it attends to about 40 patients. The facility is mainly outpatient unless the patient is in critical condition.

Health personnel

The facility has the following personnel:

- Three (3) nurses;
- one(1) health officer; and
- two (2) nurse aids (who attend to patients).

The facility however lacks the under-listed personnel:

- a pharmacist
- a nutritionist
- a clinical officer
- laboratory technologist

Disease prevalence

The most prevalent diseases in the area include:

- malaria
- respiratory tract infections
- bites (scorpion and snake bites)

Challenges experienced in the area

According to the respondent, the facility experiences such challenges as set out below:

- Shortage of drugs in this dispensary is very common. When they run out of supply they borrow from clinics in Lowarengak.
- Shortage of water is common and they are forced to buy it from Lodwar;
- Lack of laboratory makes it hard for them to diagnose the patients;
- The socio-economic status of the community makes it hard for them to afford medical services;
- Lack of ambulances makes it difficult for them to attend to emergency cases; and
- The bad communication network makes it difficult to carry out their duties.

Expected impacts

Negative impacts

According to the respondent, the following are some of the possible negative impacts due to the proposed project:

- Displacement of people from their lands;
- Environmental pollution such as air and noise pollution which may be caused by the machinery that will be used in the project activity;
- Social and cultural erosion and sexual abuse of vulnerable young ones; and
- Improper disposal of wastes by the workers.

Positive impacts

On the other, he identified the following as the possible positives which benefit the community in the event the proposed project proceeds:

- Supply of food may increase and in turn support the poor in the community;
- Improvement of infrastructure such as schools, roads and water supply; and
- Creation of job opportunities for both the skilled and unskilled persons.

Proposed mitigation measures

In an attempt to mitigate the negative impacts and maximize on the positives, the respondent suggested:

- The Community Liaison Officer to work towards uniting the community and the workers at the base camp;
- Efficient security personnel to be provided;
- Sensitization of the community on the expected impacts of the project to create awareness;
- Proper compensation mechanisms in case of any displacement of persons from their land; and
- Use of advanced machinery to counter air and noise pollution.

Social Investment Projects

According to the respondent, it would be prudent for Tullow to:

- help the community get rid of their dependency syndrome and find ways to help them earn a living;
- offer scholarships and bursary funds; and
- Improve the medical facilities in the dispensaries, such as facilitating the construction of laboratories and providing electricity in dispensaries.

Vulnerable groups in the area

The following were identified as the most vulnerable members of the community:

- The elderly;
- women due to gender inequality and discrimination; and
- the girl child due to the frequent occurrence of forced early marriages.

Key Human Rights Issues

The respondent mentioned the following key human rights issues:

- Right to education;
- Early forced marriages; and
- Wife inheritance for the widowed.

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26/7/2013

To
Whom it May Concern,

Dear Sir/Madam,

**REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA
Turkana**

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These activities may affect the biophysical and social environment in different ways. The Social Impact Assessment aspect of the ESIA requires us to capture the views of all the stakeholders in this venture. For this, Earthview will conduct public meetings and consultations with Government officials, NGO officials and community members. Structured questionnaires and interviews may also be used at the household level.

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Yours sincerely,



Professor Opiyo-Aketch
Director/Lead Consultant

KATABOI DISPENSARY
P. O. Box 25, LOKITAUNG
KENYA

NAME: ELIZABETH MORAN
SIGN: 
FACULTY: KATABOI INCHARGE
DATE: 11/8/13

RESPONDENT: JOSEPH EMATHE
ORGANIZATION: CEZAM AND ASSOCIATES LTD
2ND AUGUST 2013

Brief information about CEZAM

CEZAM began working in Turkana County in 2011. The organization partners with United States African Development Foundation (USADF) to provide its services in Kenya. The organization is involved in a number of projects such as food security and microfinance projects.

Areas of interest of the organization

CEZAM has t interest in food security which comprises fishing, irrigated agriculture and livestock keeping. The fishing component supports 5 beach management units, namely Impressa, Natilel, Eliye, Longech and Kerio. It provides services in all the three components at two levels, namely; Enterprise Development Initiative and Enterprise Expansion Investment. For instance, Impressa have their own lighting equipment in place with CEZAM providing computers, printers, scanners and motorbikes. In addition, the organization is planning to buy 200 nets and trucks for transporting fish for each BMU as well as chillers to help preserve fish.

Irrigation agriculture involves growing of cowpeas, maize, sorghum, sukuma wiki and amarantha. CEZAM supports 8 irrigation schemes, two of which are enterprise development investments. The other six irrigation schemes have water pumped from the source to the designated areas.

Livestock component: Theywe mainly focus on poultry. There are two groups keeping poultry in Lokichar and Lodwar. Other five groups are involved in livestock keeping. They are also involved in improving infrastructure, provision of clean water, sanitation facilities, livestock marketing and management of sale yards. The organization also gives microfinance support to community based organizations (CBOs) for empowerment.

Challenges faced

CEZAM faces the following challenges when implementing its projects:

- Insecurity, for instance, beyond Lokichar, Kakuma, Lowarengak and Kaaleng;
- high levels of illiteracy in the area;
- poor infrastructure, especially the road network; and
- lack of skills (they give groups the first grant used to ensure that the group understands what to do);

Awareness of previous exploration activities

The respondent was aware of previous exploration activities in the project area. He mentioned the previous seismic surveys by Tullow in the area. He was however unhappy with how Tullow undertook their previous activities, i.e., he alleged that Tullow previously operated without involving the host community leading to discontent from the community.

Negative environmental impacts

According to the respondent, the proposed project is likely to lead to destruction of pasturelands in the project area.

Mitigation measures

To mitigate the above negative impact, he suggested that the community should be involved in the determination of the location of the camp sites as well as access roads. He mentioned that the Turkana are a disciplined people who are accommodative so long as they are made aware of the on-goings during the entire project.

Expected positive environmental impacts

The respondent commended Tullow on its road safety policies, for instance, he mentioned that:

- Tullow vehicles are not driven at high speed, hence there is minimal possibility of air pollution. This minimal air pollution occurs when many vehicles are driven at a slow speed at the same time.

Positive social impacts

- Socially, the respondent mentioned that,
- Tullow employees are strict concerning their interaction with the community members and that he had not heard of any cases of sexual abuse involving Tullow employees;
- Tullow disposes of its wastes from the camps appropriately, thus reducing instances of pollution; and
- Tullow does not engage in local politics.

Expected negative impacts

On the other hand, the respondent suggested that, the proposed project may lead to the following negative impacts in the project area:

- Supply tenders may be awarded to outsiders; and
- Problems may crop up if the county government is not involved fully in the implementation of the proposed project.

Impacts on the cultural and archaeological sites

The respondent mentioned that he has never heard of incidents where Tullow has interfered with the cultural sites. When they were doing the seismic survey they used to bypass the grave sites when they come across such sites.

Vulnerable groups

The respondent mentioned the following as the most vulnerable groups in the area:

- Elderly people
- Women
- The illiterate people
- The children, especially the boy child who is at risk of engaging in child labour near the camp (when they get money, they do not go back to school. This occurs in the Lowarengak camp since it is close to town).

Development priorities in the area

Development priorities of the area were mentioned to be:

- Education: Improve and equip the existing schools. Construction of new schools where they are nonexistent;
- Provision of water by sinking bore holes in the area;
- People displaced from their lands should be compensated. Tullow should attempt to sustain the pasture lands for the locals once they relocate them; and
- Health: improve the existing health centres and construct new health facilities. Nachukui up to Lowarengak. Beyond Kataboi, health centres are nonexistent.

Key human rights issues in the area

The respondent named child labour and land related problems as the major key human rights issues in the project area.

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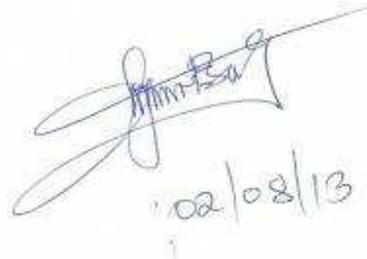
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Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant



RESPONDENT: PETER LOCHUCH
ORGANIZATION: CHILD FUND
2ND AUGUST 2013

Brief information of the organization

The respondent works with Child Fund Kenya. The organization is a child sponsored Non-governmental Organization dealing with children from poor economic backgrounds, and whose families have lost livelihoods. The program covers Loima, Turkana central, Turkana south and Turkana North.

Areas of interest of the organization

Child Fund's main areas of interest include:

- Sponsorship program which is the main source of revenue;
- Health and nutrition programs during emergencies;
- Education Program: Early childhood development program where they encourage parents to send their children of ages 0-5 years to attend school. They pay the caregivers/teachers. They assist in improving infrastructure in schools, e.g. provision of water and sanitation facilities, school bursaries, construction of classrooms, latrines, and dormitories for the girl child;
- Water and sanitation programme for the community;
- Livelihood development: They are focusing on supporting communities living along River Turkwel to develop crop farming under irrigation, improved breeds for their livestock for those who are far from river banks, provide fishing boats, canoes and training on how to access market for those living on the shores of the lake;
- Irrigation program: They help communities create their own assets through a sub program called Food for Assets, e.g. rain water harvesting and creating water pans; and
- Peace building initiatives: Communities face frequent conflicts in Loima and Turkana North since these communities practice cattle rustling.

Challenges faced by the organization

The respondent mentioned that the Child Fund as an organization is faced with a number of challenges. They include, among others:

- Frequent occurrence of natural calamities such as recurrent drought, floods, disease outbreak (both human and livestock) as well as cattle rustling. Cattle rustling is considered a natural calamity in the area since it occurs frequently and they have practiced it since time immemorial;
- Inadequacy of resources: children fall in the bracket of those who are in need of assistance, especially when their families lose their livelihood. Children are quite vulnerable;
- High levels of illiteracy: communities are unable to diversify their livelihoods since they lack financial literacy to engage in businesses; and
- Cultural practices: early and forced marriages are common.

Awareness of past exploration activities

The respondent was aware of the previous Tullow activities in the Turkana County. He mentioned the ongoing exploratory well drilling in Block 10BB and Block 13T. He also confessed having witnessed the drilling process at Lokichar.

He added that:

- Tullow got a licence to undertake seismic survey in Turkana North and in Turkana South. They are undertaking some exploratory well drilling;
- Tullow moved into Turkana South, including Ngamia 1 and Twiga, without doing adequate consultation with the community members;
- Tullow gives out information to other investors on what is available in the county;
- The community was not informed on the other activities that will accompany the exploratory well drilling; and
- Tullow has some corporate social responsibility which includes bursaries for post-primary education in all sub-counties such as Loima, Turkana South and Turkana Central. The bursaries are channelled through the Catholic Diocese of Lodwar.

Negative environmental impacts

According to the respondent, the proposed project may have the following negative impacts on the project area:

- The access roads may cut along rivers and shores, causing destruction of vegetation and disruption of water flow. This will lead to competition for water resources, causing conflicts in the area;
- Leakage of oil into the environment, causing contamination; and
- The area is a semi-arid region, hence the construction of roads should be controlled to avoid air pollution.

Some mitigation measures

He suggested that, to mitigate the negative effects, Tullow needs to:

- improve the existing roads and use them instead of constructing new ones;
- Sink boreholes in the area to reduce competition over water; and
- prevent any possibility of oil leaking into the environment.

Positive environmental impacts

On a positive note, the respondent acknowledged that possible benefits may result from the proposed project. They may include:

- Development of road network;
- Setting up of new water pans; and
- Tree planting in the area.

Social impacts

Socially, the respondent was of the opinion that the proposed project may have the following implications on the project area:

- Setting up drilling camps along the shores of Lake Turkana might make the locals move into the northern parts since they do not want to interfere with the activities of the camp. Should this happen, it may cause conflicts in the northern parts due to competition over resources;
- Children may begin hanging around the drilling camp as is the case in Nachukui and Lowarengak. They may be in search of left-over food and in the long run, the children may drop out of school. Families in the areas do not have stable livelihoods, which encourages such vices. In addition, these children may in turn be predisposed to child labour and child abuse; and
- Tullow may come across other precious resources in the area and in turn invite other private investors to move into the area which may also cause conflicts in the area.

Positive social impacts

The respondent identified the following possible positive impacts:

- the area may be opened up and its tourism potential be realized;
- the proposed project may lead to creation of employment opportunities;
- development of new water sources;
- the project may lead to the initiation of school-feeding programs to ensure children remain in school; and
- Provision of school bursaries.

Mitigation measures for negative social impacts

The respondent suggested the following to be the most effective mitigation measures to be put in place, among others:

- Supporting schools with food under the CSR policy to avoid children dropping out of school and engaging in child labour; and
- Tullow should consider training their employees on child protection issues.

Possibilities of any form of pollution

On pollution, the respondent mentioned that:

- Oil may leak into the environment, such as the lake and water points, causing water pollution; and
- Vehicular movements may lead to a lot of dust on the roads.

Mitigation measures

He suggested the following as the best mitigation measures to be put in place:

- the camp needs to be situated far from the water points to avoid water contamination due to oil leakage; and
- murrum to be applied on the roads to reduce dust generation when driving.

Possible impacts on cultural sites

He suggested that a lot of caution must be taken to avoid cultural sites especially in Nariokotome and Nachukui.

Vulnerable groups in the area

The respondent mentioned the following as the most vulnerable groups in the project area:

- Orphaned children due to HIV/AIDS and cattle rustling;
- Widows who have lost their husbands due to accidents in the lake and cattle rustling; and
- People living with HIV/AIDS.

Development priorities in the area

According to the respondent, the following areas were rated top as the development priorities:

- Improvement of education facilities in the area;
- Provision of clean water;
- Development of health infrastructure;
- Diversification of livelihoods; enhancement of the capacity to explore the current resources, such as lake; and
- Development of eco-tourism; highlands in the area, hot springs and landing sites.

Key human rights issues in the area

Major key human rights issues in the project area are:

- Conflicts arising between the Turkana and the neighbouring communities from neighbouring countries such as the Merile and Nyangatong from Ethiopia. Trans boundary movements are not clear to these communities; and
- Marginalization in form of lack of focus by the government. The government has neglected the area in terms of provision of security, hence the border is quite porous. There are no armed forces in the area and few security personnel along the border.

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Website: www.earthviewgeoconsultants.com

To,
Mr. Peter Lochuch
Child Fund Kenya,
Lodwar.

25/7/2013

Dear Sir,

REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA Turkana

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To this effect, Earthview Geoconsultants Limited kindly request for your input relating to the proposed project. As a stakeholder, we would like to request for your attendance at a stakeholders' consultation forum on **2nd August 2013 at County Palace Hotel in Lodwar town at 9.00am**

Your views will form part of the ESIA report and recommendations thereof will be part of the Environmental Management plan (EMP) for the project in Block 10 BA.

Yours sincerely,



Professor Opiyo-Aketch
Director/Lead Consultant



I acknowledge receipt of this memo and also confirm my participation at the forum.



RESPONDENT: HON. MOSES LOMOBONG
DESIGNATION: MEMBER OF COUNTY ASSEMBLY
2ND AUGUST 2013

Services offered to the community

The respondent is a member of the Turkana County assembly. He mentioned that the county assembly involves itself in the general development activities in the area, including: construction of dispensaries, schools (primary and secondary), early childhood education and promotion of irrigation activities.

General security of the area

He informed the team that some of the secure places in the project area are Nachukui and Kataboi. On the other hand, Todonyang was mentioned to be most insecure place followed by Kibish. This was due to the frequent attacks of these areas by the Merille from the neighbouring Ethiopia.

He mentioned that in its attempt to contain the rising insecurity, the government built one police post, in Todonyang. The government has also deployed officers from the Rapid Deployment Unit as well as the General Service Unit into the area.

Conflict resolution mechanisms in the area

He suggested that the national government should be involved in conflict resolution to curb the frequent conflict between the Merille and the Turkana people. This is because the matter of security in the area is trans-national.

Awareness of previous exploration activities

The respondent was not aware of any previous exploration activity in the area.

Perceived negative environmental impacts

The respondent was of the opinion that the proposed project may lead to:

- Destruction of trees and vegetation for wood fuel;
- Increase in population in the area;
- Ethnic clashes due to scramble for resources and job opportunities;
- Increase in moral decadence and spread of HIV/AIDS in the area;
- Scarcity of land, hence the people will not have enough grazing lands; and
- Possibilities of water and air pollution.

Proposed mitigation measures

He suggested the following measures to mitigate the negative impacts. He was of the opinion that Tullow should:

- provide alternative source of wood fuel due to clearance of vegetation and trees;
- promote tree planting in the area;
- minimize pollution in the areas; and
- sensitize the community members to avoid cases of moral decadence in the area.

Perceived Positive impacts

On the other hand, the respondent identified the following as the most possible benefits that may come with the proposed project:

- Employment of locals;
- Improvement of social amenities such as schools and health centres; and

- Promotion of tourism in the area, for example, Nariokotome cultural site which is considered as the cradle of mankind.

Development priorities

The most important areas to be given priority in terms of development in the project area according to the respondent are:

- Provision of clean water in the community by sinking boreholes;
- Improve transport network, for example, roads;
- Promotion of irrigation in the area to encourage the locals to diversify their livelihoods since there has been an over-dependence on fishing. The lake is getting depleted. Perennial irrigation can be carried out during the rainy season;
- Provision of bursaries for post- primary education;
- Construction of new schools and early childhood education; and
- Improve sanitation facilities in the area.

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28/7/2013

To
Whom it May Concern,

Dear Sir/Madam,

**REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA
Turkana**

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Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant



RESPONDENT: ATHUMAN JUMA
DESIGNATION: DEPUTY IN CHARGE MARINE POLICE
AREA: KALOKOL DIVISION

Services provided by the Marine police

The respondent stated that the marine police are mandated to carry out the following duties:

- Provision of security and patrol on water; and
- Resolution of fishing net theft cases.

Challenges faced by the marine police in the area

Some of the challenges faced by the Marine police in their line of duty include:

- Stormy winds in the Lake might jeopardize their mission; and
- Lack of adequate financial resources hampers their operations since sometimes they lack fuel for the patrol boats and

The conflict incidents in the area are not many. The conflict might be between the Merile from Ethiopia and the Turkana. In such a case, both governments of Kenya and Ethiopia participate in conflict resolution.

The perceived impacts of the project

Some of the perceived negative impacts according to the respondent include:

- Displacement of people; and
- Grazing lands for the livestock may be interfered with; and

Positive impacts include:

- The marine police may also get employed by Tullow when they start exploring the Lake.

Social investment projects

Some of the investment projects to be focused on by Tullow as outlined by the respondent are:

- Construction of additional schools in the area;
- Construction of worship centres such as churches and mosques;
- Establishment of vocational training centres in the area; and
- Improvement of the marine police base, namely the office, the cell, toilets, water tank and provision of a patrol steam boat and a vehicle.

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Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant

ATHUMANI JUMA
DEPUTY INCHARGE MARINE POLICE
MOBILE NO: 0718570415

RESPONDENT: SIMON GICHUKI
DESIGNATION: OFFICER-IN-CHARGE
INSTITUTION: KALOKOL POLICE PATROL BASE

Relationship with the community

The respondent stated that the individuals in town are free to access the police services directly without fear unlike those in the rural areas who go through the area chiefs. The habit of going through the area chief may not be productive, especially when the security issue at hand is serious.

Challenges faced by the police officers in the area

The respondent mentioned that the channel of conflict resolution is still unclear in the area. Instead of reporting certain cases to the police directly, they prefer to go through the council of elders then to the chief. This poses as a major challenge when the police officers are discharging their duties.

Social investment projects

The main investment projects that can be initiated in the area are;

- Construction of both the primary and secondary schools to improve education in the area;
- The roads are in poor condition and so there should be renovation so as to improve their services in fighting crime and providing security in the area; and
- More boreholes should be drilled to provide adequate water to the community members.

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Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant



RESPONDENT: ROSELINE LOMULEN
DESIGNATION: HEADTEACHER
INSTITUTION: WADACH PRIMARY SCHOOL

General characteristics of the school

The school has both an ECD centre and a primary school that runs from class one to class three. The number of boys in the primary school is 119 while the number of girls is 193. The ECD has a total of 90 pupils. The school has one regular teacher who is also the head teacher, while the other two teachers are volunteers.

Wadach Primary School has one permanent building which is subdivided into two classes (class two and three). The nursery and class one lessons takes place under a tree. The condition of the desks in classes two and three is good while class one and the ECD sit on the ground outside under a tree. One traditionally built house is used as a store and is the head teacher's office. The kitchen is in the form of a half-finished traditional house. When pupils complete class three, they move to class four in Ille springs primary school which is several miles away from Wadach Primary School.

The head teacher says that the performance is satisfactory. The funds provided are not enough and the school lacks many commodities. The pupils do not have text books and there is no library either.

Challenges faced by the school

Some of the challenges faced by the teachers and pupils in the school are as follows:

- Children not returning to school after a recess. This is due to the communities' nomadic lifestyle where they move about to find pasture and water for their livestock;
- Parents lack money to buy books due to poverty;
- Pupils walk for long distances to get to school; this is especially tough for the younger ones;
- Work load for the teacher is too much because there are only three teachers teaching over 400 pupils; and
- Text books are also not available for teaching and giving out homework.

Previous and present exploration activities

The head teacher is not aware of past exploration activities but she is conversant of current Tullow exploration activities in the nearby areas.

Expected impacts

According to the respondent, the expected negative impacts may include:

- Volunteer teachers ending up getting employed by the company and this will make it even harder for the respondent to teach alone since these teachers will be unavailable;
- If food is being disposed of outside the camp by the company like the case of Kenya Oil in 1992, the pupils might eat from the open pits and this may make them sick;
- The exploration activities might attract the pupils' attention thereby prompting them to hang around the camp.

Expected positive impacts as mentioned by the respondent include:

- Tullow might construct additional classes for the school ; and

- The company will create employment opportunities in the area.
-

Impacts on the environmental resources

Some of the environmental impacts are as follows:

- The construction of access roads might cause land displacement; and
- Possibilities of noise pollution which might disrupt learning at the school

Mitigation Measures.

The mitigation measures proposed by the respondent include the following:

- Proper waste disposal; and
- Make proper consultation with the local community to avoid any misunderstandings

Vulnerable groups

The vulnerable group in the school is the orphans.

Social investment projects

The social investment projects that can be initiated in the area to respond to the community's development needs as mentioned by the respondent are:

- Dispensaries and hospitals should be established. The only available public dispensary is in Lochor-Aikeny which is a far from Wadach; and
- The road network in the area is quite poor. The luggas may hinder transportation during the exploratory well drilling. Only four wheel drive vehicles are able to cruise through the luggas with ease.

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28/7/2013

To
Whom it May Concern,

Dear Sir/Madam,

**REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA
Turkana**

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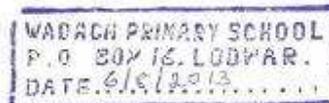
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Yours sincerely,



Professor Opiyo-Aketch
Director/Lead Consultant



RESPONDENT: PHILEMON EMASE
DESIGNATION: HEAD TEACHER
INSTITUTION: LOCHOR-AIKENY PRIMARY SCHOOL

General characteristics of the school

The school lies in Kalokol division. The school has a total population of 255 pupils with 155 boys and 80 girls. The nursery school has 61 boys and 42 girls. The primary school runs from class 1-8. There are 3 government employed teachers and 1 volunteer teacher.

The physical facilities in the school are wanting. The desks are not enough for the pupils and there are many broken desks which need to be fixed. There is no library and the number of books available is not enough for the pupils. The classroom condition is also not favourable. The school experiences high school dropout and the head teacher attributed this to the nomadic way of life of the pupils' communities. He also said due to the lack of fees, some pupils also opt out.

Challenges faced by the school

Some of the challenges faced by the school include:

- The classrooms are not enough for the available pupils;
- Retention of pupils is problematic due to the nomadic lifestyle; and
- There are not enough teachers.

Past exploration activities

The head teacher was aware of the past exploration activities done by Kenya Oil in 1992. In addition, the respondent mentioned that he was aware of current Tullow activities.

Perceived impacts of the proposed project

Some of the perceived negative impacts outlined by the respondent include:

- Learning may be interrupted by the noise pollution coming from the camp and the vehicles plying the nearby roads;
- The pupils may mangle around the dumping-pits in search of food since food is not readily available in the region;

The perceived positive impacts mentioned by the respondent are as follows:

- Employment may be realized because the other Tullow activities have led to the employment for the Kenya Police Reservists and the Community Liaison Officers;
- Renovation of the learning facilities in terms of more classroom construction;
- Improved infrastructure which includes roads and bridges; and
- Destruction of grazing lands might occur during the construction of campsite and access roads.

Cultural sites might be shattered;

- Should oil spill occur, the resultant pollution will be massive; and
- If improper waste disposal is done by the Tullow employees, this might lead to environmental pollution.

Proposed mitigation measures

The respondent stated that the major mitigation measure to deal with these negative impacts would be to consult with the community and sensitize the community members on the whole process of exploratory well drilling. This will ensure that Tullow avoids any conflicts with the locals.

Vulnerable groups in the project area

The vulnerable groups in the community are:

- the elderly;
- the orphans; and
- the people living with disabilities

Social investment projects

The following are some of the social investment projects that can be initiated in the area as mentioned by the respondent:

- Health facilities should be equipped. The public dispensary in the area lacks medical supplies and it has only one doctor;
- A proper investment on infrastructure needs to be done; and
- Security should be beefed up.

Human rights issues

The respondent mentioned that key human rights issues in the area are:

- Insecurity; and
- Gender discrimination (parents still prefer boy child education to girl child education).

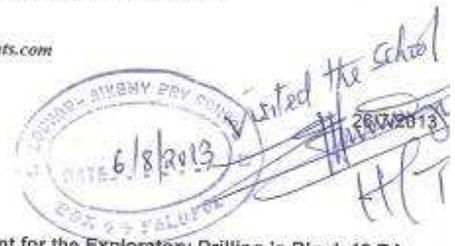
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To
Whom it May Concern,

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Turkana**

Stamp: 

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Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant

RESPONDENT: MR. JOB CHEPYEGON
DESIGNATION: PUBLIC HEALTH OFFICER
INSTITUTION: LOKITAUNG SUB DISTRICT HOSPITAL
DATE: 16/8/2013

Areas of interest:

The hospital is interested in the medical well-being of the communities living around Lokitaung. It serves an average of 80 patients per day. There are 3 wards, i.e. 1 male ward and 1 female/pediatric ward and 1 maternity ward (the maternity ward was formerly used as an observation room).

The health personnel in the hospital include the following:

- 4 nurses;
- 4 clinical officers;
- 1 pharmacist;
- 1 nutritionist;
- 50 Community Health workers; and
- 3 public health officers.

Prevalent diseases

The most common diseases attended to at the hospital include:

- Upper Respiratory Tract Infections (URTIs)
- Malaria
- Diarrhoea
- Skin diseases
- Bites
- Burns
- Ear infections
- Eye infections

Availability of drugs

The respondent mentioned that the hospital gets drug supplies from the Kenyan government through KEMSA. The wastes produced in the hospital is disposed of in the incinerator.

Challenges faced by the health facility

Some of the challenges facing the hospital as mentioned by the respondent include:

- Poor staffing- the hospital lacks health personnel to cater for the health needs of the locals in the project area;
- Water shortages are frequently experienced in the facility;
- Lack of adequate power supply- the hospital is utilizes solar energy which only serves the wards and refrigerators; and
- Lack of ambulance for use during emergency and referrals to other main hospitals such as Lodwar District hospital.

Referral services

The hospital acts as a referral hospital for the health centres and dispensaries around Lokitaung as well as referring patients to Lodwar District Hospital in Lodwar town.

Previous exploration activities

The respondent was an outsider and so he did not know about the past exploration activities in the area.

Present exploration activities

The respondent was aware of the current Tullow activities in the area including the BGP seismic survey.

Perceived negative impacts

The respondent was concerned over the possibility of air pollution due to dust generated by vehicular movements.

Mitigation measures

Some of the mitigation measures proposed by the respondent to deal with the above mentioned negative impacts include:

- Watering of the dusty roads; and
- Keeping specific speed limits to reduce dust production.

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Director/Lead Consultant



RESPONDENT: FR. STEPHEN OCHIENG
DESIGNATION: PRIEST IN CHARGE
INSTITUTION: TODONYANG CATHOLIC MISSION

Areas of operation

The mission area of operation covers the Delta villages up to the Elmi triangle.

Areas of interest

The mission development projects include:

- Fishing projects;
- Water programmes (including drilling of wells/boreholes);
- Building of earth pans for the community;
- Women empowerment programmes for Art and Crafts;
- Health Programmes (including Mobile Clinics);
- Education and feeding programmes. About 310 children are fed daily;
- Founding and running a boarding school at Todonyang. Pupils attending the school up to class 3. Plans underway to construct additional classrooms to serve pupils up to standard eight; and
- Establishment of public relations with the communities.

Challenges faced by the mission

Some of the key challenges facing the mission's activities in the area include, but are not limited to:

- Insecurity leading to scrambling down of initiated projects; the respondent outlined that the state of insecurity in the area may be due to scarce resources (including grazing fields, water resources, etc);
- Lack of government presence in Todonyang. Save for the police officers, there are no proper administrative structures in Todonyang. This makes it easy for aggressors to attack;
- Ignorance due to lack of education; and
- Porous borders between Kenya and the neighbouring countries of Ethiopia and South Sudan.

Previous exploration activities

The respondent was not aware of any previous exploration activity in the area. This was because he is just seven years old in the project area, a period within which no company explored the area for oil and/or gas.

Concerns raised in relation to the project

The respondent confessed ignorance in so far as oil exploration is concerned. However, the respondent gave a layman's opinion on the proposed project. The following suggestions were made by the respondent:

- The community must be involved from the onset of the project;
- There has to be proper education and awareness creation to empower the local community to ensure the locals own the project;
- The locals should not only be considered for the unskilled positions such as cooks, sweepers or watchmen, but also be considered for skilled positions; and
- Tullow to take part in social service delivery in terms of improvement of schools, roads and hospitals, among others.

Social investment projects

The respondent stated that currently, the locals in the project area seem happy due to the presence of BGP in the area. Some of social investment projects proposed by the project to deal with the development challenges faced by the locals include inability to access clean water for human and livestock consumption. This is the major problem facing the residents of Todonyang. The respondent recommended that more water wells be drilled in the area.

Due to poor mobile network connectivity in most parts of the project area, Tullow Kenya BV can consult and negotiate with the mobile phone service providers like Safaricom, Airtel, Orange and Yu to boost their mobile telephone infrastructure in the area.

Tullow should also construct a world class model school in Turkana to allow the Turkana children access proper education. The respondent criticized the notion that the Turkana people do not value education merely because they are nomads.

Teachers also need to be properly trained to disseminate quality education to the pupils. Tullow should come up with structures for continuity of their activities. Locals need to be trained to allow them fill positions to bridge the gap.

Additional comments about the local community

The respondent gave the following comments concerning the local community living in the project area:

- The Turkana take pride in their animals;
- The Turkana community is close knit and they uphold good values such as integrity and discipline, among others;
- After losing their animals to drought, Maskini villages were created along the lakes to allow for easy distribution of relief food; the creation of such villages led to social evils such as promiscuity, indiscipline, alcoholism and to some extent, anarchy;
- Many of the locals living in Todonyang lack a focus into the future when implementing their day to day activities.

The mission school in Todonyang

The children studying in the mission school comprise of the following:

- Orphans;
- Children from broken families;
- Children from fishing communities;
- Daasanech children; and
- Children of head teachers.

The school is preferred due to the quality of education offered in the school.

Key human rights issues in the area

- Lack of access to basic needs; and
- The original Todonyang community lives in Lowarengak. This was after the killings of 46 people in 2011; the community was therefore encouraged to stay in Lowarengak until proper security structures are put in place.

EarthView Geoconsultants Ltd.

Address: P.O. Box 10366, 00100 Nairobi, Kenya.
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Email: Earthview@geologist.com
Website: www.earthviewgeoconsultants.com

28/8/2013

To,
Fr. Ochieng',
Todonyang' Catholic Church,
Lodwar Diocese.

Dear Sir,

REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA Turkana

Tullow Kenya B.V., a subsidiary of Tullow Oil plc, is an Oil and Gas exploration company licensed by the Ministry of Energy to carry out exploration activities in Block 10 BA. The proposed activity is an exploratory well drilling for oil and gas. The Environment Act requires that before any project is implemented, an Environmental and Social Impact Assessment (ESIA) must be carried out in the intended project area to ascertain the environmental and social impacts such a project might have on the surrounding area.

Earthview Geoconsultants Limited is a firm licensed by NEMA to carry out Environmental and Social Impact Assessments. The company has been commissioned to conduct an ESIA for exploratory well drilling in Block 10BA which covers parts of Turkana Central and Turkana North districts on behalf of Tullow Oil.

Exploratory drilling is undertaken to verify if geological formations have accumulations of hydrocarbons, and if the site can produce enough oil and gas to make it economically viable to proceed with further development. The exploratory drilling activities will include the construction of access roads, drill pads, drilling and well-test. The drill pads will include contingent areas that will serve as the lay down and camp.

These activities may affect the biophysical and social environment in different ways. The Social Impact Assessment aspect of the ESIA requires us to capture the views of all the stakeholders in this venture. For this, Earthview will conduct public meetings and consultations with Government officials, NGO officials and community members. Structured questionnaires and interviews may also be used at the household level.

To this effect, Earthview Geoconsultants Limited kindly request for your input relating to the proposed project. Your views will form part of the ESIA report and recommendations thereof will be part of the Environmental Management plan (EMP) for the project in Block 10 BA.

Yours sincerely,



Professor Opiyo-Aketch
Director/Lead Consultant

FR. STEVEN OCHIENG


RESPONDENT: MR. MOSES JAOKO
ORGANIZATION: EQUITY & SUSTAINABILITY INITIATIVE

Major concerns about the project

The respondent was majorly concerned with the following issues:

- Sustainability of the proposed project;
- Equity in distribution of benefits from the proposed project; and
- Benefit sharing criteria.

Other comments that the respondent made concerning the project include:

The respondent raised concern over how the project might be undertaken, as Kenya still lacks proper mining law in place at the moment. Basing his argument on oil and gas mining in other parts of Africa and the rest of the world, he said that there has been no consideration in terms of the host community, for example, in the Niger Delta, the hosts have been displaced.

The respondent appreciated the fact that Turkana is an arid area and that the people inhabiting the area are pastoralists who rely on the natural environment to feed their animals. The respondent was concerned about how compensation would be effected in case displacement takes place. This was because the respondent is aware that land is not demarcated and that only about 20% of the people living in Turkana have either titles or allotment letters. Due to this, the respondent said that if the compensation issue is not looked into agreeably, then a serious disaster is waiting to occur in Turkana.

The respondent also brought to the attention of the SIA team the allegations that big chunks of land have been bought by tycoons who are not necessarily residents of Turkana County.

The respondent wanted to know whether there are any measures for ensuring sustainability of the proposed project in place.

The respondent requested that spatial data - geographic data, in terms of population, be determined before the proposed project kicks off.

The respondent further observed that there may be reorganization in terms of population in the area and requested that the ecosystem services of the project area be determined, including biodiversity, plants and animals. There are some species of bacteria responsible for carbon fixing.

The respondent alluded that it is prudent that International Laws governing oil and gas exploration be considered in the entire phase of implementing the proposed project. He reiterated the fact that the Turkana pastoralists lack legal protection of land. The respondent also wanted to know how the proponents and the government of Kenya intended to secure the legal rights of the Turkana to land ownership.

In Turkana, the education level of the majority is pathetic. Due to the people's marginalization, many of them tend to be ignorant of their rights. The respondent wanted to know how Tullow plans to deal with the issue of land ownership in Turkana before anything bad takes place to avert any possible resistance of the host community.

Employment being a function of efficiency and knowledge, the respondent also wanted to know whether the illiterate Turkana, who are the majority, may miss out on employment.

Due to that, the respondent feared that the Turkana may remain casual labourers while the rest of the labour force may comprise immigrants into the county.

Earth View Geoconsultants Ltd.

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To
Mr. Moses Jaako,
Nairobi.

23/8/2013

Dear Sir,

REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA Turkana

Tullow Kenya B.V., a subsidiary of Tullow Oil plc, is an Oil and Gas exploration company licensed by the Ministry of Energy to carry out exploration activities in Block 10 BA. The proposed activity is an exploratory well drilling for oil and gas. The Environment Act requires that before any project is implemented, an Environmental and Social Impact Assessment (ESIA) must be carried out in the intended project area to ascertain the environmental and social impacts such a project might have on the surrounding area.

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These activities may affect the biophysical and social environment in different ways. The Social Impact Assessment aspect of the ESIA requires us to capture the views of all the stakeholders in this venture. To this effect, Earthview Geoconsultants Limited kindly request for your input relating to the proposed project. As a stakeholder, we would like to request for your attendance at a stakeholders' consultation forum on 27th August 2013 at YWCA hall along Mamlaka Road in Nairobi at 10.00am.

Your views will form part of the ESIA report and recommendations thereof will be part of the Environmental Management plan (EMP) for the project in Block 10 BA.

Yours sincerely,



Professor Opiyo-Aketch
Director/Lead Consultant



27/08/2013

EQUITY & SUSTAINABILITY INI

RESPONDENT: MR. BILLY PORTER
DESIGNATION: CLINICAL OFFICER
FACILITY: ST. MARY'S PHC - KALOKOL
05/08/2013

General characteristics of the health facility

The health facility attends to approximately 20 to 25 patients every day. To date, the facility has a total of 50 HIV/AIDS clients. The health personnel in the facility are: one clinical officer, two nurses and four patient attendants. The facility also has a driver. There are no pharmacists as well as nutritionists. The facility offers outpatient and mobile clinic services to the residents of the area.

Disease prevalence

The most prevalent diseases include:

- Malaria
- Diarrhoea
- Typhoid
- Respiratory tract infections
- Skin diseases
- Eye infections.

Supply of drugs at the health facility

The facility purchases its own drugs. At times drug supply to the facility do become scarce. Likewise, the facility has inadequate medical equipment to serve the needs of the various patients. Sometimes these equipments are borrowed from Lodwar District hospital when necessary.

Challenges facing the facility

Some of the challenges facing the health facility include:

- Lack of laboratory equipment to diagnose diseases;
- Poor power supply;
- No direct water supply to the facility (buys water from water kiosk); and
- No electricity supply to the facility (the refrigerator for vaccines is powered using gas).

Awareness of the previous exploration activities

The respondent was aware of previous exploration activities in the area.

Possible health impacts on the public

None has been detected so far; however, the respondent mentioned that the use of chemicals is likely to cause some ailments.

Possible impacts of the proposed project

Negative impacts include the following:

- Air pollution resulting from dust generation leading to respiratory infections e.g. asthma;
- Cancerous diseases which may be a long term effect; and
- Contamination of the water aquifers.

Positive impacts include:

- Creation of employment opportunities;
- Provision of education through scholarship awards;
- It may boost revenue collection for the country; and
- It may also lead to infrastructural development in the project area.
-

Possible impacts on water source and points include:

Due to increased demand for water during the exploratory well drilling, the water supply to the area might reduce.

Impacts on the environment

Grazing lands may be interfered with, leading to conflicts with the pastoralists.

Forms of pollution

Some forms of pollution that may be experienced in the area are as follows:

- Noise pollution (from the drilling machine)
- Air pollution (from smoke)

Mitigation measures

Some of the mitigation measures to put in place as suggested by the respondent are as follows:

- Allow people to uphold their religious views on Sabbath days;
- Proper compensation mechanism be put in place to guide the compensation exercise; and
- A resettlement action plan also be put in place.

Vulnerable groups

Some of the vulnerable groups in the area include:

- Children (immunity is compromised)
- The elderly (immunity compromised)
- The orphans
- The immune-compromised people

Social investment projects

The social investment projects proposed by the respondent are:

- Provision of boats, fishing nets and life jackets;
- Sponsorships through scholarship awards to students;
- Water provision, i.e. sinking of boreholes and water pumps;
- Provision of health care services, i.e. ambulance services, emergency rooms and maternity wards; and
- Supply of electricity.

Key human rights issues

Some of the key human rights issues mentioned by the respondent are:

- Education is compromised when school fee is unaffordable.
- Early pregnancies, especially among school-going girls.

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Email: Earthview@geologist.com
Website: www.earthviewgeoconsultants.com

To
Whom it May Concern,

26/7/2013

Dear Sir/Madam,

**REF: Environmental and Social Impact Assessment for the Exploratory Drilling in Block 10 BA
Turkana**

Tullow Kenya B.V., a subsidiary of Tullow Oil plc, is an Oil and Gas exploration company licensed by the Ministry of Energy to carry out exploration activities in Block 10 BA. The proposed activity is an exploratory well drilling for oil and gas. The Environment Act requires that before any project is implemented, an Environmental and Social Impact Assessment (ESIA) must be carried out in the intended project area to ascertain the environmental and social impacts such a project might have on the surrounding area.

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To this effect, Earthview Geoconsultants Limited kindly request for your input relating to the proposed project. Your views will form part of the ESIA report and recommendations thereof will be part of the Environmental Management plan (EMP) for the project in Block 10 BA.

Yours sincerely;



Professor Opiyo-Aketch
Director/Lead Consultant

BILLI PORTER,
CLINICAL OFFICER,
ST. MART'S PHC-KALOKI
05/08/2013.
Bul.

RESPONDENT: MR. KEVIN OBIERO
DESIGNATION: SOCIAL ECONOMICS RESEARCHER, KEMFRI
MR. JOHN MALALA
DESIGNATION: RESEARCH SCIENTIST FISHERIES, ENVIRONMENTAL
ISSUES, LAKE TURKANA, WETLANDS AND TURKANA
CATCHMENT AREAS
INSTITUTION: KEMFRI
Date 1st August 2013

Brief overview of KEMFRI

The respondents informed us that KEMFRI is mandated by Cap 250, Science and Technology Act to:-

- carry out research in aspects of fish and fisheries in Lake Turkana;
- undertake to find out environmental and ecological characteristics of the lake; and
- determine the aquatic health of the lake.

Areas of Interest

The institution is interested in Lake Turkana with regard to:

- chemistry of the lake;
- geology of the lake;
- aquatic productivity of the lake;
- exploitation and sustainable use of fish resources from the lake; and
- monitoring of fish kills, migration, among others.

The respondents informed us that the socio-economic department of KEMFRI majorly deals with:-

- fisheries supporting the community livelihoods;
- fishing and fisheries as a source of employment; and
- Challenges facing the fishing industry.

Challenges facing the Turkana fishing community:

Over the years KEMFRI has identified some of the challenges facing the Turkana fishing community, including:

- post harvest loss due to poor storage facilities;
- lack of proper fishing vessels and protective gear; and
- child fishermen, among others.

Areas of common interest for both KEMFRI and Tullow

According to the respondents, KEMFRI shares areas of common interest with Tullow in:

- sourcing for hydro aquatic data of the lake;
- mapping of the critical habitats on the lake;
- comparison of the quality of groundwater and lake water;
- finding out the chemical composition of the lake; and
- water quality vis a vis fish survival.

KEMFRI department acknowledged the importance of joint work between them and Tullow Oil since:

- it would enhance sharing of hydro aquatic data of the lake;
- it would ease and lessen work related to lake mapping; and
- it would make it easy to do capacity building for the fishing community

Impacts of the proposed projects

The respondents had the opinion that the proposed project may impact negatively on the project area. They cited them to include:

- degradation of the environment due to movement of heavy machinery to and from base camps;
- moral decadence due to influx of people into the community;
- increase in the cost of living;
- destruction of the little available vegetation in areas where camps would be set; and
- fear of pollution due to poor waste management.

Possible mitigation measures

They suggested the following mitigation measures for the above mentioned impacts:

- Tullow should not to set up base next to areas near the lake;
- Tullow should not cut vegetation as this would lead to sedimentation;
- Tullow to embrace proper waste management plan;
- Tullow should give an assurance to the community that they are well prepared to contain any form of spillage should it occur;
- Tullow to inform the community well in advance about their intended activities;
- need for awareness creation, openness, transparency and sharing of information on the on-goings where necessary;
- training of locals on requisite skills for employment;
- follow all the laid down environmental laws and regulations; and
- enhance public participation to inculcate the spirit of project ownership by the locals.

Social investment projects proposed

The respondents were of the opinion that Tullow invest on:

- beach infrastructure, including beach landing areas, roads, fish preservation equipments, etc.;
- provision of fishing vessels and protective gear for the fishermen;
- supporting Income Generating Activities among vulnerable groups in the community;
- social amenities, e.g. conference halls, hospitals, schools, sports and cultural activities;
- supporting KEMFRI on research in the lake; and
- managing public expectations from the project in a proper manner.

RESPONDENT: MR.DAVID LUKIRI
DESIGNATION: PROGRAMME MANAGER
INSTITUTION: INTERNATIONAL ORGANISATION OF MIGRATION (IOM)
Date 2nd August 2013

Brief overview of the project and their areas of interest

IOM deals with refugee migration. It has offices in Kakuma, Lodwar and Daadab with the main office in Nairobi. Its main mandate is to ensure safe settlement of refugees abroad.

In Lodwar, IOM deals with issues relating to the host community, the Turkana, especially peace building, livelihoods and safe migration. The agency began its work in Lodwar from April 2013 and is likely to be in the area for the next 3 years.

During the 3 years, IOM plans to assist the community on matters of peace building. IOM together with five (5) other organizations i.e. UNICEF, ILO, WHO, FAO and UNDP have been funded to help with peace building.

IOM is not much into other spheres of development in the area other than its core mandate of working with refugees. They educate the refugees about safe migration into other countries and at the same time ensure safe landing for them in foreign countries.

In addition, IOM also looks into matters of human trafficking.

Challenges facing IOM

The respondent informed us of the following as the major challenges facing IOM:

- Vast area of coverage;
- Lack of awareness among the people;
- Cultural norms i.e. not taking care of children as they just walk from place to place hence rendering them susceptible to inhuman conditions;
- Inadequate resources to meet all the community expectations; and
- Dependency on relief food.

Vulnerable groups in the area

According to the respondent, vulnerable groups in the project area may include:

- The youth - are vulnerable due to lack of information;
- Women; and
- Children.

Social investments projects

In his opinion, the respondent suggested the projects below for Tullow to consider investing in:

- Construction of hospitals;
- Empowerment of health workers;
- Building of more classrooms in those areas where the sedentary fishermen and farmers are inhabiting as well as come up with mobile schools to cater for the nomadic pastoralists; and
- Initiation of agricultural activities.

RESPONDENT: WILLIAM ONYANGO LOBELO
DESIGNATION: TURKANA COUNTY SECRETARY
INSTITUTION: TURKANA COUNTY GOVERNMENT
30TH JULY 2013 AT 4:10PM

Services offered to the community

The County Secretary mentioned that all the services offered by the county government are in the fourth schedule of the Kenyan constitution. He admitted that the devolved system has not fully taken off and this has negatively affected their duties.

Security issues in the county

According to the respondent, the border is volatile and prone to attacks, especially by the Merile from the North. He mentioned a recent attack by the Merile from Ethiopia over pasture land and this prompted the Cabinet secretary Ole Lenku to visit the area to try and calm the situation.

- The Uganda-Kenya border squabbling has subsided unlike the Sudan-Kenya; and
- Turkana central is relatively calm except with the petty crimes like assault.

Impacts of Tullow activities in the project area

Roads

He was of the opinion that:

- The constructed roads might improve transport in Turkana depending on the roads grid;
- He stated that there might be environmental degradation; and
- He also cited that pasture might be lost.

Campsite

The respondent argued that the site of the camp may lead to destruction and/or loss of pasture.

Additional concerns

The respondent had the following additional concerns:

- Tullow does not outsource jobs to the locals i.e. Tullow contracts their vehicles from other regions;
- Food tendering is given to "foreigners" instead of locals;
- Tullow does not hire the Turkana except those doing petty jobs like driving and providing security;
- Despite having a waste disposal truck in Lodwar, Tullow hires a truck from Kitale; and
- Tullow is being insensitive to their needs.

Social investment projects

He suggested that Tullow consider investing in the following:

- Construction of a stadium;
- Building of classrooms and schools;
- Construction of healthcentre and providing an ambulance;
- Sinking water boreholes for the community; and
- Provision of bursaries for the school going children.

Mitigation towards culture influx

He advised Tullow to understand the thinking pattern of the Turkana.

RESPONDENT: ERICK WAFULA
ORGANISATION: IGPAF, ELIZABETH GLASER PAEDIATRIC
2nd August 2013

Brief description of the organization

According to the respondent, the main objective of the organization is to eliminate Pediatric HIV within Turkana County and to support the government in the implementation of HIV programs.

Challenges faced

The respondent mentioned that the major challenge in disseminating their duties include limited funds, difficult terrain and the nature of the nomadic lifestyle (movement from place to place may inhibit the Organization's service delivery as opposed to permanent settlement).

Vulnerable group

According to the respondent, the most vulnerable groups in the area include the pregnant women and the aged.

Social investments that Tullow should invest in

He suggested that Tullow should invest in the school and health facility infrastructures as well as land rehabilitation and roads construction.

RESPONDENT: WILSON IKAMAR
ORGANIZATION: APHIA PLUS IMAARISHA
2nd August 2013

Brief description of the organization

The primary projects undertaken by the organization are on HIV/AIDS. It also supports livelihoods, borehole digging and livestock, among other things. The organization has 38 supported health facilities. The organization aids the hospitals in logistics, various outreaches, drug supplies, training, advanced HIV testing, school fees, food distribution and Green house provision in conjunction with the Ministry of Agriculture.

Challenges

The respondent informed us that it faces challenges such as people not being free to access VCT and lack of enough ambulances.

Knowledge of previous exploration activities

The respondent was aware of the previous exploration activities by Kenya Oil. He alluded that some locals refer to Tullow as Kenya Oil. He informed us that Tullow has provided education scholarships in the region.

Possible negative impacts of the proposed project

The respondent mentioned that there may be pollution; particularly air pollution

Possible positive impacts of the proposed project

On the other hand, he suggested that the proposed project may lead to the creation of employment opportunities and infrastructural development in the area.

Vulnerable groups

The following were identified as the most vulnerable groups in the project area:

- Women (they are not allowed to make major decisions affecting their families); they are also not adequately represented in employment;
- The disabled; and
- The aged.

Social investment project for Tullow in the region

The main social project investments that the respondent suggested for Tullow to engage in include:

- Financial support for the CBOs;
- Protection of the archaeological and historical sites; and
- Support Lake Turkana cultural festival which is currently done once every year (May) at Loiyangalani.

Key human rights issue

Main human rights issue is the girl child education which has not been advocated for sufficiently.

RESPONDENT: JOHN EBENYO
ORGANISATION: OXFAM GB
31st August 2013

Introduction

The interview was conducted by Grace and Erick. It commenced with some introduction on the purpose of the interview. The respondent was informed that Tullow intends to undertake exploratory drilling in Block 10BA and that Tullow had commissioned Earthview Geoconsultants to conduct an ESIA in the area.

Possible environmental impacts that may result from the exploratory activities

The seismic survey is in progress in the area. Anything done on this block is within the lake. However, the interviewers clarified that the proposed project is to be undertaken on land. The lake will not be interfered with. The respondent further said that he thinks the machine to be used affects 5km deep and 1km apart thus affects humans and aquatic life. Still on the seismic survey, he said the vibrations are more impacting. He referred us to a KEMFRI official, Mr. Malala whom he said is quite knowledgeable on the issue at hand. The interviewers clarified that they wanted to know the perceived impacts as a result of seismic survey

Some of the impacts cited by the respondent include:

- The carbonic acid effects;
- Offensive smells which might affect aquatic life;
- Clearance of bushes;
- Tension among the community members when oil is produced in future;
- Displacement of people;
- The spillages may contaminate the water sources; and
- Possibilities of pollution if the disposal of wastes in the camp is not properly planned, making the people living close to the camp susceptible to diseases.

The social impacts mentioned by the respondent include:

- Inappropriate social interaction between the camp employees and the locals, causing moral decadence in the area;
- Children might be engaged in child labour, for instance increase in child sexual exploitation as well as cases of homosexuality in the area;
- The prices of products might shoot up since some people have more income than others;
- There is importation of human resource, thus leaving the locals unemployed, causing intra-community conflicts; and
- The base camp procures goods from as far away as Kisumu instead of locally, i.e. meat and fish. This he said may lead to tension.

Positive social impacts:

The respondent was optimistic that:

- The oil industry will contribute to the consolidated funds- 15% comes to the county government; and
- If well managed, the project will create more employment opportunities.

Concerns towards the proposed project

- The respondent mentioned that he is not sure the positive impacts will be widespread. Oil is a function of the government and most of the proceeds benefit the national government and not the locals;
- In the case of Turkana, all these acts being discussed, none focuses specifically on pastoralists;
- The oil industry might be a curse for the locals but a blessing to the country; and
- The national contribution is beneficial if a certain percentage is given to the local government.

Additional concerns

The respondent had the following additional concerns:

- Regulatory bodies such as NEMA must give feedback on the ESIA's and people be made aware on how they can benefit from such projects;
- There is a transitional problem: oil exploration began in Turkana before the current governance structure came to be. Tullow should therefore recognize the existence of the county government and work in collaboration with it;
- Concerning the issue of corporate social responsibility, the respondent suggested that Tullow should focus on corporate social opportunities. If employment of people will be provided in the area, then consider the skills available in the area;
- The locals should be awarded tenders to supply the locally available products such as meat and fish. Scholarships are good but it is better when one has a source of income from which they can educate their children;
- The government of Kenya should be clear about the regulations. These Acts of Parliament on environment and energy are good on paper but they are never implemented, for example, The Oil Production Act, 1986. He also informed us that there is only one NEMA employee in Turkana County, who is based at Lodwar;
- The respondent noted that the Tullow CLOs were very economical in divulging information to the locals. He said that they are reluctant to share information since they might be fired. Tullow needs to work on their policies to ensure that they create a good interaction between the company and the community. Communication is key in oil exploration activities and needs to be improved; and

- The ESIA team informed the respondent that there is usually a community tendering committee that awards tenders on behalf of Tullow.

Recommendations

The respondent recommended that:

- The government should identify and sponsor some people for training on matters of petroleum;
- Oil prospecting being an expensive venture, some regulatory framework should be well prepared;
- Simple facts of oil prospecting should be communicated to the community members; and
- The locals be allowed to choose between fish or oil in the case of people living near the lake; and either pastoralism or oil for the pastoralist.

He wanted to know the extent of preparedness of the country in dealing with economic, political, environmental and social consequences of oil exploration activities.

Development priorities

Some of the development priorities mentioned by the respondent include:

- Construction of infrastructure such as railway and road network. The major problem in Turkana is a lack of infrastructural facilities; and
- Social protection programme for the poor in terms of giving funds and micro finance facilities.

RESPONDANT: MR. COLUMBUS EKAI (0713589577)
DESIGNATION: CHAIRMAN. BMU
INSTITUTION: KALIMAPUS BMU
4th August 2013

Description of activities

The activities carried out by Kalimapus BMU include:

- educating the fishermen on how to conduct fishing activities which entails purchase and use of the correct sizes of fishing nets that are compliant with the fishing standards; and
- collection of fishing data on quantities and variety.

Challenges facing the Kalimapus BMU

According to the respondent, the facility experiences challenges due to:

- Non-compliance with the BMU regulations by most fishermen;
- Lack of incentives and empowerment from the national government, especially on provision of proper fishing equipment and facilities;
- Ignorance of the fishing regulations;
- The equipment and facilities required by the BMU are lacking, hence difficulty in day to day running of the offices; (office space is present but lacks supporting infrastructure and office materials);
- Only one fishing boat which is currently broken down and un-operational, is available for the BMU to carry out its fishing activities; and
- Lack of enough fishing equipment.

Impacts of the proposed test well drilling project on the people

According to the respondent, possible impacts of the proposed project may include:

- Creation of an alternative source of livelihood;
- Better education through Corporate Social Responsibility;
- Increased inter-community conflicts;
- Disruption of the current community traditions due to introduction of new culture and way of life by the immigrant workers; and
- Increased social evils, i.e. prostitution, child abuse, school dropouts, divorce because of the influx of people into the area.

Suggested mitigation measures of the negative impacts

The respondent suggested the following mitigation measures for the possible negative impacts:

- Respect for the Turkana culture to minimize conflicts;
- Creation of a conflict resolution mechanism, especially through dialogue;
- A community grievance committee should be set up to handle matters as they arise; and
- Compensation for all affected parties in case of relocation and/or destruction of property.

Social investment projects

He suggested that Tullow should consider purchasing more fishing boats for the Kalimapus BMU members.

The other cross-cutting issue in the society is the frequency of disease outbreak, especially those spread by strong winds and lack of proper sanitation practices. The most common

diseases around the lake include: malaria; typhoid and Tuberculosis. Another key aspect to note is the emphasis of improved security at the site where the base camp shall operate. This is necessary because Turkana North and Central districts are susceptible to frequent attacks from the Merille of Ethiopia.

RESPONDENT: MR. JAMES EKEI
DESIGNATION: DEPUTY PROGRAM COORDINATOR
ORGANIZATION: HELP-AGE INTERNATIONAL

Brief information about the organization

Help Age International was established in Kenya in 2009. The organization mainly targets the elderly. Some of the services it offers include:

- emergency services;
- healthcare for the immune-compromised; and
- social protection for the elderly.

Development projects done by the organization

The respondent mentioned that the organization was established to carry out emergency programs in various areas in Turkana, including an irrigation scheme in Kono and underground tanks in Kapua.

Challenges experienced while implementing the projects

According to Mr. Ekei, Help-Age is faced with such challenges as:

- The vastness of the area makes some places inaccessible, making it difficult to provide efficient services; and
- Insecurity in the area, making it difficult for the organization to offer efficient services.

Impacts to be expected from the Tullow exploration activities

In his opinion, the respondent mentioned that, the proposed project is likely to have the following impacts:

- Destruction of pastoral land when constructing the access road and base camp; and
- Exploitation of vulnerable children who are in search of food.

Suggested mitigation measures

The respondent was of the opinion that the following measures are needful:

- Sensitization of the community members; and
- Transparency, and involvement of community members before carrying out any exploration activity.

Vulnerable groups in the area

He identified the following as the most vulnerable members of the community:

- The elderly;
- Children;
- Immune-compromised people; and
- Nomads whose pastoral lands will be interfered with.

Key Human Rights Issues in the area

According to the respondent, key human rights issues in the area include:

- Insecurity due to limited security personnel; and
- Poverty and hunger (destruction of land will worsen the situation).

RESPONDENT: MR. DANIEL LOMILENG

DESIGNATION: DEPUTY HEAD TEACHER
INSTITUTION: KALOKOL MIXED PRIMARY SCHOOL

Characteristics of the school

The school has 1663 pupils. Boys – 984, girls- 679, 9 teachers (male – 6, female – 3). The classrooms are not in a satisfactory condition, having cracked walls and insufficient desks for the pupils. The general academic performance is good though not all the pupils complete their education. Factors contributing to this include lack of school fees and early marriages.

Challenges faced by the teachers

According to the teacher, the school faces a number of challenges, including:

- Understaffing which results in heavy workload;
- Early marriages leading to school dropouts by girls;
- Lack of staff quarters; and
- Inaccessibility to health facilities for the boarders.

Awareness of past exploration activities

He could easily remember that a company by the name Kenya Oil carried out oil exploration activities some years back at Eliye Springs.

Expected impacts of Tullow exploration activities

The respondent mentioned the following as the possible outcomes of the proposed project:

- Displacement of people from their land;
- Destruction of grazing lands during construction of access roads and base camps;
- Contamination of underground water aquifers during drilling;
- Noise pollution caused by the drilling machinery;
- In case of oil discovery the area is likely to be invaded by neighbouring communities and become a war zone area; and
- Pastoralists are likely to reject the project in order to protect their grazing lands.

Proposed mitigation measures

He proposed that Tullow should:

- Come up with a Resettlement Action Plan that will counter the displacement of persons from their land;
- Conduct prior consultation before any drilling activities commence;
- Come up with compensation mechanisms to address any displacement and destruction of property; and
- Use silencers to reduce noise pollution.

Vulnerable people in the area

According to the respondent, the vulnerable groups in the project area may include

- Orphans (who may be exploited to offer cheap labour);
- Immune-compromised (who may be discriminated against);
- Widows; and
- Elderly (who may be incapable of working to earn a living).

Social Investment Projects

The respondent was of the opinion that, the following be considered to be the most viable social investment projects in the area:

- Construction of classrooms;
- Construction of health facilities;
- Drilling of water boreholes; and
- Provision of tapped water.

Key human rights issues

Identified key human rights issues according to the respondent are:

- Insecurity (due to cattle rustling and bandit attacks);
- Lack of proper health care; and
- Lack of proper learning institutions.

RESPONDENT: MR. JAMES LOSENY

DESIGNATION: HEAD TEACHER
INSTITUTION: FAITH HOMES PRIMARY SCHOOL AND ECD

School characteristics:

The primary section has a total of 585 pupils (421 boys and 164 girls) while the ECD has 52 children (29 girls and 23 boys). There are a total of 7 teachers (5 males and 2 females). The condition of the classrooms is not satisfactory and the desks are not enough for all the pupils. The school performance has been slowly declining and not all the children are able to complete their primary education.

Challenges faced by the teachers

The head teacher informed mentioned challenges facing the school to be:

- Understaffing which gives them a heavier workload than they are able to manage.
- Challenges faced by the students
- Lack of sanitation services; and
- Lack of bursary funds to sponsor their education.

Expected negative impacts from Tullow activities on the school

According to the teacher, the proposed project may have the following impacts:

- Enrolment of the students may decline as some will quit school to go work in the camp site;
- Migration of fish;
- Destruction of grazing land;
- Improper disposal of food wastes at the campsite (this may attract young children to the site);
- Insecurity in the area where there will be oil prospects;
- Displacement of people from their land;
- Air, soil, water and noise pollution;
- Injury of workers at the camp site during the drilling process; and
- Erosion of the social morals .

Possible positive impacts

On the other hand, the head teacher was optimistic that, in case the proposed project proceeds, the community is likely to enjoy the following benefits:

- Improved standard of living if the area is developed; and
- Improvement of infrastructure such as roads, schools, health facilities and water resources.

Mitigation measures

He suggested the following measures to mitigate the possible negative impacts:

- Provision of security at the drilling site;
- Sensitization of the community on the project activities;
- Enforcement of environmental laws and regulations pertaining to environmental pollution; and
- Provision of a land resettlement action plan for displaced persons.

Vulnerable Groups in the area

According the teacher, the most vulnerable people in the county may be:

- Orphans (who may be exploited for labour);
- Elderly; and

- Immune-compromised.

Social Investment Projects

He suggested that Tullow invest in:

- Improvement of roads;
- Provision of microfinance facilities to assist women and youth;
- Tenders to supply various products such as food and machinery;
- Provision of electricity;
- Water supply through drilling of boreholes and construction of water pumps;
- Improved health facilities; and
- Provision of jobs for both skilled and unskilled persons.

Key human rights Issues in the area

These may include:

- Exploitation of children, and especially orphans;
- Early girl child marriages and unwanted pregnancies; and
- Discrimination and exploitation of workers from the community.

RESPONDENT: MR. GODWIN KIBINGEI

DESIGNATION: SENIOR TEACHER
INSTITUTION: MOI HIGH SCHOOL, KALOKOL

Characteristics of school

There are 217 students (Boys – 130, Girls – 87) and 9 teachers. The state of the facilities is satisfactory. The academic performance of the school is generally good and most of the students are able to complete their secondary education

Challenges faced by the teachers

The school faces the following challenges

- Water shortage;
- Shortage of staff;
- Lack of residential quarters;
- Lack of transport means;
- Inaccessibility of health facilities; and
- Lack of communication network, making it hard for them to receive information.

Awareness of previous exploration activities

The teacher was aware of the exploration activities carried out in the 1980s by a company known as Kenya Oil.

Awareness of Tullow exploration activities

The school has been informed of the proposed exploratory well drilling in Block 10 BA.

Expected impacts on the school

According to the teacher, some of the impacts of the proposed project may be:

- Students may drop out of school in search of employment;
- Teachers may quit their jobs in search of greener pastures; and
- Provision of bursary funds and scholarships to needy children in the area.

Expected impacts on the environment

Negative impacts

The respondent was concerned that, the program may lead to:

- Displacement of persons from their land;
- Migration of fish from established fishing areas;
- Insecurity at the drill site area;
- Destruction of grazing lands; and
- Air and noise pollution which may occur during construction of roads and drilling of the oil well.

Positive

He was however hopeful that the project may have the following positive impacts:

- Water supply through drilling boreholes and constructing hand pumps; and
- Improvement of infrastructure such as roads, schools and hospitals.

Mitigation measures

Sensitization of the community before any drilling activities are carried out in the area, to create awareness. Because communication is a major problem in this area, mobile speakers can be used to make announcements.

Vulnerable groups in the area

According to the respondent, the vulnerable groups include:

- Youth who are likely to drop out of school in search of jobs;
- Elderly women who are unable to work; and
- pastoralists whose grazing lands may be destroyed.

Social investment projects

He suggested that Tullow may invest in:

- Construction of schools;
- Water supply through drilling of boreholes;
- Water harvesting and irrigation schemes;
- Improvement of transport infrastructure;
- Provision of electricity; and
- Increased security.

Human Rights Issues in the area

The teacher informed the study team that:

- Education is not valued as much as pastoralism;
- Early marriages for the girl child interferes with their schooling; and
- There is lack of information and communication facilities in the area.

RESPONDENT: MR. HENRY INOK & SHADRACK LOGEL

INSTITUTION: LOYOLO PRIMARY SCHOOL

Characteristics of school

The school was started in 1996 and has a total of 76 pupils with 59 boys and 17 girls. The school is manned by only three teachers. The school runs from Class 1 to 5, after which the students are transferred to other schools. The condition of the classrooms is satisfactory and the desks are enough for all the pupils. There is no library. The academic performance of the students is satisfactory.

Challenges experienced by the teachers

The following were mentioned to be the major challenges facing the school:

- The teachers are understaffed and this gives them a heavy workload;
- The low enrolment of the students de-motivates the teachers;
- They have no access to safe and clean water;
- There are no teachers' quarters and the teachers have to travel long distances to get to school;
- There is no access to safe and clean water;
- The children travel long distances to get to school and this demoralizes them and causes some of them to drop out of school;
- Some of the children are detained at home to do the house chores at the expense of their education;
- There is no access to proper healthcare services; and
- They experience food insecurity when there are delays from the donors.

Past exploration activities

Oil exploration activities were carried out by Kenya Oil in Turkana East some years back.

Expected Impacts

Negative impacts

The respondents feared that the proposed project may lead to:

- Displacement of people from their land;
- Noise, air and water pollution caused by the drilling machinery and construction of roads and base camp;
- Improper waste disposal mechanisms;
- Destruction of grazing lands;
- Possible destruction of cultural and historic sites; and
- Resistance of the project by the community members due to lack of awareness

Positive impacts

On the other hand, they believed that the project may lead to:

- Creation of job opportunities for members of the community; and
- Economic growth of Turkana county through supporting businesses.

Mitigation measures

They suggested the following as the best measures to mitigate the negative impacts:

- Introduction of proper compensation mechanisms for displaced persons and destroyed property;
- Use of silencers to counter noise pollution;
- Use of proper waste disposal mechanisms; and
- Sensitization of the community members on the impacts of the project.

Social Investment Projects

The most necessary sectors to be considered for social investment according to the respondents are:

- Construction of hospitals and provision of improved healthcare services;
- Provision of clean water;
- Provision of bursary funds in schools;
- Funding vulnerable societal groups;
- Improve school infrastructure through building dormitories, kitchens and library; and
- Construction of roads.

Vulnerable groups

The respondents were in agreement that the under-listed are the most vulnerable members of the community:

- Disabled persons
- Elderly
- Women
- Unemployed
- Orphans

Key Human Rights Issues

These may include:

- Girls are married off at a very young age, hence violating their right to education;
- The frequent attacks on the Turkana by the Merille have made the area insecure; and
- Improper waste disposal denies them the right to a clean environment.

RESPONDENT: MR. ABDI RISACK
DESIGNATION: HEAD TEACHER
INSTITUTION: TODONYANG PRIMARY SCHOOL

Characteristics of the school

There are 284 pupils (163 boys and 121 girls), 1 government teacher and 3 volunteers. The school receives free primary funds and has its school meal programs supported by World Food Organization (WFO). It was however closed indefinitely due to the massacre killings in Todonyang and the current insecurity in the area. The school also runs a special needs programme which caters for the visually, hearing and physically handicapped. The school has several psychologically tortured pupils who lost their parents and siblings to the Todonyang Massacres. About 50 orphans from the school have been taken up by various orphanages and the rest of the community has been displaced from their homes. The school has no sanitation facilities and the children are forced to use crude means. A number of students have been forced to discontinue schooling due to their current circumstances. The academic performance of the school has definitely declined due to the psychological trauma most of these students have had to go through.

Challenges faced by teachers

According to the head teacher, the teachers are faced with a number of challenges in the school, some of which may include:

- there are no staff quarters so the teachers travel long distances to get to the school (sometimes they are forced to spend the night in the school);
- Water shortage;
- There are limited means of transport;
- Severe food insecurity due to the current attacks in the area;
- There is no means of communication and this forces them to rely on security personnel to communicate and acquire information;
- They experience a lot of difficulty in teaching the students who are psychologically traumatized; and
- The school is understaffed and this creates a major workload on the few teachers.

Challenges faced by the students

On the other hand the teacher also mentioned some problems that pupils undergo. These include:

- The poverty level in the area has made them dependent on donors for food and clothes;
- Most of the children in this area are orphaned and have experienced psychological trauma, making it difficult for them to perform well in school;
- Lack of sanitation facilities and sanitary towels for the girls makes it a challenge for them to attend school;
- Some of the young girls in the school are forced into early marriages and the boys are forced to drop out of school to earn a living; and
- Lack of lighting system makes it hard for the students to study at night.

Vulnerable groups in the area

- Widows (There are an estimated 1000 widows in this area);
- Orphaned children;
- Youth (that are unemployed); and
- The physically impaired.

Key human rights

They have been denied the right to life. Raids are common in Todonyang.

RESPONDENT: ASSISTANT CHIEF TODONYANG
INSTITUTION: COUNTY ADMINISTRATION

Challenges experienced

The chief highlighted the following as the major challenges:

- Educating the girl child is challenging because most of them get married off at an early marriage;
- Maintaining the economic productivity of the war zone area has become a challenge. The Merille attacks on this area have greatly affected businesses and most have been closed down;
- There are no proper health facilities in the area; and
- The allocation of funds by Tullow is not practical because the children in Todonyang have various needs.

Social Investment Projects

In his opinion, the chief saw it wise for Tullow to invest in:

- Providing security along the Elmi delta as it is the main source of income for the people in that area. Fishing is the main economic activity in that area. This can be done by providing surveillance boats to patrol the area;
- Investing in the education sector by constructing schools and improving the already existing ones;
- Construction of roads;
- Providing proper healthcare;
- Setting up irrigation schemes through rain harvesting to encourage crop farming in the area;
- Assisting widows by providing jobs for them;
- Provision of building materials to construct houses for the internally displaced persons in Todonyang; and
- Providing jobs for the unemployed in the area.

RESPONDENT: MR. CLEMENT LOSIRU

DESIGNATION: HEAD TEACHER
INSTITUTION: LOWARENGAK GIRLS PRIMARY SCHOOL (Boarding)

School's characteristics

The school was established in 1976 and runs from class 1 to 8. It has admitted 397 pupils. 280 of these are boarders. There are 7 teachers (4 male and 3 female). The performance of the pupils is generally good and a good number of them do qualify to join national schools. The school has 3 dormitories and not enough beds for the pupils. The classrooms are also not in good condition and there is a shortage of desks. The government has provided a solar system through the rural electrification program but the lighting system still remains a challenge in the school.

Challenges faced by the teachers

He mentioned that:

- Under staffing of teachers burdens them with heavy workload;
- Maintaining the children in school becomes difficult because of the early marriage traditions; and
- There are no staff quarters within the school and the teachers are forced to travel long distances to get to school.

Challenges faced by the students

The main challenge to the pupils' learning in this area is lack of school fees and school uniform, which discourages the students from coming to school.

Vulnerable groups

He identified:

- Elderly
- Widowed
- Orphans
- Handicapped
- Pastoralists
- Immune-compromised persons

Key Human Rights Issues

- Right to land ownership;
- Harmony and peace. The government has neglected the community of Turkana;
- The children have been denied the right to education; and
- Insecurity along the delta due to conflicts between the Turkana and Merille.

Social Investment Projects

He suggested that priority be given to:

- Education through construction of nomadic schools;
- Increasing market for the fisher folk;
- Construction of orphanages; and
- Irrigation schemes which can be started through rain harvesting.

RESPONDENTS: MR. ONESMUS LOLEPO.

Vice Chairman Turkana Water body secretary
MR. CHARLES EKAI- Eliye BMU

Activities of the BMU

The BMU involves itself with activities such as:

- Lobbying for BMU issues such as when fishermen were killed by Ethiopian Merrile;
- Solving conflicts among members; and
- Educating the fishermen.

Challenges faced by the BMU

The respondents mentioned the following challenges facing the BMU:

- Lack of an office;
- There is no facilitation from Government;
- Lack of a registration certificate, hence cannot get funding from NGOs; and
- The BMU officials do not have payments, hence they are not motivated to work.

Awareness of previous exploration activities

The respondents informed the study team that a Norwegian company was dealing with exploration in the 1990s near Loperot and Eliye Springs. After noticing that there was oil, the company was chased away from the country. Other companies which were named to have explored the area for oil were Kenya Oil and Tullow

Possible Impacts of the proposed project

The respondents categorized the possible impacts as per each intended activity by Tullow:

Construction of Access roads

Here they suggested the following possible impacts:

- Dust generation;
- Pollution of the environment;
- Destruction of grazing lands;
- Infrastructure will improve, such as roads and networks; and
- People will get firewood and charcoal because they will use trees that are already cut.

Campsite

The respondents were of the opinion that this may lead to:

- prostitution;
- HIV/AIDs spreading easily because there will be interaction of different people;
- breakdown of families and displacement of people; and
- Grazing lands being interfered with.

Possible positive impacts

On the positive side, the respondents hope the following benefits will result:

- Creation of employment;
- There may be tenders to supply food, fruits and detergents;
- There may be free medical camps; and
- The slaughter houses will get market because all the animals bought by Tullow will be slaughtered in the slaughter house.

Mitigation measures suggested

To mitigate the above mentioned impacts, the respondents suggested that:

- All staff should have latrines so that human waste is not emptied in the environment;

- When constructing roads they should use technology that reduces dust production;
- They should build roads that can also be used by communities;
- In case Tullow destroys anything, it should pay compensation to the fishermen through the BMU officials; and
- Tullow should engage directly with the stakeholders from the community and not rely on BGP CLOs.

Social Investment projects

The respondents suggested that Tullow should:

- increase bursaries allocated to students;
- Assist fishermen in building fish processing plants that are fully equipped;
- Provide solar freezers for registered BMUs;
- Drill boreholes for the community; and
- Offer scholarships to form four leavers, especially the needy students.

Additional suggestion

Tullow should fulfill BMU promises. It should also provide cars, motorbikes and funding to the fishermen.

RESPONDENT: MRS. JENNIPHER AWOI
DESIGNATION: DEPUTY HEAD TEACHER
INSTITUTION: LOCHUGA PRIMARY SCHOOL
DATE: 5TH AUGUST 2013

General Characteristics of the school

The school has a total of 291 students of which 188 are boys while 103 are girls. The few number of girls in the school is attributed to the communities' perception that girls are supposed to fetch wealth for their fathers from dowry paid by their husbands. These students are served by five TSC teachers and four volunteer teachers who are paid by the school management committees.

State of the school

It was observed that:

- The school has inadequate desks in that five students share one desk and some have to sit on the floor;
- There is no library and administration block;
- There is no staffroom for teachers; and
- The school has only one latrine that is shared among pupils and teachers.

Quality of education in the school

- Due to free primary education, many children have enrolled in the school but since the school does not have water, the pupils run away and transfer to other areas where there is water; and
- Last year the school did not have KCPE candidates because the registered students did not turn up.

Challenges experienced

The school experiences challenges such as:

- There is a high absenteeism rate at the school;
- There is no water;
- No teachers' houses in the school compound; and
- There is hostility from parents when their children are punished by teachers, hence discipline is compromised.

Previous exploration activities

The respondent was aware that Tullow drilled in Lokichar in 2012 and that the Ministry of Arid Lands also drilled water in the area in 2012.

Benefits from previous Tullow activities

The following were the benefits from the previous exploration activities:

- Tullow in conjunction with AMREF organized seminars for teachers on sanitation and hand washing;
- They also constructed latrines; and
- Tullow offered scholarships and provided books to schools through the Catholic Diocese of Lodwar.

Perceived benefits from the proposed project

The respondent expects the following gains to emanate from the proposed project:

- Creation of employment;

- Vulnerable children will be sponsored;
- They will build hospitals in the area to help the community;
- They will assist in building classrooms and dormitories;
- They may assist in drilling boreholes in some areas;
- They may help farmers by offering irrigation facilities;
- They can buy animals from the locals, hence improving the living standards of people;
- They can train women in basketry and offer grants in order to expand that industry;
- Can assist in building polytechnics to absorb the youth; and
- Increase business in the area.

Perceived negative impacts

The respondent feared that the project may:

- lead to displacement of people;
- lead to conflict between and among communities and their neighbouring countries because of the struggle for the oil resource;
- Environmental pollution may occur;
- If oil spills on fish and crocodile landing sites, the fish and crocodiles may be affected; and
- Destruction of grazing lands may bring conflicts.

Impact of proposed activities on cultural sites

- The activities may affect cemeteries and disturb the dead; and
- It may lead to blockages of roads.

Mitigation measures of the negative impacts

She suggested that:

- The stakeholders from Turkana county should be informed about the proposed project fully;
- If there is any conflict it should be discussed and resolutions found; and
- The displaced people should be informed fully about the project and moved to other areas and compensated.

Vulnerable groups in the area

According to the respondent, the following are the most vulnerable community members:

- Orphans
- The HIV/AIDS victims
- TB patients
- Widows
- Disabled

Social investment project

She suggested that Tullow should:

- build pit latrines;
- construct health facilities; and
- build schools for ECD.

Human rights issues

Children, especially girls, are not taken to school.

RESPONDENT:

CARLPETERS ETAAN

ORGANIZATION: NATIRAE BEACH MANAGEMENT UNIT
4TH AUGUST 2013

BMU's Activities

The Beach Management Unit (BMU) began operating in 2007 and has 168 members currently. The BMU is involved mostly in fishing activities; to run the day today activities of the Unit, collections are made and members are assisted to buy fishing nets. The unit was offered boats by World Food Programme. The CDF also offered the unit three boats. The BMU officials also write proposals to get funding to support their activities. They collect some fee from their customers twice in a week- Wednesday and Sunday. In addition, the fresh fish transported to Lodwar is levied at kshs. 20 per 50kg sack daily.

Challenges faced by the BMU

The most common challenges facing the BMU include:

- Conflicts between the BMU members and their customers as many are reluctant to give their collections;
- Too much wind hampers fishing in the area;
- When fishermen set up their fishing nets to trap fish, others steal them; and
- There are many fishermen in the area but not many fishing equipment. This exposes them to risks since they go fishing without the appropriate fishing gear.

Awareness of previous exploration activities

The respondent informed us that he was neither aware nor had he heard about past exploration activities in the area.

Perceived social impacts

The respondent could not tell exactly the possible social impacts since he argued that oil exploration activity is still new in the community.

RESPONDENT: PETER ELELE
DESIGNATION: VICE-SECRETARY
ORGANIZATION: NARIMET BMU

Main activities of the BMU

The respondent informed us that the BMU majorly does:

- Fishing; and
- Welfare activities that support and engage the members.

Challenges

The following are the most common challenges facing the BMU according to the respondent:

- Lack of vehicles to transport the fish to the market directly. By avoiding the middlemen, they believe that they make more money;
- Lack of engine boats for deep-fishing where there is a large school of fish;
- The cooperative house built to store fish is no longer in use so they cannot store their fish for a longer time;
- Lack of enough fishing gear which include nets, hooks and ropes; and
- Lack of funds to support their daily activities.

Awareness of past exploration activities

The respondent was not aware of any previous exploration activities in the area but he is conversant with the Tullow activities.

The potential impacts related to the proposed project

The respondent identified the following as the possible impacts of the proposed project:

- Grazing land may be lost;
- People may be displaced as in the case of Lomopus where he says that people were displaced;
- Environmental degradation; and
- Should the camp be based near a water source, the vibration caused might scare the fish away.

Mitigation mechanisms

He recommended that Tullow should:

- use silencers to reduce the noise produced by the vibration; and
- Rehabilitate the abandoned camp sites.

Social investment projects that Tullow should carry

According to the respondent, social investment projects should be in the following areas:

- Education where Tullow should provide funds to pay teachers in the ECD classes;
- Invest in mechanisms to reduce school drop outs; and
- Provide scholarships.

On the health sector, the respondent suggested that, Tullow may:

- Build more hospitals;
- Provide an ambulance; and
- Build more referral hospitals.

RESPONDENT: MR. DANIEL ETABU

DESIGNATION: HEAD TEACHER
INSTITUTION: ILLE PRIMARY SCHOOL
DATE: 8/8/2013

The general characteristics of the school

The school is located within the Eliye Market Centre about 1.5 km away from the Eliye Springs Resort Lodge on the shores of Lake Turkana. It is a boarding primary school with a pupil enrolment of 348. There are a total of 166 girls and 182 boys. The school depends entirely on the government sponsorship through the free primary education programme and therefore the pupils do not pay any amount towards schools fees.

The school has a total of 8 permanent classrooms although 3 are worn out and need urgent repair. There are a total of 5 latrine doors for the pupils, one bathroom for the girls, 2 dormitories, 1 poorly stocked library doubling up as the school's bookstore, and a staffroom housing offices for both the head teacher and his deputy. The school has a solar lighting system installed by the Kenya government through the Ministry of Energy. It also has a water tank within its compound but depends entirely on the community water tank for water supply.

We gathered that the school's performance has remarkably improved with the school sending a good number of its students to county secondary schools

School sponsorship

The school is sponsored by the Africa Inland Church. In the past, the school got assistance from World Vision Kenya which assisted in the construction of the girls' dormitory. CDF later helped in the construction of the boys' dormitory.

Number of teachers

There are a total of 4 government teachers and 5 volunteer teachers totalling 9. The school also has a total of 3 support staff members, namely a matron, a cook and a watchman.

Challenges facing the school

The respondent mentioned that the school faces myriad of challenges, including:

- Poor transport to and from school for the teachers;
- Backlogs in syllabus coverage due to few teachers;
- Communication problems from major education offices, hence hindering smooth passage of information;
- Lack of teachers' quarters within the school;
- Flooding during rainy seasons;
- Inadequate dormitories;
- Lack of fence around the school leading to frequent trespassers vandalizing school properties; and
- Lack of a dining hall, thus pupils have their meals prepared and eaten in open places which may be harmful to them in the long run.

Vulnerable groups within the school

The head teacher mentioned the following as the vulnerable groups in the school:

- Pupils who experience night blindness; and
- Orphaned children.

School's development priorities

According to the respondent, the school has prioritized the following development projects:

- Fencing of the school;
- Construction of the school's kitchen and dining hall;
- Putting up of a proper ablution block for the boys and proper sanitation system for the school; and
- Water project.

RESPONDENT: MR. HUDSON ANDAMBI
DESIGNATION: SNR. PRINCIPAL SUPERITENDENT GEOLOGIST
INSTITUTION: MINISTRY OF ENERGY AND PETROLEUM, NYAYO HOUSE
28/08/2013

Concerns and Suggestions

The following were the concerns and suggestion from the respondent:

- He suggested that the Turkana people should be well informed on the activities that will be carried out so that they do not get caught unaware;
- The respondent informed the team that the government was working on an elaborate action plan on resettlement of the displaced people if necessary;
- He also suggested that enough caution should be taken to minimize damage to the grazing lands since that is the main source of livelihood for the locals;
- He also maintained that the oil company should minimize interference with the local lifestyle as this may result in hostility from the locals;
- Enough tests should be undertaken so as to avoid any poisonous toxic gases such as sulphur dioxide from polluting the environment;
- The location of a refinery will be placed strategically for efficient exportation and the local use should it be found in commercial quantities. He admitted that it is more economical to transport the oil via sea than land; and
- He also mentioned that the revenue allocation will be in the following criteria: 80% to the national government, 15% to the host county government and 5% of the 15% (county government) to the host community. He however mentioned that they are still working on defining the 'host' community.

13.2 A.5 SIA QUESTIONNAIRE



Address: P.O. Box 10366, 00100 Nairobi, Kenya.
Tel: 0723-324758; 0722-768535; 0722-768536; 0722-768537
Landline: 254-20-2496208
Email: Earthview@geologist.com
Website: www.earthviewgeoconsultants.com

Tullow Kenya BV has contracted Earthview Geoconsultants Ltd of P.O BOX 10366-00100 Nairobi to carry out Environmental and Social Impact Assessment in Block 10BA in Turkana Central and Turkana North districts for the proposed exploratory drilling. Tullow Kenya BV intends to determine the baseline socioeconomic impacts of the proposed project. As a stakeholder you are invited to give your views.

A. Demographic Characteristics

Q1. Name of the respondent _____

Q2. Gender Male Female

Q3. Age _____

Q4. Religion Christian Muslim African Traditional Religion

Others (Specify) _____

Q5. Level of education (*Choose appropriately*)

- | | |
|-------------------------|-------------------------|
| 1. never went to school | 5. primary incomplete |
| 2. primary complete | 6. secondary incomplete |
| 3. secondary complete | 7. College/university |

Q6. What is your clan? _____

Q7. Observe the location of the homestead? 1 Urban 2 Rural

Q8. a) Do you have a toilet/latrine in your homestead? 1 Yes 2 No

b) If no how do you dispose off your human waste?

Q9. Where do you dispose off your kitchen and plastic wastes? *(tick appropriately)*

i	Dumping in the river	
ii	Burning	
iii	Dump site	
iv	Dump in the farm	
V	Others (specify)	

B. Economic environment

Q10. What is your main source of income?

Main Occupation	Income per Month (Ksh)
Livestock Keeping	
Crop Farming	
Small Scale Business	
Large Scale Business	
Formal Employment	
Casual Labour (Jua Kali)	
Charcoal Burning	
Fishing	
Others (Specify) _____	

Q11. Do you only depend on your main source of income mentioned above throughout the year (at all seasons)? 1. Yes 2. No

Q12. If no, what are your sources of income during the following seasons?

Seasons	Source of income	Income per month
a) Hot Seasons		
b) Rainy Seasons		

Q13. If you are involved in crop farming, what crops do you plant?

Q14. How many of the following domestic animals do you own?

Domestic Animal	Number
1. Cattle	
2. Goats	
3. Sheep	
4. Camels	
5. Donkeys	
6. Chicken	
7. Others (Specify) _____	

Q15. Among the following assets, what do you own (*tick in the small box*)

Mobile Phone
 Car
 TV
 Bicycle
 Motorbike
 Others (Specify) _____

Q16 What is the name of your nearest market? _____

Q17. What is the approximate distance in kilometres to the nearest market? _____

Q18. Which of the following commodities do you buy and at how much?

- i. Vegetables (Tomatoes, cabbages, sukuma wiki etc) Ksh. _____
- ii. Fruits (Oranges, Mangoes, Paw paws, Avocado etc) Ksh. _____

iii. Livestock (Cattle, chicken, fish, goats etc) Ksh. _____

iv. Others (Specify) _____ Ksh. _____

Q19. What financial institutions exist in this area? (*tick and specify*)

1. Agency banking (Specify) _____

2. Banks (Specify) _____

3. Mobile Money Transfer (Specify) _____

4. Microfinance institutions (Specify) _____

C. Energy Source

Q20. What is your main source of fuel for cooking? (*Mark appropriately*)

1. Firewood 2. Kerosene 3. Electricity

4. Charcoal 5. Gas 6. Solar

7. Others (Specify) _____

Q21. What is your main source of fuel for lighting?

1. Kerosene 2. Electricity

3. Solar 5. Others (Specify) _____

D. Social Services

Q22. Name the following facilities and give approximate distance in kilometres from your home.

Facility	Name	Distance in km
1. The nearest Health Facility		
2. The nearest Primary School		
3. The nearest Secondary School		
4. The nearest Chief's Office		
5. The nearest Police Post/Station		

Q23. What are the mobile phone service providers in this place? *(tick appropriately)*

Safaricom Airtel Orange Yu Other (Specify)

Q24. Which Mobile Network(s) do you use?

Safaricom Airtel Orange Yu Other (Specify)

E. Transport

Q25. What are the main means of transport in this area? *(Mark appropriately)*

Vehicles motorcycles bicycles train on foot

Others (specify) _____

Q26.i) Do you experience any transport problem(s) in this area? 1. Yes 2. No

ii) If Yes, name them

F. Social Organisation

Q27. Who makes decision(s) in your family?

- 1. Father + Mother 2. Father + Mother + Children
- 3. Father only 4. Mother only
- 5. Eldest son 6. Eldest Daughter

7. Others (Specify) _____

Q28. Who are the key decision makers in your community?

- 1. Chief/Asst. Chief only 2. Village Elders only
- 3. Chief/Asst. Chief + Elders 4. Others (Specify) _____

Q29.i) Do you have any cultural site(s) in this area? 1. Yes 2. No

ii) If yes, give the name _____

G. Conflict Resolution

Q30.i) Has there been any conflict(s) in this area recently? 1. Yes 2. No

ii) If yes, mention the source of the conflict(s).

Q31. How do you solve conflicts in your community?

Q32. Who are involved in conflict resolution in your community?

Q33. Name any NGOs involved in peace building activities in this area.

H. Natural resources and land use

Q34. What is the land ownership system in this area?

1. Individual ownership 2. Communal ownership 3. Other (Specify) _____

Q35. If communally, who determines how land is used?

Q36. What do you use your land for? (Tick in the small box appropriately)

Crop farming Brick making Grazing Others (Specify) _____

Q37. Name the available water sources in this area.

Q38. What is your main source of water for domestic use?

- i. Borehole ii. Water tanks iii. Piped Water
iv. Water Ponds v. Rivers vi. Others (specify)

Q39. Do you treat your drinking water? 1. Yes 2. No

Q40. If yes, what methods of water treatment do you use?

- Boiling Chemical (Pur, Water guard, Aqua guard etc) Filtration
 Others (Specify) _____

Q41. Do you experience any problems with the water point? 1. Yes 2. No

Q42. If yes, what are the problems?

Q43 Who manages the water points? (*Mark appropriately*)

- The Community Committee appointed by the community
 An NGO GoK (Government of Kenya)
 Other (Specify) _____

I. Forest

Q44 i). Do you have any forest reserves in this area? 1 Yes 2 No

ii). If yes, name them

Q45. Of what importance are the reserves?

J. Past Exploration Activities

Q46. Are there any exploration activities that took place in this area in the past?

1 Yes 2 No

Q47. If yes, please name the companies that were involved and what they did.

Company	Year	Activity
1.		
2.		
3.		
4.		

Q48. Were you or do you know anybody who was affected positively by these activities?

1 Yes 2 No

Q49. If yes, how were you affected?

Q50. Were you or do you know anybody who was affected negatively? 1 Yes 2 No

Q51. If yes, how were you affected?

Q52. How did you cope with the negative effects?

Q53. Did the companies help you cope? 1. Yes 2. No

Q54. If yes, state how they helped you

K. Proposed Exploration Activities

Q55. Have you heard about Tullow Kenya BV? 1 Yes 2 No

Q56. If yes, how did you know about Tullow Kenya BV?

Q57. What activities does Tullow Kenya BV do?

Q58. In your opinion how do you expect to benefit from the proposed project in this area by Tullow Kenya BV?

Q59. In terms of development priorities of this area, what do you expect the project to do?

Q60. In your opinion what are some of the benefits you expect from the proposed project?

Q61. What are your fears or concerns in relation to the proposed project?

Q62. Propose possible solutions to mitigate the negative impacts mentioned above.

Thank You

13.3 A.6 FOCUS GROUP DISCUSSION GUIDE

Community organisation

- *Name all the clans in this area and how they interact (identify the largest clan and the indigenous inhabitants of the area)*
- *how do you make decisions as a community*
- *role of elders (traditional hierarchy of leadership), men, women, children and the youth*
- *what are the common sources of conflicts in this place*
- *how are conflicts handled (where is the first place to report when conflicts arises what do people do to make sure peace prevails)*
- *migration patterns (reasons and seasons of migration)*

Livelihoods

- all sources of income and the main source of income in the area
- sources of income during (dry and rainy seasons)

Religious and cultural beliefs

- *probe for cattle, donkeys, camel, goats, sheep and chicken; land (functions of specific animals)*
- *cultural sites in the area*
- *Which areas would you not want interfered with (such as community shrines, graves, cultural heritage)*
- *cultural beliefs (what they do not eat, what women/men/children are not supposed to do)*

Labour requirements

- *what part of the year are people very busy (farming, fishing, livestock keeping)*
- *what skills are found in this area*
- *probe if women are allowed to be involved in formal/informal jobs*

Development Priority

- In your opinion, what do you consider to be the development priorities in the area

Previous exploration activities

- other companies and what they have done in the past
- how did the community benefit from the past activities by other companies
- what were the negative impacts if any

13.4 A.7 KEY INFORMANT GUIDES

Key Informant Guide for Schools (preferably the head teacher)

Name of respondent-----

Name of School-----

Photo of the school

1. General characteristics of the school
 - I. Approximate number of pupils/students, boys and girls
 - II. Number of teachers,
 - III. State of facilities such as desks, library and classrooms
 - IV. general quality of the education in the area (how many pupils complete primary, secondary performance of school pass mark)
2. Challenges experienced as a teacher in the school
3. Challenges experienced by students
4. Are you aware of previous exploration activities in this area? Mention them
5. Are you aware of Tullow and its activities?
6. During the drilling operation there will be construction of roads, building of a campsite and drilling sites. How do you feel the school will be impacted by these activities
7. Any environmental impacts (negative and positive) that you think will result from the Tullow exploration activities in terms of:
 - I. Water sources and water points
 - II. Designated lands (birds and crocodile breeding sites) fishing grounds
 - III. Grazing lands
 - IV. Cultural sites
 - V. Possibilities of any form of pollution (Probe for soil, water, air and noise pollution)
 - VI. Types of wastes produced in the school and how they are disposed of (Probe for presence of incinerator)
8. Please give suggestions on how to mitigate the effects you have mentioned above
9. Which are some of the vulnerable groups in the area?
10. What social investment project would you like Tullow to undertake in this area?
11. What are some of the key human rights issues in this area?

Key Informant Guide for Health Official

Name of respondent-----

Designation-----

Name of health facility (distinguish whether it is health centre, district hospital, dispensary e.t.c

Photo of the health facility

1. General characteristics of the health facility
 - I. Approximate number of people who attend per day
 - II. Number of doctors, nurses, clinical officers, community health workers, pharmacists, nutritionists and any other health officials
 - III. If it is in-patient specify number of wards and patients
 - IV. common diseases in the area
 - V. Availability of drugs and facilities
2. Challenges experienced in the area
3. Are you aware of previous exploration activities in this area? Mention them
4. What health impacts did the previous activities have on the people?
5. Are you aware of Tullow and its activities?
6. During the drilling operation there will be construction of roads, building of a campsite and drilling sites. How do you feel these will impact on the general health of the people?
7. Any environmental impacts (negative and positive) that you think will result from the Tullow exploration activities in terms of:
 - I. Water sources
 - II. Grazing lands
 - III. Cultural sites
 - IV. Possibilities of any form of pollution (probe for soil, water, air and noise pollution)
8. Please give suggestion on how to mitigate the effects you have mentioned above
9. Which are some of the vulnerable groups in the area?
10. What social investment project would you like Tullow to undertake in this area?
11. What are some of the key human rights issues in this area?

Key Informant Guide for Administrators (D.C or D.O)

Name of respondent-----

Name of district-----

Photo of the district headquarters

1. General education and literacy levels of the area
2. Your relationship with the community
 - I. What services do you offer to the community?
 - II. How often do you hold barazas and what do you discuss
3. General security of the area
 - I. Police posts (how many and the number of police officers)
 - II. Source of conflicts
 - III. Hot spots
 - IV. Conflict resolution mechanisms in the area
 - V. Who is involved in conflict resolution and what is their specific role
 - VI. Peace building mechanism in the area
4. List of committees working with different ministries in the area
5. Development trend in the area (*development projects by government, NGOs and community organisation*)
6. Are you aware of previous exploration activities in this area? Mention them
7. Are you aware of Tullow and its activities?
8. During the drilling operation there will be construction of roads, building of a campsite and drilling sites. How do you feel these will impact on the general well being of the people?
9. Any environmental impacts (negative and positive) that you think will result from the Tullow exploration activities in terms of:
 - I. Water sources
 - II. Industries such as slaughter houses
 - III. Designated lands (birds and crocodile breeding sites) and fishing grounds
 - IV. Grazing lands
 - V. Cultural sites

VI. Possibilities of any form of pollution (probe for soil, water, air and noise pollution)

10. Give suggestions on the mitigation measures to be undertaken to counter any negative impacts mentioned above
11. Which are some of the vulnerable groups in the area?
12. *What social investment project would you like Tullow to undertake in this area?*
13. What are some of the key human rights issues in this area?

Key Informant Guide for NGOs in the Area

Name of the Organisation

Name of the KI

1. Brief information about the Organisation
2. Areas of interest of the organisation
3. Development projects done by your organisation
4. Challenges experienced while implementing your projects
5. Awareness of the previous Exploration Activities
6. Are you aware of Tullow and their activities?
7. During the drilling operation there will be construction of roads, building of a campsite and drilling sites. How do you feel these will impact on the general well being of the people?
8. Any environmental impacts (negative and positive) that you think will result from the Tullow exploration activities in terms of:
 - I. Water sources
 - II. Industries such as slaughter houses
 - III. Designated lands (birds and crocodile breeding sites) and fishing grounds
 - IV. Grazing lands
 - V. Cultural sites
 - VI. Possibilities of any form of pollution (probe for soil, water, air and noise pollution)
9. Give suggestions on the mitigation measures to be undertaken to counter any negative impacts mentioned above
10. Which are some of the vulnerable groups in the area?
11. What social investment project would you like Tullow to undertake in this area?
12. Key human rights issues in the area

Key Informant Guide for Museum Administrators

Name of respondent-----**designation**-----

Name of Museum-----

Photo of the Sites

1. Cultural heritage and places in Turkana and the value placed on them
2. Main attractions in each of the site.
3. Are you aware of previous exploration activities in this area? Mention them
4. How did the activities affect the sites negatively and positively?
5. Are you aware of Tullow and its activities?
6. During the drilling operation there will be construction of roads, building of a campsite and drilling sites. How do you feel these will impact on the sites mentioned above?
7. What social investment project would you like Tullow to undertake in this area?
8. What are some of the key human rights issues in this area?
9. Who are the vulnerable groups?

Key Informant Guide for Beach Management Unit/water body secretary

Name of respondent-----

Designation-----

Name of district-----

Photo of the Beach Management Unit

1. What activities is the unit involved in?
2. What challenges are faced by the unit while engaging in their activities?
3. Are you aware of previous exploration activities in this area? Mention them
4. Are you aware of Tullow and its current exploration activities?
5. During the drilling operation there will be construction of roads, building of a campsite and drilling sites. How do you feel these will impact on the general well being of the people?
6. Any environmental impacts (negative and positive) that you think will result from the Tullow exploration activities on:
 - I. Water sources
 - II. Industries such as slaughter houses
 - III. Designated lands (birds and crocodile breeding sites) and fishing grounds
 - IV. Grazing lands
 - V. Cultural sites
 - VI. Possibilities of any form of pollution (probe for soil, water, air and noise pollution)
7. Give suggestions on the mitigation measures to be undertaken to counter any negative impacts mentioned above
8. What social investment project would you like Tullow to undertake in this area?

Key Informant Guide for Security Personnel (Administration police, police Reserve)

Name of respondent-----

Name of district-----

GPS coordinates-----

1. Your relationship with the community
 - I. What services do you offer to the community?
 - II. Challenges faced by the security personnel while in line of duty
2. General security of the area
 - I. Police posts (how many and the number of police officers)
 - II. Source of conflicts
 - III. Hot spots
 - IV. Conflict resolution mechanisms in the area
 - V. Who is involved in conflict resolution and what is their specific role
3. Are you aware of any previous exploration activities in this area? Mention them
4. Are you aware of Tullow and its current exploration activities?
5. During the drilling operation there will be construction of roads, building of a campsite and drilling sites. How do you feel these will impact on the general well being of the people?
6. Any environmental impacts (negative and positive) that you think will result from the Tullow exploration activities in terms of:
 - I. Water sources
 - II. Industries such as slaughter houses
 - III. Designated lands (birds and crocodile breeding sites) and fishing grounds
 - IV. Grazing lands
 - V. Possibilities of any form of pollution (probe for soil, water, air and noise pollution)
7. Give suggestions on the mitigation measures to be undertaken to counter any negative impacts mentioned above
8. Which are some of the vulnerable groups in the area?
9. What social investment project would you like Tullow to undertake in this area?

10. What are some of the key human rights issues in this area?

Key Informant Guide for Lake Turkana Basin Institute

Name of respondent-----

Designation-----

Name of district-----

Photo of the Institute

1. Brief information about the institute
2. Areas of interest of the institute
3. Development projects done by your institute
4. Challenges experienced while implementing your projects
5. Awareness of the previous Exploration Activities
6. Are you aware of Tullow and their current exploration activities?
7. During the drilling operation there will be construction of roads, building of a campsite and drilling sites. How do you feel these will impact on the general well being of the people?
8. Any environmental impacts (negative and positive) that you think will result from the Tullow exploration activities in terms of:
 - I. Water sources
 - II. Industries such as slaughter houses
 - III. Designated lands (birds and crocodile breeding sites) and fishing grounds
 - IV. Grazing lands
 - V. Cultural sites
 - VI. Possibilities of any form of pollution (probe for soil, water, air and noise pollution)
9. Give suggestions on the mitigation measures to be undertaken to counter any negative impacts mentioned above
10. What social investment project would you like Tullow to undertake in this area?

Key Informant Guide for County clerk

Name of respondent-----

Name _____ **of**
district.....

Photo of the county headquarters

1. Your relationship with the community
 - I. What services do you offer to the community?
 - II. Challenges faced while offering services to the community
2. General security of the area
 - I. Police posts (how many and the number of police officers)
 - II. Source of conflicts
 - III. Hot spots
 - IV. Conflict resolution mechanisms in the area
 - V. Who is involved in conflict resolution and what is their specific role
3. Are you aware of previous exploration activities in this area? Mention them
4. Are you aware of Tullow and its current exploration activities?
5. During the drilling operation there will be construction of roads, building of a campsite and drilling sites. How do you feel these will impact on the general well being of the people?
6. Any environmental impacts (negative and positive) that you think will result from the Tullow exploration activities in terms of:
 - I. Water sources
 - II. Industries such as slaughter houses
 - III. Designated lands (birds and crocodile breeding sites) and fishing grounds
 - IV. Grazing lands
 - V. Cultural sites
 - VI. Possibilities of any form of pollution (probe for soil, water, air and noise pollution)
7. Give suggestions on the mitigation measures to be undertaken to counter any negative impacts mentioned above
8. What social investment project would you like Tullow to undertake in this area?

13.5 A.10 LISTS OF COORDINATES IN THE PROJECT AREA

Schools in the Project Area

Name of school	GPS Coordinates	Physical location
Kangarukia Primary School	N 03.15939 ⁰ E 035.74011 ⁰	Lokitaung
Natoo Primary School	N 04.21366 ⁰ E 035.76453 ⁰	Lokitaung
St. Patricks Orphanage	N 04.27833 ⁰ E 035.73636 ⁰	Lokitaung
Kachoda Primary School	N 03.31988 ⁰ E 035.67696 ⁰	Lokitaung
Namorotot Primary School	N 03.20494 ⁰ E 035.90354 ⁰	Lokitaung
Losanyanait Mixed Primary School	N 04.27127 ⁰ E 035.89974 ⁰	Lokitaung
Lowarengak Girls Boarding Primary School	N 04.27815 ⁰ E 035.89676 ⁰	Lowarengak
Pringan Primary School	N 04.30467 ⁰ E 035.86660 ⁰	Lowarengak
Lomekwi Boarding Primary School	N 03.91319 ⁰ E 035.83785 ⁰	Lowarengak
Kangaki Primary School	N 03.97379 ⁰ E 035.84303 ⁰	Kangaki
Katiko Mixed Primary School	N 03.79996 ⁰ E 035.83936 ⁰	Katiko
Kalimapus Boarding Primary School	N 03.61767 ⁰ E 035.81346 ⁰	Kalimapus
Kalimapus Old Primary School	N 03.61405 ⁰ E 035.82467 ⁰	Kalimapus
Lomopus Primary School	N 03.17079 ⁰ E 035.81650 ⁰	Lomopus
Ille Boarding Primary School	N 03.23462 ⁰ E 036.02503 ⁰	Eliye Springs
Nasekon Primary School	N 03.19142 ⁰ E 036.03712 ⁰	Kalokol
Lochoro Primary School	N 03.41453 ⁰ E 035.88372 ⁰	Lobolo
Lochor Aikeny Primary School	N 03.34276 ⁰ E 035.87540 ⁰	Lobolo
Wadach Primary School	N 03.30726 ⁰ E 035.96235 ⁰	Lobolo
Nakiria Friends School	N 03.55152 ⁰ E 035.83624 ⁰	Kalokol
Lochuga Primary School	N 03.49970 ⁰ E 035.83856 ⁰	Kalokol
Kalokol Primary School	N 03.53152 ⁰ E 035.86561 ⁰	Kalokol
Natole Primary School	N 03.54336 ⁰ E 035.88041 ⁰	Kalokol
Kangagetei primary school	N 03.15391 ⁰ E 035.86226 ⁰	Lomopus

Name of school	GPS Coordinates	Physical location
Nachukui primary school	N 04.06405 ⁰ E 035.88053 ⁰	Nachukui
Lowarengak boys' primary school	N 04.27967 ⁰ E 035.89681 ⁰	Lowarengak
Lokitaung primary school	N 04.27601 ⁰ E 035.75360 ⁰	Lokitaung
Kataboi Primary school	N 03.74980 ⁰ E 035.83177 ⁰	Kataboi
Natagilae primary school	N 03.15833 ⁰ E 035.91061 ⁰	Lomopus
Kataboi girls secondary school	N 03.75251 ⁰ E 035.82047 ⁰	Kataboi
Moi high school	N 03.52837 ⁰ E 035.85127 ⁰	Kalokol
Lokitaung high school	N 04.27717 ⁰ E 035.75235 ⁰	Lokitaung
St. Joseph Lapur boys secondary school	N 04.27172 ⁰ E 035.82833 ⁰	Lowarengak

Health Facilities

Health facilities	GPS coordinates	Physical location
Narengewoi dispensary	N 04.00727 ⁰ E 035. 85059 ⁰	Narengewoi
Nachukui dispensary	N 04.06482 ⁰ E 035.88198 ⁰	Nachukui
Nariokotome dispensary	N 04.13579 ⁰ E 035.85736 ⁰	Nachukui
Lokitaung sub-district hospital	N 04.26243 ⁰ E 035.75448 ⁰	Lokitaung
Kachoda dispensary	N 04.32247 ⁰ E 035.67676 ⁰	Lokitaung
Lowarengak dispensary	N 04.27826 ⁰ E 035.89670 ⁰	Lowarengak
Lomekwi dispensary	N 03.92415 ⁰ E 035.83690 ⁰	Lomekwi
Kataboi dispensary	N 03.75487 ⁰ E 035.83139 ⁰	Kataboi
Kalimapus dispensary	N 03.61291 ⁰ E 035.83085 ⁰	Kalimapus
Kangagetei dispensary	N 03.15510 ⁰ E 035.86323 ⁰	Lomopus
AIC Eliye Springs dispensary	N 03.23644 ⁰ E 036.02378 ⁰	Eliye Springs
Lochor dispensary	N 03.34368 ⁰ E 035.87438 ⁰	Lobolo
Eliye Community dispensary	N 03.23244 ⁰ E 036.01974 ⁰	Eliye Springs

Farms in the Project Area

Name	GPS Coordinates	Location
Nariokotome Community Farm	N04.14179 E035.90608	Nariokotome
Lokiporonyang Sorghum Farm	N03.89819 E035.84523	Lomekwi
Legio Sorghum Farm	N03.77458 E035.83700	Katiko
Katiko Community Farm	N03.79296 E035.84152	Katiko
TRP Maize Farm	N03.75503 E035.82349	Kataboi
Namurtunga Site	N03.42268 E035.80284	Kalokol
Lomopus Irrigation Farm	N03.15958 E035.82397	Lomopus
Ataparangdomo Sorghum Farm	N03.36507 E035.91039	Loyoro
Etiriware Sorghum Farm	N03.39979 E035.85575	Loyoro
Nakadukui Irrigation Farm	N03.15420 E035.77084	Loyoro

Airstrips

Airstrip	GPS Coordinates	Physical Location
Nariokotome Mission Airstrip	N04.11522 E035.84976	Nachukui
Lowarengak Airstrip	N04.28480 E035.87029	Lowarengak
Kalokol Airstrip	N03.49135 E035.83830	Kalokol
Eliye Airstrip	N03.23651 E035.97312	Eliye Springs
Kachoda Airstrip	N03.31946 E035.68813	Lokitaung
Kataboi Airstrip	N03.75618 E035.83371	Kataboi

Communication Masts

Name	GPS coordinates	Physical location
Orange BTS	N 03.53530 ⁰ E 035.86083 ⁰	Kalokol
Safaricom BTS	N 03.53367 ⁰ E 035.85749 ⁰	Kalokol
Safaricom BTS	N 04.26515 ⁰ E 035.75391 ⁰	Lokitaung

Cultural Sites

Cultural Sites/Heritage sites	GPS Coordinates	Physical Location
Narengewoi Legio Maria	N03.99864 E035.84795	Narengewoi
Nachukui Salvation Amy Corps	N04.07011 E035.88514	Nachukui
Nachuki Catholic Church	N04.06406 E035.88181	Nachukui
Nariokotome Church	N04.12254 E035.85548	Nariokotome
Nariokotome Catholic Mission	N04.12729 E035.86397	Nariokotome
Nariokotome Catholic Church	N04.14107 E035.91643	Nariokotome
Lokitaung Parish	N04.27155 E035.75197	Lokitaung
St. Martin de pores church	N04.31999 E035.67858	Lokitaung
St. Bakhita Catholic Church	N04.22493 E035.89866	Lowarengak
Lowarengak Full Gospel Church	N04.27286 E035.89387	Lowarengak
Lowarengak Legio Maria Church	N04.26867 E035.89525	Lowarengak
St. Joseph the worker Catholic Church	N04.27859 E035.89674	Lowarengak
Full Gospel Church	N03.53458 E035.85961	Kalokol
Salvation Amy Corps	N03.53478 E035.85531	Kalokol
Kalokol KAG Church	N03.52922 E035.85542	Kalokol
Kangatukusio Catholic Church	N03.85238 E035.84589	Lomekwi
Kangatukusio Cornerstone Church	N03.86669 E035.84393	Lomekwi
St. Catholic Church	N03.91777 E035.83749	Lomekwi
Kangaki catholic Church	N03.96628 E035.85404	Kangaki
Legio Maria Church	N03.78046 E035.83904	Katiko
Katiko PAG church	N03.79565 E035.84079	Katiko
Word of Faith Church	N03.79677 E035.83970	Kalimapus
Katiko Catholic Church	N03.79776 E035.83798	Katiko
Kataboi Narding Catholic Church	N03.76324 E035.79424	Kataboi
Kataboi AIC Church	N03.75441 E035.82872	Kataboi
St. Dennis Church	N03.75397 E035.83326	Kataboi

Cultural Sites/Heritage sites	GPS Coordinates	Physical Location
Kalimapus AIC Church	N03.61770 E035.81944	Kalimapus
Faith Home Church	N03.63858 E035.82278	Kalimapus
Lomopus Baptist Church	N03.17278 E035.81746	Lomopus
Lobolo Catholic Church	N03.33788 E035.93376	Lobolo
Lokitaung Mosque	N04.26833 E035.75222	Lokitaung
Lowarengak Parish Guest House	N04.27832 E035.89475	Lowarengak
Lowarengak Mosque	N04.28176 E035.89505	Lowarengak
KAG Kalokol Church	N03.52899 E035.85525	Kalokol
PAG Church	N03.72749 E035.82542	Kataboi
St. Mary's Catholic Church	N03.53053 E035.85907	Kalokol
National Museum Kenyatta House lock	N03.12198 E035.59973	Lokitaung
Nachukui 6	N04.10208 E035.82249	Nachukui
Kalokol Mosque	N03.53647 E035.86232	Kalokol
Kalokado Church	N04.02658 E035.86022	Kalokol
Kalokado Legio Maria	N04.49135 E035.86152	Kalokol