1,050MW Coal Fired Power Plant
Social Impact Assessment (SIA) Study

Report Prepared for

Amu Power Company Limited

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Prepared for:

Amu Power Company Limited
Geminia Insurance Plaza,
Kilimanjaro Ave. Upper hill,
PO Box 61872-00200,
Nairobi, Kenya

Prepared by:

Kurrent Technologies Ltd.
Hass Plaza, 4th Floor,
Lower Hill Road,
P. O. Box 16989 – 00620
Nairobi, Kenya

Compiled by:

Ms. Belinda Muya
Sociologist

Reviewed by:

Mr. Sanjay Gandhi
Team Leader – ESIA Study

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Acronyms

Acronym	Definition
AfDB	African Development Bank
AIDS	Acquired Immune Deficiency Syndrome
APCL	Amu Power Company Limited
CBO	Community Based Organization
CLS	Community Liaison Superintendent
CLO	Community Liaison Officer
CSR	Corporate Social Responsibility
EHS	Environment Health and Safety
EIA	Environmental Impact Assessment
EMCA	Environmental Management Coordination Act
EMP	Environment Management Plan
EPC	Engineering, Procurement and Construction
ERC	Energy regulatory Commission
ESIA	Environmental and Social Impact Assessment
FPIC	Free Prior Informed Consent
HIV	Human Immunodeficiency Virus
HSE	Health, Safety and Environment
I&APs	Interested and Affected Parties
ICT	Information and Communications Technology
ISS	Integrated safeguard Systems
KPLC	Kenya Power Company Limited
KSHS	Kenya Shillings
KTL	Kurrent Technologies Limited
MCAs	Members of the County Assembly

Acronym	Definition
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
NMK	National Museum of Kenya
OECD	Organization for Economic Co-operation and Development
PAYE Tax	Pay As You Earn Tax
PPA	PPA Power Purchase Agreement
PWD	People With Disabilities
RMC	Regional Member Countries
SE	Stakeholder Engagement
SEIA	Socio Economic Impact Assessment
SEP	Stakeholder Engagement Plan
SMP	Social Management Plan
STD	Sexually Transmitted Diseases
VAT	Value Added Tax

1 Executive Summary

1.1 Introduction

Amu Power Company Limited (APCL) proposes to develop a Coal-fired Power Plant with a Gross output of 1,050MW in the Manda Bay area of Lamu County, Kenya. APCL is a Special Purpose Vehicle (SPV) owned by Gulf Energy Limited and Centum Investment Company Limited. The Ministry of Energy and Petroleum (MoEP) awarded APCL the bid to develop the coal-fired power plant under a Build, Own & Operate (BOO) basis.

The implementation of this project is part of the Government of Kenya's Least Cost Development Plan for power generation to bring down the cost of power via a more stable, reliable platform. The plan envisions the addition of 5000MW+ of reliable electricity to the national grid by the year 2018. Once complete, the Project will constitute approximately 36% of the new combined grid capacity as well as bring down the average cost of generation for Kenya Power and Light Company (KPLC). This is in line with Kenya's Vision 2030 which recognizes reliable and cheap energy as one of the foundations for economic growth essential for making Kenya a middle-income country by 2030. Additionally, the Project is part of the wider regional initiative to develop Lamu County into a trade and commercial hub to service East and Central Africa through the Lamu development initiative, LAPSSET-Lamu Port Southern Sudan Ethiopia Transport (LAPSSET) Corridor.

The purpose of this report is to present the results of the Social Impact Assessment (SIA) of the proposed Coal-fired Power Plant and associated infrastructure to be located in Hindi ward, Lamu County, Kenya. This SIA has been undertaken in accordance with the National EIA Regulations and international guidelines. The study interprets the possible positive and negative socio-economic impacts that arising from the Project and their potential implications on local, regional and national social and economic lives. It also provides recommendations with regards to minimizing possible adverse impacts and maximizing positive impacts.

This report is structured into 10 sections: Section 1 is an Executive Summary which provides an overview of this Study and outlines the project and study context. Section 2 delineates the national and international policies, legislation and best practice guidelines applicable to the proposed project. Section 3 describes the baseline socio-economic environment of the study area. Section 4 focuses on the stakeholder engagement process undertaken in the preparation of this report as well as plans for future engagements, including the Grievance Mechanism. Section 5 defines the methodology applied in assessing social impacts while section 6 identifies and delimits potential potential social and economic impacts and benefits of the proposed project. This section also contains the comprehensive assessment of the identified potential social impacts, including recommended mitigation and enhancement measures. Section 7 focuses on the Social Management and Monitoring Plan. Here, the identified possible social impacts are categorized into 5 key themes and a Social Management Plan developed for each theme. The plans outline the specific monitoring parameters and expected frequencies. Section 8 covers the conclusions and recommendations of the study while sections 9 and 10 provide the references and appendices respectively.

1.2 Approach to the study

The approach adopted in fulfillment of the requirements set out for the Social Impact Assessment and subsequent preparation of this report was structured within the framework of existing policies and international best practice guidelines. The methodologies applied were cognizant of social change processes. The procedure undertaken included the following:

- Describing and obtaining an understanding of the communities likely to be affected by the proposed development and determining the scope of the SIA;
- Collecting baseline data on the current social environment and historical social trends;
- Identifying and collecting data on the key social issues related to the proposed development. This required consultation with affected individuals, institutions and communities;
- Assessing and documenting the significance of social impacts associated with the proposed project; and
- Identifying alternatives and mitigation measures.

Specifically, the methodology applied for the study involved the following activities:

- Reviewing demographic data for Lamu County from the 2009 Kenya National Census and related reports;
- Review of relevant planning and policy frameworks relate the proposed power plant;
- Site specific information collected during site visit to the study area between November 2014 and February 2015;
- Stakeholder consultation activities including individual meetings, workshops and public meetings;
- Review of information from similar projects; and
- Identification and analysis of social issues associated with the power plant including elucidation of the social management plan, and compilation of the SIA report

1.3 Policy and legislative issues

Kenyan policies and international guidelines were reviewed in preparation of this SIA as indicated below. The findings of the review have formed the basis of this SIA and the recommendations herein. The design, construction and operation of the proposed Coal Power Plant will be undertaken in accordance with the laws and regulations derived from the policies and international guidelines below:

National level

a) The Constitution of Kenya 2010

b) The Energy Policy 2004 and the Draft Energy Policy 2014;

c) Kenya Vision 2030 and Second and the Medium Term Plan, 2013 – 2017

d) Kenya National Environmental Policy (2013)

e) Health policy 2014

f) National Gender Policy 2011

g) Workplace Policy on HIV/AIDS Policy 2007
h) National Water Policy (2012)
i) National Land Policy 2009
j) County Governments Act, 2012
k) Lamu County Integrated Development Plan (CIDP)
l) Occupational Safety and Health Policy of 2012

International guidelines

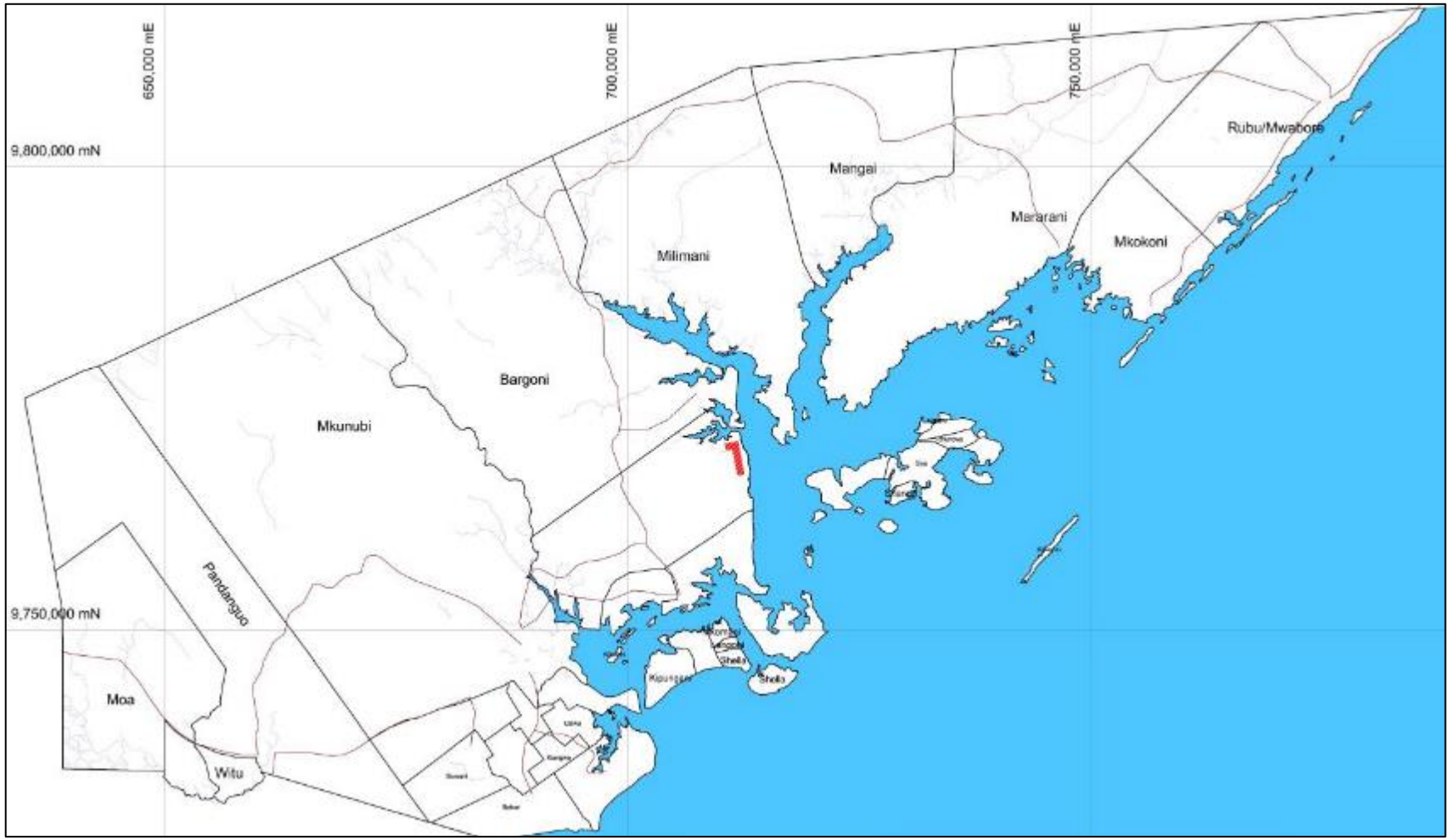
a) Energy Sector Policy of the African Development Bank (AfDB)
b) AfDB Integrated Safeguards System (ISS)
c) AfDB Gender Policy (2001)
d) International Finance Corporation (IFC) Performance Standards

1.4 Overview of the study area

The project is to be located along the north-western most part of Manda Bay, Lamu County, Kenya. It lies within the delineated Lamu Port-South Sudan-Ethiopia Transport Corridor (LAPSSET) zone and covers an approximate area of 394.9 Ha (975.4 acres).

The project site is situated to the north of the proposed Lamu Port (Figure 1-1) and is adjacent to the west bank of Wange Creek, north side of Manda Bay, with Pate Island and Siyu Channel on the east side of Manda Bay. Manda airport, located in Manda Island, is to the south of the project site with a straight-line distance of about 18 kilometres. Lamu old town is to the southeast of the project site with a straight-line distance of about 23 kilometres. The site is accessible by air, sea as well as road via the Mokowe - Garsen and Mokowe – Kiunga roads

[1]Figure 1-1: Map of Lamu County showing the location of the proposed project site



[1] KTL

1.5 Project description

APCL will build, own and operate the proposed power plant for a 25 year-period. The plant will utilize Super-critical technology in the production of 1,050MW of electricity. Produced power will be evacuated through a 400 kV overhead transmission line terminating at the Nairobi East sub-station. The fuel source for the plant will be pulverized coal which will be imported, however, the power plant is designed to utilize Kenyan coal once the availability and viability of this has been established.

1.5.1 Power plant design elements

The power plant will encompass the following components:

- Three (3) steam turbine driven generator sets with individual installed capacity of 350MW and a total installed capacity of around 1,050MW with all auxiliaries and silencing equipment;
- A dedicated black-start diesel generator;
- Station cranes and lifting equipment;
- Indoor switchgear and 400 kV switchgear;
- Neutral earthing switchgear and Control, metering and protection equipment;
- 20 kV/400kV step-up transformers and 400 kV/ 6600 V station transformers;
- 415 V switchgear and motor control centres;
- 24V DC and 110V DC batteries, chargers and distribution equipment;
- Lighting and Telephone system;
- Coal jetty, receipt, storage and transfer system;
- Sea water desalination and demineralization water system;
- Water storage and pumping system;
- Waste water treatment plant;
- Fire detection, protection system and SCADA system;
- Ash Handling Plant and Ash Yard;
- Gypsum storage facility;
- Borrow pits (on site and off site);
- Batching plant (including concrete and asphalt);
- Access roads (temporary and permanent, and external and internal);
- Maintenance, medical, administration, services, control buildings;
- General and hazardous storage and handling facilities;
- Construction worker accommodation and construction site offices; and
- A permanent colony for 250 – 300 operational phase workers.

1.5.2 Project schedule

The project comprises of the design, construction, commissioning, operation and decommissioning of the coal-fired power station and its associated infrastructure. Activities at the power plant would include the following major activities:

- Pre-construction works;
- Surveying, site clearing, site preparation, and mobilization;
- Construction of foundations and below grade utilities;
- Building and equipment installation;
- Start-up, commissioning, and testing; and
- Site clean-up and project closeout.

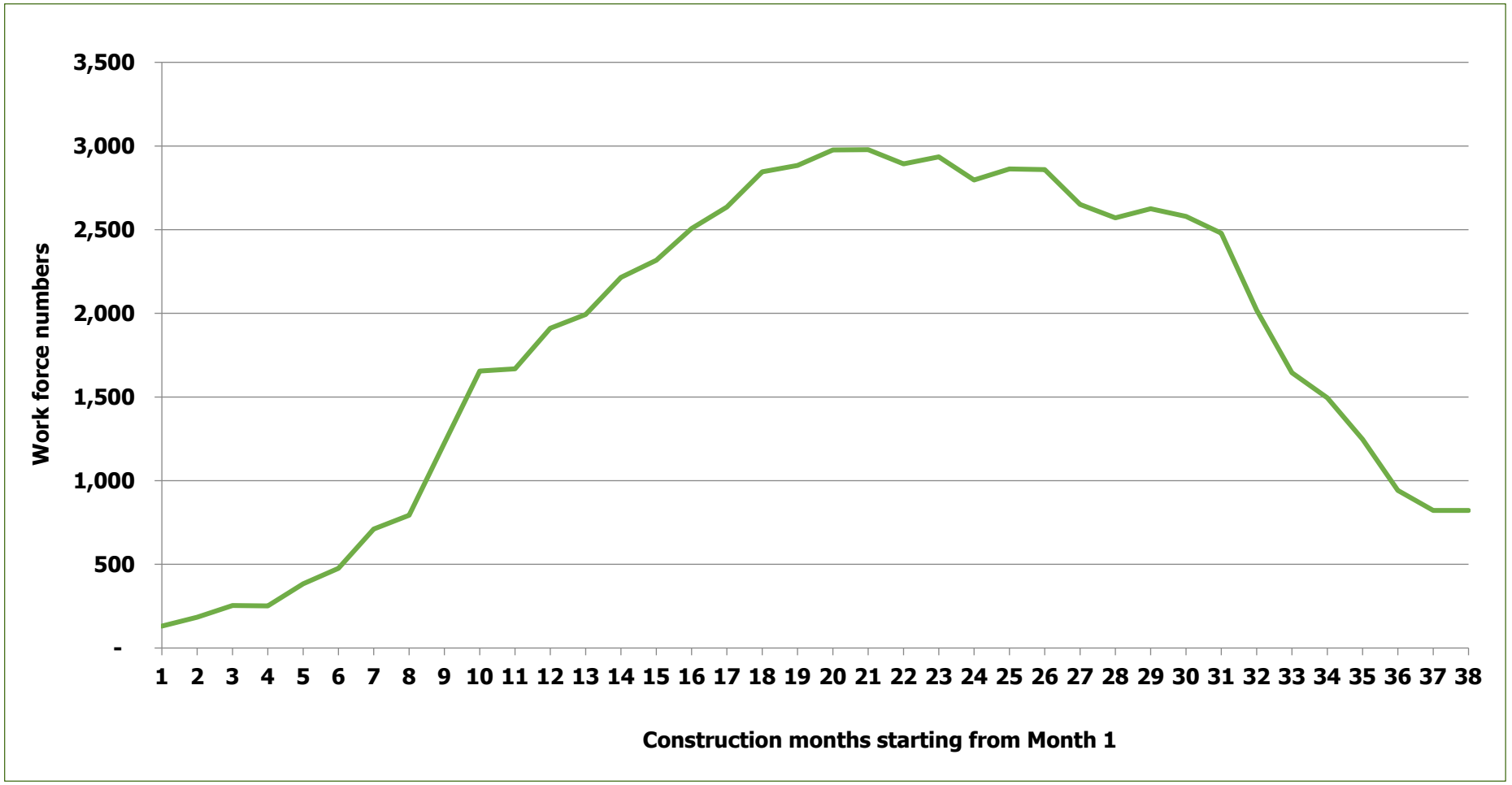
Construction of the project is expected to commence at the end of 2015 subject to receiving all regulatory approvals and securing financing. It is envisaged that the first unit will be commissioned in 36 months from the construction commencement date, followed by the second unit in 39 months and the third unit in 42 months from the construction start date respectively. Normal construction hours are expected to fall between 6:00am – 6:00pm Monday through Sunday. However, these hours may require adjustment because of scheduling constraints and other time-sensitive matters.

1.5.3 Workforce profile

Construction workforce: Construction of the Power Plant is expected to begin towards the third quarter of 2016 for a period between 36 and 42 months with projected completion in mid-2020. The construction works are to be undertaken with work shifts delineated as per the allocations of the workplace and employment policies. The construction workforce is anticipated to be peak at approximately 2,978 personnel. On a monthly basis, the average number of workers during the construction phase is expected to be about 1500. The construction workforce will include at least 1,761 Chinese expatriates. Figure 1-2 below illustrates the projected workforce profile during the construction phase.

Operations workforce: The Power Plant is projected to operate for a period of 25 years with the operational workforce requirements estimated to be about 500.

Figure 1-2 : Projected workforce profile for the construction phase



1.6 Potential social impacts

This section presents an analysis summary of the various positive and adverse impacts that may result from the implementation of the proposed Coal Power Plant. These are expounded on and analyzed in section 6 of this report.

a) Increased affordability, reliability and stability of electricity supply

The proposed project is envisioned to inject about 981.5MW of electricity into the national grid as part of the Government of Kenya's Least Cost Power Development Plan (LCPDP) for power generation to bring down the cost of power via a more stable, cheaper, reliable platform. Once completed, the proposed Power Plant is projected to increase KPLC's outreach and connectivity, stabilize the power supply nationally and reduce the cost of electricity.

b) Creation of direct, indirect and induced employment opportunities

The proposed project is anticipated to generate about 1,800 direct skilled and unskilled employment opportunities for the local community and migrant workers. It is also anticipated to create indirect and induced employment opportunities at the local, regional and national levels through project related procurement and contracting and spurred economic growth nationally.

c) Economic growth

It is anticipated that the proposed project will stimulate economic growth for the local community and Lamu County mainly through enhanced markets for local products and services, increased individual income, infrastructural development and increased investments and tax. The proposed project is also envisaged to spur economic growth nationally through increased access to affordable and reliable power by industries and Small and Mini Enterprises (SMEs). Additionally, the cumulative benefits from the projected economic growth are expected to enhance living standards and improve the general quality of life for the Lamu community and the country at large. This may be realized through employment creation and poverty reduction and improvements in infrastructure and related services such as health and education.

d) Infrastructural development

Lamu County generally suffers from poor underdeveloped infrastructure. It is envisaged that the local community and Lamu County in general, may benefit from the infrastructural developments directly attributed to the project such as possible improvements of roads proximate to and/or connected to the proposed project site and construction of education and health facilities. The expected economic growth of Lamu County is also anticipated to result in expansive developments in transport, health, and communication infrastructure.

e) Capacity building

The proposed project will engage approximately 1,800 international experts who will work along local employees, transferring technology and skills to the local community and creating a pool of skilled professionals with specialized knowledge that may be utilized in the continued implementation of the power plant as well as in implementing future projects of a similar nature. APCL also envisions building the capacity of at least 1000 local youth through technical skills training with an end goal of offering them employment opportunities within the project. Additionally, through its CSR programme, APCL envisions to collaborate with the County government and other development actors to support the improvement of education services in the County.

f) Land acquisition and involuntary resettlement

This may primarily affect the landowners and individuals operating within the proposed 975.4 acre project site through the planned involuntary resettlement and relocation. The communities proximate to the proposed project site and Lamu County in general may experience changes in traditional land use patterns, change in land values and land subdivisions with the possible increased land demands for commercial and residential developments. A conclusive RAP for the project is currently being undertaken by the Ministry of Energy and Petroleum (MoEP). The RAP will provide detailed information on the extent of displacement and provide required mitigation measures.

g) Disruption and potential loss of livelihoods

Implementation of the proposed project may have adverse effects on the three main sources of livelihoods for the Lamu Community namely fishing, tourism, and agriculture. Tourism-related livelihoods may be at risk due to the potential negative visual/aesthetic impacts and the potential changes on cultural heritage. The potential acquisition of land currently utilized for agriculture as well as the anticipated changes in land use patterns and land values, pose a risk in the loss of livelihoods from crop production and livestock grazing for both the local farmers and nomadic pastoralist traveling from the neighboring arid and semi-arid Counties. Disruption of fish landing sites and adverse impacts to fish due to untreated discharges into the sea are potential impacts of the power plant.

h) Impacts related to in-migration

Implementation of the proposed project may induce rapid economic growth, industrialization, urbanization, and demographic changes attributed to in-migration. These changes may alter the traditions and religious principles that preserve the positive social/moral ideals of Lamu's rich Swahili and Islamic culture. Particularly, potential impacts of concern include: weakened family bonds, rise in crime and rise in the prevalence of HIV/AIDs and other STDs. Lamu County is host to rich ecological and cultural resources, some of which are inscribed as a world heritage sites by UNESCO's World Heritage Centre. It is a concern that the anticipated economic and population growth within Lamu County may result in change in the rich cultural heritage. A conclusive Cultural Heritage Impact Assessment report has been prepared to elaborate on the potential cultural heritage impacts and associated mitigation measures.

i) Impacts on existing infrastructure and social amenities

The anticipated population growth holds the potential to strain the existing infrastructure and social amenities within Lamu County including: healthcare; education; transport amenities for both on land and on sea travel; administration and policing; housing; water and sanitation amenities.

j) Impact on public health and safety

Key potential impacts identified and elaborated on under section 7 of this report include: physical accidents, hazardous air emissions, solid waste management, contamination of water sources and fish poisoning by hazardous discharges from the power plant and spread of new diseases as a result of in migration. It is likely that implementation of the proposed project will result in increased traffic and related incidents, with emphasis on the construction phase of the project. Possible increased traffic levels may be caused by transport vehicles used by workers, service contractor vehicles leaving and entering the power plant as well as the potential project-related population influx.

k) Occupational health and safety

Possible occupational health and safety concerns include: accidents related to 'working at heights', handling of explosive products and operation of machinery; occupational diseases due to exposure to dust and other hazardous substances, fire outbreaks due to electrical faults and mishandling of inflammable substances; and fall injuries related to excavated pits.

l) Increase in traffic and related incidents

It is likely that implementation of the proposed project will result in increased traffic and related incidents, with emphasis on the construction phase of the project. Possible increase in traffic levels may be caused by transport vehicles used by workers, service contractor vehicles leaving and entering the power plant as well as the expected project-related population influx

m) Security related impacts

The potential population influx may result in security concers such as potential increase in crime. Crime levels are typically associated with problems of overcrowding, poverty, poor infrastructure, community dislocation and disintegration of moral ideals, urbanization and organized syndicates. The combined effects of population increase, strain on the already poor infrastructure, poverty, community dislocation and rapid urbanization may potentially lead to an increase in crime.

1.7 Limitations of the SIA study

This SIA study was undertaken with the following limitations and assumptions:

a) This study was conducted with information, timeframes and budget lines available to the consultant at the time of the study. The sources consulted are not exhaustive and additional information which strengthen arguments and/or challenge information in this report might exist. However, the consultant did endeavor to take an evidence-based approach in the compilation of this report and did not exclude scientific information relevant to the assessment within stated limit options. It is expected that supplementary information and statistics will be collated during the RAP exercise which will encompass household survey, stakeholder interviews among other data collection means;

b) The data collection, stakeholder engagements and field visits for the study were mainly conducted between January 2015 and February 2015. During this time, Lamu County was facing substantial security concerns related to terrorism threats. The Kenya Police had enacted a dusk-to-dawn curfew in a move to restore security following a sequence of terrorist attacks in the County in the months of June and July 2014. Consequently, these hindered movement of the SIA team and restricted access to several areas in the main land, particularly those proximate to Boni forest and Kwasasi;

c) During the scoping site visits, the ESIA team was not able to establish any communities/individuals residing within or immediately proximate to the proposed Project site. Stakeholder consultations revealed that those who operate within the proposed project site were spread through Pate Island and other parts of the mainland. This challenged the possibility of undertaking a household survey. Additionally, it is pertinent to note that the initial timeframe of three months allocated for the ESIA was limiting to the possibility of undertaking a comprehensive, quality household enumeration and baseline survey;

d) It was anticipated that the RAP will be conducted concurrently with the ESIA. The RAP, which was scheduled for March 2015, was to encompass household enumeration and baseline survey, stakeholder interviews among other data collection approaches. The information thus gathered was expected to feed into various aspects of the SIA. However, due to factors beyond the Consultant's control, the RAP, which is to be undertaken by the Government through the Ministry of Energy, was unavailable during the SIA or ESIA Study;

e) The information used in this socio-economic assessment was drawn from secondary sources and stakeholder engagement activities. Data was founded on the Kenya National Bureau of Statistic reports and extrapolation from other related studies;

f) In many respects, the proposed project is still in the early stages of design. Therefore, figures quoted in the estimates of certain impacts such as numbers of employment opportunities that will be created may be subject to change; and

g) It is assumed that potential impacts relating to noise, air quality, waste management, visual impacts and water quality and quantity will be addressed in specialist assessment reports. It is also assumed that these assessments will identify suitable mitigation and management measures to ensure that environmentally intrinsic impacts do not negatively impact local communities, their quality of life or health status.

1.8 Conclusions and recommendations

Based on the social impact analysis of implementing the Coal Power Plant in the selected site versus the option of not implementing it, it can be concluded that its establishment in the selected site will generate higher socio-economic benefits and improve the quality of life for Lamu County people and the country. The significance of majority of the adverse impacts, with mitigation, would be **Low**.

The overall view of the stakeholders about the project was positive. Through the stakeholder engagements, there was a general expression of support for the proposed project, precondition on two requests: (1) that potential adverse effects of the project are effectively mitigated, and (2) that project team prioritizes the Lamu community in accessing and benefiting from the economic opportunities presented by the project. The stakeholders also expressed optimism and anticipation for the benefits the project will contribute towards Lamu County as well as the Country. Emphasis was placed on the benefits expected from APCL's CSR programme. It is recommended that APCL aim to maintain active and meaningful stakeholder engagement throughout the project lifecycle.

The Social Impact Assessment (SIA) forms part of the Environmental Impact Assessment process prescribed under the EMCA and its subsidiary legislation. APCL should obtain all necessary licenses and certification before implementation of the project. It is recommended that the proect team implement mitigation and enhancement measures recommended in this SIA and related reports including the ESMP. These measures should be regularly reviewed and improved to reflect changes in the project environment.

2 Applicable policy and legal context

There are various policies and legal frameworks that will guide the implementation of the 1,050MW coal power plant as it relates to the social environment. These are outlined in this section.

2.1 The Constitution of Kenya (2010)

The Constitution of Kenya provides the overarching framework for the implementation of the 1,050MW Coal Power Plant project. The project proponent will abide by the provisions of the Constitution in ensuring that:

- Fundamental Rights and Freedoms of all individuals impacted by the project are observed and protected;
- Public participation is encouraged in the management, protection and conservation of the environment;
- The principles and Values of good governance, integrity, transparency and accountability and sustainable development, are observed including human dignity, equity, social justice, inclusiveness, equality, human rights, sustainable development and non-discrimination.

2.1.1 National Land Policy (2009)

The overall objective of the National Land Policy is to secure rights over land and provide for sustainable growth, investment and reduction of poverty in line with the Government's overall development objectives. Specifically the policy offers 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 viable, socially equitable and environmentally sustainable allocation and use of land;
- Efficient, effective and economical operation of land markets;
- Efficient and effective utilization of land and land-based resources; and
- Efficient and transparent land dispute resolution mechanisms.

The requirements of this policy are expected to be fulfilled by the Government in the process of acquiring the required project site land. APCL will lease the land from the Government of Kenya, which holds the mandate over the relocation and compensation of persons owning the required project site land. An effective RAP process will be developed to guide land acquisition before the onset of project construction to mitigate asset loss, and where unavoidable, to provide compensation. This will be achieved through extensive stakeholder engagement meetings to ensure that the local communities are aware and agree with the intended land use, the safeguards that will be put in place to ensure environmental and social protection as well as the proposed RAP conditions.

2.1.2 National Gender Policy (2011)

The overall goal of this Policy is to mainstream gender concerns in the national development process in order to improve the social, legal/civic, economic and cultural conditions of women, men, girls and boys in Kenya.

The policy aims at ensuring gender equality and women's empowerment and mainstreaming of needs and concerns of women, men, girls and boys in all sectors of development in the country so that they can participate and benefit equally from development initiatives.

This policy will guide the recruitment of construction and power plant operations labor. Women will be accorded equal opportunity as men for available jobs.

This policy will also require the EPC contractor to provide a work environment that is safe and conducive to women and men, considering gender-disaggregated differences and vulnerabilities. This for example applies to onsite worker's sanitation facilities, where women should have separate facilities from men.

2.1.3 Kenya National Environment Policy (2013)

The Environment Policy 2013 proposes a broad range of measures and actions responding to key environmental and social issues and challenges. It seeks to provide a framework for an integrated approach to planning and sustainable management of natural resources in the country. It recognizes the various vulnerable ecosystems and proposes various policy measures to mainstream sound environmental management practices.

Some of the policy statements/objectives include:

- Ensuring that all significant development projects are subjected to EIA and regular environmental audits; and
- Promoting and supporting research and capacity development as well as use of innovative environmental management tools such as EIAs.

This is also reaffirmed in the Environment Management and Coordination Act, 1999, Cap 153 (EMCA) that makes ESIA a legal requirement for "Second Schedule" projects. According to section 58 of EMCA, (i) any activity out of character with its surrounding; (ii) any structure of a scale not in keeping with its surrounding; or (iii) major changes in land use has to undergo an Environmental and Social Impact Assessment Study.

This policy is relevant to the Project as it requires that an ESIA is conducted prior to commencement of the project. APCL has engaged a Firm of Experts to carry out a full ESIA study (inclusive of various specialist studies) for the proposed project.

2.1.4 National Water Policy (2012)

This policy aims at regulated abstraction, accountability in water use, promotion of equity in water sharing and control of pollution of water bodies. It also aims at moving the water sector to the next level of development in order to avoid insufficient and polluted water resources and inadequate water services provision that have become limiting factors for sustainable development of the nation. It also provides for the regulation and management of water supply and sewerage services. In general, the Act gives provisions regarding ownership of water, institutional framework, national water resources, management strategy, and requirement for permits, state schemes and community projects.

This policy will guide the abstraction, purification, utilization and disposal of water for the power plant's operations including household utilization within plant colony. The policy requires avoidance of contamination and complete abstraction of existing water sources for the community. Additionally, Lamu County is water scarce - as part of its CSR, APCL envisions providing clean, desalinated water to Lamu County.

2.1.5 Kenya Health policy 2014

This policy provides for securing and maintaining health. In compliance with the regulations under this policy, the EPC contractor and subsequently the O&M contractor will implement measures to safeguard public health and safety by:

- Complying with local authority by-laws on public health
- Employing practical measures to maintain avoid nuisance to the public or conditions liable to be injurious or dangerous to human health
- Undertaking the responsibility to maintain a clean and sanitary environment (that is under their jurisdiction/area of influence) to prevent occurrence of nuisance or condition liable to injure or endanger human health as defined under section 118 of the Public Health Act (Cap. 242)

2.1.6 Occupational Safety and Health Policy (2012)

This policy and all related regulations aim at safeguarding the safety, health and welfare at work of all persons working in a given workplace. In addition to full compliance to all the stipulated legislation under this policy, the EPC contractor shall also:

- Integrate, into the Company's operations, systems and procedures that ensure a safe working environment that is without risks to health
- Develop and implement a comprehensive internal occupation safety and health policy
- carry out appropriate risk assessments in relation to the safety and health of persons employed and, on the basis of these results, adopt preventive and protective measures
- Ensure insurance for and compensation of employees on work related injuries and diseases contracted in the course of employment and for connected purposes as stipulated under the Work Injury Compensation Benefit Act 2007

2.1.7 The Energy Policy (2004) and the Draft Energy Policy (2015)

The energy policy seeks to ensure affordable, competitive, sustainable and reliable supply of energy to meet National and County development needs at least cost, while protecting and conserving the environment. The policy recognizes coal as an affordable, competitive, reliable and easily accessible source of energy for electricity generation for the Country. The policy promotes the exploitation of coal in the efforts to add at least 5000MW+ of reliable electricity to the national grid by the year 2018.

The policy provides guidance on the enforcement of environmental and safety regulations by which the EPC contractor and sunsequently the O&M contractor will abide. It stipulates that all accidents and fatalities occurring within energy facilities be reported officially to the Energy Regulatory Commission. It specifies the requirements for investigating complaints related to the power plant and denotes the process for compulsory land acquisition and compensation for power generating plants. The policy prescribes the manner with which licenses shall be obtained for generating, transmitting and distributing electricity.

2.1.8 Workplace Policy on HIV/AIDS 2007

The main objective of this Policy is to provide a framework to address HIV and AIDS in the workplace. The principles that guide the Policy are in accordance with international conventions, national laws, policies, guidelines and regulations. They include recognition of HIV/AIDS as a workplace issue; Non-discrimination; Gender equality, Safety and Health work Environment, Workplace ethics and Confidentiality.

The requirements of this policy are expected to be fulfilled by all contractors and their subcontractors, especially in regard to having an internal company HIV Policy and worker sensitization initiatives. This policy is of paramount relevance to the project as the implementation of the proposed power plant construction and operation is expected to spur substantial in-migration into the project area by people seeking employment opportunities. This, coupled with the expected economic growth, increased financial spending power and disruption of social / cultural norms may result in predisposing factors associated with the spread of HIV/AIDS such as prostitution and adultery.

2.1.9 The Medium Term Plan 2 (MTP 2)

The Medium Term Plan 2 strategy (2013 – 2017) aims at modernizing energy infrastructure, increasing the share of energy generated from renewable energy sources, and providing energy that is affordable and reliable to businesses and homes. The 1,050 MW Coal Power Plant feeds into the MTP 2 aspirations to provide affordable energy and increase installed capacity for electricity generation by 5,538 MW in 2017.

2.2 County level policy and planning

2.2.1 County Government Act 2012

This is an ACT of Parliament that gives effect to Chapter Eleven of the Constitution; to provide for county Governments' powers, functions and responsibilities to deliver services and for connected purposes. It also provides for a wide variety of matters relating to public administration at local level such as civic participation, access to information, public communication and the protection of minorities.

Through this Act, Lamu County Government is responsible for planning and development of the County with regard to: facilitation of the development of a well-balanced system of settlements; ensuring productive use of land, water and other resources for economic and social development; ecological conservation and the achievement and maintenance of a tree cover of at least ten per cent of the land. APCL and all its contractors should comply with Lamu County legislations as well as complement the County's efforts with regard to the above functions.

2.2.1.1 County Integrated Development Plan (CIDP)

The County Integrated Development Plan is a mandatory requirement for all counties in Kenya. The Lamu County Integrated Development Plan is a comprehensive blue print that will guide the County Government and development partners' engagement in Lamu County in order to realize the social economic transformation of its people. The plan was developed through a consultative process to address the glaring levels of underdevelopment in the County. Through this blue print, Lamu County Government has identified 9 sectors which the 2013 - 2017 development agenda will emphasize on. These are:

1) Fisheries, Livestock and Cooperative Development
2) Finance, strategy and economic planning;
3) Land, physical planning infrastructure, urban development, water and natural resources;
4) Trade, investment, culture, Tourism and Resource Mobilization;
5) Health, Sanitation and Environment;
6) Education, Gender, Youth, Sports and Social Services;
7) Agriculture and Irrigation;
8) ICT and Citizen Participation, and
9) Public Service Management

Application: The implementation of the 1,050 MW Coal Power Plant will have an impact on all the sectors of focus for the Lamu CIDP. APCL should ensure that its operations are aligned to the Lamu CIDP through extensive engagement and consultation with the County Government. The anticipated economic growth and infrastructural development resulting from the project will play a great role in the realization of the CIDP goals and APCL is advised to make deliberate efforts to enhance these positive impacts for the County's benefit. This may include ensuring that their CSR initiatives complement the development plans outlined in the Lamu CIDP.

2.3 International safeguards and policies

2.3.1 Kenya Vision 2030

The Kenya Vision 2030 is a national long-term development blue-print to create a globally competitive and prosperous nation with a high quality of life by 2030. The Vision is anchored on the three key pillars of economic, social and political governance. It aims to transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment.

The Vision recognizes reliable and cheap energy as one of the foundations for economic growth, essential for making Kenya a middle-income country by 2030. The 1,050 MW Coal Power Plant is envisioned to promote the overall national development objectives of the Government of Kenya, and subsequently the achievement of Vision 2030, by accelerating economic growth through: enhanced employment creation; poverty alleviation; industrialization; and increasing productivity of all sectors through reliable and affordable power supply. APCL will endeavor towards continued alignment with the vision.

2.3.2 Energy Sector Policy of the African Development Bank (AfDB)

This policy provides a general framework for the Bank Group's energy sector operations. The implementation of the1,050 MW Coal Power Plant Project will comply with the key guiding principles under this policy to:

- Ensure integration of gender mainstreaming into project operations including awarding of employment opportunities
- Foster knowledge transfer and capacity building of the local communities
- Ensure energy security and increasing access for all
- Move towards a cleaner energy path
- Enhance governance at the national level
- Promote social and environmental responsibility and integrate aid effectiveness principles
- Integrating a response to climate change

2.3.3 AfDB Integrated Safeguards System (ISS)

The AfDB ISS is designed to promote the sustainability of project outcomes by protecting the environment and people from the potentially adverse impacts of projects. The Bank requires that borrowers/ clients comply with these safeguards requirements during project preparation and implementation. With regard to the social aspect, APCL will specifically observe operational safeguards 1 and 2

Under operational safeguard 1 on environmental and social assessment, APCL will:

- Conduct and provide evidence of meaningful consultation (i.e., consultation that is free, prior and informed) with communities likely to be affected by environmental and social impacts, and with local stakeholders, and also for ensuring broad community support
- Identify and assess the environmental and social impacts and risks, including those related to gender, climate change and vulnerability
- Ensure the effective management of environmental and social risks for the project during and after implementation by minimizing, mitigating, and/ or compensating for adverse impacts on the environment and affected people when avoidance is not possible

Under operational safeguard 2 on Involuntary Resettlement, Land Acquisition, Population Displacement and Compensation, GoK should:

- Ensure that displaced people are meaningfully consulted and given opportunities to participate in the planning and implementation of resettlement programme
- Ensure that the PAPs are treated in a fairly, equitable, and socially and culturally sensitive manner and that they receive compensation and resettlement assistance
- Ensure that the standards of living, income-earning capacity, production levels and overall means of livelihood of those displaced are improved.

2.3.4 AfDB Gender Policy (2001)

The AfDB Gender Policy (2001) informed both the SIA study process as well as the gender mainstreaming and inclusion measures recommended within this SIA report. The policy provides a framework for action, through which the project team will ensure equal access to women and men to project related opportunities and benefits whilst ensuring necessary consideration is given to vulnerable community segments such as the local women, as a measure to bridge cultural and economic barriers to accessing the project related opportunities and benefits. This could include affirmative action in the allocation of employment, training and business opportunities as well as deliberate efforts by APCL to promote community development initiatives focusing on socio-economic empowerment of the local women, female youth and girls.

2.3.5 IFC Performance Standards

The International Finance Corporation (IFC) Performance Standards provide guidance on how to identify risks and impacts, and help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way.

The IFC performance standards have informed this Social Impact Assessment and provide the premise for the mitigation measures and Social Management Plans outlined in section 8 of this report. Under the IFC standards, projects likely to generate potentially significant adverse environmental and social risks and impacts, such as the proposed 1,050MW project, should be evaluated in a comprehensive full-scale ESIA. Following IFC's requirements, the following key considerations have been made:

a) **Stakeholder Analysis and Engagement Plan**

A Stakeholder Engagement Plan (SEP) has been develop for the proposed project. The SEP is scaled to the proposed project's risks and impacts and development stages, and is tailored to the characteristics and interests of the Affected Communities

b) **Consultation and Participation**

The Consultant has conducted Informed Consultation and Participation with the Affected Communities. This will be an ongoing activity that APCL will endeavor to uphold throughout the project lifecycle.

c) **Disclosure of Information**

APCL has provided, and should continue to update affected communities with access to relevant information on: (i) the purpose, nature, and scale of the project; (ii) the duration of proposed project activities; (iii) any risks to and potential impacts on such communities and relevant mitigation measures; (iv) the envisaged stakeholder engagement process; and (v) the grievance mechanism.

d) **Grievance Mechanism**

A comprehensive Grievance Mechanism has been prepared to receive and facilitate resolution of affected communities' concerns and grievances about the project's environmental and social performance.

e) **Ongoing Reporting To Affected Communities**

APCL will provide periodic reports to the affected communities that describe progress with implementation of the project action plans on issues that involve ongoing risk to or impacts on affected communities and on issues that the consultation process or grievance mechanism have identified as a concern to those communities.

3 Socio-economic baseline

This section provides a socio-economic profile of Lamu County and the study area with the objective of understanding the demographic trends and economic performance of the area.

3.1 Location and size

Lamu County is located within the North-Eastern Coast of Kenya (. It consists of a mainland and the Lamu Archipelago composed of 65 islands. The eminent islands are Pate, Lamu, Kiwayu and Manda. The proposed project site lies on the mainland. The County covers a total land surface area of [2]6273.1 square kilometers with 130 kilometers of coastline and a water mass covering 308 square kilometers. Lamu West, where the proposed project site is located, has a total land surface area of 3953.6 square kilometers.

Lamu County borders the Indian Ocean to the South and South East, Garissa County to the North, Somalia to North East and Tana River to the South West and West.

Figure 3-1 : Map of Lamu County within Kenya

[2] KNBS Statistical abstract, 2015

Lamu County includes settlements of Lamu, Matodoni, Kipungani, Shela, Pate and Manda. Among the surviving village towns that date to the first millennium ad are Pate, Siyu, Shanga, Faza, Chundwa, Mnyabogi, Mwajumwale and Kizingitini. Other important settlements along the northern Swahili coast include Kiunga, Ndau, Ishikani and She Jafari, Mwandoni and Mwambore. Figure 3-2 to Figure 3-5 show images of the baseline conditions within the study area.

Figure 3-2: Lamu town sea front

Figure 3-3: Kwasasi village - proposed project site

Figure 3-4: Mtangawanda, Pate Island

Figure 3-5: Sea front, Pate Island

3.2 Administration

This section provides an overview of the administrative units as well as the County governance and leadership.

3.2.1 Administrative units

Lamu County has two parliamentary constituencies - Lamu East and Lamu West - and a total of ten county wards namely Shella, Mkomani, Hindi, Mkunumbi, Hongwe, Bahari, Witu, Faza, Basuba and Kiunga. The wards that make up Lamu West and Lamu East constituencies is shown in Figure 3-6 and Figure 3-7 while key statistics of the County are presented in Table 3-1. The proposed coal fired power plant site lies within Hindi ward in Lamu West constituency.

Table 3-1: Lamu County area, constituency and wards

Constituency	County wards	Land Area (sq. Km)	Sub-locations
Lamu West	Shella	54.7	Shella and Manda
	Mkomani	172.5	Mkomani; Langoni; Matondoni and Kipungani
	Hindi	1150.8	Hindi; Bargoni; Mokowe and Kilimani
	Mkunumbi	1366.1	Mkunumbi; Mapenya; Uziwa and Ndambwe
	Hongwe	128.5	Hongwe and Bomani
	Bahari	123.3	Bahari; Tewe; Kiongwe and Central
	Witu	975.4	Pandanguo; Chalamula; Moa and Witu
Lamu East	Faza	79.2	Ndau; Kwatini; Kwatongani; chundwa; Myabogi; Siyu; Pate; Shanga and Kiwayuu
	Basuba	1708.7	Mararani; Mangai and Milimani
	Kiunga	513.9	Rubu/Mwabore; Mkokoni and Kizingitini
Total		**6273.1**	

Figure 3-6: Lamu West constituency and its wards

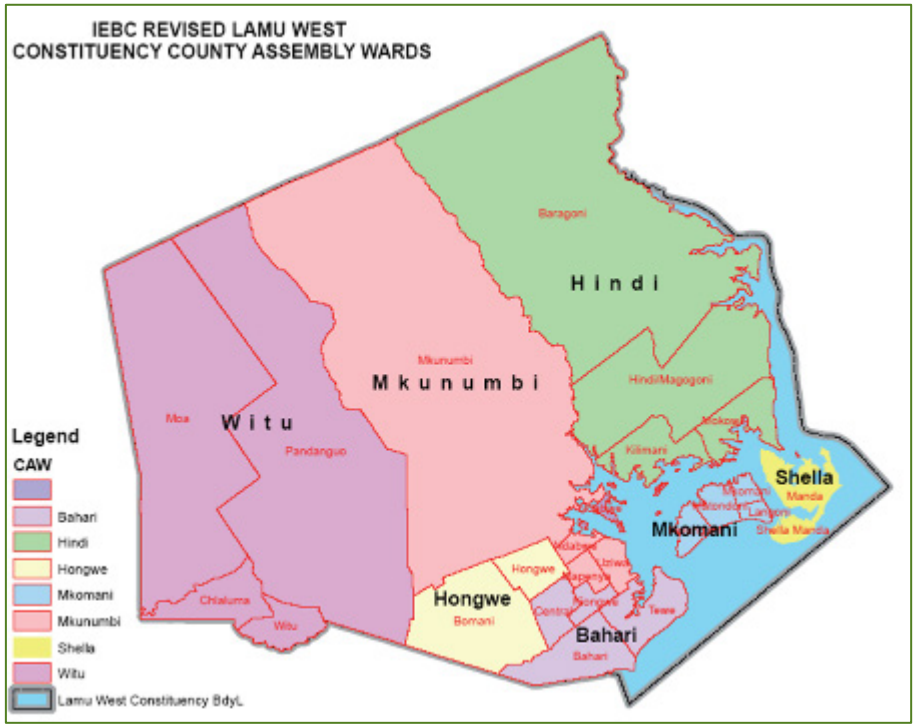
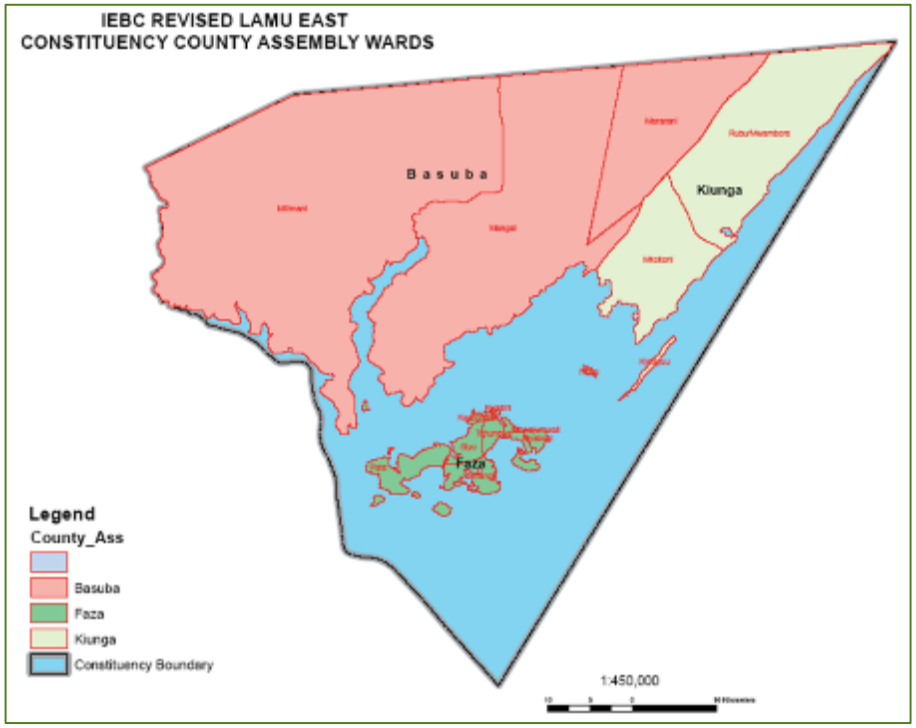


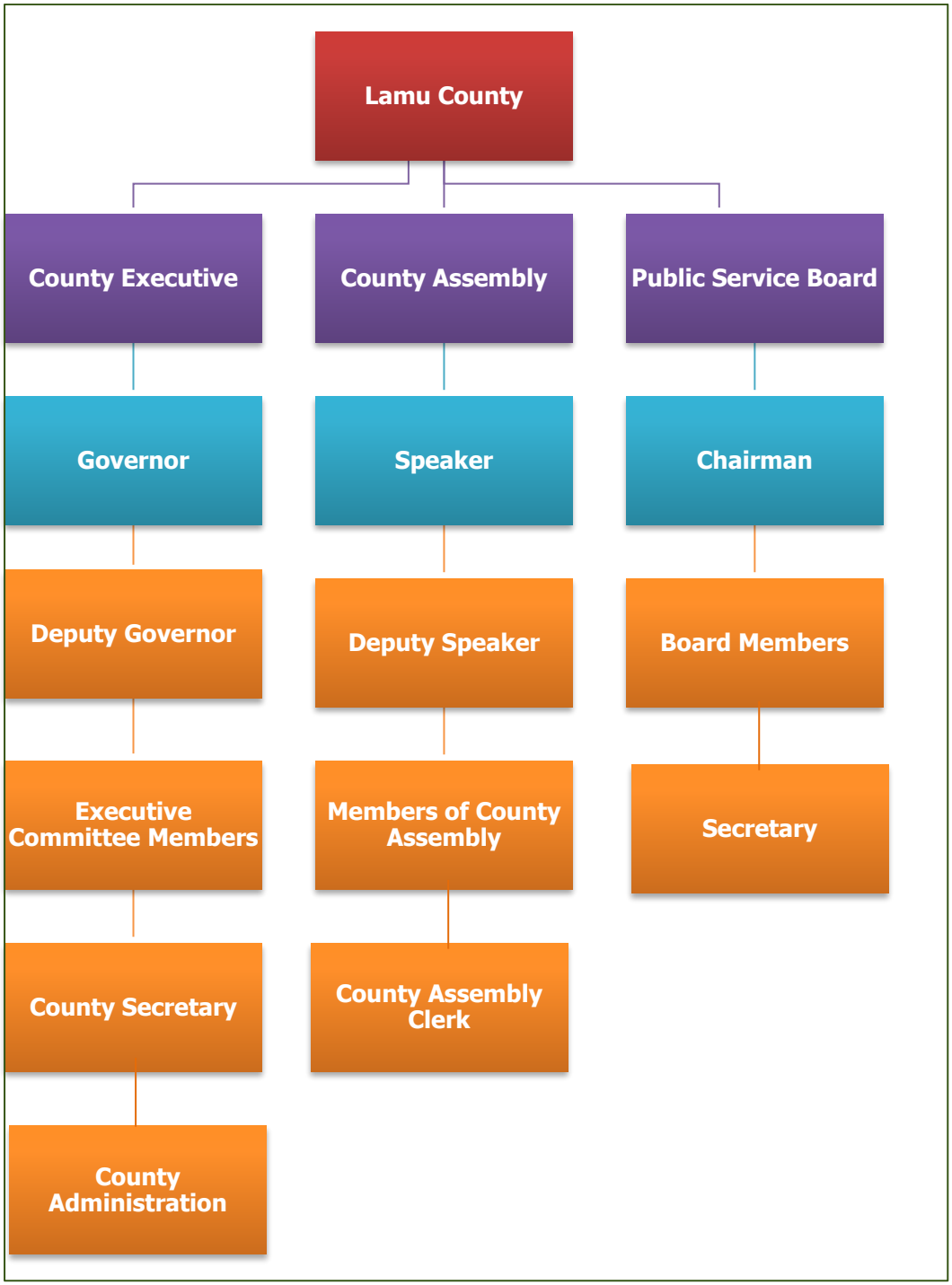
Figure 3-7: Lamu East constituency and its wards



3.2.2 Governance and leadership

Lamu County is governed through the County Executive Committee, the County Assembly, and the County Public Service Board. An elaborate County Government structure is provided under Figure 3-8.

Figure 3-8: County Government Governance Structure



3.3 Population

Lamu County's population is a fusion of local and migrant communities. The ethnic composition of the population has largely been influenced by the exposure of the County to maritime trade since the 14th Century, as well as the recent establishment of the Lake Kenyatta Settlement Scheme. The migrant community is composed of individuals who have settled in Lamu for business and employment purposes, majority of whom are engaged in the tourism industry. Public service sector also employs a large number from the migrant community, while a few are engaged in farming activities. The main local communities include:

- Bajuni - these trace their roots from Bantu and Arab descent. They mainly derive their livelihoods from fishing and farming
- Orma - semi-nomadic pastoralists whose main source of livelihood is the rearing of cattle, goats and sheep.
- Sanye – one of the smallest sub-groups in Kenya. They have a Cushitic background and are traditionally hunters and gatherers. They engage in minimal farming that is mainly for subsistence.
- Boni (Aweer) – traditionally forest dwellers and hunter-gatherers. They mainly depend on the natural resources of the area for food and building material. The Boni engage in minimal farming.

Other local communities include the Korei, Swahili and Arabs. Generally, over the recent years, the local communities have increasingly engaged themselves in tourism-related activities, commercial fishing and commercial agriculture. Other communities that have settled within the County include: Kikuyu, Mijikenda, Pokomo/Riverine, Tharaka, Somali, Luo, Luhya, Taita and many others.

Islam is the predominant religion in Lamu County, stemming from the strong influence of the Arab and Swahili cultures. Swahili is the main language.

According to the 2009 National Census, the population of Lamu County was at a total of 101,539 persons with a 52% - 48% male to female gender distribution as shown in Table 3-1. [3]Based on the KNBS statistical abstract of 2015, the County has a total of 22,184 households and a population density of 16 persons per square kilometer. Of the total population, 18,841 falls within Lamu East while 82,968 fall within Lamu West, where the proposed project site is located. Of the 22,184 total households within the County, Lamu West has a total of 18,622 households and a population density of 21 persons per square kilometer. Specifically, the proposed project site lies within Hindi Ward. Hindi has a total land area of 262.2 square kilometer and a recorded population of 5,446 persons – 2,322 females and 3,124 males. There are a total of 1,187 households with a density of 21 persons per squared kilometer.

The County has an age distribution of: 0 -14 years (41.7 %), 15 - 64 years (54.8 %), 65+ years (3.5 %). The annual population growth rate is at 2.47%. Growth projections for the year 2015 stand at 124,092. The population is projected to increase to 137,180 by 2017 (CIDP 2013- 2017). It is important to note that these projections do not take account of macro development initiatives such as LAPPSET, scheduled to be implemented in the County. These development initiatives, along with the proposed 1,050 MW coal power plant project, are anticipated to influence substantial in-migration into the County, with LAPPSET alone expected to attract approximately over a million migrant workers.

[3] KNBS statistical abstract, 2015

[4]Table 3-2: Lamu County population projections by age cohort

Age Cohort	2009 census			2012 projections			2015 projections			2017 projections		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	8,038	7,681	15,719	8,886	8,491	17,377	9,823	9,387	19,210	10,503	10,503	21,005
5-9	7,375	7,184	14,559	8,153	7,942	16,095	9,013	8,780	17,793	9,636	9,636	19,272
10-14	6,148	5,904	12,052	6,797	6,527	13,324	7,514	7,215	14,729	8,033	8,033	16,066
15-19	5,722	5,095	10,817	6,326	5,632	11,958	6,993	6,227	13,220	7,476	7,476	14,953
20-24	5,020	4,577	9,597	5,550	5,059	10,609	6,135	5,594	11,729	6,559	6,559	13,118
25-29	4,155	3,905	8,060	4,595	4,317	8,912	5,078	4,772	9,850	5,429	5,429	10,858
30-34	3,713	3,125	6,838	4,105	3,455	7,560	4,538	3,819	8,357	4,851	4,851	9,703
35-39	3,070	2,579	5,649	3,394	2,851	6,245	3,752	3,152	6,904	4,011	4,011	8,023
40-44	2,363	1,918	4,281	2,612	2,120	4,732	2,888	2,344	5,232	3,088	3,088	6,175
45-49	1,890	1,644	3,534	2,089	1,817	3,906	2,310	2,009	4,319	2,469	2,469	4,939
50-54	1,522	1,384	2,906	1,683	1,530	3,213	1,860	1,691	3,551	1,989	1,989	3,977
55-59	1,113	927	2,040	1,230	1,025	2,255	1,360	1,133	2,493	1,454	1,454	2,909
60-64	1,051	890	1,941	1,162	984	2,146	1,284	1,088	2,372	1,373	1,373	2,746
65-69	583	468	1,051	645	517	1,162	712	572	1,284	762	762	1,524
70-74	533	476	1,009	589	526	1,115	651	582	1,233	696	696	1,393
75-79	228	197	425	252	218	470	279	241	519	298	298	596
80+	478	527	1,005	528	583	1,111	584	644	1,228	625	625	1,249
85+	43	13	56	48	14	62	53	16	68	56	56	112
TOTAL	**53,045**	**48,494**	**101,539**	**58,641**	**53,610**	**112,251**	**64,827**	**59,265**	**124,092**	**71,664**	**65,515**	**137,180**

[4] Source: Lamu County Integrated Development Plan, 2013- 2017

As indictaed in Table 3-3, Lamu town is the main urban centre in the County with 20,572 inhabitants as per the 2015 population projection. This is expected to grow to about 21,994 by 2017. However, with the envisioned macro-economic development programmes, it is expected that new urban centres will emerge from the creation of new centres to cater for the rapidly expanding economy as well as the expansion of existing market centres such as Mpeketoni and Hindi. That withstanding, the urban population is expected to grow more rapidly than the projections below which were made pre-LAPPSET.

[5]Table 3-3: Lamu County population projections by urban center distribution

Urban Centre	2009 census			2012 projections			2015 projections			2017 projections		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Lamu	8,466	8,367	16,833	9,359	9,250	18,609	10,346	10,225	20,572	11,062	10,932	21,994

3.3.1 Vulnerable communities

Under the Constitution of Kenya (2010), Chapter 4 of the Bill of Rights outlines 'Vulnerable groups' within society to include women, older members of society, persons with disabilities, children, youth, members of minority communities, and members of particular ethnic, religious or cultural communities.

The Constitution makes reference to minorities and marginalized communities. It provides for the recognition, protection and safeguarding of the rights of these communities in the social, political and economic life of Kenya (Article 56). Chapter Four contains a progressive Bill of Rights that makes international law a key component of the laws of Kenya and guarantees protection of minorities and marginalized groups. The Constitution brings hunter-gatherer communities, pastoralists and minority fisher-communities, among others, under marginalized Communities. [6]Among the marginalized communities identifiable along the LAPSSET Corridor are the Aweer, Samburu, Bajuni, Sanye, Borana, Rendile, Turkana, Orma and the Somali. Of these, those likely to interact with the proposed Coal Power Plant Project are the Aweer, Bajuni, Sanye and Orma.

According to article 260 of the Kenyan constitution 2010, "Marginalized community" means:

a) A community that, because of its relatively small population or for any other reason, has been unable to fully participate in the integrated social and economic life of Kenya as a whole;

b) A traditional community that, out of a need or desire to preserve its unique culture and identity from assimilation, has remained outside the integrated social and economic life of Kenya as a whole;

c) An indigenous community that has retained and maintained a traditional lifestyle and livelihood based on a hunter or gatherer economy; or

d) Pastoral persons and communities, whether they are:

- Nomadic; or

[5] Source: Lamu County Integrated Development Plan, 2013- 2017
[6] Kenya human Rights Commission, 2014: A Position Paper on the LAPPSET Project In the Case of the Aweer and the Fisher folk

- Settled community that, because of its relative geographic isolation, has experienced only marginal participation in the integrated social and economic life of Kenya as a whole

In line with Chapter 56 of the constitution and, consequently, in line with the Kenyan Government's priorities, it is recommended that the project put in place affirmative action programmes targeted towards the vulnerable groups in order to:

a) Promote their participation in key decision making platforms on project matters that directly affect them;

b) Provide them with special opportunities in educational and economic fields;

c) Provide them with special opportunities to access direct and indirect employment within the project;

d) Develop their cultural values, languages and practices; and

e) Provide them with reasonable access to water, health services and infrastructure.

3.4 Economic activities

Lamu County is endowed with various resources of economic value. These include: diversity of fauna and flora, tourist attraction sites, arable land in Lamu West, the Indian Ocean for fishing and tourism, natural forests, and minerals such as salt, limestone, coral stones and, natural gas. Majority of these resources remain unexploited for commercial gain. The main economic activities are outlined below.

3.4.1 Tourism

Tourism is the main economic activity in Lamu County. This is influenced by the County's rich cultural identity, diverse flora and fauna, and listing of a World Heritage Site. The main tourist attractions are Boni - Dodori National Reserve, Lamu Museum, Lamu Fort, Siyu Fort, Takwa Ruins, Swahili House, German Post Office, Lamu Old Town, Kiunga Marine National Reserve and 130 km of sandy beach coastline. The County has about 183 hotels with a total bed capacity of 1,881. According to the Economy Survey 2014, the bed-occupancy per night is on the decline due to the recent rise in insecurity. The County is also home to the Maulidi and Lamu Cultural Festivals.

The tourism industry has been on a steep decline since early 2014 due the impact of a series of terror attacks. Subsequent to the attacks, the Government of Kenya imposed a dusk-to-dawn curfew in an attempt to restore security. Additionally, several foreign Governments issued travel advisories against travel to Lamu County. Enforcement of the curfew and travel advisories have seen the County Government loose revenue and impacted the local economy adversely. According to the Federation of Kenya Employers (FKE) several hotels in Lamu have scaled down operations while others have closed down. According to the KNBS Economic survey of 2015, there was a reduction in the bed-nights occupied in Lamu as a result of the negative travel advisories due to security concerns. The subsequent dusk to dawn curfew that was imposed in Lamu affected the tourism sector as it resulted to restricted movements and closure of some hotels. The number of Visitors to Museums, Parks and Historical Sites has been on a steady decline since 2011 from a recorded 4900 visitors to 1700 visitors in 2014.

Following the rising insecurity issues within the County in October 2014, the Lamu County Department of Tourism in partnership with the Lamu Tourism Association (LTA) undertook a survey to individual hotels and businesses in an aim to enumerate the impact of the insecurity concerns on the tourism industry in Lamu County. The survey targeted a sample of 76 out of the registered 182 hotels in Lamu County. The survey results demonstrate a marked decline in tourism industry activity and revenue as displayed by table Table 3-4 below.

[7]Table 3-4: Summary analysis of the impacts of rising insecurity on tourism in lamu

Question	Yes responses	No responses	Total %	Total Number	Average	Extrapolated to Lamu County
BUISINESS CLOSURE						
Closed down business	19%	79%	-	-	-	-
JOB LOSS						
What is your usual number of employees?	-	-	-	556	18	3276
Have you laid off employees	61%	39%	46%	253	7	777
Will employees be laid off or sent on unpaid leave if situation does not improved	38%	62%	35%	194	8	552
REVENUE LOSS						
Bed nights June-Dec 2013	-	-	-	12,363	563	102,466
Bed nights June-Dec 2014	-	-	-	6,005	218	39,676
Cancelled Bed nights June-Dec 2014	87%	13%	57%	3,402	112	17,696
Remaining Bed nights June-Dec 2014	65%	35%	43%	2,603	147	17,346
Shop revenue loss	-	-	85%	-		
AIRLINE TRAVELERS						
Passengers in	-	-	-	219		
Passengers out	-	-	-	355		

[7] Report on analysis of impact of rising insecurity on tourism In Lamu By Lamu County Department Of Tourism And Lamu Tourism Association (LTA), October 2014

3.4.2 Fishing

Fishing is the second largest driver of the Lamu economy. The County produces over 1,500 metric tons of fish annually valued at kshs.111.8 million. 75% is from marine fishing and 25% from fishpond programmes on the main land and ox-bow lakes and water masses along the Tana River delta. Short fishing is also carried out around the tourist hotels of Kisangundi, Manda and Shella Islands.

[8]Table 3-5: Quantity and value of fish landed in Lamu County (2010 – 2014)

Type of fish	Quantity (Metric ton)					Value to Fishermen (Kshs '000)				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Marine Fish	2,250	2,257	2,103	2,103	2,198	120,698	114,514	139,410	175,872	176,187
Crustaceans	165	169	195	162	174	55,211	55,577	71,942	96,198	90,210
Other Marine Fish	25	24	68	68	56	3,120	4,860	20,805	19,789	11,548
Total	2,440	2,450	2,366	2,333	2,428	179,029	174,951	232,157	291,859	277,945

Local fishermen mainly apply traditional fishing methods including boats and nets. Figure 3-9 and Figure 3-10 show the traditional boat making and repair activities and a traditional fishing boat in the Manda Bay.

Figure 3-9: A traditional boat builder in Mtangawanda, Pate Island

[8] KNBS Statistical abstract, 2015

Figure 3-10: Fishermen at sea along the Manda Bay

Figure 3-11 below displays a map of the prominent fishing grounds and landing sites within Lamu County while Figure 3-12 shows the four demarcated fishing zones/areas.

Figure 3-11: Map of prominent fishing grounds and landing sites in Lamu County

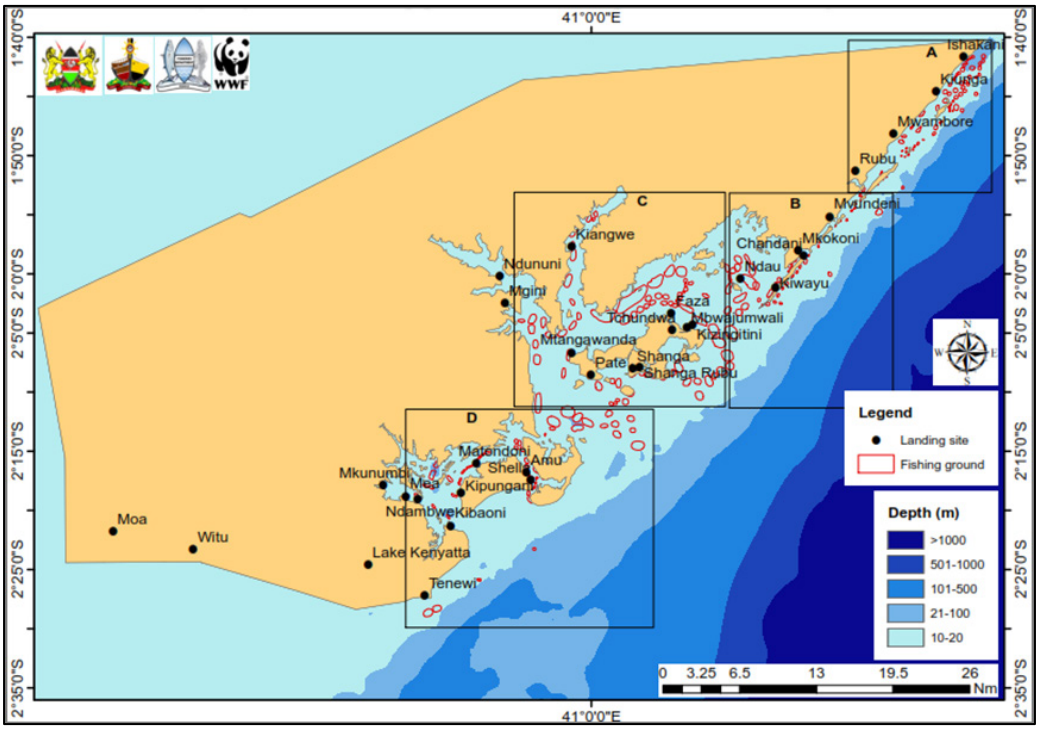
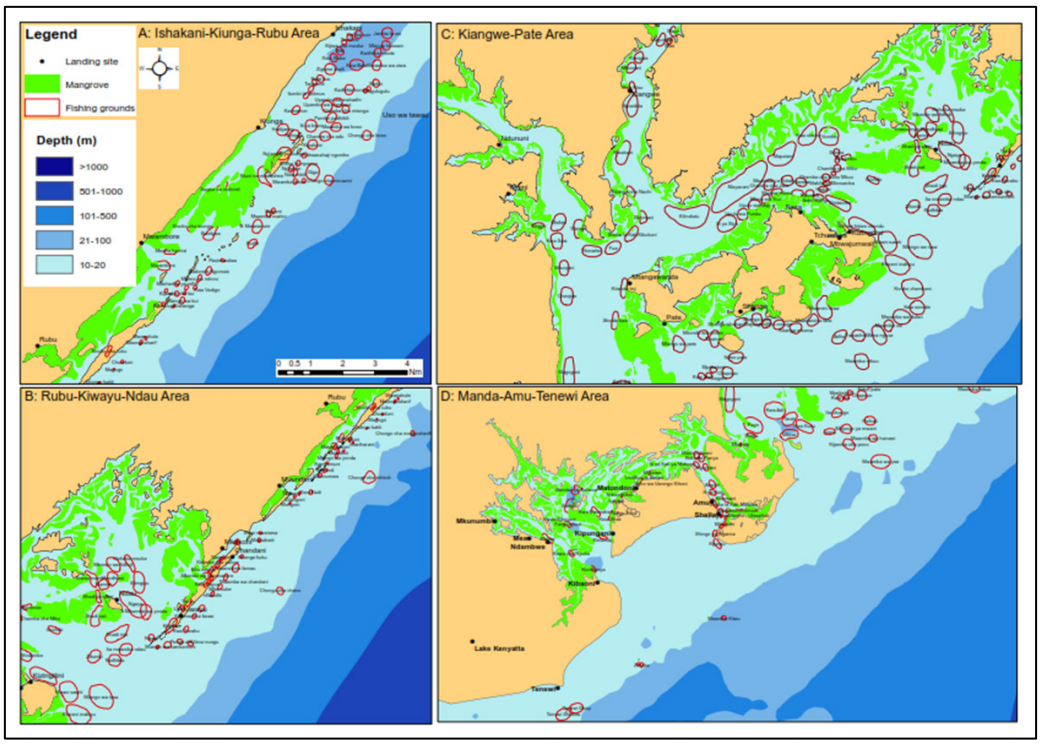


Figure 3-12: Overview of the four fishing areas/zones within Lamu County



3.4.3 Crop production

Crop production is mainly undertaken on the main land. The County has approximately 650,000ha of agricultural land with the overall average farms measuring 4ha each. [9]With regards to agriculture, productivity potential of the land within the county can be delineated as: High potential land - 7000 hectares, medium potential land – 319000 hectares, Low potential land – 321000 hectares and other – 4000 hectares. Though agriculture supports majority of the population in the County, only about 20% of the local farmers have land title deeds. The major crops grown include maize; sorghum; cow peas; cassava; green grams; bananas; sesame; mangoes; cotton; coconut bixa and mangroves. The National Cereals and Produce Board (NCPB) have a depot station that provides storage facilities for cereal crops produced.

In Lamu County, crops are grown by small-scale farmers under rain fed conditions where annual rainfall is ranging from 540 millimeters to 1,000 millimeters per year. In the County about 80% of the crops are grown during long rains while the remaining 20% are grown during short rains. However, short rains are not reliable though farmers persistently plant crops in every season.

Within the Kwasasi area (proposed project site), individuals from neighboring communities including Pate Island, Hindi and Lamu Island undertake crop production. Productivity of the land within this area is generally low thus the yields are low. The types of crops planted in Kwasasi include but not limited to sesame, cashew nuts, maize, peas, melons, peanuts, cassava, mangoes, lemon, coconuts, tomatoes, pepper, sweet potatoes and capsicums. The main crops planted within the delianted proposed project site are sesame and maize. Farmers within this area practice both crop and field rotation where patches of land are cultivated for about 3 years and left to lay fallow for approximately 5-6 years. Through

[9] KNBS Statistical abstract, 2015

consultations with farmers around the proposed project site, it was established that there are no formal markets within the community (Hindi). During the harvesting season, brokers visit the farms to purchase the produce and later resell to bulk buyers in Mombasa. The brokers handle the transportation of the produce from the farm to Mombasa. Due to the poor roads and lack of financial capacity to transport farm produce to the main markets in Mombasa and Lamu, farmers are forced to sell their produce at very low prices to brokers at the farm gate. Farming activities are solely rain fed. This limit the farmers to two seasons per year therefore limits their capacity to diversify crops and increase production. In addition, weather patterns have changed drastically, rainfall is unpredictable and unreliable. The farmers reported that they lack the financial and technical capacity to undertake irrigation. The farmers also reported that they lack proper storage facilities and preservation technologies their produce hence have to sell at low prices to avoid losses due to spoilage. Figure 3-14 below displays a small-scale sesame harvest bulking point at Kwasasi.

Figure 3-13: Harvest Bulking of Sesame at Kwasasi

According to the Director of Agriculture, Lamu County and the County Crops Officer- Lamu West, Table 3-6 shows the main agricultural commodities in Lamu County including the traded volumes in Metric Tons for the year 2014. The main markets for these agricultural commodities are: Lamu Island, Mpeketoni, Malindi, Kitui, Nairobi and Mombasa

Table 3-6: Main agricultural commodities in Lamu County and the traded volumes in 2014

Commodity	Traded Volume (Metric Tons)	Buyers
Maize	56,557	Retailers
Green Gram	2,138	Retailers
Cowpeas	2,575	Retailers
Dolichos	744	Retailers
Cassava	41,035	Retailers

Commodity	Traded Volume (Metric Tons)	Buyers
Simsim	6,722	Processors
Banana	31,340	Retailers
Mango	59,642	Retailers
Cashew nut	6,413	Processors
Coconut	10,537	Retailers
Bixa	8,319	Kenya Bixa
Cotton	7,739	Ginners

3.4.4 Livestock husbandry

Livestock rearing is largely undertaken on the main land. The main livestock types include cattle, goats, sheep and poultry. Donkeys are also reared for local transport. The husbandry culture is generally free-range with few farmers practicing intensive zero grazing.

An important point to note is that Lamu County provides grazing land for nomadic pastoralists from the surrounding Garissa and Tana River Counties which experience extended periods of drought. While these pastoralists are not formally documented residents of Lamu County, they travel into and remain in the County for prolonged durations in search of pasture and water. The pastoralists form an integral part of the County's economic and social system. However, water and pasture resources are limited, and the pastoralists are seen to deplete the already overly contested resources. This has been a cause for conflict between the pastoralist and the local communities. It is estimated that number of local cattle within the County is approximately 5,000, while immigrant cattle number over 50,000. Livestock farmers informed the SIA team that their main source of water for livestock is community water points such as Chomo shown under Figure 3-15 below.

Figure 3-14: Community livestock water point at Chomo

Figure 3-15: Heard of Pastoralist cattle grazing at Roka

Livestock husbandry is manly practiced by the Somali and Orma pastoralists. Common types of cattle found in Lamu are crosses between Boran Semi-zebu Sahiwal, Ayrshires Friesians and Jerseys. The Kenya Meat Commission buys animals from farmers and pastoralists and transports them either by ship or truck to their plant in Mombasa. There is no auction yard in which the cattle are kept before they are sold to the Kenya Meat Commission. In consultations with livestock farmers from Hindi, they reported that they sell their livestock and livestock products to middlemen who buy directly from their farms. The middlemen then sell the animals to buyers in Lamu and Mombasa. The sole source of feed for the livestock is pasture. The farmers do not practice complementary feeding with commercial nutrition supplements.

3.4.5 Charcoal production

The farmers also engage in charcoal burning as an economic activity. Among the trees that are found naturally within the operation area and are used for charcoal include; *mwanga, mchumbi, mpingo and mfukufuku*. Once the charcoal has been harvested, it is sold to the traders at 300 Kenyan shillings per sack and taken to the neighboring towns of Hindi and Mokowe. However, due to the restrictions by Kenya Forest Services on the harvesting of trees for charcoal production, the local communities have faced growing difficulties in growing the charcoal production industry.

3.4.6 Agroforestry

While 64% of total forest cover in the County is gazzeted and protected against commercial exploitation, some farmers are now participating in agro forestry. The main forest products include timber, mangrove poles, fuel wood, charcoal, and casuarina poles. During dry seasons, the local communities especially those from the hunter and gatherer Boni community, collect honey. Honey collection is mostly done from holes which occur naturally in baobab trees, which bees use for habitation. Besides the Baobab holes, local communities also make their own hives and place them in strategic places for honey harvesting within the forest. However, honey harvesting is not a mainstream economic activity.

3.4.7 Employment

The main contributors to employment include tourism, public sector service, agriculture, fisheries and livestock production while the labor force is mainly made up of unskilled or semi-skilled. Underemployment rate for the ages between 15 and 64 is recorded at 12.3% while the unemployment rate is at 5% as compared to the national rate of 9%. Table 3-7 shows the statistics of Lamu county population aged 5 years and above by sex and activity status.

[10]Table 3-7: Lamu county population aged 5 years and above by sex and activity status

Sex	Employed	seeking work / No work available	Economically Inactive	Unclassified	Total
Male	28,331	2,096	10,593	3,212	44,232
Female	17,711	1,476	18,395	2,887	40,469
Total	46,042	3,572	28,988	6,099	84,701

3.4.8 Trade enterprise

The trade enterprise sector in the County is considerably low. This is attributed to the low spending power of the local community and the high poverty levels standing at 31.6 %. None the less, wholesale and retail trade of consumer goods is carried out in all settlements of the county.

3.4.9 Mining

Like most coastal areas in Kenya, Lamu is rich in minerals like titanium, salt, limestone, coral stones, sands and cement. The main mining activities undertaken are sand and ballast quarrying in Manda, Matondoni, Lake Kenyatta, Kizingitini and Faza. Currently, the Government is conducting petroleum explorations covering 255,000 km^2 in the County.

3.4.10 Overall economic profile

Table 3-8 below displays the local revenue projections for Lamu County Government for the next five financial years namely; - 2013/2014, 2014/2015, 2015/2016, 2016/2017 and 2017/2018.

[10] KNBS national census, 2009

[11]Table 3-8: Lamu County Government revenue projections 2013 – 2018

#	Items	2013/ 2014 KES. Million	2014/ 2015 KES. Million	2015/ 2016 KES. Million	2016/ 2017 KES. Million	2017/ 2018 KES. Million
1	Single Business permit	7.0	7.3	7.5	7.95	8.4
2	Rates &Rents	9.0	9.2	9.3	9.8	10.3
3	Bed Occupancy	0.3	0.3	0.3	0.31	0.32
4	Vehicle Parking	0.4	0.4	0.4	0.42	0.44
5	Building Approval	0.5	0.6	0.6	0.63	0.66
6	Plot Transfer & Clearance	0.45	0.4	0.5	0.53	0.56
7	CILOR	10.0	0	0	10.0	10.0
8	Bill & Sign Boards	1.0	1.0	1.0	1.06	1.1
9	Bradding	2.0	0.1	0.1	0.1	0.1
10	LAPSSET	10.0	0	0	0	0
11	Forest Cess	0.6	0.6	0.6	0.63	0.66
12	Slaughter Cess	0.25	0.3	0.3	0.31	0.32
13	Local Quarry	5.0	5.1	5.2	5.5	5.8
14	Fish Cess	2.7	2.8	2.8	2.9	3.0
15	Produce Cess	5.8	5.85	5.9	6.2	6.5
	Total	**55.0**	**33.95**	**34.5**	**46.34**	**48.16**

3.5 Education

The County's education index stands at 0.68. As of 2013, there were 74 primary schools, 11 high schools, and 4 tertiary institutions (Polytechnics) in Lamu County. Through consultations held with the County Executive for Education, Lamu County, the following are the recorded statistics for education institutions as at June 2015:

Within Lamu County

- 150 educational institutions
- Primary schools-120
- Secondary school-24
- Tertiary and vocational -Polytechnics-4

Within Hindi division

[11] Source: Lamu County CIDP 2013- 2017

- Secondary schools-2
- Primary schools-14 (2 private)
- Early Childhood Education Centres -6

The county's Teacher to Pupil Ratio is 1: 40 for public primary schools and 1:39 for public high schools. Table 3-9 below displays the primary and secondary school enrolment rates by year.

[12]Table 3-9: Lamu County Primary and secondary school enrolment by year

Education level	2009	2010	2011	2012	2013	2014
Primary school enrolment	24,759	25,769	26,342	26,884	27,159	27,416
Secondary school enrolment	3,746	4,206	4,497	4,871	5,353	5,932

A total of 54% of Lamu County residents have attained primary level of education only. 55% of these are residents of Lamu West constituency while 45% are residents of Lamu East constituency. Only 13% of Lamu County residents have secondary level of education or above. Lamu West constituency has the highest share of residents with secondary level of education or above. A total of 33% of Lamu County residents have no formal education. Lamu East constituency has the highest share of residents with no formal education. These statistics are presented in Table 3-10.

[13]Table 3-10: Population, 3 years and above attending school by sex, and highest level of education reached

	Pre-Primary	Primary	Secondary	Tertiary	University	Total
Male	3,849	12,202	1,986	97	75	18,209
Female	3,703	10,985	1,414	93	35	16,230
Total	**7,552**	**23,187**	**3,400**	**190**	**110**	**34,439**

The County's literacy level is estimated at 70% but this proportion represents the highly exposed residents of Lamu west Sub County. Literacy levels for Lamu East are estimated to be less than 30%.

The County has recorded poor performance in national examinations over the years. In 2012, out of the 47 counties, Lamu County was ranked 42nd in the Kenya Certificate of Primary Education (KCPE) and 45th in the Kenya Certificate of Secondary Education (KCSE) examinations. The County Executive for education identified the following as the key challenges facing the education sector in Lamu County:

- High cost of education: Poor parents unable to afford school fees and other necessary school supplies leading to drop outs
- Poor teacher remuneration hence low motivation
- Limited teaching and learning materials
- Poor educational infrastructure

[12] Source: KNBS Statistical abstract 2015
[13] Source: KNBS Statistical abstract 2014

- Inadequate teaching staff
- Gender parity in access to education

Figure 3-17 displays an image from Bargoni Primary School in Hindi Division, within which the proposed project lies.

Figure 3-16: Bargoni primary school in Hindi Division

3.6 Health

According to the Kenya economic survey 2013, the number of health facilities listed in Lamu County is 42. There is 1 district hospital, 2 sub-district hospitals, 20 dispensaries, 6 health centres, 12 medical clinics, and 1 nursing home. Of these, 24 are Government owned, 3 are owned by faith-based organizations, 1 is NGO owned and 14 are privately owned facilities. These comprise of 3 level five facilities, 5 health centres, 1 nursing home and 33 dispensaries with a total bed capacity of 172 beds.

The recorded population per facility stands at 2,361. The bed distribution for Lamu County is recorded at 31. (Bed distribution is the number of beds per 1,000 age-adjusted numbers of residents in a county). The average distance to the nearest health centre is approximately 5 kilometers. As of 2013, the County's health personnel comprised of 4 medical doctors, 24 clinical officers, 94 nurses, 17 public health officers, 5 pharmacists and 30 technical personnel. The Doctor to Population Ratio is recorded at 1:36,343.

Hindi ward, within which the proposed project site lies, is served by 4 health facilities namely Mokowe health centre, Hindi dispensary, Hindi Prison dispensary and Bargoni NYS dispensary. Lamu District Hospital is the main referral facility for the ward, with patients having to cross to Lamu by sea on boats from the Mokowe Jetty. According to the Public health officer, Lamu East and Lamu West, emergency services within Lamu County are less efficient than those in other Counties. There is 1 Ambulance in the mainland and 2 boat ambulances. Referred patients mainly use public transport or private cars to Malindi and Mombasa. There are no firefighting equipment/services in the mainland. There is only 1 fire-fighting vehicle for the county based in Lamu Island. The PHO also stated that

generally, Lamu County lacks proper solid and liquid waste disposal: Grey water flows into the ocean through open drains; Majority of Lamu residents use pit latrines; Lamu town has septic tanks while in Hindi, Sock pits and open drains remain common.

For Solid Waste a dumpsite has been constructed in Lamu. Additionally, the county has a waste collection tractor. In Hindi and Mokowe, waste is generally dumped in open fields. Figure 3-18 and Figure 3-19 below display Mokowe health centre.

Figure 3-17: Mokowe health centre

Figure 3-18: Staff housing facilities at Mokowe health centre

The prevalent diseases experienced in the County include malaria, respiratory tract infections and skin diseases. Malaria accounts for 63.3% of illness in the county. Infant mortality rates stand at 72/1000 while under five mortality rates are recorded at 123/1000. Maternal healthcare was highlighted as a significant health challenge by the local community during the stakeholder engagement conducted. According to KNBS Economic survey 2015, only 43.9% of recorded births in the five years preceding the survey were undertaken in a healthcare facility. Only 47.3% were delivered by a skilled health provider. Inadequate number of health facilities, long distances covered to access healthcare, and inadequate number of maternal health care providers were stated as the key challenges

by the local communities. Table 3-11 and Table 3-12 below outline Lamu County's out-patient morbidity rates.

[14]Table 3-11: Lamu County out-patient morbidity for persons below age 5 years for the year 2014

Disease	Incident rates (2014)
Reporting rates	**83**
Accidents - Fractures, injuries, etc.	368
All other diseases	8,339
Aneamia	274
Bilharzia	135
Bites - Animal, Snake, etc.	56
Brucellosis	-
Burns	269
Chicken Pox	299
Cholera	-
Clinical Malaria	428
Confirmed Malaria	804
Congenital Anomalies	90
Dental Disorders	239
Diabetes	562
Diarrhea	8,425
Dis. of the skin (incl. wounds)	6,383
Dracunculosis	-
Dysentery	103
Ear Infections	175,279
Epilepsy	20
Eye Infections	1,059
Infectious Hepatitis	-
Intestinal worms	1,499
Malnutrition	475
Measles	-
Meningococcal Meningitis	-
Mental Disorders	81
Mumps	124
Neonatal Tetanus	-
New AIDS Cases	1
Other Dis. of Respiratory System	27,070
Plague	-
Pneumonia	5,174
Poisoning	47
Poliomyelitis (AFP)	-

[14] Source: KNBS Statistical extract 2015

Disease	Incident rates (2014)
Sexual Assault	8
Tetanus	5
Tuberculosis	5
Typhoid fever	12
Urinary Tract Infection	461
Viral Haemorrhagic Fever	-
Yellow Fever	-
Total New cases	**238,094**
First Attendances	**35,635**
Re-attendances	**20,967**
Referrals in	**415**
Referrals out	**81**

[15]Table 3-12: Lamu County out-patient morbidity for persons of age 5 years and above for the year 2014

Disease	Incident rates (2014)
Reporting rates	**89.7**
Abortion	198
Accidents - Fractures, injuries, etc.	2,553
Aneamia	1,358
Bilharzia	1,017
Bites - Animal, Snake, etc.	520
Brucellosis	45
Burns	368
Chicken Pox	625
Cholera	-
Clinical Malaria	1,036
Confirmed Malaria	1,577
Dental Disorders	4,015
Diabetes	1,097
Diarrhea	7,247
Disease of Puerperium and Childbirth	65
Dis. of the skin (incl. wounds)	13,883
Dracunculosis	-
Dysentery	195
Ear Infections	2,070
Epilepsy	275
Eye Infections	2,234
Hypertension	3,484
Infectious Hepatitis	-

[15] Source: KNBS Statistical extract 2015

Disease	Incident rates (2014)
Malaria in pregnant woman	52
Malnutrition	256
Measles	17
Meningococcal Meningitis	1
Mental Disorders	844
New AIDS Cases	6
Other Dis. of Respiratory System	39,295
Plague	-
Pneumonia	2,549
Poisoning	169
Poliomyelitis (AFP)	-
Rheumatism, Joint pains etc.	3,412
Sexual Assault	110
Sexually Transmitted Infections	694
Tuberculosis	99
Typhoid fever	53
Urinary Tract Infection	8,691
Viral Haemorrhagic Fever	-
Yellow Fever	-
All other diseases	39,339
Total New cases	**139,449**
First Attendances	**91,077**
Re-attendances	**37,849**
Referrals in	**13**
Referrals out	**549**

3.7 Water and Sanitation

The County's main sources of water include rain water, ground water which is mostly saline, surface water from dams, pans, lakes, seasonal rivers and the ocean. In Lamu County, 53% of residents use improved sources of water while the rest rely on unimproved sources. (Improved sources of water comprise protected spring, protected well, borehole, piped water into household, and rain water collection while unimproved sources include ponds, dam, lake, stream/river, unprotected springs, unprotected wells, and water vendor). Lamu West constituency has the highest share of residents using improved sources of water at 61%. Of these, Mkomani ward has the highest share.

The average distance of household to access clean water is approximately 5km. Rainwater is the main source of fresh/soft water for the county residents. Only wealthy private individuals and hotels afford to carry out desalination. There are 4 establishments that manage the County's water supply. These include: Lamu water and sewerage company; lake Kenyatta water association; Hindi water association; and Witu water users association.

Approximately 22.5% of households in Lamu County have no access to sanitation infrastructure, both improved and unimproved. These households utilize open fields and bushes for sanitation. 77.5% Lamu County households have access to sanitation infrastructure. Of these, 57% utilize improved sanitation compared to 61% nationally. Improved sanitation include flush/pour flush (to piped sewer system, septic tank, and pit latrine), ventilated improved pit latrine, pit latrine with slab, and composting toilet. 43% utilize unimproved sanitation. Unimproved sanitation include: public or shared latrine; flush/pour flush to elsewhere (not into a pit, septic tank, or sewer); pit latrine without slab; open pit latrine; bucket latrines; and hanging toilet / latrine. Lamu East constituency has the highest share of residents using improved sanitation with Faza ward having the highest share of residents using improved sanitation.

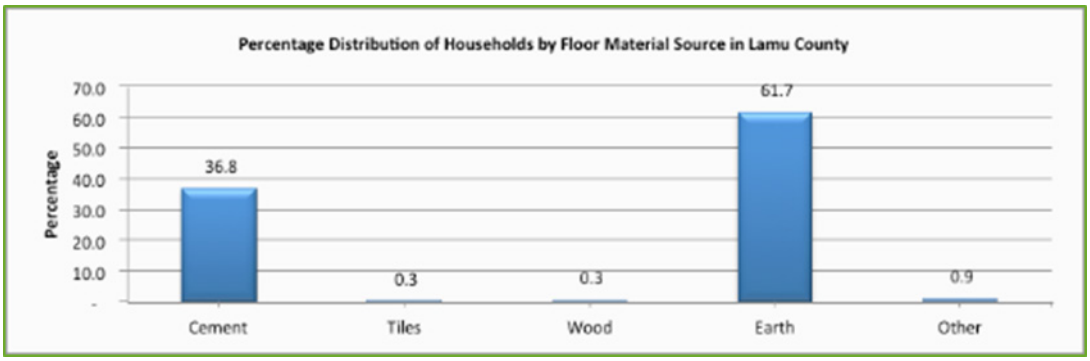
3.8 Housing conditions

According to the KNBS statistical abstract of 2015, Lamu County has a total of 22,184 households and a population density of 16 persons per kilometer square. [16]In Lamu County, 37% of residents have homes with cement floors, while 62% have earth floors. Less than 1% has wood or tile floors. Lamu East constituency has the highest share of cement floors.

11% of residents in the County have homes with concrete roofs, while 32% have corrugated iron sheet roofs. Grass and thatch roofs constitute 50% of homes, and less than 1% has mud/dung roofs.

30% of homes in the County have either brick or stone walls. 61% of homes have mud/wood or mud/cement walls. 1% has wood walls. Less than 1% has corrugated iron walls. 6% have grass/thatched walls. 2% have tin or other walls. Lamu East constituency has the highest share of brick/stone walls with Mkomani ward having the highest share of brick/stone walls. Lamu West constituency has the highest share of mud with wood/cement walls with Hongwe ward having the highest share of mud with wood/cement walls.

[17]Figure 3-19: Lamu County percentage distribution of household by floor, wall and roof materials



[16] Source: KNBS & SID Exploring Kenya's Inequality-2013
[17] Source: KNBS & SID Exploring Kenya's Inequality-2013

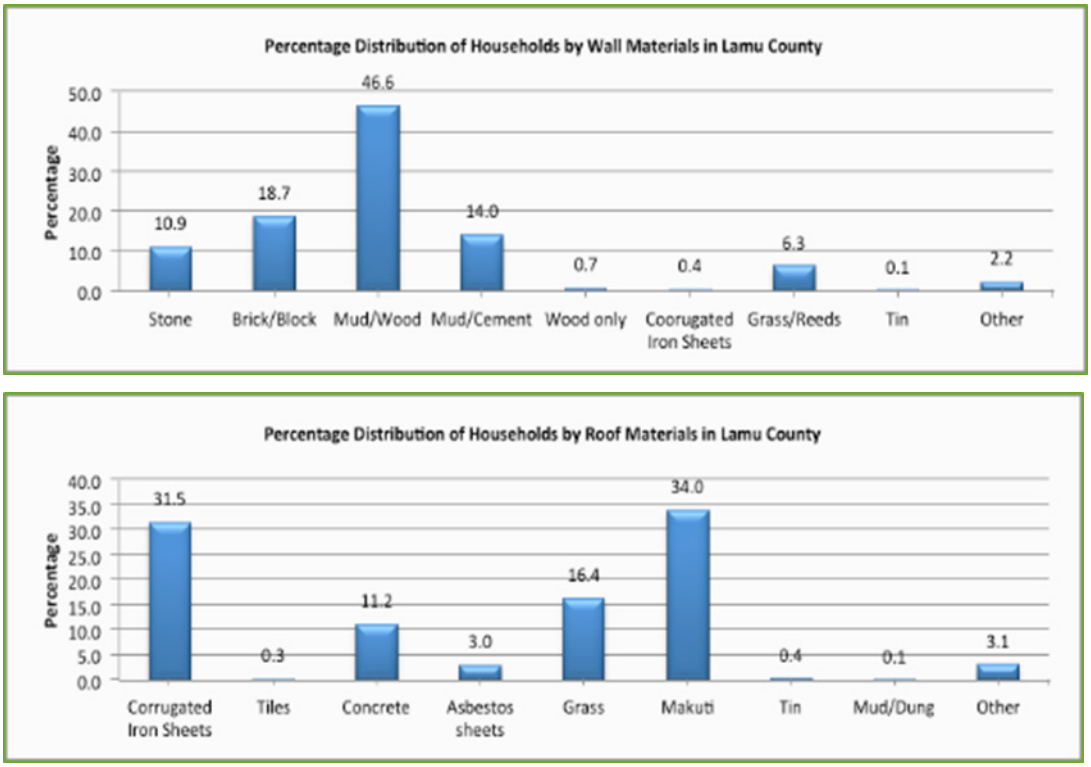


Figure 3-20: Mud/wood walls, earth floors and thatch roofed homes in Mtangawanda, Pate Island

3.9 Energy

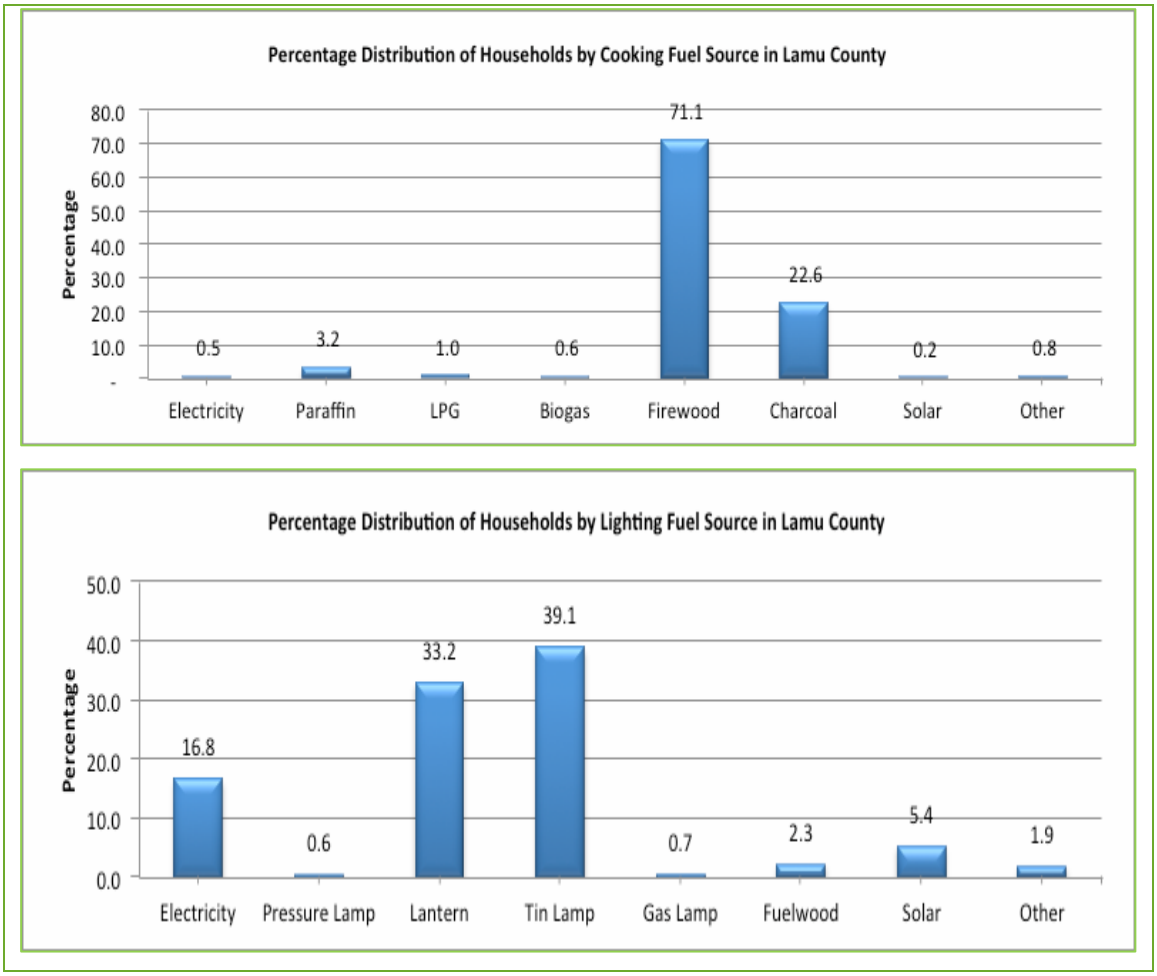
In Lamu County, the chief fuel source for cooking is firewood as utilized by 71% of the households. 23% of the households use charcoal, while 3% use paraffin. Only 1% of residents use liquefied petroleum gas (LPG).

The main fuel source for lighting, as utilized by 39% of households, is tin lamps. A further 33% use lanterns while 17% of residents use electricity. 2% use fuel wood as a fuel source for lighting.

Through consultation meetings with women from the local communities, they reported that kerosene lamps are the main source of lighting for the households. There is no electricity connection to majority of the households. Electricity connection is limited to the town centres and those living along the roads. It is also very expensive to get connection to houses and the power supply is unstable. For cooking, firewood and charcoal are the main energy sources. However, with the increasing restrictions on tree cutting and charcoal burning, these are becoming too expensive.

Figure 3-22 depicts the distribution of houses within the county by cooking and lighting fuel sources.

[18]Figure 3-21: Lamu county percentage distribution of households by cooking and lighting fuel sources



The main electricity supply for Lamu has been through stand-alone power generators, mainly running on diesel without connection to the National Power Grid. The power supply in Lamu County and the surrounding environs is insufficient and unreliable. Power supply is quite often interrupted and consumers also suffer from voltage fluctuations. It is also not sufficient to satisfy the demand of the larger Lamu County As of end of the year 2015 Lamu County was connected to the national grid through the energizing of the Garsen to Lamu section of KETRACO's Rabai–Malindi–Garsen-Lamu line. This was in an effort to reduce the current power blackouts in Lamu town and the surrounding areas and to meet the increased power demand due to the envisaged expansion of Manda Airstrip as well as

[18] Source: KNBS & SID Exploring Kenya's Inequality-2013

construction of Lamu Port, growth of Lamu town and its environs. This replaces the costly diesel power plants in Lamu and Mpeketoni as well as adds to the number of consumers connected and supplied with the required quantity of affordable energy within the county. In addition to boosting local economic growth, this development will also ensure the supply of power to the planned LAPPSET project. This new development may also impact the proposed project in that the project site may be connected to the Hindi sub-station, possibly eliminating the necessity for the EPC contractor to run on diesel-powered generators during the construction period.

3.10 Land use

Lamu County has a land surface area of 6273.1 square kilometers composed of 5,517 square kilometers of arable land 649.7 square kilometers of non-arable land, 130 square kilometers of coastline and 308 square kilometers of under water land mass. Lamu West takes 63.3% of land surface area at 3971.3 square kilometers while Lamu East takes up 36.7%. The bulk of arable land is in Lamu West while Lamu East takes the bulk of water mass. Lamu County falls within the 4 agro-ecological zones outlined below:

- Coconut Cassava zone (CL3)
- Cashew nut-Cassava zone (CL4)
- Livestock millet zone (CL5)
- Lowland ranching zone.(CL6)

Only 13,000 households in Lamu County have title deeds for the land they own. This translates to 42% of the total number of households in the County. It is important to note that majority of these are from Lamu West. A larger part of the population in the County lives on ancestral land as squatters.

Lamu County suffers from poor land use as majority of landowners are keeping their parcels idle, without much economic activity. Most of the settlements are unplanned with scattered populations.

3.11 Transport infrastructure and access

Lamu County is accessible by air, sea and road. The County has no rail transport.

Figure 3-22 shows the road network map of Lamu County. The County ranks 9th out of the 47 counties with the least road network density, standing at less than 20km/100km^2 as compared to Nairobi which stands at over 430km/100km^2 (road density determines the accessibility within the county, which is the ease with which goods and services and can be reached). The County's total road network stands at 688.6 Km with only 6 Km in bitumen standard (tarmac), 161.1 Km gravel surface, and 521.5 Km earth surface. While 42% of the existing roads are recorded to be in good/fair condition, most of them offer rough travel by vehicles and are impassable during the rainy season. There are two main roads that offer access into the County. These are:

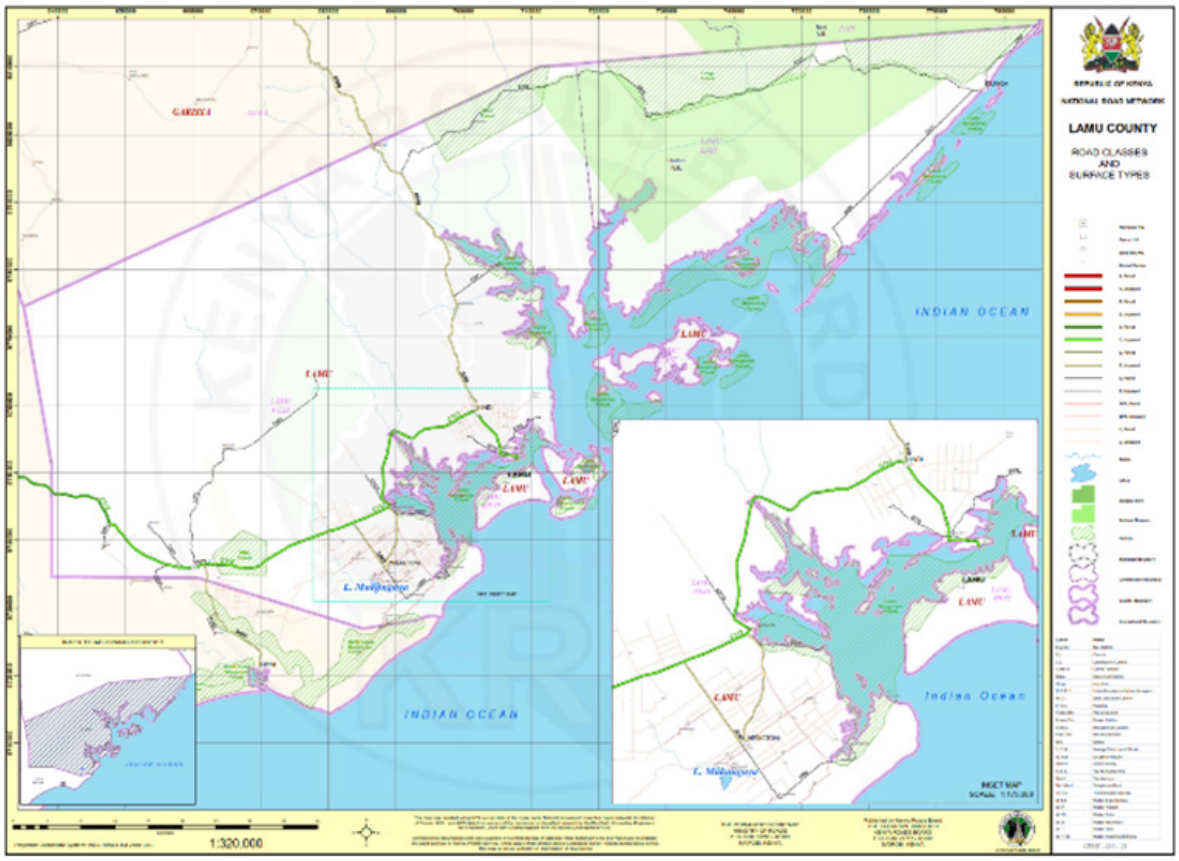
- Mokowe - Garsen road which connects the county to the rest of the coastal counties
- Mokowe –Kiunga road connecting the county to the Somalia border

Commercial bus companies offer transport along the Mokowe-Garsen road. However, there are no public transport services along the Mokowe-Kiunga road making residents rely on

Government and personal vehicles for travel. 14-seater vans (Matatu) and commercial motorbikes (Boda boda) are the main public transportation means within the mainland. Donkeys are the main form of transportation in Lamu Town with an estimated population of 2,200 donkeys being used for farming and transportation of provisions.

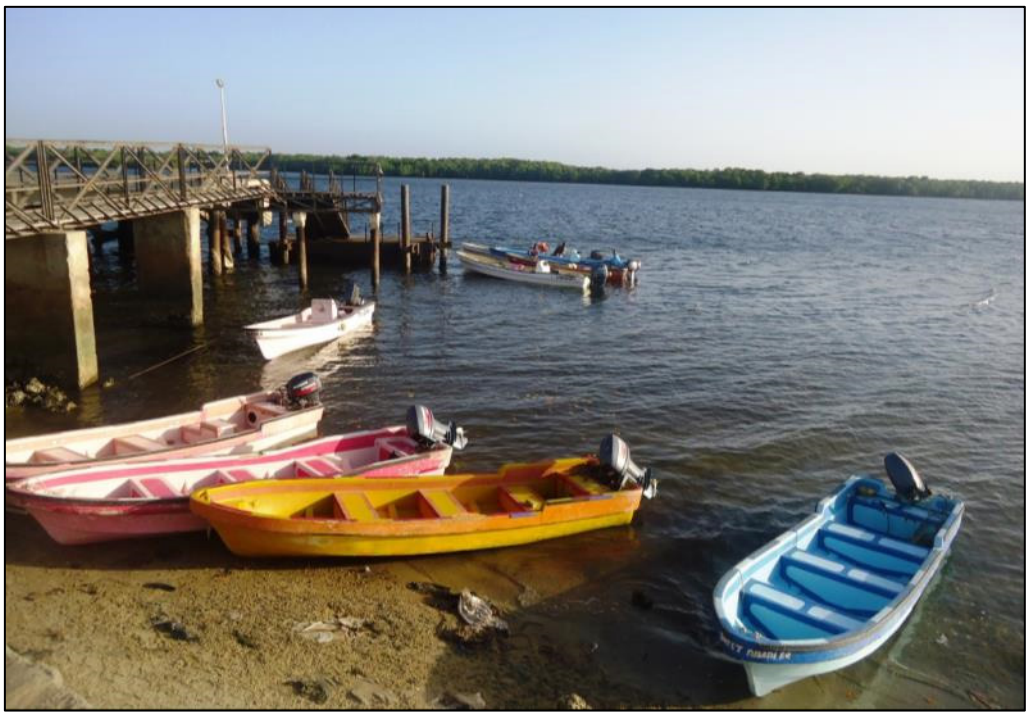
The County has 13 airstrips. Of these, 11 are public and 2 are privately owned. Manda airstrip is the main airstrip offering passenger travel with 3 airline companies providing daily passenger flights. Other airstrips in the County include: Manda point 11, Manda Bay Naval, Mokowe, Kiunga, Kiwayu Island and Kiwayu mainland (Mkokoni) which are fairly maintained. Other airstrips are: Witu, Mkunumbi, Faza, Kizingitini. These are under bad condition. Tenewi and Mangai are closed due to the LAPSSET project.

Figure 3-22: Lamu County road network map



There are 8 jetties in the County which link the mainland to the islands as well as connect the different islands. The jetties include: Amu, Mokowe, Manda, Matondoni, Lamu customs, Fisheries and Hospital jetty. Amu, Matondani and Mokowe jetties are in good condition and are used by passengers, fishermen and for loading goods coming in and out of the Island. The rest are in poor conditions. Dhows, Semi-motorized dhows and speedboats are the main transport means for the on-sea travel. Fuel cost is high, resulting to high passenger fares that hinder access to goods and services, especially for the poor The Lamu – Faza seaway is a major transport course in the County although the route remains dangerous to users due to unfinished dredging near Manda. Figure 3-23 below displays one of Lamu's main jettys.

Figure 3-23: Lamu Jetty



3.12 Community organization

According to the CIDP Lamu County, the following were the civil society establishments within Lamu County:

- 19 active Non- Governmental Organizations involved in various activities including capacity building, civic education, poverty eradication, HIV and Aids initiatives, women empowerment, disaster preparedness and protection of marine ecosystem;
- 33 registered cooperatives of which only 13 are active and;
- 1,345 self-help groups undertaking activities around enterprise development, poverty eradication, drought management, HIV and Aids. Of these, 421 are women groups and 373 are youth groups

The SIA team consulted with the department of social services and development, Lamu County. From these consultations, it was noted that currently, there are 3,551 registered groups within Lamu County, 546 of these based in Hindi division. They are segmented into Youths groups, women groups, CBOs. Most groups are concentrated in the urban centres and few are found in the rural areas. Majority of these groups engage in Income Generating Activities such as fishing, farming, livestock keeping, environmental conservation, savings and microfinance, HIV/AIDS awareness and support.

3.13 Security and crime

According to the National Police Service Annual Crime Report 2014, Lamu County was rated as one of the Counties with the lowest reported crime rate with a total of 316 reported crimes compared to 6,732 cases reported in Nairobi County during the year 2014. However, this was an increase from the previously recorded 234 cases in 2013.

Nonetheless, terrorism and religious radicalism have become the principal threat to security in Lamu County. This has been contributed to by the County's proximity to the long and porous border with the politically unstable Somalia. Major threat emanates from the al-shabaab (a Somalia-based militant Islamist group) crossing into Kenya from Somalia. The terror attacks have had severe negative impacts on the County, with the tourism industry suffering being hardest hit. On July 21st 2014, a 6:00 pm curfew was imposed after a wave of terror attacks in which more than 90 individuals were killed. This has disrupted the normal socio-economic activities of the County.

There are also notable conflicts between farmers and livestock herders over contested resources such as land and water. These are mainly between the crop producers and the nomadic pastoralist from within the County as well as from the neighboring Counties such as Garissa and Tana River.

4 Stakeholder engagement

4.1 Overview

Following a review of the baseline scoping outcomes as well as a stakeholder analysis process, various stakeholder engagement activities were carried out for public consultation and disclosure for the proposed project. The minutes and registration logs for the stakeholder disclosure and consultation meetings are appended to this report as appendices 3 and 4. The purpose of stakeholder engagement was to establish and maintain a constructive relationship with a variety of stakeholders throughout the lifetime of the project.

It is important to note that Lamu County has been faced with security concerns related to terrorism threats. During the period in which the ESIA study was undertaken, the Kenya Police had enforced a dusk-to-dawn curfew in a move to restore security following a sequence of terrorist attacks in the County. Consequently, this hindered movement of the SIA team and restricted access to several areas in the main land, particularly those proximate to Boni forest and Kwasasi, the proposed project site.

A Stakeholder Engagement Plan (SEP) for this project has been prepared illustrating the engagement activities that were carried out during the scoping and ESIA phases and those that are to be implemented during the construction and operations phase.

The Stakeholder engagement for this project has taken into account (as will be illustrated in the main report) the following elements:

- Stakeholder analysis and planning,
- Disclosure and dissemination of information,
- Public consultation and participation,
- Identification of and consultation with vulnerable stakeholder groups,
- Grievance mechanism and ongoing reporting to Affected Communities

4.2 Stakeholder engagement activities

4.2.1 Stakeholder Identification

A conclusive and participatory stakeholder identification and analysis process was conducted by APCL with counsel from key informants from the community, Government and private sector. This has formed the foundation for planning and designing of subsequent stakeholder engagement activities.

The stakeholder database is appended to this report as appendix 2. It will be reviewed and refined regularly as project particulars become more detailed and definite. Stakeholder groups were identified at local, county and national levels. They have been grouped into the following categories;

- Private sector (PRS)

- A total of 14 stakeholders which includes commercial enterprises and members of the public

- Public sector (PUS)
  - A total of 31 stakeholders which includes local, county and national Government representatives, Government ministries and state corporations and regulatory bodies
- Civil society (CIS)
  - A total of 18 stakeholders which includes religious groups, civil society groups, non-Governmental organizations and community groups

4.2.2 Disclosure of Project Information

4.2.2.1 Legal and best practice guidelines for information disclosure

Project information dissemination and disclosure was conducted in line with both Kenyan legislation and the requirements of IFC and the AfDB.

Kenya legislation, through the Environmental Impact Assessment and Audit Regulations, calls for Public participation and consultation throughout the impact assessment study. Public consultation requirements in the above regualtions state that the Proponent will:

1. Seek the views of persons who may be affected by the project in consultation with the Authority (NEMA),
2. Publicize the project and its anticipated effects and benefits by erecting posters in strategic public places informing the affected parties and communities of the proposed project
3. Publish a notice on the proposed project in a newspaper that has a nation-wide circulation and make announcement in both official and local languages in a radio with a nation-wide coverage
4. Hold public meetings with the affected parties and communities to explain the project and its effects, and to receive their oral or written comments. Ensure that appropriate notices are sent out at least one week prior to the meetings and that the venue and times of the meetings are convenient for the affected communities and the other concerned parties

Additionally, following the submission of the ESIA report to the NEMA, the Authority shall, within fourteen days of receiving the environmental impact assessment study report, invite the public to make oral or written comments on the report upon which, if deemed necessary, the Authority may hold a public hearing.

The Kenyan legislation on Public participation are aligned with the AfDB information disclosure and public consultation requirements as specified under operational safeguard 1 on environmental and social assessment. This requirement calls for APCL to conduct and provide evidence of meaningful, free, prior and informed consultation with the communities likely to be affected by environmental and social impacts, and with all identified local stakeholders. Specifically, the Proponent should ensure:

- Involvement of representative bodies and civil society organizations, as well as members from the vulnerable communities
- Inclusivity in a socially and culturally appropriate manner;
- Provision of sufficient time for the vulnerable groups' decision-making processes;

- Facilitates the vulnerable groups' expression of their views, concerns and proposals in the language and manner of their choice, without external manipulation, interference, coercion, or intimidation
- Respecting the culture, knowledge and practices of vulnerable communities

4.2.2.2 Dissemination of project information

Dissemination of project information was done through verbal discussions and information documents. More specifically, the mediums used included:

- One-on-one consultations with key stakeholder representatives
- Formal meetings with key agencies
- Focus group workshops
- Community public meetings
- Media briefings and
- Distribution of the project Background Information Document (BID) The BID outlined:
  - Proponent details
  - Technical description of the project and its impacts
  - A description of the ESIA process
  - A description of modes of stakeholder participation

In addition, the following support materials were prepared for stakeholder dialogue:

- Stakeholder invitation letters
- Public meeting notices (English and Swahili)
- Stakeholder registration logs and
- Power point presentations of the proposed project

The public meetings were conducted in Kiswahili language. APCL CLOs, management and board representatives were present during all disclosure meetings to receive and respond to raised issues. Local leaders – traditional and administrative, were invited to all public meetings. All stakeholder engagement activities were documented under a stakeholder engagement log and recorded through minutes and an issues and response report generated. These are appended to this report.

4.2.3 Public/stakeholder consultation

As part of the ESIA study, a public/stakeholder consultation program was undertaken in order to:

- Provide information about the proposed project
- Contribute to the design of the stakeholder engagement process
- Assist in identifying potential impacts and reasonable alternatives
- Ensure that their views and concerns are incorporated into project design and implementation with the objectives of reducing or offsetting negative impacts and enhancing benefits from the project

- Contribute relevant local information and traditional knowledge to the ESIA and ensure that community issues have been considered in the environmental and social specialist studies

The public consultation was focused on engaging community residents, businesses, local/public authorities, community leaders, county/national Government departments as well as other individuals or groups that express interest in the project. APCL is committed to effective and open consultation to ensure that potentially affected members of the public are fully aware of the project and have the opportunity to make their views known. The receipt of information on public and stakeholder comments and concerns will help ensure that all important issues are considered in the environmental assessment and effectively addressed.

It is important to note that stakeholder consultation is an ongoing process and further consultations will be conducted as the project progresses. Minutes of meetings held and digital photographs taken during the meeting are appended at the end of this report.

The publicity of the stakeholder meetings was done through APCL CLOs, local elders, public notice posters, and formal invitation letters. A combination of various information and consultation methods was used. These included key informant consultations, meetings with the public and media activities. These are expounded on in section 4.2.2 above. Figure 4-1 to Figure 4-4 display images from various stakeholder consultation meetings.

Figure 4-1: Public meeting with residents of Bargoni and Ngini at Bargoni Primary School

Figure 4-2: Public meeting with residents of Pate Island at Pate Social Hall

Figure 4-3: KTL's lead expert illustrates the proposed project site to residents of Kwa Sasi, during a public meeting at Kwasasi (the proposed project site)

Figure 4-4: Consultative workshop with female opinion leaders at Mwana Arafa Restaurant, Lamu Island

4.2.4 Schedule of disclosure and consultation meetings

The minutes and registration logs for the stakeholder disclosure and consultation meetings are appended to this report as appendices 3 and 4. Table 4-1 below outlines the schedule of dissemination and consultation meetings held during the scoping phase.

Table 4-1: Schedule of disclosure and consultation meetings

Date and Place	Stakeholder group and meeting purpose
9th January 2015 Subira Hotel, Hindi, Lamu mainland	Ward administrator, Hindi and Senior Chief, Village headmen, community leaders (from affected communities) and mangrove cutters representative. Project Introductory meetings
9th January 2015 Lamu Museum, Lamu Island	National Museum of Kenya representatives (Lamu museum) Project Introductory meetings
9th January 2015 Lamu Island	Assistant County Commissioner, Lamu County Project Introductory meeting
21st January 2015 Kwasasi (Proposed project site)	Individuals operating within the Kwasasi area Discussions on the cultural heritage of communities operating within or near proposed site Representatives from all main ethnic groups operating in the area (Bajuni, Giriama, Kikuyu, Boni, Sanye, Somali and Borana)
22nd January 2015 Kwasasi area	Representatives from pastoralist communities Discussions on the cultural heritage of communities operating within or near proposed site
22nd January 2015 Bargoni	Representatives from the Boni community Discussions on the cultural heritage of communities operating within or near proposed site
24th January 2015	Save Lamu Representatives Workshop

Date and Place	Stakeholder group and meeting purpose
Mwana Arafa Restaurant Gardens, Lamu Island	
24th January 2015 Mwana Arafa Restaurant Gardens, Lamu Island	Lamu Youth Alliance Representatives Workshop
25th January 2015 Mwana Arafa Restaurant Gardens, Lamu Island	Male Opinion leaders Representatives Workshop
25th January 2015 Mwana Arafa Restaurant Gardens, Lamu Island	Female opinion leaders Representatives
26th January 2015 Bargoni Primary School	Bargoni and Ngini Residents Dissemination and consultation public meeting
26th January 2015 Mokowe Primary School	Mokowe Residents Dissemination and consultation public meeting
27th January 2015 Ardhi House, Mokowe, Lamu	Lamu County Land Management Board Project Briefing Meeting
27th January 2015 Kwasasi (Proposed project site)	Kwasasi Residents Dissemination and consultation public meeting
27th January 2015 Hindi Digital Sports Centre and News Hindi, Lamu mainland	Hindi Residents Dissemination and consultation public meeting
28th January 2015 Changa Chini, Mtangawanda, Pate Island	Mtangawanda residents Dissemination and consultation public meeting
28th January 2015 Pate social hall, Pate Island	Pate residents Dissemination and consultation public meeting
2nd February – 3rd February 2015, Sarova Panafric hotel, Nairobi	Lamu County Government workshop
10th February 2015, Serena Hotel , Nairobi	Media editors Kick-off briefing
11th February 2015, Standard Media Group Offices Nairobi	Standard media group editors Kick-off briefing
12th February – 13th February 2015, Tamani Jua Resort, Malindi	Lamu members of County Assembly workshop
24th February 2015 Crowne Plaza Hotel, Nairobi	Media houses press briefing
1st April 2015 Mwana Arafa Restaurant Gardens, Lamu Island	Lamu County Administration kick-off workshop
22nd June 2015 Lamu Island	Key Informant Interview Ministry of Gender, youth and social services Lamu County Government
23rd June 2015 Ardhi House, Mokowe	Key Informant Interview Ministry of Education Lamu County Government

Date and Place	Stakeholder group and meeting purpose
23rd June 2015 Public health Office, Lamu Island	Key Informant Interview Ministry of Health and Environment Lamu County Government
24th June 2015 Ministry of Agriculture Office, Lamu Island	Key Informant Interview Ministry of Agriculture Lamu County Government
23rd June 2015 Chief's camp, Hindi	Focus Group Discussion with vulnerable stakeholder groups – Members of the Pastoralist communities
24th June 2015 Chief's camp, Hindi	Focus Group Discussion with vulnerable stakeholder groups – Women from communities proximate to the project site
24th June 2015 Chief's camp, Hindi	Focus Group Discussion with vulnerable stakeholder groups – Elders from local minority communities
25t June 2015 Chiefs camp, Pate Island	Focus Group Discussion with vulnerable stakeholder groups – Farmers

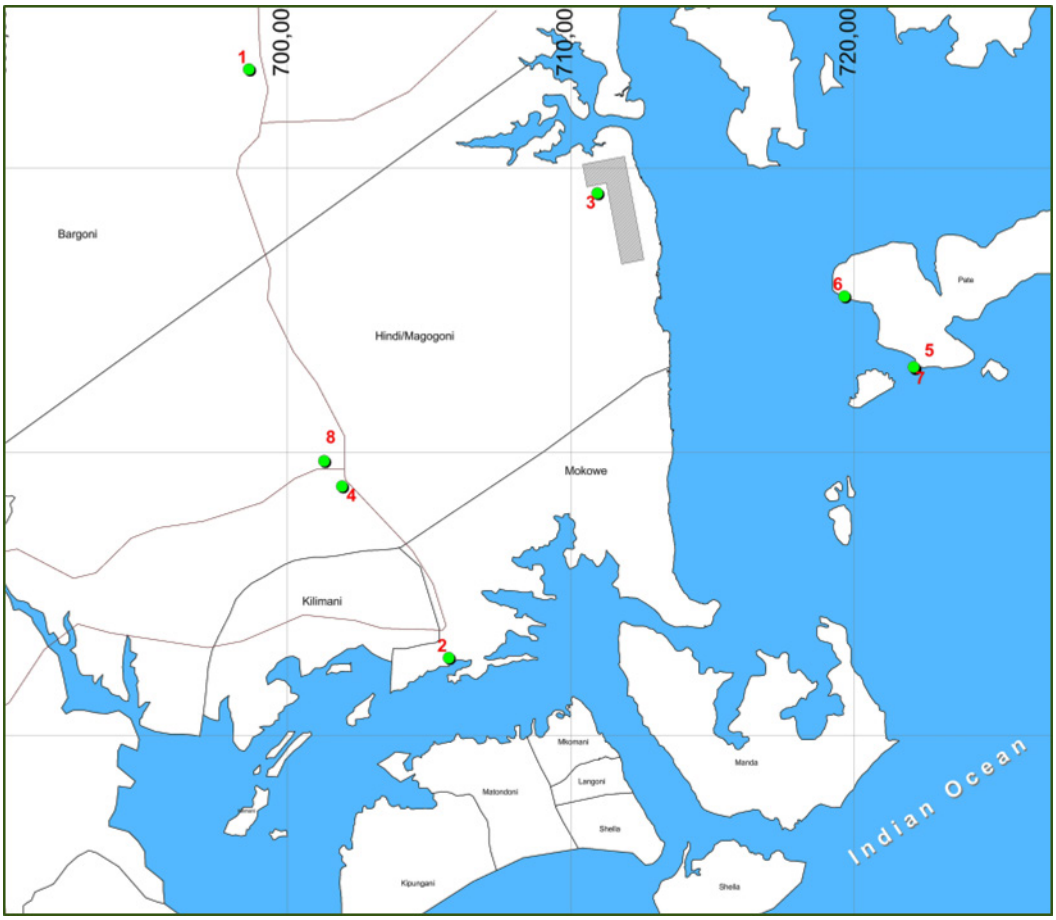
4.2.5 Locations of disclosure and consultation meetings

Dissemination and consultation meetings were held in Nairobi (for key ministry and state cooperation representatives) Lamu town as well as within communities neighboring the proposed project site. These included: Kwasasi (proposed project site area); Mtangawanda, Pate Island; Pate Town, Pate Island; Bargoni; Mokowe; and Hindi. The public meeting locations were selected based on the following factors:

- Populated areas near the proposed project site
- Areas most likely to be adversely affected by the potential project impacts
- Areas of commercial, administrative, and social value
- Areas recommended as convenient congregation points for majority of the targeted stakeholders

Figure 4-5 shows the locations where the public dissemination and consultation meetings were held.

Figure 4-5: Locations of the public dissemination and consultation meetings



4.2.6 Consultation with vulnerable groups

In cooperation with key informants from government, the community and civil society as well through literature review, the following vulnerable stakeholder groups were identified:

- Local communities (Aweer, Sanye and Orma)
- Women and children

Section 3.3.1 (Vulnerable communities) of this report outlines the definitions and rights of vulnerable groups as outlined within Kenyan law. The local communities likely to interact with the proposed Coal Power Plant Project include the Aweer, Sanye and Orma. The project team consulted with each of the local communities and women through open public meetings and focus group discussions. The minutes and registration logs are appended to this report as stakeholder engagement logs 17 to 20 under Appendix 3. The key views, concerns and requests collated during these consultations are aggregated in section 4.3 on key stakeholder views and concerns while Figure 4-6 and Figure 4-7 shows images from various consultative meetings with representatives from vulnerable groups.

Figure 4-6: FGD with women from communities proximate to the proposed project site

Figure 4-7: FGD Boni and Sanye Elders (Local communities)

4.3 Key stakeholder views and concerns collated

The stakeholders shared their views, concerns and requests on the proposed project. These have provided insight to the development of this SIA report and will be addressed accordingly during the project lifecycle. Minutes and issues and response reports of the stakeholder engagements are appended to this report as Appendix 4.

Table 4-2 gives a summary of the key views, concerns and requests during the stakeholder engagement activities.

Table 4-2: Key stakeholder views, concerns and requests

Key views, concerns and requests highlighted	
Access to potable water	• Widespread lack of access to clean water for household consumption. Communities having to: walk long distances to access water, purchase water at expensive rates, forego daily routines on account of lack of water • Substandard water quality leading to disease • Stakeholders, especially the women, emphatically expressed their request for APCL to prioritize access to portable water in their CSR initiatives
Education	• Inadequate number and distribution of schools • Lack of adequate infrastructure in the existing schools • Poor academic performance • Low education levels and high rates of school drop-outs • General concern expressed over the local youth's low education levels and lack of marketable skills. This was cited as a hindrance to accessing the project's employment opportunities • Need to establish and capacity build tertiary level institutions • The stakeholders, especially those consulted from vulnerable groups cited poverty as the key challenge to access to education and requested APCL to provide bursary and sponsorship support
Health	• Inadequate number and distribution of hospitals • Lack of adequate infrastructure in the existing hospitals • Need to provide ambulances to ease hospital transfers and referrals, with emphasis on maternity services • Need to rehabilitate and upgrade Mokowe hospital • Women expressed the need for satellite clinics in areas that are far from the available facilities to provide maternal health services
Livelihoods	• Concern was raised over the potential loss of livelihoods as a result of project activities with emphasis on the fishing and agriculture industries • Need for financial literacy capacity building for those to receive land compensation pay offs • It was emphatically expressed that the project team should ensure that those affected are not only compensated for their land and assets, but also for lost livelihoods and disruption of their day to day lives

Key views, concerns and requests highlighted	
Available employment, business and CSR opportunities for the local community	• There was a general expression of the need to clearly highlight the available employment and business opportunities that the project will present, • Need to ensure that information about available economic opportunities is delivered early enough for the community to prepare. Mediums for this information should be easily accessible to the community such as the use of local radio, local leaders and local notice boards • A need to clearly outline the percentage of employment and business opportunities that will be dedicated to the local community • A need to prioritize the local community in capacity building, employment and business opportunities • An expressed need to outline how APCL will empower the local community to participate in and benefit from the available opportunities • The community expressed a need to ensure equitable access to all available opportunities including consideration for the extremely poor and vulnerable groups • Stakeholders, especially women and local communities, requested APCL to offer business training, loans and input support to enable them participate in the available business opportunities, citing that they are the poorest in the community and lack the skills and financial capacity to compete with other members of the community for the available opportunities
Resettlement and compensation	• General concern over the lack of title deeds by land owners • A need to understand the exact site and boundaries of the project site • Need to understand how the resettlement and compensation exercise will be implemented: who will compensate, the proponent or the Government; what will be the price paid for an acre of land; will those displaced be allocated alternative land in another location; when will the compensation be implemented; how will the PAPs be identified • General concern over fraudulent land grabbing activities by influential individuals • An expressed concern that alternative land provided as during resettlement may not possess the same beneficial qualities as those within the project site. Such include land productivity, high land rates, proximity to water sources, marine travel and social ties
Poor road network	• Concern over the poor road network

Key views, concerns and requests highlighted	
	• Expressed need to develop the road networks in light of project-induced traffic increase
CSR program and benefit sharing mechanism	• Expressed need for APCL to clearly outline: how APCL will undertake community development; how APCL will share revenue with the county Government; how APCL will ensure benefit sharing with the local communities • Stakeholders highlighted the following areas that the APCL CSR programme should focus on: Health; education; access to portable water supply and; improvement of roads
Project related politics	• The community articulated fear of politicization of the project with emphasis on; the resettlement and compensation; equitable access to opportunities by the local community
Project related impacts	• General concern over the potential negative health impacts • Expressed need to be assured that the project will not be implemented should potential impacts be adverse and without sufficient mitigation measures • Expressed need to be assured that the ESIA process will be transparent • An expressed need by the community to be actively engaged in the ESIA process
Lack of commitment	• The locals were concerned that APCL will not honor their commitment to enhance and promote the community's to benefit from the project
Unequal Opportunities	• Some locals claimed that the project will tend to favor a selective few politically and economically affluent individuals, as this has been the case with past development projects of a similar nature
Vulnerable Groups	• The local communities expressed their key concern that they may not be recognized as legal owners since they do not hold formal title deeds to their land and hence may not be compensated during RAP • Vulnerable groups in the society such as women, the uneducated, and the disabled should not be discriminated against during employment. Opportunities should be created for them in which they can take advantage of to better their livelihoods.

4.4 Gender Considerations

Gender considerations for the preparation of this SIA report and the mitigation measures herein have been informed by the Kenya National Gender Policy (2011) and the AfDB Gender Policy (2001) as highlighted under sections 2.1.2 and 2.3.2 of this report.

Majority of the local communities in Lamu County, including those within and proximate to the proposed project site are considered as vulnerable groups in Kenya. The new Constitution of Kenya (2010) considers women as a whole as a vulnerable and marginalized group within society, along with persons with disabilities, children and youth.

Women from minority communities face multiple forms of marginalization as recognized in the Kenyan Constitution (2010). In 2012, Kenya was ranked 46 out of 86 countries in the OECD Social Institutions and Gender Index, which assesses countries based on the existence of discriminatory social institutions, such as early marriage, discriminatory inheritance practices, violence against women, son preference, restricted access to public space and restricted access to land and credit. That notwithstanding, the constitutional changes geared towards affording women legal protections related to equality are yet to be fully realized. For instance, despite constituting half of the population, women only hold title to between 1% and 5% of land in Kenya[19].

Lamu County has a 52% - 48% male to female gender distribution as recorded in the 2009 National Census. The County is predominantly Islam with a strong Swahili culture background. These two factors, coupled with high poverty levels and low education levels for women, have shaped perceived gender roles, access to wealth creation avenues and active participation in governance and decision making with emphasis on communities on the main land. The main problem concerning women is their low incomes, a consequence of the generally low level of education, which in turn was caused by poverty – the inability of the family to pay school fees – and their social roles as domestic caretaker.

4.4.1 Division of unpaid labor/work

Division of unpaid labor is largely governed by the traditional norms of the Swahili culture where women are domestic caretakers and the men are perceived as the family breadwinners. Generally, majority of the unpaid labor which largely constitutes of domestic work and sustenance agriculture is undertaken by the women.

4.4.2 Income generating activities

The Chief income generating activities within Lamu include fishing, agriculture, tourism, trade and enterprise. Fishing is perceived as a male's activity due to its associated long trips away from the family, dangerous marine travel and hard labor. While women do participate actively in the commercial agriculture, there exist parity in the roles and division of benefits accrued. Women are generally involved in the production aspect while the men undertake the role of trading agricultural outputs and making key decisions on how agricultural proceeds are utilized. The trade and enterprise industry is predominantly male dominated. Women participate in small scale merchandising, mostly related to foodstuff. In addition, their low education, lack of collateral and the relatively strict rules concerning eligibility for credit institutions hinder women from investing in their businesses. While the tourism industry is the second largest in Lamu County, the women participating in the industry are largely immigrant females from other Counties. The local women occupy only

[19] challenges at the intersection of gender and ethnic identity in Kenya (2012)

between a quarter and a third of the tourism industry jobs, especially the hotel and catering sector, which is avoided by the local women due to its association with immorality.

4.4.3 Power supply and fuel consumption

In terms of energy utility within Lamu County, the chief fuel source for cooking is firewood as utilized by 71% of the households. 23% of the households use charcoal, while 3% use paraffin. Only 1% of residents use liquefied petroleum gas (LPG). The main fuel source for lighting, as utilized by 39% of households, is tin lamps. A further 33% use lanterns while 17% of residents use electricity. 2% use fuel wood as a fuel source for lighting. Consequently, women bear the main burden of collection of biomass energy sources such as firewood. Subsequently, women and children suffer most from adverse health impacts of biomass collection and use. Of all outpatient health cases reported in all health facilities in the county, diseases of the respiratory system are highest, both in the under-five and over-five year old patients.

While 71% of households (majority constituting those on the main land) use firewood as the main fuel source for cooking and 39% of households, use tin lamps for lighting, improved access to electricity as a result of the project was not perceived as chief benefit to the community. Employment, business opportunities and infrastructural development were highlighted as critical gains to the community even by women who hold the primary role of sourcing and utilizing firewood at the household level.

4.4.4 Access to and control over productive factors and involvement in societal organization

Over the recent years there have been considerable and successful efforts in social and economic empowerment of women. School enrolment of the girl child has increased and more women are participating in income generation activities. However, access and control over the key productive factors especially land remain predominantly male dominated. Consultations with female stakeholders revealed concerns over the land take and compensation related to the project stating that those who stand to gain are the men as they are considered the property owners.

4.4.5 Key challenges facing the local female population

Consultations held with women from the local communities highlighted the following as key challenges faced by the local women:

- Traditional and cultural biases in the allocation of roles and opportunities
- Difficulty in accessing maternal healthcare and high maternal mortality rates
- Discriminative cultural practices such as early marriages
- The triple burden of child bearing, economic production and home making, more so with the increasing number of female headed households
- Poor education levels underlined by non-progression to tertiary level training. There exist disparities in school attendance as female students constitute 47% of the total student population in the County while male students constitute 53%[20].

[20] KNBS Statistical abstract 2014

- Lack of adequate representation at levels of decision making and governance
- Lack of asset ownership, with emphasis on land. This has substantially undermined their access to credit services to start or improve business enterprises

4.4.6 Gender mainstreaming recommendations and Key Performance Indicators (KPIs)

Women lack both a formal voice in the community and an informal voice through participation in the various institutions and organizations linked to the energy sector in the country. Additionally, relative to men, women within the Lamu community have less access to productive assets and services such as land, technology and financing. Access to affordable energy services is an essential prerequisite for achieving economic growth and poverty reduction and can make a significant difference in women's lives in terms of their health, time use, education and income generation. It is therefore vital to include gender mainstreaming into the proposed Project's frameworks, to continually collect gender disaggregate data and to use this data to adjust project planning and evaluate project outputs and impacts.

It is important that the project team ensures gender-inclusive project design and makes deliberate efforts to identify opportunities for women to participate in the project with emphasis on decision making and economic benefits. This SIA report takes into account national and international legislation, policies and best case guidelines in gender mainstreaming. These have informed the gender considerations made throughout the preparation of this SIA with emphasis on the assessment of project related impacts and the correlated mitigation and benefit enhancement measures as elaborated in sections 6 and 7 of this report

Based on the Gender focus areas identified during the social impact assessment and expressed interests and concerns collated from the local women and stakeholders during public consultations, the following Gender mainstreaming recommendations and KPIs are proposed. Table 4-3 below highlights the key gender considerations and mainstreaming recommendations and possible KPI's to be executed throughout the project lifecycle. These should be regularly appraised to reflect changing gender dynamics and policies as may be necessary.

Table 4-3: Gender mainstreaming recommendations and possible KPIs

Gender consideration	Recommended measures	Possible gender-related Key Performance Indicators
Enabling Policy Environment	• APCL and its contractors should ensure all operations are aligned to the provisions of the Kenya National Gender Policy (2011) and the AfDB Gender Policy (2001) • Additionally, the the EPC contractor should endeavor to develop and implement an organizational Gender Policy that will ensure employment and business opportunities are accorded to men and women equally, and where necessary, affirmative actions are applied to bridge gender gaps that may exist • Develop and implement a comprehensive company Violence and Sexual Harassment Policy and ensure all employees are adequately sensitized	• Effective organizational gender policy and vision established • Reflection of gender priorities in company manuals and publications • Evidence of sex-disaggregated monitoring and evaluation system within project frameworks • Developed and institutionalized comprehensive company Violence, Sexual Harassment and Discrimination Policy • On-boarded gender specialist • Evidence of gender training/capacity building of APCL and contractor staff and stakeholders
APCL institutional capacity to provide gender-responsive environment and services	• The EPC contractor should provide a work environment that is safe and conducive to both women and men, considering gender-disaggregated differences and vulnerabilities through: - Providing adequate onsite worker's sanitation facilities, where women should have separate facilities from men - Develop and implement a comprehensive company Sexual Harassment Policy - Gender considerations in allocating work-shifts, such as avoiding, where necessary, placing female workers on night shift	• Developed and implemented comprehensive company Violence, Sexual Harassment and Discrimination Policy • Demonstrated evidence of a gender-sensitive work environment

Gender consideration	Recommended measures	Possible gender-related Key Performance Indicators
Direct employment for women	• The EPC contractor to develop and implement a Human Resource Management Plan that will focus on assisting vulnerable persons and women access training and employment in the project. The strategy should outline a minimum target (%) for the participation of women and other vulnerable groups in the project • Promote and provide technical and vocational training for women to promote their employment within the company • Consider local culture (dressing, family roles and inter-gender interactions) in allocation of roles. For instance, where practical, avoid placing women of Islam background in roles where they will be required to dress in religiously unconventional attires such as trousers or remove their head scarfs • Partner with education service providers, such as the local polytechnic and colleges, to implement gender-inclusive technical training programs	• Developed and institutionalized gender sensitive Workforce Recruitment and Training Strategy • Evidence of equal opportunities accorded to women and men in recruitment • Evidence of staff gender balance at: - Management level - Professional level - Field non-technical level • Number and percentage of jobs (person-days) generated by the project for women (by type of job and pay rates) • Evidence of the type of incentives designed to recruit women, increase their capacity, and provide career development in the energy sector
Women's enterprises established and operating (Indirect and induced employment)	• Make deliberate efforts towards women and youth economic empowerment through: - Skill capacity building to enable them establish and operate enterprises - Financial/credit support since majority of the local women do not qualify for credit services by credit service providers due to their poor education and lack of collateral - Provide financial literacy training programmes	• Number of new electricity using enterprises operated by Women • Evidence of an increase in employment and revenues for female entrepreneurs directly or indirectly attributed to the Coal Power Plant • Number of women linked with direct and indirect project opportunities that enhance their income

Gender consideration	Recommended measures	Possible gender-related Key Performance Indicators
	- Give priority to female and youth owned enterprises during allocation of procurement tenders - Sensitize local women and youth on the opportunities available for energy-based enterprises and livelihoods	• Number of female entrepreneurs facilitated with financing to address barriers women may face, for example in accessing necessary collateral (land, property) • Number and proportion of project related procurement opportunities awarded to local women and youth(individuals, groups or companies)
Women Empowerment	• Ensuring representation of the local women in decision making levels within the project with emphasis on women from local minority communities • Actively engage the local women through continuous consultation and reporting • Sensitize local women and youth on available social and economic opportunities within the project • Prioritize women and female youth from the local communities in the allocation of education and training opportunities to bridge gaps created through religious and cultural biases. This should also be applied in the selection of the 1000 youth scheduled to be sponsored for skill building and eventual employment by the project • Make deliberate efforts to provide training opportunities to women and female youth on skills that will enable them actively participate in the project and energy sector in general such as engineering and technical skills	• Number / percentage of local women in community level decision-making bodies such as CSR project management teams and in community advisory forums • Number / percentage of local women attending meetings and speaking up at meetings • Evidence of decisions taken that include women's input • Evidence of the type of incentives designed to recruit women, increase their capacity, and provide career development in the energy sector
Possible adverse gender impacts of	• The expected economic growth, and population influx due to in migration may result in changes in social structure and norms. There is a likelihood of increased nightlife and entertainment activities in the area with its associated pre-	• Reduction in the time spent by females in fetching water for domestic and other uses • Reduction in the incidence of waterborne diseases

Gender consideration	Recommended measures	Possible gender-related Key Performance Indicators
the proposed project	disposing factors to the spread of HIV and other sexually transmitted diseases such as crime, drug abuse, infidelity and commercial sex activities. The low education and economic profile of the local women disposes them to these risks making mitigation measures necessary. These include: - Develop and implement an internal HIV/AIDs policy for prevention and protection - Develop and implement a peer educator program for HIV/AIDS and other wellness programs - APCL's CSR programme should include initiatives for public education on life skills, promotion of positive family values and predisposing factors to the spread of HIV and other STD's • Women in the local community do not have ownership rights to assets, with emphasis on land. During consultations with the local women, they expressed concerns that since the men hold ownership rights to land and property, and given the high poverty and low financial literacy within the local communities, the women feared that the men would misappropriate resources provided as compensation for land and assets during the project-related land take, leaving the women and children poor and landless. There is therefore need to: - Provide financial literacy and entrepreneurial education with emphasis to those who will be relocated and compensated - Promote civic education on positive family values	• Number and percentage of households within Lamu with access to improved water source as a result of direct Project intervention • Number of schools and health and other community facilities accessing energy sources for through direct efforts by the project (these may be through solar energy) • Evidence of a decrease in dropout rates for boys and girls in primary and secondary schools (as a result of energy technologies freeing time from fuel and water collection) • Number of local women who receive skill training through direct effort from the project • Number of local female students benefiting from new or improved educational facilities through direct effort from the project • Number and percentage of additional local women completing a technical, vocational, or other tertiary qualification as a result of direct effort from the project • Number and percentage of local women and girls awarded a tertiary scholarship • Number of schools upgraded or constructed that improve quality of education and/or reduce the distance for poor girls and boys to travel to school • Number of new or upgraded facilities designed to improve the learning environment (such as libraries and laboratories) • Percentage change in female enrollment and completion rates in technical and vocational education, including in

Gender consideration	Recommended measures	Possible gender-related Key Performance Indicators
	- Ensure full disclosure, consultation and meaningful engagement of women from the affected communities throughout the resentment process - Provide counseling to assist in adaptation to the new surroundings, if affected persons will be relocated to alternative locations • As discussed, there is a possibility of disruption and loss of livelihoods as a result of project activities. The sectors likely to experience substantial damaging impacts include tourism, fishing, crop production, and livestock husbandry. While women generally do not own or control production factors in these industries, they are beneficiaries through (1) income generated by the men in their households and, (2) they provide labor. Disruption and loss of livelihoods will stress family finances and impact gender roles. To mitigate: - The EPC contractor should ensure that job and business opportunities are available or are created for the local community and that proper capacity building is afforded to the local communities to enable them to benefit from the available economic opportunities - GoK, though the RAP process should jointly (with the affected community) develop a compensation plan for displaced and relocated people commensurate to the lost socio-economic value	nontraditional areas and growth sectors of the economy, with emphasis on the energy sector • Number and percentage of female students receiving financial support for technical and vocational education • Changes in local women' and girls' aspirations about education, employment and gender equality • Percentage reduction in reported cases of respiratory and eye problems among women and children • Proportion of women with access to improved maternal health services as a result of direct interventions by the Project • Number of health facilities upgraded or constructed to improve access to quality health care for the local communities • Percentage of health facilities adequately stocked with medical supplies and equipment needed for antenatal care, childbirth, postnatal care, and other reproductive health services targeted towards women and children • Increased engagement in economic activities by women due to better health services (Number and percentage of women who report time-savings and increased ability to engage in economic activities due to improvements in their own health care and reduced childhood illnesses)
Gender-responsive corporate social responsibility	• APCL should ensure active participation of women and vulnerable stakeholder groups in planning and implementing community development initiatives	• Evidence that procedures for responding to complaints are publicly available and accessible to women (Grievance Mechanism)

Gender consideration	Recommended measures	Possible gender-related Key Performance Indicators
	• Endeavor to support the women and youth self-help groups. There are 1,063 registered women groups and 579 youth groups within lamu County • Prioritize the provision of clean portable water to the local communities at conveniently accessible locations. This will not only improve community health, but greatly minimize the burden on women and girls to walk long distances sourcing for water for the household. • Improve maternal health services through provision of well-equipped maternity wings in the local hospitals as well as satellite clinics, provision of dedicated ambulances and support the county in adequate staffing of maternal health practitioners • Promote efficient energy sources such as solar powered street lighting to enhance night time security, solar powered household lamps to promote after-school studies, and solar, biogas or other clean energy initiatives for cooking. This will help reduce environment and health problems, such as smoke emissions and indoor pollution from firewood, kerosene and charcoal usage. • Initiate or support civic education and public sensitization programmes on key gender concerns such as: - Stopping early marriages and school drop-outs - Sexual health and drug abuse - Importance of educating the girl child - Available social and economic opportunities • Support education and training programmes targeted towards women and girls. Given the current low education levels,	• Number of female entrepreneurs facilitated with financing to address barriers women may face, for example in accessing necessary collateral (land, property) • Developed and institutionalized internal HIV/AIDs policy for prevention and protection • Number of women linked with direct and indirect project opportunities that enhance their income • Effective RAP process designed and successfully implemented • Number of female entrepreneurs facilitated with financing to address barriers women may face, for example in accessing necessary collateral (land and property) • Evidence of prioritization of the local community and women it allocation of employment and business opportunities including evidence of the type of incentives designed to recruit local community members and women, to increase their capacity, and to provide career development in the energy sector

Gender consideration	Recommended measures	Possible gender-related Key Performance Indicators
	especially at post-secondary levels, it is imperative that APCL's CSR programme prioritizes educational support. This can be achieved through: - Financial education support to children from female headed households, high-achieving female students, and those pursuing technical/engineering courses - Infrastructural development to improve existing institutions as well as establish new ones to improve access with emphasis on vocational training centres for women - Leadership training programmes for women and female youth	

4.5 Grievance Mechanism

The ESIA Consultant has developed a formal Grievance Management procedure (for identification, tracking and redress) to facilitate external communications with the affected parties and to manage complaints/grievances from communities and other local stakeholders that could potentially arise from the implementation of the 1,050 MW power plant project. The Grievance Procedure will enable stakeholders to raise questions or concerns with the Company and have them addressed in a prompt, systematic and respectful manner. Stakeholders who consider themselves affected by Amu Power Company Limited activities will have access to this Procedure at no cost.

The APCL Grievance Management procedure is a step-by-step approach for receiving, acknowledging and registering, reviewing, investigating and resolving complaints and grievances from all project affected stakeholders resident in the area of operations. The procedure sets out the steps to be taken to resolve grievances, role players involved in the process and timeframes to resolve grievances. The application of the grievance procedure is expected to result in a system-wide process to promote mutual confidence and trust and strengthen the relationship between the project team and the communities living in the project area. The GM will be integrated into the company's operations and management structure. A dedicated team, which will include the Community Liaison team, shall be appointed to implement the procedure.

The APCL Grievance Management procedure will capture grievances arising from actual project impacts, as well as issues which are simply perceived to be related to APCL, irrespective of whether they derive directly from APCL or APCL Contractor activities.

The procedure is focused on communities and other stakeholders and does not incorporate employee–employer related grievances, which will be addressed through other channels.

The procedure will be reviewed annually based on stakeholder input and, monitoring and evaluation outputs, to improve company performance regarding management of stakeholder grievances.

4.6 Resettlement Action Plan (RAP)

The proposed coal power plant is to be sited along the Manda Bay near the Lamu archipelago, Lamu County, Kenya. The proposed site lies within the delineated Lamu Port-South Sudan-Ethiopia Transport Corridor (LAPSSET) zone and covers an approximate area of 975.4 acres. Implementation of the proposed project will involve the acquisition of the required land on a permanent basis for the project. This acquisition may result in the involuntary re-settlement of people that occupy the land for various reasons. Resettlement is involuntary when it occurs without the informed consent of the displaced persons or, if they give their consent, without having the power to refuse resettlement. The land acquisition and associated re-settlement arrangements are the onus of the Government of Kenya, which has commissioned APCL to build, own, and operate the power plant for a period of 25 years. APCL expects to lease the required project site land from the Government of Kenya through the LAPSSET Corridor Development Authority (LCDA). The resettlement and compensation of Project Affected Persons (PAPs) is the Government's mandate.

4.6.1 Guidelines for the RAP

The RAP will involve the identification of the legal occupants of the site for compensation and re-settlement in accordance with the Kenyan law and applicable international guidelines, with emphasis on AfDB's Operational safeguard 2 (OS2) on Involuntary Resettlement, Land Acquisition, Population Displacement and Compensation and the AfDB Involuntary Resettlement Policy (2003). The Government is required to ensure that the individuals who must be displaced are:

- Treated fairly, equitably, and in a socially and culturally sensitive manner
- Provided compensation and resettlement assistance so that their standards of living, income-earning capacity, production levels and overall means of livelihood are improved;
- Provided with the opportunity to share in the benefits of the project that involves their resettlement

The land requirements for the proposed project site are significant. Lamu County has previously experienced contentions between other development proponents and the local communities over land matters. This has resulted in deleterious community perceptions and attitudes towards development projects requiring acquisition of private and community land, especially those associated with the Government. All stakeholder groups highlighted the land acquisition, resettlement and compensation process as a prime concern. Resettlement will entail physical displacement of the people and temporary disruption of their livelihoods. The process of land acquisition must be managed in a harmonized manner to ensure that there are no socio-economic-related grievances during the construction and operational phases of the Project. This, essentially, is the purpose of ensuring the Resettlement Action Plan (RAP) is properly planned and executed. Without proper planning and management, the involuntary resettlement may result in long-term hardship for affected people and environmental damage to the locations in which they are resettled, eroding the socio-economic gains envisaged on account of implementing the Project. It is crucial that the Government ensures that the process is transparent, equitable, and is implemented in a socially and culturally sensitive manner. To achieve this, the National Government should:

- Jointly with the affected community, should develop a Resettlement Action Plan (RAP) for landowners and/or displaced persons. If compensation is to be paid, it should be commensurate with the land value and lost socio-economic value;
- Complete all necessary land acquisition in accordance with the RAP prior to the commencement of any construction works; and
- Ensure full disclosure, consultation and meaningful engagement of the affected communities throughout the resentment process (including the host communities, if any).

4.6.2 National Guidelines

In compliance with the Constitution of Kenya, the project team will be take overall guidance in the preparation and implementation of the RAP from the National Land Act (2012), specifically Chapter 280 part VIII, which covers matters on compulsory acquisition of interests in land. This Act gives the provision for compulsory acquisition of land that is required for public purposes or in the public interest. The following are the key guidelines for the compulsory acquisition as provided under the Act:

a) The National Land Commission shall prescribe a criteria and guidelines to be adhered to by the acquiring authorities in the acquisition of land

b) All land to be compulsorily acquired shall be geo-referenced and authenticated by the office or authority responsible for survey at both the national and county government

c) If land is acquired compulsorily, just compensation shall be paid promptly in full to all persons whose interests in the land have been determined. The Commission shall make rules to regulate the assessment of just compensation

d) The Commission shall publish a notice on the intended acquisition in the Kenya gazette and the County gazette and will deliver a copy to the Registrar of lands and to every person who appears, to the Commission, to be interested in the land. The Act defines interested person as any person who appears in the land registry and the spouse or spouses of any such person, as well as any person actually occupying the land and the spouse or spouses of such person

e) The Commission shall take possession of the land only after the agreed compensation has been paid. The Commission shall serve every person interested in the land a notice that on a specified day possession of the land and the title to the land will vest in the national or county governments as the case may be.

However, if there is an urgent necessity for the acquisition of the land and it would be contrary to the public interest for the acquisition to be delayed by following the normal procedures of compulsory acquisition the commission may take possession of uncultivated or pasture or arable land upon the expiration of fifteen days from the date of publication of the notice of intention to acquire.

4.6.3 Africa Development Bank (AfDB) Guidelines

In compliance with the AfDB's Operational safeguard 2 (OS2) on Involuntary Resettlement, Land Acquisition, Population Displacement and Compensation and the AfDB Involuntary Resettlement Policy (2003), the National Government should ensure that the design and implementation of the RAP is aligned to the following principal requirements outlined in Table 4-4.

Table 4-4: Key Considerations and Principal Requirements for the Resettlement Action Plan (RAP)

Key Considerations	Principal Requirements
Project design	Ensure that the land acquisition balances environmental, social, and financial costs and benefits and that the implications of resettlement do not bear severe adverse implication to the affected individuals and communities
Consultation and participation of affected communities and persons	• The Government to ensure full disclosure, consultation and meaningful engagement of the affected communities and individuals. The RAP should be prepared through a process of public consultation with all interested and affected parties. These consultations should be guided by AfDB's consultation and participation guidelines to ensure: – Appropriate notice to all potentially affected persons that resettlement is being considered and that there will be public hearings on the proposed plans and alternatives; – Effective advance dissemination of relevant information, including land records and proposed comprehensive resettlement plans specifically addressing efforts to protect vulnerable groups; – A reasonable time period for public review of, comments on, and/or objection to any options of the proposed plan; and Public hearings that provide affected persons and/or their legally designated representatives with opportunities to challenge the resettlement design and process, and/or to present and discuss alternative proposals and articulate their views and development priorities
Resettlement planning	• As part of the resettlement planning, the Government should carry out a comprehensive socioeconomic survey that will include: – Identification of the people who will be displaced by the project – A comprehensive description of the relevant characteristics of the persons to be displaced including conditions of vulnerability – A comprehensive description of the magnitude of the expected physical and economic displacement – A population census and an inventory of assets, including natural assets upon which the affected people may depend upon for the whole of or a portion of their livelihoods) • The Government should then prepare one of the following:

Key Considerations	Principal Requirements
	– A Full Resettlement Action Plan (FRAP) if the identified number of persons to be displaced is 200 or more or if the proposed project is deemed to have possible adverse effects on vulnerable groups as per the Environmental and Social Impact Assessment report An Abbreviated Resettlement Action Plan (ARAP) if the identified number of persons to be displaced is less than 200 persons
Compensation	• The Government should ensure that affected people are compensated for all their losses at full replacement costs • They should ensure that the criteria for assessing the value of land, housing and other property are standardized and transparent, and the benefits of the resettlement are clearly established • Compensation should be done before the affected persons move out of the required land, before land and related assets are taken and, if the project is implemented in phases, before project activities begin for each particular phase • The project team is required to establish quality control and monitoring systems to guarantee that affected people receive the agreed compensation packages before project implementation on the ground • The compensation payment procedures should be simple and should be monitored by an independent third party. Accurate records of all transactions should be maintained • The Government should ensure that the living standards, income-earning capacity, production levels and overall means of livelihood of the displaced persons are improved beyond pre-project levels. To this end, a comprehensive livelihood improvement programme should be implemented as part of the Resettlement Action Plan Strategies • If cash payments are made, the affected persons should be provided with counseling to ensure that they have the knowledge to use the compensation efficiently • If replacement land is offered, the displaced people should be provided with land for which a combination of productive potential, locational advantages and other factors is equivalent to, or better than, the land taken • All housing for physically displaced people is provided with security of tenure. i.e. they are resettled to a site that they can legally occupy and from which they are protected from the risk of eviction The project team should also make deliberate effort to provide opportunities to the affected people to derive appropriate development benefits from the project

Key Considerations	Principal Requirements
Vulnerable groups	• The Government should ensure that the interests of both women and men and of the elderly and the handicapped are taken into account where formulating and implementing compensation packages, resettlement assistance measures and livelihood improvement measures applies • They should identify all vulnerable groups likely to be displaced and ensure meaningful consultation and participation of these groups throughout the RAP process • Considerable attention is given to gender vulnerabilities with the following recommendations: – That women groups and men groups are involved in resettlement planning, management and operations, and in job creation and income generation. – Thant the project team considers provision of health care services, particularly for pregnant women and infants during and after relocation to prevent increases in morbidity and mortality due to malnutrition, the psychological stress of being uprooted, and the increased risk of disease – That the Resettlement Action Plan includes a specific protocol specifying safeguards for the quality and quantity of land to be allocated for women, especially widows and divorcees, to safeguard their means to generate income and achieve food security. – That land titles at the resettlement site are in the name of both spouses or of single heads of household, regardless of gender That husbands and wives, unmarried women, and elderly sons and daughters are explicitly included as eligible for compensation, including compensation for loss of land, shelter, livelihoods and any other privately owned assets
Eligibility and entitlements	• In accordance with the involuntary resettlement policy of the AfDB, the following 3 groups of displaced people are entitled to compensation or resettlement assistance for loss of land or other assets taken for project purposes. These are: a) Those who have formal legal rights to land or other assets recognized under the National laws of Kenya including people who are physically residing at the project site and those who will be displaced or may lose access or suffer a loss in their livelihood as a result of project activities b) Those who may not have formal legal rights to land or other assets at the time of the census/evaluation but can prove that they have a claim that would be recognized under Kenyan laws including those who may not be physically residing

Key Considerations	Principal Requirements
	at the project site or may not have any assets or direct sources of livelihood derived from the project site, but who have spiritual and/or ancestral ties with the land and are locally recognized by communities as customary inheritors. Those who have no recognizable legal right or claim to the land they are occupying in the project area and who do not fall into either of the two categories described above, if they themselves or witnesses can demonstrate that they occupied the project area of influence for at least six months prior to a cut-off date established by the Government
Host communities	The Government should carry out a detailed analysis of host communities where applicable to identify potential problems associated with receiving displaced people, and to address these problems accordingly to ensure adverse impacts on host communities are minimized and the host communities are able to share in the development opportunities provided through the resettlement process

4.7 Labour and working conditions

Over the construction period of approximately 42 months, the proposed project's construction workforce is anticipated to peak at approximately 2,978 personnel. On a monthly basis, the average number of workers during the construction phase is expected to be about 2000. The construction workforce will include about 50% Chinese expatriates and 50% Kenyan workers. The operational workforce for the plant is estimated at about 500. It is highly advised that the proponent develops an elaborate Human Resource Management plan for both the local and expatriate personnel as well as clearly outline a worker camp management plan. All Sub-Contractors working at the Project should comply with all labor and working conditions requirements. The EPC contractor and all sub-contractors are responsible for integrating these requirements and procedures into their operating procedures and plans.

4.7.1 Management of labor and working conditions

In borrowing guidance from the International Finance Corporation's Performance Standard 2 on Labor and Working Conditions, the proponent should:

a) Provide safe working conditions and management of worker relationship by:
   - Developing an HR policy and procedures;
   - Documenting and communicate working conditions and terms of employment to all workers directly contracted both local and expatriate
   - Implemented a grievance mechanism for workers
   - Allowing workers to form and join workers organizations
   - Developing and implement procedures that ensure there is no discrimination in allocation of opportunities and worker relationship

b) Workforce protection and occupational Health and Safety
   - Providing all workers with personal protective equipment (PPE)
   - Conducting appropriate monitoring and inspections to ensure worker safety including tracking rates of injury, occupational diseases, lost days and number of work-related fatalities
   - Developing a fire and safety plan
   - Ensuring that child or forced labor is not used in the project
   - Ensuring that the subcontractors have appropriate E&S Management system in place
   - Monitoring the performance of the sub-contractors and ensuring that the subcontracted workforce have access to the grievance mechanism
   - Identify child labor / forced labor issues in the supply chain and take appropriate steps to remedy them

The EPC contractor should ensure that the basic rights of workers are protected as well as promotion of fair treatment and the provision of a safe and healthy workplace. The EPC contractor and sub-contractors should ensure that every employee working at the project site is provided with appropriate and adequate PPE. The EPC contractor and sub-contractors will be required to maintain a register indicating the issuance, control and use of PPE. It is necessary that an effective human resource policy be established including proper documentation of employment contracts, cooperation between employers and workers' organizations and adherence to the principles of non-discrimination and equal opportunity. It is therefore critical that an elaborate, efficient and well-resourced human resource department be established. The EPC contractor is responsible for identifying labor needs and forecasting workforce requirements in a systematic and timely approach to ensure that sufficient time and internal resources are availed to identify and find suitable candidates from the local community and Kenyan nationals.

Contracts of employment should be in writing for both permanent and contracted employees. All employees should receive a copy of their employment agreement, which should, at a minimum, address the following: job title, job duties, remuneration period and amounts, labor conditions, employment duration and the conditions for hiring and layoff. Working hours should be in compliance with Kenyan labor law including all relevant attendance and work-leave requirements.

The human resource department will be responsible for managing a Personnel Database and Records Systems which will track all human resource information and subsequent changes including: Project Worker Status (Local/Expatriate); Job classification and contract details; Employee qualification details; Personal details (as appropriate); Employment Data; Attendance/Leave Data; Disciplinary or Termination Data; Training Records.

All Project employees should be provided with induction in human resources policies, employment conditions, workers' camp policies and associated requirements. Additionally, it is recommended that specialist training be provided to human resources staff and key personnel involved in activities related to employment, recruitment and labor management, including relevant managers, supervisors and recruitment officers. A worker grievance mechanism should also be established.

4.7.2 Workforce accommodation and camp management

The project intends to develop accommodation facilities for a proportion of the construction workers and subsequently, operational phase workers. A temporary construction camp will be constructed within the southern section of the project site. The EPC contractor will design and build the accommodation, cooking and sanitary facilities for the construction workers, laydown areas and parking areas. The entire project site will be fenced off. The construction camp will also be fenced off and access will be controlled and restricted to employees. The EPC contractor will develop and implement a camp management policy for the management of the camp and construction workforce. It is envisioned that the expatriate construction workers will be accommodated within the power plant colony. A key concern as expressed by stakeholders during consultation was the anticipated impacts of population influx on the demographic and ecological profile of the Lamu, with emphasis on expatriate Chinese workers. It is therefore important that an influx management plan be developed and implemented along with the camp management policy and workforce code of conduct.

Where the proponent provides accommodation facilities, it should be ensured that housing standards comply with national laws including OSHA 2007 and BOWEC 1984 as well as international best practices on workers accommodation. At a minimum, the accommodation facilities should include:

- Supply of safe water in the workers' dwelling in such quantities as to provide for all personal and household uses. Quality of the water should comply with national/local requirements and WHO standards
- Adequate sewage and garbage disposal systems
- Appropriate protection against heat, cold, damp, noise, fire, and disease-carrying animals in particular insects
- Adequate sanitary and washing, ventilation, cooking and storage facilities
- Toilets, showers/bathrooms and other sanitary facilities designed to provide workers with adequate privacy including provision of separate sanitary and toilet facilities for men and women
- Living facilities built using adequate materials, kept in good repair, clean and free from rubbish and other refuse
- Provision of basic social collective spaces and adequate recreational areas for workers
- Workers provided with dedicated places for religious observance
- Security plan including clear measures to protect workers against theft and attack designed and implemented including conducting backgrounds security checks for staff
- The accommodation facilities should be located to prevent exposure to wind, fire, flood and other natural hazards
- The facilities should also be unaffected by the environmental or operational impacts of the worksite such as noise, emissions or dust. However it should be sufficiently close to work sites such that workers do not have to spend undue amounts of time travelling from their accommodation to the worksite
- Specific and adequate fire safety management plan designed and implemented
- Ensure easy access to medical facilities and medical staff, including female doctors/nurses where appropriate
- The workers should be made aware of their rights and obligations and should be provided with a copy of the worker camp management plan and procedures through a language and media which they understand (Chinese, Swahili and English publications as well as informative meetings in appropriate languages). All workers should be required to sign an 'Acknowledgement and Agreement' form, stating that they understand and will abide by the regulations
- Workers' gender and religious, cultural and social backgrounds should be respected. Workers should be provided with the possibility of celebrating religious holidays and observances
- Mechanisms for the workers' consultation should be designed and implemented including processes and mechanisms for the workers to articulate their grievances and have them addressed efficiently
- Persons appointed to manage the accommodation should have the required background, competency and experience. They should be provided with the adequate responsibility and authority to execute their duties
- Once the living facilities have been constructed and are operational, effective ongoing management of the facilities is essential. This encompasses issues around physical

maintenance of buildings, security and ongoing consultation with the workers as well as the neighboring communities in order to ensure the implementation of the workers camp is effective in the long term

As determined through physical evaluation of the proposed project site and immediate communities, there are no commercial housing and accommodation facilities. Construction workers who will not be accommodated within the colony may have to seek housing in the community centres proximate to the project site, mainly Hindi and Mokowe. This off-site housing may create a wide range of economic opportunities such as rental income for local people, development of local businesses such as shops, transport, restaurants and recreational facilities. It may also result in improvements to existing housing standards which currently. However, the off-site housing may contribute to a range of adverse social impacts including rise in social ills, increased demands on infrastructure, services and utilities, inflation in local rent and other subsistence items with detrimental consequences for the local population. Accommodating majority, if not all, of the construction workers within the on-site worker housing camp may minimize workforce-host community interactions and mitigate the above adverse impacts.

The total population of Hindi ward, where the proposed project is situated, is 5,446 persons (KNBS statistical abstract, 2015). The proposed project's construction workforce is anticipated to peak at approximately 2,978 personnel, this is 54% of the total population of Hindi Ward. The Chinese expatriate workforce is expected to be about 1,761 persons, which is about 32% of the total population of Hindi Ward. Given these proportions in population influx and change in the demographic profile, it is highly critical that an influx management plan be developed and implemented prior to the beginning of the construction phase. Additionally, stringent worker camp and workforce-host community interactions management measures be enforced. It may be appropriate to limit worker movements outside the project colony and within the community. The restriction enforced should be clearly justified by the need to avoid the disruption of local communities in particular, local communities' access to infrastructure and facilities, protection of the local ecology and biodiversity and to provide maximum security and safety to both workers and communities. It is also important to note that Lamu County is rich in both ecological and cultural diversity. Actions must be taken into account to ensure the protection, conservation and sustainability of the ecological and cultural components.

At a minimum, mitigation and management measures may include:

- Provision of guidance on the detrimental effects of drug and alcohol abuse, the risk and concerns relating to HIV/AIDS and other health risk-related activities. It is advised that internal policies on these issues be developed and implemented.
- Local communities should be made aware of rules governing the workers accommodation camp, worker-community interaction regulations and the consequences of workers breaking such rules. The local communities should be consulted in the development of such regulations and should, through the grievance mechanism, should be enabled to provide feedback and log complaints on worker behaviors
- Reasonably limit worker movements outside the project colony and within the community. The restriction enforced should aim to limit interactions of construction workers with the local communities, and local ecological and cultural resources
- Activities such as fishing, collection of cultural, biological and ecological resources should be prohibited
- Provision of key facilities and services within the project colony in order to minimize worker's needs to exit the colony.

5 Methodology for assessing social impacts

The purpose of impact assessment is to assign relative significance to predicted impacts associated with the project, and to determine the manner in which impacts are to be avoided, mitigated or managed. The potentially significant social environment impacts were identified based on the nature of the receiving environment, a review of the proposed activities, and the issues raised in the public participation process.

5.1 Methodology

In the impact assessment stage of an ESIA, identified issues are analyzed and expected impacts are defined. This analysis functions to:

- Identify the types of impact;
- Predict the magnitude;
- Determine extent of the impact;
- Determine the duration of impact;
- Determine probability of occurrence and;
- Determine the overall significance of the impact.

5.2 Identification of social aspects and impacts

The outstanding social issues identified as having significance will be assessed using the methodology described below.

First, the issues raised will be described giving consideration to the associated activity and the aspect of that activity that is likely to result in an impact. The nature of the impact will also be described. Once this has been undertaken the significance of the impact can be determined. The following definitions will apply:

- An **activity** is a distinct process or task undertaken by an organization for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organization.
- An **environmental aspect** is an element of an organizations activities, products and services which can interact with the environment. The interaction of an aspect with the environment may result in an impact.
- **Environmental impacts** are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. Receptors can comprise of, but are not limited to, people or human-made systems such as local residents, communities and social infrastructure, as well as components of the biophysical environment such as aquifers, flora and paleontology. Impacts on the environment can lead to changes in existing conditions. The impacts can be direct, indirect or cumulative. Direct impacts refer to changes in environmental components that result from direct cause-effect consequences of interactions between the environment and project activities. Indirect

impacts result from cause-effect consequences of interactions between the environment and direct impacts. Cumulative impacts refer to the accumulation of changes caused by human activities and/or the combination of the change with other past, present and future human actions to the environment.

Aspects and impacts associated with the proposed development have been differentiated into construction and operation phases of the project

5.3 Description of aspects and impacts

The accumulated knowledge and the findings of the environmental investigations form the basis for the prediction of impacts. Once a potential impact has been determined during the scoping process, it is necessary to identify which project activity will cause the impact, the probability of occurrence of the impact, the duration of time that the aspect may cause a change, and its magnitude and extent (spatial and temporal). This information is important for evaluating the significance of the impact, and for defining mitigation and monitoring strategies. The aspects and impacts identified will therefore be described according to the definitions below.

5.3.1 Extent

The extent for each aspect, receptor and impact will be defined. The geographical coverage (spatial scope) description will take account of the following factors:

- The physical extent/distribution of the aspect, receptor and proposed impact; and
- The nature of the baseline environment within the area of impact.

For example, the impacts of noise are likely to be confined to a smaller geographical area than the impacts of atmospheric emissions, which may be experienced at some distance. The significance of impacts also varies spatially. Many will be significant only within the immediate vicinity of the site or within the surrounding community, whilst others may be significant at a local (project) or regional (county) level. The extent of the impact will be rated on the following scale:

Extent of impact	Rating
Localized (At localized scale and a few hectares in extent)	1
Study area (The proposed site and its immediate environs)	2
Regional (County level)	3
National (Country)	4
International (Beyond Kenya)	5

5.3.2 Duration

Duration refers to the length of time that the aspect may cause a change either positively or negatively on the environment.

The environmental assessment will distinguish between different time periods by assigning a rating to duration based on the following scale:

Duration	Rating
Very short (0 – 1 Years)	1
Short term (1 – 5 Years)	2
Medium term (5 – 15 years)	3
Long term (>15 years)	4
Permanent	5

5.3.3 Magnitude

The magnitude of an environmental aspect is determined by the degree of change to the baseline environment, and includes consideration of the following factors:

- The reversibility of the impact;
- The sensitivity of the receptor to the stressor;
- The impact duration, its permanency and whether it increases or decreases with time; Whether the aspect is controversial or would set a precedent; and
- The threat to environmental and health standards and objectives.

The magnitude of each of the impacts will be rated on the following scale:

Magnitude of impact	Rating
Small and will have no effect on the environment	0
Minor and will not result in an impact on the processes	2
Low and will cause a slight impact on the processes	4
Moderate and will result in process continuing but in a modified way	6
High (processes are altered to the extent that they temporarily cease)	8
Very high and results in complete destruction of patterns and permanent cessation of the processes	10

5.3.4 Probability of impact

The probability or frequency of the impact occurring refers to how often the issue may impact either positively or negatively on the environment. After describing the frequency the findings will be indicated on the following scale:

Probability of impact	Rating
Highly improbable (<20% chance of occurring)	1
Improbable (20 – 40% chance of occurring)	2
Probable (40% - 70% chance of occurring)	3
Highly probable (>70% - 90% chance of occurring)	4
Definite (>90% chance of occurring)	5

5.4 Method of assessing the significance of impacts

The purpose of impact evaluation is to assign relative significance to predicted impacts and to determine the manner in which impacts are to be avoided, mitigated or managed. The information presented above in terms of identifying and describing the aspects and impacts will be summarized in a tabular form and significance will be assigned with supporting rational. Significance will be determined before and after mitigation, taking into consideration all the factors described above.

A definition of a "significant impact" for the purposes of the study is: "An impact which, either in isolation or in combination with others, could in the opinion of the specialist, have a material influence on the decision-making process, including the specification of mitigating measures."

5.4.1 Significance determination

The significance rating is an attempt to evaluate the importance of a particular impact, the consequence and likelihood of its occurence. The description and assessment of the aspects and impacts undertaken is presented in **Table 6-1** to **Table 6-19** with the significance of the impact assigned using the process and matrix detailed below. The sum of the first three criteria (extent, duration and magnitude) provides a collective score for the CONSEQUENCE of each impact. The last criteria determines the PROBABILITY of the impact occurring. The product of CONSEQUENCE and PROBABILITY leads to the assessment of the SIGNIFICANCE of the impact, shown in the significance matrix below.

Table 5-1: Significance Assessment Matrix

		CONSEQUENCE (Extent + Duration + Magnitude)																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
PROBABILITY	1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	2	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
	3	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
	4	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
	5	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100

It is important to note that for social impact assessment, the perceptions of stakeholders as expressed during stakeholder engagement are taken into account. Perceptions are considered in the evaluation of significance explicitly after an impact is evaluated. Stakeholder perceptions are also considered during the formulation of mitigation measures. In order to evaluate the mitigation threshold, the ratings table below is used.

Table 5-2: Mitigation Ratings Table

Mitigation Rating		Description
Low	<30	Where this impact would not have a direct influence on the decision to develop in the area
Medium	30-60	Where the impact could influence the decision to develop in the area unless it is effectively mitigated
High	>60	Where the impact must have an influence on the decision process to develop in the area

5.5 Mitigation

Measures to avoid, reduce or manage impacts consistent with best practice will be proposed and the effectiveness of such measures assessed in terms of their ability to avoid, remove an impact entirely, render it insignificant or reduce its magnitude.

In assessing the significance of the impact, natural and existing mitigation will be taken into account. Natural and existing mitigation measures are defined as natural conditions, conditions inherent in the project design and existing management measures that alleviate (control, moderate or curb) impacts. In addition, the significance of impacts will be assessed taking into account any mitigation measures that are proposed.

A Social Management Plan (SMP) has been prepared and is provided in Section 8 of this report. This plan specifies the methods and procedures for managing the social aspects of the proposed development. Monitoring requirements are also be detailed within the plan, particularly for those social aspects that give rise to potentially significant impacts.

6 Identification and assessment of social impacts

6.1 Introduction

It is important to note that the proposed 1,050MW Coal Power Plant project is part of the larger Government led Lamu Port Southern Sudan-Ethiopia Transport (LAPSSET) project scheduled to be implemented in the Manda Bay of Lamu County. LAPSSET is a transport and infrastructure project that when complete, will be the Kenya's second transport corridor after Mombasa. It will include the establishment of Lamu Port, product oil refinery, crude oil pipeline, airport, resort city and highways. That withstanding, it is expected that Manda Bay, and Lamu County at large will experience a vast array of social impacts attributed to these developments, both from the individual projects as well as cumulatively. While this section seeks to identify the potential impacts of the proposed Coal Power Plant project, it is necessary to be cognizant of the fact that these impacts may not be solely induced by the proposed project alone. Some of the impacts identified below have already begun to manifest in light of the already initiated projects such as constructions of the 3 berths at Kililana. Such impacts include changes in land use and cultural heritage. It is imperative that the National and County Governments work together with the various LAPSSET development companies to collaboratively enhance potential positive impacts while mitigating possible adverse impacts of all the projects.

This section characterizes the key potential social issues identified during the SIA Study. The identification of key social issues was based on:

- Review of project related information, including other specialist studies;
- Consultative meetings with National and County leadership;
- Public meetings held in Lamu County (within Lamu Town, the proposed project site and the surrounding communities);
- Experience of the consultant on the area and the local conditions;
- Review of similar projects in relation to their social impacts and;
- Experience with similar projects

In identifying the key social issues, the following assumption is made:

The area identified for the proposed 1,050MW Coal Power Plant meets the technical criteria required for such facilities.

Social Impact Assessment (SIA) is the study of the intended and unintended social consequences, both positive and negative, of a proposed project and any social change processes invoked by the project. It involves assessing how the proposed project will affect the local, regional, or national economy and to determine and assess potential impacts of the project on local communities and society as a whole, as well as to develop appropriate mitigation measures.

Social impacts refers to the consequences to human populations of any public or private actions that alter the ways in which people live, work, relate to one another, meet their needs and generally live and cope as members of society.

Economic impacts are the effects on the level of economic activities in a given area because of some form of an external economic intervention.

The socio economic impacts in this regard are defined as effects on the levels of economic activity in a given area and people's wellbeing, such as generation of additional jobs, business sales and improved quality of life and/or disposable income resulting from capital investment.

The direct social economic impacts are generated when the business creates new jobs and purchase goods and services to operate the new facility.

Indirect social economic effects occur when the supplier of goods and services to the new facility/businesses experience larger markets and potential to expand.

This section also presents the significance of the potential social impacts identified. The assessment of social impacts has been undertaken using the methodology described in section 5 of this report.

6.2 Socio-cultural environment

6.2.1 Increased affordability, reliability and stability of electricity supply

The proposed project is envisioned to inject about 981.5MW of electricity into the national grid during the operational phase as part of the Government of Kenya's Least Cost Power Development Plan (LCPDP) in order to bring down the cost of power via a more stable, cheaper, reliable platform. Once complete, the Project will constitute approximately 36% of the new combined grid capacity as well as bring down the average cost of generation for Kenya Power and Light Company ("KPLC"). This is expected to:

a) Increase KPLC's outreach and connectivity with emphasis on rural electrification, educational institutions, health institutions and micro-enterprises;

b) Reduce the cost of electricity charged to consumers;

c) Address the current power shedding outages experienced nationally and;

d) Address the current uncertainty of power generation from hydropower.

The significance of the above imapcts are analysed below.

Table 6-1: Impact significance for increased affordability, reliability and stability of electricity supply - Operational phase

Enhancement Status	Extent	Duration	Magnitude	Probability
Without enhancement	National	Medium term	High	Definite
	4	3	4	4
	Result: (+44) Medium positive			

Enhancement measures	• The O&M Company should minimize, to the extent possible, operational cost that may subsequently result in an increase in consumer tariffs • O&M Company should employ appropriate technologies to increase efficiency and stability of power generation			
Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With enhancement	National	Medium term	High	Definite
	4	3	8	5
	Result: (+75) High positive			

6.2.2 Creation of direct, indirect and induced employment

The proposed project is envisioned to generate direct and indirect employment opportunities for both skilled and unskilled workers. Direct employment includes jobs at the power plant during the construction and operational phases. Indirect employment will be realized through increased business opportunities and spurred economic growth both at the County and national levels. APCL is committed to build the capacity and capability of local people and businesses to benefit from the project.

Creation of employment opportunities was perceived to be the most important benefit of the project by the communities in Lamu. This was mainly expected to benefit the unemployed people living within and around the proposed project site. The unemployment levels are generally high in the region and expectations on job opportunities are high among the people of the area. The EPC contractor will aim for gender balance during employment to help empower women in the community. APLC envisions building the capacity of 1000 local youth through the National Youth Service with an aim of absorbing them into the project during the construction phase.

During the construction phase, it is projected that the workforce will peak at approximately 2,978 personnel with 59% of these being Kenyan workers and 41% Chinese workers. These will mainly be semi-skilled and unskilled jobs. A large fraction of the construction-based jobs will be under civil works which will include but not limited to carpentry, steel-works, water-works, concrete-works and masonry. The operational phase of the project is anticipated to peak at approximately 320 workers at commissioning (with at least 50% of these being Kenyan personnel) with a projected growth to about 500 jobs. These will mainly be skilled positions.

It is anticipated that the proposed project will result in a marked increase in individual income nationally and specifically for the Lamu community. This will be attributed by the increased purchases from local and national businesses, employment generated by project activities, and a general spur of economic activities stimulated by the project.

The Draft Energy (Local Content) Regulations (2014) provides guiding principles that will ensure the local communities and Kenyans benefit from the proposed project. While full enforcement of these regulations is yet to be realised, they advocate for the EPC contractor to:

a) Ensure that local content is a component of their operational energy activities

b) Establish a local office, where procurement, project management and implementation decision making are to take place, to the satisfaction of the Commission.

c) Give Kenyan citizens the first consideration for employment and training in any operations executed in energy activities

d) Give first consideration to services provided from within Kenya, to goods manufactured in Kenya, to locally available goods and Kenyans citizens

e) Submit a Local Content plan to the Commission demonstrating compliance with the Kenyan Local Content requirements. The Local Content plan should detail how the proponent and its contractors shall ensure:

- First consideration to services provided within the country and goods manufactured in the country where the goods meet the specifications of the energy sector as established by-the Kenya Bureau of Standards or by other internationally acceptable standards
- Qualified Kenyans are given first consideration with respect to employment
- Adequate provision is made for the training of Kenyans on the job

While Part two of the first schedule on minimum local content in goods and services under the Local Content regulations provides guidance on the specific local content to be achieved, part one provides a premise for the assumption that the proposed project will dedicate at least 30% - 40% of the total project budget to local content. Based on this assumption, at least KES 54 billon of the KES 180 billion project budget will be expended on local content resulting in a significant increase in individual income.

The impacts associated with direct, indirect and induced employment arising fro mthe construction and operational phases of the project are assessed below.

Table 6-2: Impact significance on creation of direct, indirect and induced employment - construction phase

Enhancement Status	Extent	Duration	Magnitude	Probability
Without enhancement	Localized	Short term	Low	Probable
	1	2	4	3
	Result: (+21) Low positive			
Enhancement measures	• APCL and its contractors must endeavor to prioritize the local community in the allocation of job opportunities, prioritizing from the residents immediately neighboring and/or displaced by the project, to the larger Lamu County • APCL should also ensure opportunities for capacity building are afforded to the local communities to enable them to benefit from the available employment opportunities. This includes training in skills set required during the construction and operational phases of the project • Job advertisements should be made through mediums that are easily accessible to the local community such as Chief's noticeboards, CLO's, local radios, etc. • Where possible, expertise should be sourced locally then nationally before resorting to engagement of international experts • The recruitment selection process should seek to promote gender equality and the employment of women where possible.			

	• Management and enhancement measures for local employment should be included in the company's labor and human resources plan. • Where possible, Lamu County administration should be consulted when recruiting local workers • APCL should make a conscious effort to promote local businesspeople in the procurement of goods and services to assist in providing more economic and employment opportunities for the local community			
Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With enhancement	Regional	Short term	Moderate	Definite
	3	2	8	5
	Result: (+65) High positive			

Table 6-3: Impact significance on creation of direct, indirect and induced employment - operational phase

Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
Without enhancement	Localized	Short term	Low	Probable
	1	3	4	3
	Result: (+24) Low positive			
Enhancement measures	• APCL and its contractors must endeavor to provide the local community for any job opportunities, prioritizing from the residents immediately neighboring and/or displaced by the project, to the larger Lamu County • The O&M Company should ensure opportunities for capacity building is afforded to the local communities to enable them to benefit from the available employment opportunities. This includes training in skills set required during the construction and operational phases of the project • Expertise should be sourced locally then nationally before resorting to engagement of international experts • Job advertisements should be made through mediums that are easily accessible to the local community such as Chief's noticeboards, CLO's, local radios, etc. • The recruitment selection process should seek to promote gender equality and the employment of women where possible. • Management and enhancement measures for local employment should be included in the company's labor and human resources plan. • Where feasible, Lamu County administration should be consulted when recruiting local workers			

	• Promotion and prioritization of employment opportunities for the local community • APCL should make a conscious effort to promote local businesspeople in the procurement of goods and services to assist in providing more economic and employment opportunities for the local community			
Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With enhancement	National	Short term	High	Definite
	4	3	6	5
	Result: (+65) High positive			

6.2.3 Economic growth

The proposed 1,050MW coal power project is of such a magnitude that will impact the economy of the whole country and by extension the East Africa region. Implementation of the proposed project is anticipated to stimulate economic growth through:

- Elevation of Lamu County's profile with subsequent infrastructural development, increased revenue and investment in the county
- Access to affordable and reliable power by industries and micro-enterprises nationally. This will promote the emergence of new enterprises and boost business and economic opportunities both in the informal and informal sectors. This is also expected to increase productivity of all sectors through mechanization of sectors such as agriculture, enhanced industrialization and adoption of ICT.
- Enhanced availability of markets for local products. Both goods and services such as food supplies, catering services and construction materials will be required during construction as well as operations. As rightly perceived by the local communities, this will lead to secondary employment and creation of small supporting businesses.
- Increased tax revenue through VAT, withholding tax on imported services and PAYE on project employee salaries.

An assessment of the positive impact to be created on the economy of Lamu County and by extension that within the country is given below.

Table 6-4: Impact significance of economic growth - construction phase

Enhancement Status	Extent	Duration	Magnitude	Probability
Without enhancement	Regional	Short term	Low	Probable
	3	2	4	3
	Result: (+27) Low positive			

Enhancement measures	• The Government, in partnership with APCL, should provide financial literacy training to individuals compensated during the RAP to ensure prudent investment and utilization of the funds • Ensure that economic opportunities are available or are created for the local community and that proper capacity building is afforded to the local communities to enable them to benefit from the available economic opportunities • Communication and information programs should be used to manage expectations and target local service providers • APCL and its contractors should, to the extent possible, make deliberate efforts to source for all required supplies from local providers, prioritizing from Lamu County to the rest of the Country, before resorting to importation • Tender documents should include guidelines for the involvement of local entrepreneurs, businesses and SMEs from the local sector			
Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With enhancement	National	Short term	High	High
	4	2	8	4
	Result: (+56) Medium positive			

Table 6-5: Impact significance of economic growth - operational phase

Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
Without enhancement	Regional	Short term	Low	Probable
	3	2	4	3
	Result: (+27) Low positive			
Enhancement measures	• Ensure that economic opportunities are available or are created for the local community and that proper capacity building is afforded to the local communities to enable them to benefit from the available economic opportunities • Communication and information programs should be used to manage expectations and target local service providers • The O&M Company should, to the extent possible, make deliberate efforts to source for all required supplies from local providers, prioritizing from Lamu County to the rest of the Country, before resorting to importation • Tender documents should include guidelines for the involvement of local entrepreneurs, businesses and SMEs from the local sector • APCL, through its CSR programme, should promote and support economic empowerment initiatives for the local community • APCL should endeavor to minimize, to the extent possible, production costs, subsequently lowering electricity cost nationwide			

	• APCL should remit all applicable taxes to the local and national Government, as per legal provisions			
Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With enhancement	International	Medium term	High	Definite
	5	3	8	5
	Result: (+80) High positive			

6.2.4 Infrastructure development

Lamu County generally suffers from poor underdeveloped infrastructure. It is anticipated that the implementation of the proposed project will stimulate the enhancement of the following infrastructures:

- Transportation Infrastructure: improvement of existing roads, creation of new roads and associated structures such as bridges; Improvement of existing jetties and creation of new ones.
- Public Health Infrastructure: improvement of health facilities; desalination and provision of potable water supplies; wastewater treatment and management; solid and hazardous waste management and treatment
- Communications Infrastructure: enhanced telephone services (fixed lines and mobile) and associated transmission facilities
- Energy Infrastructure: improvement of electrical power supply

Table 6-6: Impact significance on infrastructure development - construction phase

Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
Without enhancement	Localized	Short term	Minor	Probable
	1	2	2	3
	Result: (+15) Low positive			
Enhancement measures	• APCL should collaborate with the relevant Government ministries to enhance infrastructural development, with emphasis on infrastructure that may experience immediate and adverse strain directly from project activities, and of which existing provisions are inadequate to handle project-related strain without compromising access by the local communities such as public health, education, transport and housing			
Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With enhancement	Regional	Long term	Very high	High
	3	4	10	4
	Result: (+68) High positive			

Table 6-7: Impact significance on infrastructure development - operational phase

Enhancement Status	Extent	Duration	Magnitude	Probability
Without enhancement	Localized	Medium term	Minor	Probable
	1	3	2	3
	Result: (+18) Low positive			
Enhancement measures	• The County and national Government should leverage on the anticipated economic growth and support infrastructural development to meet the growing demands, both within Lamu County as well as Nationally • APCL should collaborate with the relevant Government ministries to enhance infrastructural development, with emphasis on infrastructure that may experience immediate and adverse strain directly from project activities, and of which existing provisions are inadequate to handle project-related strain without compromising access by the local communities such as public health, education, transport and housing • The County and national Government should endeavor to prioritize the development of crucial infrastructure for the County			
Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With enhancement	National	Permanent	Very high	High
	4	5	10	4
	Result: (+76) High positive			

6.2.5 Capacity building

APCL aims at building capacity of the local communities to enable them to benefit from the immediate project opportunities such as employment during the construction phase, as well as for sustainability throughout the project lifecycle. APCL envisions imparting practical skills to 1000 local youth through the National Youth Service with an aim of absorbing them into the project during the construction phase. These skills will be retained in the local community even after the decommissioning of the power plant and will increase the residents' employability as they secure jobs in other developments that may arise in the area. Additionally, APCL will also increase the competency levels of its workers through continued capacity building and exposure.

Being the first project of its nature and magnitude, the proposed 1,050 megawatt power plant will employ various international experts who will work along local employees. Through this, there will be a transfer of technology and skills to the local community, creating a pool of highly skilled professionals with specialized knowledge that will be utilized in the continued implementation of the power plant as well as in implementing future projects of a similar nature. APCL's contractors are advised to implement deliberate structures to promote and enhance this knowledge transfer. Throughout the construction and commissioning phases of the project, APCL's contractors are advised to maintain a workforce composition of at least 50% Kenyan personnel to work and learn alongside Chinese expatriates. The Energy (Local Content) Regulations (2014) states that actors in

the sector are to develop an employment, training plan and succession plan with respect to all energy activities. The succession plan will make provisions for and require Kenyans to understudy the requirements of the position held by a non-Kenyan for a period determined by the Commission on a case-by-case basis after which the position occupied by the non-Kenyan will be assumed by the Kenyan to ensure that the minimum local content levels are met.

Education empowers a person to participate in the development process. It inculcates knowledge and skills needed to improve the income earning potential and in turn the quality of life. Lamu County suffers from inadequate education infrastructure and consistent poor performance in education as ranked nationally. Through its CSR program, APCL envisions to collaborate with the County Government and other development actors to support the improvement of education standards in the County.

Table 6-8: Impact significance on knowledge transfer and capacity building - construction phase

Enhancement Status	Extent	Duration	Magnitude	Probability
Without enhancement	Localized	Short term	Small	High
	1	2	0	4
	Result: (+12) Low positive			
Enhancement measures	• The EPC contractor should institute an elaborate structure to promote and enhance knowledge transfer between international experts employed by the project and the local employees. This should be a set requirement for all international firms contracted by APCL • The EPC contractor should ensure effective capacity building is afforded to the local communities to enable them to benefit from the available economic opportunities. This includes training for the skills required during the construction and operational phases of the project • The EPC contractor should effectively communicate the skill requirements to the local community well in advance of the construction and operational phases. This should be done through mediums that are easily accessible to the local community such as CLOs, community noticeboards, local radio, etc.			
Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With enhancement	Regionally	Short term	High	Very high
	3	2	8	5
	Result: (+65) High positive			

Table 6-9: Impact significance on knowledge transfer and capacity building - operational phase

Enhancement Status	Extent	Duration	Magnitude	Probability
	Study area	Medium term	Small	High

Without enhancement	2	3	0	4
	Result: (+20) Low positive			
Mitigation measures	• The O&M Company should implement an elaborate structure to promote and enhance knowledge transfer between international experts employed by the project and the local employees. This should be a set requirement for all international firms contracted by the O&M Company • The O&M Company should ensure effective capacity building is afforded to the local communities to enable them to benefit from the available economic opportunities. This includes training for the skills required during the construction and operational phases of the project • As part of its CSR, APCL should consider support of tertiary education specifically to the Lamu community. The beneficiaries should then be absorbed by APCL and its contractors in gainful employment or provision of business opportunities • Additionally, in collaboration with the County Government and other non-state development agencies, APCL should consider supporting infrastructural development for local primary and secondary schools • The O&M Company should effectively communicate the skill requirements to the local community well in advance of the construction and operational phases. This should be done through mediums that are easily accessible to the local community such as CLOs, community noticeboards, local radio, etc.			
Enhancement Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With enhancement	Nationally	Medium term	High	High
	4	3	8	5
	Result: (+75) High positive			

6.2.6 Land acquisition and involuntary resettlement

The 1,050MW power plant will require approximately ~360 hectares (~880 acres) of land. This will necessitate the acquisition of the land and subsequent relocation of all legitimate project affected persons (PAPs) within the delineated project site including those who live on, have assets on, and or engage in commercial activities on the required land through a Resettlement Action Plan (RAP).

The Request for Proposal (RFP) for the proposed project stated that the Ministry of Energy and Petroleum (MoEP) would provide the developer with land free of encumbrances for constructing and operating the power plant. Subsequently, the RAP process is being led by the MoEP. The land tenure for the project site is defined as "Community Land" which according to the Constitution of Kenya 2010 is held in trust by the County Government of Lamu.

The RAP will be conducted in accordance with the requirements of the African Development Bank's Operational Safeguard 2 titled Involuntary Resettlement and the International Finance Corporation's Performance Standard 5 titled Land Acquisition and Involuntary Resettlement.

In order to satisfy the legal and lender requirements of the RAP, two committees were set up namely a Steering Committee and a Technical Committee. The steering committee is the higher level committee that provides leadership on the resettlement management framework while the technical committee provides technical advice on how resettlement and land acquisition issues for the proposed project should be handled. The membership of the two committees comprises the County Government of Lamu, The County Commissioner of Lamu (representing the national government), the National Lands Commission (NLC), the LAPPSET Development Authority, Kenya Ports Authority (KPA), the community committees and the project developer.

The County Government Act, 2012 requires that any project of national significance must be presented to the County Assembly for consideration. The project developer satisfied this required in mid-2015 when the County Assembly of Lamu unanimously approved the development of the project. This paved the way for the County Government of Lamu to allocate the land to the project developer.

According to the Lands Act 2012, the implementing agency for acquiring community land is the National Lands Commission (NLC). The NLC will implement the recommendations of the RAP which is currently being undertaken by the MoEP.

Implementation of the RAP in accordance with the requirements of national legislation and lender requirements is a significant issue in the pre-construction phase of the project. The PAPs expressed this as an important milestone during the stakeholder engagement process. Some of the socio-economic concerns associated with land acquisition and involuntary resettlement include:

- Relocation of the PAPs to areas with fewer resources compared to the project site. This may include loss of farmland due to relocation to smaller parcels of land, absence of forests, fishing grounds, grazing grounds, etc.;
- Relocation of individuals to areas where their productivity skills are less applicable;
- Disruption of social networks and community organization;
- Loss of cultural identity and ancestral heritage through disruption of traditional authority, culturally significant sites and rituals, and dispersion of kin groups; and
- During consultations with the local women, they expressed concerns that since the men hold ownership rights to land and property, and given the high poverty and low financial literacy within the local communities, the women feared that the men would misappropriate resources provided as compensation for land and assets during the project-related land take, leaving the women and children poor and landless.

Table 6-10: Impact significance of land acquisition and involuntary resettlement – pre-construction phase

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	Regional	Long-term	High	Highly-probable
	3	4	8	4
	Result: (-60) High negative			

Mitigation measures	• The MoEP and NLC should implement a RAP that complies with Kenyan legislation and lender requirements of the African Development Bank's Operational Safeguard 2. The RAP should also comply with the requirements of Performance Standard 5 of the International Finance Corporation on Land Acquisition and Involuntary Resettlement • The National Land Commission (NLC) should ensure full disclosure, consultation and meaningful engagement of the PAPs throughout the resettlement process (including the host communities) • The NLC should develop and implement a compensation plan for displaced and relocated people commensurate to the lost socio-economic value. • The NLC should ensure that new locations are culturally and commercially compatible with the proposed project site • The NLC should provide counseling services for the PAPs to assist them in adaptation of the new surroundings • The NLC should provide financial literacy training for PAPs for sustainable management of the funds			
Mitigation Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With mitigation	Regional	Long-term	Low	Improbable
	3	4	4	2
	Result: (-22) Low negative			

6.2.7 Disruption and loss of livelihoods

Disruption and loss of livelihoods is defined as the loss of assets or access to assets that result in a loss of income or means of livelihood. This type of economic resettlement can have greater effects than physical resettlement.

The land required for the proposed project (~975.4 acres) is defined as community land (which is held in trust by the County Government of Lamu). Subsequently, none of the users of the affected land have formal land title.

The communities in the project area are primarily dependent on land cultivation for income and livelihood, supplemented by fishing and livestock husbandry. About 75% of the communities cultivating the land in the project area come from Pate Island.

The potential acquisition of land currently utilized for agriculture poses a risk in the loss of livelihoods from crop production. Those who conduct farming activities within the proposed project site include residents of Bargoni, Hindi and Pate Island. Nearly all of these do not reside within the proposed project site. Additionally, a section of the proposed project site covers land currently utilized for livestock grazing. These grazing lands are utilized by local farmers and nomadic pastoralists traveling from Garissa County in search of pasture.

There may also be limited tourism-related livelihoods at risk due to the negative visual/aesthetic impacts associated with the proposed power plant infrastructure. This is a perceptive risk based on one's visual sensitivity to the power plant.

According to the Statistical Abstract 2015 (produced by the KNBS), the quantity of fish landed in Lamu County in 2014 was 2,428 metric tons valued at KShs 277,945,000 which represents ~27% of the total fish landed in the coastal strip of Kenya. Of the 2,428 metric tons, marine fish accounted for 2,198 metric tons (valued at KShs 176,187,000), crustaceans accounted for 174 metric tons (valued at KShs 90,210,000) and other marine fish accounted for 56 metric tons (valued at KShs 11,548,000).

Given the above, disruption and loss of livelihoods related to the fishing industry was a concern expressed by the local community during stakeholder engagement meetings. The community's perception is that the proposed project may adversely impact fish landing sites and poisoning of fish through hazardous discharges into the sea by the power plant.

Even though ~75% of communities in Lamu depend directly or indirectly on fishing, the sector remains inadequately developed. Majority of the fishermen employ traditional techniques which have limited their capacity to fish in deep seas. An expressed concern was that project activities will destroy current fishing sights located adjacent to the islands, and result in migration of fish to the deep sea.

The extent of the impact associated with disruption of livelihoods will extend to the Bajuni community from Pate Island that cultivate in the Kwasasi area and is considered to be local. The loss of land in the project area and therefore impacts on livelihood and income generation will be permanent in duration for those cultivating in the project area.

Table 6-11: Impact significance on disruption and loss of livelihoods - construction phase

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	Study area	Long-term	Moderate	Highly probable
	2	4	6	4
	Result: (-48) Medium negative			
Mitigation measures	• The EPC contractor should avoid contamination of and destruction of fish landing sites while construction of the power plant and associated infrastructure; • The EPC contractor should have develop and implement a transparent recruitment plan for employment and business opportunities for the local community; • The EPC contractor should implement a capacity building program for the local communities to enable them to benefit from the available economic opportunities; • The MoEP should develop and implement an IFC compliant Resettlement Action Plan (RAP) for project affected persons. The NLC should implement the RAP developed by the MoEP • To mitigate loss of tourism-related livelihoods, the design of the power plant facilities should be done in a way that: o Minimizes loss of existing aesthetic and visual quality o Reduces the impact or disruption of activities at tourism and recreational areas / facilities			
Mitigation Status	**Extent**	**Duration**	**Magnitude**	**Probability**

With mitigation	Study area	Long term	Low	Improbable
	2	4	4	2
	Result: (-20) Low negative			

6.2.8 Impacts to demographic profile

Lamu town is an important religious center for Islam in East Africa. It is also a dominant cultural center reputed for its historic past and socio-cultural traditions that have been upheld to date.

It is envisaged that with the construction of the project, a substantial amount of money will be spent in the project area and its environs for sourcing construction materials. The local content may amount to about 10% – 20% of the envisaged US$2 billion project cost which amounts to US$20 – US$40 million. This is a significant amount of money which can be injected into the economy of Lamu County. While there are positive aspects associated with such local content injection into the local economy, there may also be adverse impacts that could potentially result from access to disposable income which hitherto are not there.

Over the construction period of about 42 months, the peak workforce is expected to be approximately 3,500 persons; 50% of these are expected to be Chinese while the other 50% are expected to be Kenyan.

A temporary construction camp is will be constructed within the southern section of the project site. The EPC contractor will design and build the accommodation, cooking and sanitary facilities for the construction workers, laydown areas and parking areas. The entire project site (~975.4 hectares) will be fenced off; the construction camp which will be located within the project site will be fenced off too and access will be controlled and restricted to employees. The EPC contractor will develop and implement specific policies for the management of the camp and construction workforce.

The project is expected to impact the social fabric in the project area in the following ways:

- Broken family bonds from migration of workers to the project area;
- Rise in prevalence of sexually transmitted infections; and
- Increase in crime.

The extent of the impacts to demographics will largely be contained within the project-affected communities and subsequently, will be local in scale. The duration of impacts associated with the construction phase will largely be short-term, lasting about 42 months.

In some cases, impacts will be of shorter duration, particularly if opportunistic job seekers who are unable to secure work leave the area. The probability of impacts, however, is highly likely, based on past experience in the region and current conditions.

The communities living in the project area are ethnically homogenous as the vast majority of people in and around the project site belong to the Bajun tribe; subsequently any influx of "foreigners" whether Chinese or those from other parts of Kenya, will be keenly felt.

It is important to take cognizance of the existing tensions between the Bajun and other ethnic minorities from the rest of Kenya who may be perceived to take over jobs meant for the local communities living within Lamu County. Adding large numbers of people from other parts of Kenya seeking employment opportunities may further exacerbate such tensions.

The operational phase of the project is expected to begin in September 2019 and continue for approximately 25 years. The operational phase is estimated to require about 500 directly employed workers to operate the power station and its auxiliaries; about 50% will be Chinese and the other 50% will be Kenyan. The Operations and Maintenance (O&M) company will source these jobs locally within Lamu County if the skills base exists. Employment opportunities that will be made available and the stakeholder expectations in this regard must be managed appropriately.

The majority of the local and regional recruitment will be for semi-skilled and unskilled positions (such as kitchen staff, security guards and cleaners).

The skilled workers that will be sourced by the O&M Company will overshadow their Chinese counterparts with the view of taking over such positions over a period of time. The power plant will be operated on a 24-hour, seven day basis. The control room operators, general operators and watch keepers will work on rotating shifts and a number of them will be accommodated at the permanent worker colony.

The impacts of the project on demographic profile during the operational phase are expected to be similar to those of the construction phase and include:

- Population increase due to influx of opportunistic job seekers and operation workforce; and
- Change to the ethnic structure of the local area, created by non-local workforce.

The extent of impacts to demographics will remain largely contained within the project affected communities and will therefore be local in nature. The duration of impacts associated with the operations phase will be long term, continuing for the life of the Project and ceasing when the Project stops operating.

The small and ethnically homogenous nature of the affected communities increases their sensitivity to the arrival of newcomers, particularly foreigners (Chinese and those from other parts of Kenya). This sensitivity of the changing demographics during the operational phase could raise tensions in the project area.

Table 6-12: Impact significance on changes to demographic profile – construction and operational phases

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	Regional	Long-term	Moderate	Probable
	3	4	6	3
	Result: (-39) Medium negative			
Mitigation measures	• The EPC contractor should develop and implement a transparent recruitment process and communicate the same through the area Chiefs' offices to manage expectations and opportunistic influxes • Priority for employment and other economic opportunities should be given to the local community to minimize in-migration • The EPC contractor should develop and implement camp and workforce management protocols which are clearly communicated to the workforce and enforcement measures implemented • The EPC contractor should customize the grievance mechanism developed in this ESIA Study and implement it for the construction phase of the project.			

	• The EPC Contractor and Developer should facilitate small land medium enterprise (SME) development in the local communities and surrounding region. • The EPC Contractor and Developer should invest in infrastructure development that can provide long-term benefit to the communities • The Developer should identify and facilitate training opportunities with vocational training institutions such as the Lamu Polytechnic for the local workforce to participate in other job sectors • The Developer should support sustainable development and implementation of new technologies in local agricultural production and fishing			
Mitigation Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With mitigation	Regional	Long term	Low	Improbable
	3	4	4	2
	Result: (-22) Low negative			

6.2.9 Impacts on infrastructure and social amenities

With the commencement of the construction phase of the project, there will be an influx of workers in the project area. During the peak construction period, it is expected that there will be about 3,500 workers on site; the construction period is expected to be about 42 months.

The proposed project lies in the Lamu West constituency whose population according to the 2009 Housing and Population Statistics was 82,698 people and has a population density of 21 persons per square kilometer.

The existing infrastructure in the project area is poor. The communities in and around the project area do not have access to piped clean drinking water, toilet sanitation facilities and solid waste disposal. Residents rely on community shallow wells for water (the water is generally saline) and dump household waste in improvised landfills.

The communities in the Kwa Sasi area and generally in Hindi sub-county do not have access to electricity. During the public stakeholder consultations, the communities expressed a hope that the developer will supply the project affected communities with cheap electricity.

The enrollment for pre-primary, primary and secondary schools is adequate, however the challenge is performance of the students in national examinations. The County's youth economic empowerment lies in tertiary education; there are 4 youth polytechnics in the County, all in a deplorable state.

Lamu County has a total of 688.5km of roads of which only 6km is tarmacked. There are two main roads namely the Mokowe-Garsen road (C112) which connects the county to the rest of the coast counties and the county, and Mokowe –Kiunga Road (D568 and E865) which connects the county to Somalia border. These roads are unpaved and become difficult to use during the rainy season.

The existing roads will be used to transport about 30% of the construction materials, plant and equipment required for the project while 70% of the materials will be transported via sea to the project area. Parts of the C112 road from Garsen to Mokowe will need to be

upgraded in order to allow some of the construction materials to be transported to the project site.

On improvements to the infrastructure, the project developer has already commenced a program of corporate social responsibility for assisting the project affected communities. For example, the developer has undertaken the following improvements to the infrastructure among several other initiatives that they have commenced:

- Development of early childhood development classes at Bobo Primary School;
- Construction of the computer laboratory at Bargoni Primary School;
- Provision of water tanks at several locations in Kwasasi and its environs including weekly supply of potable water free of charge;
- Provision of solar lights to members of the project affected communities;
- Supply and installation of a cold storage facility at Mokowe for sea food for the fishermen;
- Provision of solar street lights and interlocking concrete block paving in Lamu town.

The main negative impacts to infrastructure associated with the 42-month construction phase of the project include:

- Deterioration of the C112 road from Garsen to Mokowe especially during the rainy season resulting from transportation of goods by heavy commercial vehicles. At the time of the ESIA Study, it was unclear how many truck trips will be required for transporting goods on the C112;
- Disruption to road access from project vehicles;
- Influx of opportunistic job seekers into the communities, adding pressure to the overburdened infrastructure services (roads, schools, health facilities, etc.);
- Increased household wastes and the inability to dispose of the same in an environmentally safe manner; and
- Contamination of water resources used by local communities.

The positive impacts to infrastructure associated with the construction phase include:

- Upgrading sections of the C112 road between Garsen and Mokowe especially near the project site by keeping it in a motorable state;
- Developing an effluent treatment plant appropriately sized for the construction phase of the project;
- Supporting the Lamu County Government to develop an appropriately designed and sized land fill for solid waste management;
- CSR projects related to infrastructure which will be undertaken by the developer and EPC contractor over the 42-month construction period; and
- Developing and/or upgrading health and educational facilities within Hindi sub-county.

Some of the key operational phase impacts include:

- Inadequate electrical supply to the community;
- Limited piped water;
- Poor toilet sanitation and solid waste disposal;
- Poor health facilities; and
- Inadequate road systems.

The proposed project will provide a net 981.5MW of electrical power to the national grid at the National Control Center in Nairobi via a 520km long 400kV overhead transmission line. This will increase the total available electricity in the country by 981.5MW (a figure representing more than 45% of the country's total on-grid generating capacity as at December 2014).

The Project will make use of public roads for Project-related transport and the frequency of vehicle movements will be significantly lower than that experienced during the construction phase. During the operational phase, the developer may develop a tarmac section of the road from the project site to Mokowe.

There will be a permanent worker colony for about 350 persons built within the project area. This facility will be self-sufficient from a resource and waste management perspective. There will be a desalination plant constructed as part of the project; the water will be used as process water in the power plant, potable water in the worker colony and a flanged connection for potable water will be provided to the community at no cost at the project boundary. There will also be a permanent effluent treatment plant constructed for the workers at the power station.

The impacts to infrastructure during the operational phase are similar to those characterized for the construction phase namely:

- Influx of opportunistic job seekers into the communities, adding pressure to the overburdened infrastructure services (roads, schools, health facilities, etc.);
- Contamination of water resources used by local communities;
- Project use of the C112 road could reduce their capacity; and
- Increased power supply for the national grid.

Table 6-13: Impact significance for existing infrastructure and social amenities - construction and operational phases

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	Regional	Long term	Moderate	Probable
	3	4	6	3
	Result: (-39) Medium negative			
Mitigation measures	• The EPC contractor and project developer should consult with relevant agencies (local and national Government and non-governmental organizations) on the current and future infrastructural development plans for the County and supplement their implementation; • The EPC contractor should consider providing housing facilities for all construction workers. If this is not possible, the EPC contractor should make plans to transport workers daily to and from Mokowe and Hindi to the project site using buses; • The EPC contractor should provide adequate infrastructure for water supply, waste management, health facilities, schools, etc. so as not to strain the existing County resources; • The EPC contractor should develop and implement a traffic management plan which should be strictly enforced. Among other things, the construction vehicle traffic should be limited to roads indicated specifically for the project and avoid use of roads that			

	would adversely disrupt effective functioning of local communities; • The EPC contractor should develop and implement adequate communication infrastructure for improving connectivity between the project site, regionally and nationally.			
Mitigation Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With mitigation	Regional	Long-term	Low	Improbable
	3	4	4	2
	Result: (-22) Low negative			

6.2.10 Impacts on public health

Public health is the combination of sciences, skills, and beliefs that are directed to the maintenance and improvement of the health of all people. Therefore, the potential impacts of a major infrastructure project to public health can be substantial in both an adverse and a beneficial manner. Historically, there has not been a set of generally accepted standard guidelines or checklists to direct the public health impacts evaluation of large infrastructure projects, particularly in developing countries. Typically, public health evaluations have primarily focused on morbidity, mortality, and disability. Both the impacts and potential mitigation measures have generally been viewed through a health sector or disease specific perspective (e.g., malaria control programs) and have not necessarily considered the overall potential available to the infrastructure sector to positively impact and improve the quality of life and affect disease rates. Since the project is a major infrastructure effort, it is equally appropriate to evaluate its potential impacts in a broader perspective than traditional evaluation of disease morbidity, mortality and disability.

The analysis of potential health impacts for an infrastructure project should be conducted in a manner that is philosophically consistent with the shift from pure disease specific morbidity, mortality, and disability towards a broader consideration of the linkages between the proposed project and environmental health. In this setting, environmental health is the prevention of disease through the control of biological, chemical, or physical agents in air, water, and food, and the control of environmental factors that may have an impact on the well-being of people.

In general, increased personal disposable income as a direct result of project employment, business opportunities and associated effects would result in an increase in spending on preventive and curative health services. It is expected that the following sub-sectors of environmental health will improve as a result of the proposed project:

- Respiratory diseases where (i) new project workers would receive sanitation/hygiene training which should positively impact home environments and (ii) diseases discovered during the project worker screening process would be identified for possible treatment;
- Vector-related diseases in which (i) local contractors/entrepreneurs would obtain design measures for vector control which should beneficially affect other local projects, (ii) existing roads needed for the project will be improved, particularly drainage and the minimization of standing pools of water that provide vector habitats, and (iii) vector-related diseases which are discovered during new project worker screening would be identified for possible treatment;

- Sexual behavior in the local communities may positively change as new project workers would receive sexually transmitted diseases (STD)/HIV information, education and communication during orientation;
- Water and food-borne diseases in which (i) the EPC contractor would provide a potable water supply source to the local community as part of their CSR initiative and (ii) camp solutions providers would obtain guidelines in the areas of water and food sanitation which should have a positive impact on future local projects;
- Accidents and injuries which include (i) driver safety training that would be provided to all project drivers thus positively impacting overall road safety and, (ii) site-specific safety training received during new project worker orientation should positively influence safe work practices at other local projects;
- Chemical exposure-environmental disease through programs which would target potential chemical exposures and the prevention of environmentally related diseases, thereby positively impacting local health education.

The potential adverse impacts to public health as a result of the proposed project include the following:

- Temporary housing impacts including increased incidence of vector-borne diseases, respiratory illnesses, food supply and quality issues, injuries, and solid/liquid waste disposal problems for sanitary and non-sanitary wastes. Vector-borne diseases are represented by malaria, filariasis, yellow and dengue fever which are spread by mosquitos. The above diseases associated with temporary housing could emanate from (a) construction activities (temporary and permanent housing), (b) inadequate drainage within the project's camp area and external to the project (worker housing areas constructed locally), (c) clogged storm drains, (d) improper trash collection and disposal both within the project facilities and external to the project and (e) increased activity at public facilities due to influx of workers/worker families;
- Transportation which includes air emissions from project related construction activities and STIs associated with truck drivers. The role of truckers in spreading STIs is widely acknowledged to be a major contributor to the spread of HIV and other STIs. Accidents and injuries associated with increases in vehicular traffic, workers, and pedestrians on existing and proposed project related roads and road hazards created by construction equipment can enhance the risk of injuries;
- Water and sanitation impacts include spread of vector-borne diseases, storm drainage-related problems and water utilization and availability problems.

The impacts of the project on public health are expected to be local in nature and limited to the study area and its environs.

Table 6-14 : Impact significance on public health - construction and operational phases

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	Study area	Long term	Low	Highly probable
	2	4	4	4
	Result: (-40) Medium negative			
Mitigation measures	• The EPC contractor should provide sanitation guidelines in the contracts for companies who are responsible for the construction and operation of temporary housing and mobile construction camps;			

	• Sanitation guidelines should address toilet facilities, potable water, sewage disposal facilities, laundry, hand washing and bathing facilities; • Sanitation and hygiene training should be incorporated by the EPC contractor into new employee orientation programs. • The O&M company should implement the above programs for the operational phase of the project; • Initial medical screening programs provided through the occupational health program would preclude workers with active respiratory diseases such as tuberculosis from working at the site. • The EPC contractor should undertake health screenings and malaria surveillance programs throughout the project occupational health program; • The O&M company should develop and implement a medical surveillance program for their employees during the operational phase of the project; • The EPC contractor should implement measures that prevent water pooling along construction routes, near water sources, drains, sewers, housing areas, and waste management areas; • The EPC contractor should develop and implement an HIV/AIDS peer educator program throughout the construction phase. The O&M Company should implement the same program during the operational phase.			
Mitigation Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With mitigation	Study area	Long-term	Minor	Improbable
	2	4	2	2
	Result: (-16) Low negative			

6.2.11 Occupational health and safety

It is anticipated that during the construction phase of the proposed project, there will be between 2000 and 3500 workers; during the operational phase, there may be up to 500 workers. The occupational health and safety concerns likely to arise include: accidents related to 'working at heights' and operation of machinery; occupational illness due to exposure to dust and other hazardous substances such as solvents and petroleum products; fire outbreaks due to electrical faults and mishandling of flammable substances; and fall injuries related to excavated pits.

Table 6-15: Impact significance of occupational health and safety concerns - construction phase

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	Localized	Long term	Very High	Definite
	1	4	10	5

	Result: (-75) High negative
Mitigation measures	• The EPC Contractor should develop and implement an Occupational Safety and Health (OSH) Management System (that is in line with the occupational Health And Safety Act of 2007 and its subsidiary regulations), OHSAS 18001 and the IFC General EHS Guidelines and will outline OSH procedures including: ✓ Provision of occupational safety and health orientation training to all employees; ✓ Periodic safety inspections; ✓ Employment of health and safety personnel; ✓ Development of a worker safety programme; ✓ Development and implementation of safe systems of work. • The EPC contractor shall comply with all applicable legislative requirements of the OSHA and its subsidiary legislation throughout the construction phase of the project. • The EPC Contractor shall conduct an occupational safety and health risk assessment for construction phase activities in accordance with Section 6(3) of the Occupational Safety and Health Act, 2007 (OSHA) and ISO 31000 and submit the report to the DOSHS for consideration • The EPC Contractor should ensure there is an effective and efficient firefighting system together with an adequately trained Emergency Response Team • The EPC Contractor shall develop and implement a S&H training program for all workers that they employ during the construction phase of the project. The S&H training program will be based on a training needs analysis carried out of the workforce. Internal and external S&H trainers will be engaged for provision of project and site specific S&H training courses in order to prevent accidents and injuries.

Mitigation Status	Extent	Duration	Magnitude	Probability
With mitigation	Localized	Very short	Minor	Probable
	1	1	2	3
	Result: (-12) Low negative			

Table 6-16: Impact significance of occupational health and safety concerns - operational phase

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	Localized	Long term	Very High	Definite
	1	4	10	5
	Result: (-75) High negative			

Mitigation measures	• The O&M Company shall always ensure full compliance with the OSHA and its subsidiary legislation throughout the lifetime of the project. • The O&M Company shall conduct annual occupational safety and health risk assessment for the operational phase of the project in accordance with Section 6(3) of the OSHA. • Based on the S&H risk assessment findings, the O&M Company shall develop and implement a formal Occupational Health and Safety Management System compliant with the applicable requirements of the Occupational Safety and Health Act, 2007 (OSHA) and its subsidiary legislation, IFC General EHS Guidelines and OHSAS 18001 • The O&M Company will develop and rollout a S&H training program for all employees during the operational phase of the project. The S&H training program will be based on a training needs analysis undertaken for the workers in the power plant. • The O&M Company will enter into mutual aid agreements with first responders in Lamu in the event that emergency assistance is required; • APCL and its contractors should ensure there is an effective and efficient firefighting system together with an adequately trained Emergency Response Team			
Mitigation Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With mitigation	Localized	Very short	Low	Improbable
	1	1	4	2
	Result: (-12) Low negative			

6.2.12 Increase in traffic and related incidents

The influx of construction workers will entail an increase in the traffic to and from the project site. Construction activities will potentially increase traffic in the Lamu main land as construction vehicles will have to go to the construction site to deliver construction materials and equipment. The increase in the number of road users is not an impact, but merely a change process. However, the number of construction vehicles, increased public transport vehicles and project-related traffic may change the movement patterns of other road users in such a way that their movement patterns are disrupted, and their safety levels are impacted on.

During the operational phase of the project, increased traffic levels will be caused by public transport vehicles used by workers as well as service contractor vehicles leaving and entering the power plant. Also, better roads graded by APCL will result in an increase in number of motorcycles in the area which record high levels of accidents.

Table 6-17: Impact significance of increase in traffic and related incidents - construction phase

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	Regional	Short term	High	Definite
	3	2	8	5
	Result: (-65) High negative			
Mitigation measures	• APCL and its contractors should undertake a risk management appraisal of their road transport carriers. This appraisal should be used to select those road transport carriers that can demonstrate compliance with set standards • The EPC Contractor should develop a Traffic management plan for both the construction and operational phase • The EPC Contractor will regularly inspect the access roads conditions and, whenever necessary, repair damages related to construction traffic • Abnormal loads should be timed to avoid times of the year when traffic volumes are likely to be higher e.g. start and end of school holidays, long weekends, etc. • Dust suppression measures must be implemented for heavy vehicles such as wetting of murram roads on a regular basis • Prepare detailed plan for signage around the Construction Areas to facilitate traffic movement, provide directions to various components of the Works, and provide safety advice and warnings. Details regarding maximum permissible vehicular speed on each section of road. All signs shall be in both English and Swahili language • APCL and its contractors should advance public awareness programs to identify areas of particular risk and approaches to reduce risk. This is expected to include awareness programs along roads leading to the site to frequent users on traffic dangers. Traffic calming and speed control measures should be instigated in consultation with the relevant authorities			
Mitigation Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With mitigation	Study area	Short term	Low	Probable
	2	2	4	3
	Result: (-24) Low negative			

Table 6-18: Impact significance of increase in traffic and related incidents - operational phase

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	Regional	Long term	High	Definite
	3	4	8	5
	Result: (-75) High negative			
Mitigation measures	• APCL and its contractors should undertake a risk management appraisal of their road transport carriers. This appraisal should be used to select those road transport carriers that can demonstrate compliance with set standards • Develop a Traffic management plan for both the construction and operational phase • Abnormal loads should be timed to avoid times of the year when traffic volumes are likely to be higher e.g. start and end of school holidays, long weekends, etc. • Dust suppression measures must be implemented for heavy vehicles such as wetting of murram roads on a regular basis • Prepare detailed plan for signage around the power plant to facilitate traffic movement, provide directions and provide safety advice and warnings. Details regarding maximum permissible vehicular speed on each section of road. All signs should be in both English and Swahili language • APCL and its contractors should advance public awareness programs to identify areas of particular risk and approaches to reduce risk. This is expected to include awareness programs along roads leading to the site to frequent users on traffic dangers. Traffic calming and speed control measures should be instigated in consultation with the relevant authorities			
Mitigation Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With mitigation	Regional	Long term	Low	Probable
	3	4	4	3
	Result: (-33) Medium negative			

6.2.13 Security related impacts

The developer has engaged the services of a specialist consultancy for the security impact assessment of the proposed project. Due to its nature, it cannot be disclosed as part of the ESIA. Subsequently, the potential impacts discussed below are associated with the general security to be provided as part of the project.

Not only do health issues impact on communities, but the physical safety of communities can also be endangered as a result of the influx of job seekers and construction workers (e.g. potential increase in crime). There is perception that crime increases in an area the moment that construction workers arrive on site. Because of this perception, occurrences of crime during the time of the project are likely to be ascribed to the construction workers. This has a mental health impact, such as fear. However, it should be noted that in most instances it is not the actual construction workers who engage in criminal activities but more likely job seekers who loiter at the site in search of employment.

Table 6-19: Impact significance on security-construction and operational phase

Mitigation Status	Extent	Duration	Magnitude	Probability
Without mitigation	National	Long-term	Moderate	Probable
	4	4	6	3
	Result: (-42) Medium-negative			
Mitigation measures	**Comments/Mitigation:** • Construction workers should be clearly identifiable. Overalls should have the logo of the EPC contractor on it and/or construction workers should wear identification cards; • The construction site and construction camp should be fenced and access should be controlled by means of a security access point • Loitering of outsiders at either the construction site or at the construction village should not be allowed. Loiterers at the site or the camp should be removed in cooperation with the local National Police Service; • Unsocial activities such as consumption or illegal selling of alcohol, drug utilization or selling and prostitution on site should be prohibited			
Mitigation Status	**Extent**	**Duration**	**Magnitude**	**Probability**
With mitigation	National	Long-term	Low	Improbable
	4	4	4	2
	Result: (-24) Low negative			

6.3 Cumulative Impacts

Cumulative impacts refer to changes to the biophysical, social and economic environments caused by the combination of successive, incremental, and/or combined effects of past, present and reasonably foreseeable future actions that will interact with the project. Cumulative impacts are contextual and encompass a broad spectrum of impacts at different spatial and temporal scales. They may occur from the combined effects over a given mix of different types of projects. In the case of the proposed Power Plant, cumulative impacts and benefits on various environmental and social receptors will occur to varying degrees from the combined effects of the development of access roads, the transmission line, other LAPPSET related projects, adjacent land uses as well as the proposed Power plant itself.

The key cumulative benefits associated with the proposed project include significant economic growth, improved public services and improved infrastructure. Benefits to the local, regional and national economy through employment and procurement of services could be substantial should the projected economic growth induced by the project and other LAPPSET related developments be realized. Over time, as local enterprises develop to meet the needs of the coal power sector, LAPPSET developments, and demand for services and products, it is likely that levels of local procurement will increase. Being the first project of its nature and magnitude in the country, it is highly probable that, initially, import content may be high. However, as the sector grows, it should provide opportunities for growth of the local supply chain and the additional benefits that would flow from this.

The key potential cumulative impacts associated with the proposed project include in-migration, pressure on resources, especially land, and increase in traffic congestion and accidents along community roadways owing to increases in transport activity within the project's area of influence. Lamu is scheduled to host several macro-level development projects. These development initiatives, along with the proposed 1,050 MW coal power plant project, are anticipated to influence substantial in-migration into the County, with LAPPSET alone expected to attract approximately over a million migrant workers. If the influx of individuals into the County is not properly planned for by Government and project proponents, there is a chance that a range of socio-economic issues may be compounded over the long term. However with adequate influx management, there are possibilities to develop the capacity of local authorities and create positive impacts for local communities through improved infrastructure and services, and improved economic opportunities.

The proposed project site is located in a rural, undeveloped, agricultural area. Majority of the structures are semi-permanent mud-wall and thatch roof single story buildings. Additionally, Lamu County, specifically Lamu Island is a key tourist destination due to the existing visual resources. When developed, the proposed power plant, which will include a 210 meters tall chimney, will be visible to a large area radius. Considering the relative remoteness and natural state of the project area, the proposed project facilities could represent a substantial impact in terms of landscape character/scenic integrity, when addressed cumulatively with the other anticipated development projects in the County. Should the anticipated economic and infrastructural development associated with the project be realized, there is a possibility that the agricultural sense of place of the area may be undermined as the landscape characteristic becomes defined by the power plant facilities or other commercial, modern housing and industrial developments. In addition, the quality of the recreational setting could be degraded by the loss of wilderness aesthetic, visual intrusions upon the landscape, and potentially increased haze due to the cumulative increase in development. As development occurs, the current rural environment will become increasingly industrialized.

Development of the power plant and associated infrastructure may also drive the demand for the use of new and existing right of way corridors for transmission lines, distribution lines and roads to support the construction of planned facilities within the region.

The proposed project is envisioned to inject 960 megawatts of electricity into the national grid, currently standing at 1,664 megawatts, as part of the Government of Kenya's Least Cost Development Plan for power generation to bring down the cost of power via a more stable, cheaper, reliable platform. Once complete, the Project will constitute approximately 36% of the new combined grid capacity as well as bring down the average cost of generation for Kenya Power and Light Company (KPLC). This is expected to: Increase KPLC's outreach and connectivity with emphasis on rural electrification, educational institutions, health institutions and micro-enterprises; significantly reduce the cost of electricity; address the current power shedding outages experienced nationally and; address the current uncertainty of power generation from hydropower.

Lamu County generally suffers from poor underdeveloped infrastructure. It is anticipated that the implementation of the proposed project as well as the other LAPPSET developments may stimulate the enhancement infrastructure including:

Transportation Infrastructure: improvement of existing roads, creation of new roads and associated structures such as bridges; Improvement of existing jetties and creation of new ones.

Public Health Infrastructure: improvement of health facilities; desalination and provision of potable water supplies; wastewater treatment and management; solid and hazardous waste management and treatment

Communications Infrastructure: enhanced telephone services (fixed lines and mobile) and associated transmission facilities

Energy Infrastructure: improvement of electrical power supply

7 Social management and monitoring plan

7.1 Overview

The Social Management Plan (SMP) predicts and plans responses for certain common and specific social impacts that may occur throughout the project lifecycle of the proposed 1050MW power plant in Lamu County. A social management plan is necessary for adequate management of these social impacts.

This SMP contains the measures to be implemented in the different phases of the project, in order to promote positive outcomes and decrease or minimize the adverse impacts that may arise. It incorporates some recommendations on how to handle community safety throughout the project cycle.

The Grievance Mechanism is of vital importance to the successful implementation of the proposed project. A Grievance Mechanism has been developed that provides a formalized procedure (identification, tracking and redress) for addressing Complaints/grievances raised in connection with APCL's activities.

A Stakeholder Engagement Plan (SEP) has also been developed to articulate the principles, procedures and approaches that will guide the project's engagement with the community and other stakeholders. The SEP will be implemented in tandem with this Social Management Plan. High emphasis should be placed on continuous stakeholder consultation to foster and maintain a trusting relationship based on a transparent and timely supply of information and open dialogue. APCL should engage the local community from the onset of the project to the decommissioning phase.

The EPC contractor should aim, where possible, to use local businesses to fill contract positions such as catering, cleaning, construction, material supply, light vehicle maintenance, security provided the contractors are competitive and appropriately skilled and provide goods and services to the contractors' standards and specifications. The EPC contractor should make the local community aware of the economic opportunities that will be available, the skills and qualifications required to fill them, as well as when the opportunities will be available.

7.2 Roles and responsibilities

Mitigation and management measures are contained throughout the SIA. For the construction phase, the EPC Contractor and sub-contractors will have the primary roles in delivering on the measures set out in the SMP, while the O&M contractor takes over during the operation phase. Where the measures set out in the SMP do not result in effective achievement of objectives, the proponent should work with lead contractors to refine the measures as may be relevant. The EPC contractor should develop and implement a comprehensive Health, Safety and Environment (HSE) policy that will provide a framework for the implementation of this SMP.

The EPC Contractor and all other sub-contractors will be responsible for ensuring compliance with all relevant Kenyan HSE related legislation as well as adherence to all environmental and socio-economic mitigation measures specified in the SMP. The contractors will play an important role in influencing how the risks to health and safety are managed during construction and operations. This includes ensuring standards are understood and followed. The contractors are also responsible for managing the potential environmental, socio-economic, safety and health impacts of all project activities whether these are undertaken by themselves or by their subcontractors. There is therefore no intention to differentiate between the responsibilities of contractors and subcontractors; all contractors must meet all requirements. The contractor will be required to undertake regular environmental and socioeconomic inspections to monitor and evaluate performance against the measures and objectives established in the SMP. The EPC and O&M contractors as well as all other sub-contractors should ensure that they have internal capacity to address HSE, security and quality assurance matters.

APCL as the project company should:

- Review and approve contractor plans for delivery of the actions contained in the SMP and review contractor performance through monitoring, audits and inspection
- Where the measures set out in the SMP do not result effective achievement of objectives, APCL should work with lead contractors to refine the measures as may be relevant.
- Establish internal capacity / units for HSE, HSEQ and Security management
- Develop and implement a comprehensive Human Resource Management Plan
- Participate in the investigation into any major site incidences and ensure that the EPC contractor takes any resultant preventive actions

The EPC and subsequently O&M contractors should:

- Deliver on all the measures set out in the SMP as well as ensuring compliance with all relevant legislation
- Plan, manage, monitor and coordinate the entire construction phase in order to manage the potential environmental, socio-economic, safety and health impacts
- Take account of the health and safety risks to everyone affected by the work (including members of the public), in planning and managing the measures needed to control them
- Liaise with the APCL for the duration of the project to ensure that all risks are effectively managed
- Develop and implement a comprehensive Health, Safety and Environment (HSE) policy that will provide a framework for the implementation of the SMP
- Establish a HSE unit comprising of a HSE manager and HSE officers
- Establish a community liaison unit comprising of a community relations manager, community liaison officers and, where necessary, Chinese-English/Swahili translators
- Prepare a written construction phase plan before the construction phase begins, implement, and then regularly review and revise it to make sure it remains fit for purpose
- Have ongoing arrangements in place for managing health and safety throughout the construction phase
- Prepare and conduct site HSE induction courses for all personnel
- Consult and engage with workers about their health, safety and welfare

- Check that anyone they appoint / sub-contract has the skills, knowledge, experience and, where relevant, the organizational capability to carry out their work safely and without risk to health
- Ensure all workers have site-specific inductions, and any further information and training they need
- Take steps to prevent unauthorized access to the site
- Liaise with APCL to share any information relevant to the planning, management, monitoring and coordination of the project

All workers working in the project have the responsibility to:

- Only carry out construction work if they have the relevant skills, knowledge, training and experience - or they are provided with the training and supervision that enables them to do it safely and without risk to health
- Make themselves aware of the health and safety risks involved in work in the project and the way those risks are managed
- Always follow site rules and procedures
- Cooperate with all duty holders, such as the contractor in control of their work
- Report any risks they find to whoever controls the work on site, whether the risks affect their own health and safety or anyone else, including other workers and members of the public

All workers should be made aware of their roles and responsibilities as concerns health, safety and security before they begin work in the project. This can be part of the onboarding and contracting process. It is advised that all workers sign documents acknowledging their awareness of, and agreement with their roles and responsibilities.

7.3 Monitoring and reporting

Monitoring and reporting on the implementation and effectiveness of the mitigation and management measures prescribed throughout the SIA should be undertaken. The key objectives of monitoring and reporting are to:

- Assure that the ESMP is implemented;
- Assess the efficiency of mitigation actions for all stages of Project implementation;
- Verify predictions presented in the SIA;
- Provide information to permitting authorities; and
- Provide of information on environmental and socio-economic performance as required by the Project.

In order to achieve these objectives, it is necessary to develop a Monitoring and Reporting Program, including the definition of targets for Key Performance Indicators (KPIs) aimed at driving continuous improvements in performance. It is also necessary to roll out the Monitoring Program through training of staff, collection, storage and review of data.

A detailed monitoring and reporting plan will be developed as additional details on the design of specific Project components and the work execution plans become available.

7.4 Social management plan

This SMP aims to provide recommendations and a roadmap for APCL, the contractors and stakeholders in responding to Project related social and economic impacts and benefits over the life of the project. The strategies may also form the basis for ongoing partnership and collaboration between APCL, County and National Governments, non-Government organizations and the community.

Table 7-1 below summarizes potential impacts, mitigation measures, allocation of responsibilities and time frame for minimization and monitoring of potential impacts associated with the lifecycle of the Power Plant. In addition to the social management plan outlined below, it is recommended that the EPC and subsequently the O&M contractor develops and implements the following key plans and policies. These will underpin the enhancement of potential social benefits and provide frameworks for adverse impact mitigation.

a) Local procurement and Local employment policy
b) Gender Policy
c) Violence, sexual harassment and HIV/AIDS policy
d) Transportation and road safety policy
e) Health, Safety and Environment (HSE) policy
f) Occupational Health and Safety Management System
g) Human Resource Management Plan (including a succession planning from expatriate to local workers)
h) Waste management plan
i) Security Action plan
j) Influx Management Plan
k) Worker camp management plan

Table 7-1: Social management plan

Potential Impact	Management control/action	Monitoring measure	Key performance indicators	Responsibility	Timeframe
Creation of direct employment opportunities	Develop and implement a Human Resource Management (HRM) Plan that is aligned to the Employment Act of 2007, IFC PS 2 on 2 Labor and Working Conditions as well as AFDB Operational safeguard 5 on Labor Conditions, Health and Safety. The HRM plan should include at a minimum, training and capacity building, equity and equal access to opportunities, rights and protection of workers. The EPC Contractor and O&M Company should prioritize their recruitment based on the local community prior to recruitment from other parts of the country. The HRM plan should be reviewed annually and improvements incooperated based on statutory compliance and emerging HR risks.	Periodic (e.g. annual) review of the HRM plan and associated records to ensure compliance with measures recommended in the HRM plan	A HRM Plan developed and in full implementation One review and improvement of the HRM plan in every 12 month cycle	EPC contractor for construction phase, O&M Company for operations phase	HRM to be developed prior to commencement of construction HRM implemented and reviewed throughout the Project lifecycle
Economic growth	The EPC Contractor and O&M Company should procure materials from properly licensed (e.g. KRA tax compliant) suppliers. Where there are local businesses in Lamu County that can supply goods and services, the EPC Contractor and O&M Company should give priority to such local suppliers	Quarterly, six-monthly and annual review of procurement procedures and records	Number of local business supplying goods and services to the project	EPC Contractor for construction phase, O&M Company in the operational phase	Throughout Project lifecycle
	APCL should support the creation of local SMEs through initiatives such as publicizing potential opportunities for local businesses,	Annual review of initiative records (number of loans	Number of trainings/forums held for local SMEs	APCL	Throughout Project lifecycle

Potential Impact	Management control/action	Monitoring measure	Key performance indicators	Responsibility	Timeframe
	training and financial capacity building for local businesses etc.	provided at concessional interest rates, Trainings, forums and any other support provided)	Record of new local SMEs established		
Infrastructural development	Through its CSR programme, APCL should endeavor to support existing infrastructure needs in Lamu County e.g. education and healthcare facilities, sanitation infrastructure, etc. This may include staffing and equipping of facilities. Where funds allow, APCL should undertake construction of additional health care, potable water, sanitation and educational facilities in Lamu County	Quarterly and annual review of the CSR programme reports	Number of institutions/facilities supported Number and capacity of new facilities established	APCL and its contractors	Throughout Project lifecycle
Capacity building	APCL should support Technical and Vocational Education Training (TVET) institutions in Lamu County by upgrading their workshops and sponsoring visiting faculty from Technical University of Mombasa (TUM). APCL should further support the Stone Town Academy in Lamu town by sponsoring infrastructure development of this school. APCL should enhance opportunities for economic progress in Lamu County by developing and supporting skill building and training programs for local residents such as the recruitment and training of 1,000 local youth through the NYS programme	Quarterly and annual review of training reports/records Quarterly review of upgraded educational facilities in Lamu County	Number of local residents trained Number of local residents directly employed by APCL through the EPC Contractor and O&M Company	APCL	Throughout Project lifecycle

Potential Impact	Management control/action	Monitoring measure	Key performance indicators	Responsibility	Timeframe
Land acquisition and involuntary resettlement	Implement the Resetlement Action Plan (RAP) in line with the National land policy (2009), and international best practices	Review the RAP report	All PAPs identified and relocated in line with RAP	Government of Kenya	Before commencement of construction
	Ensure women are consulted especially during disbursement of compensation. This is in an effort to bridge any existing gender inequalities arising from payments made to PAPs	Number of joint bank account holders that receive RAP compensation	Number of women consulted Number of consultative meetings undertaken where women are involved in receipt of RAP compensation	Government of Kenya	Before commencement of construction
	Provide financial management training to the PAPs to ensure they are able to manage compensation funds sustainably	Review of training reports Annual progress monitoring of PAPs	Number of PAPs trained	Government of Kenya	During the construction phase
Disruption and potential loss of livelihoods	Undertake rehabilitation of aesthetic resources through activities such as establishment of nature parks and tree planting around the perimeter of the project site to minimize, as much as possible, visibility of the power plant from key tourism sites	Annual review of the rehabilitation programme activities and reports	Number of trees planted Number of rehabilitation projects undertaken	APCL though its CSR programme EPC contractor for construction phase, O&M Company for operations phase	During construction phase and monitored throughout the project lifecycle
	To mitigate impacts on fishing industry, the EPC Contractor and O&M Company should not discharge raw effluent into the Manda bay which could contaminate the seawater and adversely impact fisheries	Daily, Monthly, quarterly and annual testing of treated effluent prior to discharge	Monthly, quarterly and annual quality inspection reports	EPC contractor for construction phase, O&M Company for operations phase	During construction phase and monitored throughout the project lifecycle

Potential Impact	Management control/action	Monitoring measure	Key performance indicators	Responsibility	Timeframe
		Periodic maintenance of Industrial Wastewater Treatment Plant			
	Where qualified personnel are available within the local community, the EPC Contractor and O&M Company should prioritize employment opportunities from members of the local community	Quarterly, six-monthly and annual review of employment procedures and records	Number of local community members employed within the project	EPC contractor for construction phase, O&M Company for operations phase	During construction phase and monitored throughout the project lifecycle
	APCL's CSR programme should include efforts to support improvement of the fishing industries	Annual review of the CSR programme activities and reports	Number of initiatives undertaken	APCL	Through out project lifecycle
Impacts related to in-migration	Apply strict access and security control to the project site and worker's camps for all workers and visitors entering or leaving the project site	Daily, Weekly, monthly and quarterly security and access surveillance and inspections	Weekly, monthly and quarterly security reports	3rd Party Security Company	Throughout the project lifecycle
	Access to Manda Bay should be restricted to work related activities only to curb unauthorized fishing and harvesting of other ecological resources from the bay	Weekly, monthly and quarterly security inspections Six-monthly fisheries surveys	Weekly, monthly and quarterly security reports	3rd Party Security Company O&M Company	Throughout the project lifecycle
	To mitigate potential overfishing due to rising demand for seafood, BMUs in collaboration with the County Government (CEC Fisheries) should control fishermen access to fishing sites. This control should also be applied to mangrove cutting as well as other ecosystem	Daily surveillance of restricted zones Monthly, quarterly and annual assessment of ecological resources such as fish population	Daily surveillance reports Monthly, quarterly and annual assessment reports of ecological resources	BMUs in collaboration with the County Government (CEC fisheries)	During construction phase and monitored throughout the project lifecycle

Potential Impact	Management control/action	Monitoring measure	Key performance indicators	Responsibility	Timeframe
	services that may experience rising demand due to the growth in the construction industry resulting from the coal fired power plant				
Impacts on existing infrastructure and social amenities	Establish a health facility, education institutions, internal waste management system and internal water treatment facilities within the colony to ease pressure on existing infrastructure within the community	Quarterly and annual review of established facilities to assess adequacy in meeting demand	Quarterly and annual reviews report	APCL	Through out project lifecycle
	As part of the CSR program, funds allowing, APCL is encouraged to support existing amenities such as: improvement, of local health facilities through renovations, staffing an stocking of vital equipment and medication; improvement of local education facilities through expansion, staffing and provision of equipment and supplies; provision of portable water to the local community etc.	Annual review of the CSR programme activities and reports	Number of facilities established	APCL	Through out project lifecycle
	The EPC/O&M contractor will develop and implement a transport management plan for land and sea transport to and from the project site	Annual review of the transport management plan and associated records of compliance with measures recommended in the plan	A transport management plan developed and in full implementation 1 review and improvement of the plan within every 12 month cycle	EPC contractor for construction phase, O&M Company for operations phase	During construction phase and monitored throughout the project lifecycle
	The EPC/O&M contractor will operate a desalination plant for supply of clean water for construction related activities and potable water for human consumption. The potable	Monthly, quarterly and annual inspection of the quality and adequacy of water provided	Monthly, quarterly and annual quality inspection reports	EPC contractor for construction phase, O&M Company for operations phase	During construction phase and monitored

Potential Impact	Management control/action	Monitoring measure	Key performance indicators	Responsibility	Timeframe
	water must, at a minimum, meet the Kenyan standards for drinking water quality				throughout the project lifecycle
	The EPC Contractor and O&M Company will maintain an effluent treatment plant. All treated effluent should comply with effluent discharge limits stipulated in the Kenyan Water Quality Regulations of 2006	Monthly, quarterly and annual inspection of effluent management systems	Monthly, quarterly and annual quality inspection reports	EPC contractor for construction phase, O&M Company for operations phase	During construction phase and monitored throughout the project lifecycle
Impacts on health and safety including traffic and related incidents	The EPC contractor and subsequently the O&M Company will develop and implement a Health and Safety Management plan. The contractor will also engage internal and external health specialists in regular health and safety inspections	Review of inspection reports	Daily, weekly and monthly inspections by internal health and safety specialist: six-monthly inspection engaging external specialist	EPC contractor for construction phase, O&M Company for operations phase	Through out project lifecycle
	The EPC contractor and subsequently the O&M Company will develop and implement a Driver Safety Program which should include a satellite based vehicle tracking system and an on-board computer system. The Driver Safety Monitoring Plan should include driver fatigue management, vehicle speed limits, compliance with axle load limits, proper vehicle maintenance, etc.	Annual review of the driver safety plan and associated records of compliance with measures recommended in the plan Weekly inspection of vehicles	A driver safety plan developed and in full implementation 1 review and improvement of the plan within every 12 month cycle Weekly vehicle inspection reports	EPC contractor for construction phase, O&M Company for operations phase	Before construction phase and monitored throughout the project lifecycle
	The EPC contractor will undertake and document daily, weekly, monthly, quarterly, six-monthly safety and health inspections of the project construction activities based on the requirements of OHSAS 18001	Review of daily, weekly, monthly, quarterly, six-monthly health and	Daily, weekly, monthly, quarterly, six-monthly health and safety inspections records	EPC contractor	During construction phase

Potential Impact	Management control/action	Monitoring measure	Key performance indicators	Responsibility	Timeframe
	specifications. Additionally, the EPC contractor shall cause an external Safety and health audit of the construction site to be undertaken once every 12 months period using a DOSHS registered Safety and Health advisor	safety inspections records			
	The EPC contractor will develop and implement a job safety analysis system for all construction related activities and will conduct Tool Box Talks (TBTs) on a daily basis with each crew prior to commencement of daily construction activities	Daily, weekly, and monthly review of job safety activity and TBT records	Daily, weekly, and monthly TBT records	EPC contractor	During construction phase
	For all non-routine activities or activities that may have a high potential severity, the EPC contractor will develop and implement Permit-To-Work (PTW) system at the site For any changes in the design of any element of the project, The EPC contractor will develop and implement a Management-Of-Change (MOC) procedure prior to implementing the change	Weekly and monthly review of the PTW and MOC procedures and records	Weekly and monthly review reports	EPC contractor for construction phase, O&M Company for operations phase	During construction phase
	The EPC contractor and subsequently the O&M Company will develop and implement an Emergency Response Plan based on a formal emergence assessment of all activities Drills will be carried out on a quarterly basis of various scenarios and written record of each drill maintained for inspection purposes	Annual review of the Emergency Response Plan Quarterly and annual review of drill reports/records	An Emergency Response Plan developed and in full implementation 1 review and improvement of the plan within every 12 month cycle	EPC contractor for construction phase, O&M Company for operations phase	Before construction phase and monitored throughout the project lifecycle

Potential Impact	Management control/action	Monitoring measure	Key performance indicators	Responsibility	Timeframe
			Quarterly and annual emergency drill reports/records		
Security related impacts	APCL should provide appropriate accommodation facilities for armed security personnel to reduce threats of security related incidents during construction and operational phases	Monthly review of security status	Number of security personnel engaged Number or recorded security incidences	APCL	Before construction phase and monitored throughout the project lifecycle

8 Conclusions and recommendations

The proposed 1,050MW Coal power Plant project is the first power project of such a grand magnitude in Kenya. It has immense potential to transform the social-economic environment of Lamu County and the entire country. While the probable benefits are vast, it is vital that potential negative impacts be effectively mitigated. It is recommended that APCL coordinates with the relevant Government ministries and development agencies to ensure prudent and successful implementation of the project.

The findings of this SIA indicate that the implementation of the proposed project may enhance economic development through creation of employment and business opportunities for the Lamu community and the country. It may also improve quality of life through provision of affordable and reliable power supply to all sectors. The findings also identify potential adverse impacts on health, livelihoods, infrastructure and social change that may result from the project if mitigation measures are not applied.

It is recommended that APCL, the EPC contactor and O&M Company implement mitigation and enhancement measures recommended in this SIA and related reports including the ESMP. The project team should undertake to regularly review and improve these measures to reflect changes in the project environment. APCL and its contractors should also obtain all necessary licenses and certification before implementation.

Overall, stakeholders expressed their support for the proposed project preconditioned on two requests: (1) that potential adverse effects of the project are effectively mitigated, and (2) that APCL prioritizes the Lamu community in accessing and benefiting from the economic opportunities presented by the project. The stakeholders also expressed optimism and anticipation for the benefits expected from APCL's CSR programme.

The land requirements for the proposed project are significant. Lamu County has previously experienced contentions between Proponents and the local communities over land matters. This has resulted in deleterious community perceptions and attitudes towards development projects requiring acquisition of private and community land, especially those associated with the Government. Land acquisition and compensation was highlighted as the prime concern by all stakeholder groups. The land acquisition process for the required project site land is the full onus of the Government of Kenya. It is crucial that the RAP process is implemented in accordance with international standards.

APCL should implement the commitments made to the local community during the stakeholder engagement process. Such commitments include prioritization of the local community in all economic opportunities, capacity building for local youth and subsequent employment in the construction phase, provision of portable water to communities proximate to the project site among others recorded in the stakeholder engagement logs.

APCL should aim to maintain active and meaningful stakeholder engagement throughout the project lifecycle. The active engagement of individuals, groups and organizations who have a stake in the project and its outcome will improve decision making, promote understanding, and build a trusting relationship through transparent and timely supply of information and open dialogue

Lastly, it is recommended that APCL develops a community investment strategy that will guide and communicate its CSR framework and manage stakeholder expectations. APCL should ensure active participation of all stakeholder groups in any investment considerations. The strategy should include approaches to:

- Support and deliver initiatives that assist to manage population influx in a sustainable manner
- Support local community capacity building through skills development and contribution to local education
- Support programs that protect and enhance the productivity of natural resources, including land, water and biodiversity
- Provide avenues to partner with Government, industry and community that deliver long-term lasting benefits to the project area
- Support the continued development of safer and healthier communities (healthcare, police and emergency services and public welfare activities)
- Support the capacity development of key social infrastructure services and facilities, in accordance with priorities identified by relevant stakeholders

Based on the findings of this study, it can be concluded that the socio-economic environment in the area which the proposed Coal Power Plant is planned, allow for the development of the proposed project, on conditions that the identified and recommended mitigation measures in this document, are considered and implemented in the most practical and sustainable manner.

9 References

- CRA (2011). http://www.crakenya.org/cra-overview/
- Kenya Economic Survey, 2013
- Kenya Economic Survey, 2014
- Kenya Economic Survey, 2015
- 2009 Kenya Population and Housing Census: Population Distribution by Age, Sex and Administrative Units
- 2009 Kenya population and Housing Census; Population Distribution by Administrative units- Volume 1A
- Lamu County Integrated Development Plan, 2013- 2017 – Revised June 2014
- KNBS Statistical Abstract, 2013
- KNBS Statistical Abstract, 2014
- KNBS Statistical Abstract, 2015
- Society for International Development website (www.sidint.net) http://inequalities.sidint.net/kenya/county/lamu (accessed on 9th March, 2015)
- EIA Guidance for Coal-Fired Power Plants in Pakistan
- Coutinho, Miguel and Butt, Hamza K. 2014. Environmental Impact Assessment Guidance for Coal Fired Power Plants in Pakistan.
- Kenya Vision 2010, March 2013. Kenya Vision 2030 Governors Tool Kit – Lamu County
- KNBS Kenya Facts and Figures, 2014
- NASCOP, 2012. Global AIDS Progress Report, Kenya, 2012: HIV and Aids Profile - Lamu County
- World coal organization website (http://www.worldcoal.org) (accessed on 12th March, 2015)
- Lamu County Government website (http://www.lamu.go.ke) (accessed on 10th March, 2015)

10 Appendices

This SIA report contains four appendices as detailed below. These are compiled into a separate document attached to this report.

Appendix	Description
Appendix 1	Background Information Document (BID)
Appendix 2	Project Stakeholder database
Appendix 3	Stakeholder engagement logs and, issues and response reports from stakeholder meetings
Appendix 4	Photographs of stakeholder engagement