ENVIRONMENTAL & SOCIAL GAP ANALYSIS: South African Facility for Green Growth

KfW Development Bank

12 September 2019

Environmental & Social Gap Analysis: South African Facility for Green Growth

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FINAL REPORT

For and on behalf of: KfW Development Bank

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LIST OF ABBREVIATIONS

AfDB	African Development Banks
ARC	Agricultural Research Council
BA	Basic Assessment
bigEE	Bridging Information Gap of Energy Efficiency in Buildings
BOD_5	Biochemical oxygen demand
CAA	South African Civil Aviation Authority
CARA	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)
CBD	Convention on Biological Diversity
CCMA	Commission for Conciliation, Mediation and Arbitration
CDP	Carbon Disclosure Project
CEO	Chief Executive Officer
CFC	Chlorofluorocarbons
CMA	Catchment Management Agencies
CO_2	Carbon dioxide
COIDA	Compensation for Occupational Injuries and Diseases Act, 1993 (Act No.130 of 1993)
CWP	Community Work Programme
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DoE	Department of Energy
DoL	Department of Labour
DoT	Department of Transport's
DPW	Department of Public Works
DSD	Department of Social Development
DWS	Department of Water and Sanitation
E&S	Environmental & Social

EA	Environmental Authorisation
EEDSM	Energy Efficiency Demand Side Management
EHS	Environmental, Health and Safety
EPWP	Expanded Public Works Programme
ESDD	Environmental and Social Due Diligence
FC	Financial Cooperation
GHG	Greenhouse gas
GIIP	Good International Industry Practice
GMOs	Genetically modified organisms
GoSA	Government of RSA
HSA	Hazardous Substances Act, 1973 (Act No. 15 of 1973)
HVAC	Heating, ventilation and air conditioning systems
IAR	Immovable Assets Register
IBIS	Ibis Environmental Social Governance South Africa (Pty) Ltd
ICAO	International Civil Aviation Organisation
IDC	The Industrial Development Corporation of South Africa
IEM	Integrated Environmental Management
IFC	International Finance Corporation
ILO	International Labour Organization
ITP	Integrated Transport Planning
KfW	KfW Development Bank
LWCC	Livestock Welfare Coordinating Committee
M&V	Measurement and Verification
MAB	Man and the Biosphere Programme
MDGs	Millennium Development Goals
MHI	Major Hazard Installation
MLRF	Marine Living Resources Fund
NAMC	National Agricultural Marketing Council

NATMAP	National Transport Master Plan
NBRBSA	National Building Regulations and Building Standards Act, 1977 (Act No.103 of 1977)
NCCRP	National Climate Change Response Policy White Paper
NDP	National Development Plan
NEES	National Energy Efficiency Strategy
NEM: AQA	National Environmental Management: Air Quality Act, 2004 (Act No.39 of 2004)
NEM: BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEM: ICM	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM: PAA	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No.59 of 2008)
NEM: WAA	National Environmental Management: Waste Amendment Act, 2014 (Act No. 26 of 2014)
NEMA	National Environmental Management Act, 1998 (Act No.107 of 1998)
NEMLAA	National Environmental Management Laws Amendment Act, 2014 (Act No. 25 of 2014)
NERSA	National Energy Regulator of South Africa
NFA	National Forest Act, 1998 (Act No. 84 of 1998)
NHA	National Health Act, 2003 (Act No. 61 of 2003)
NHRA	National Heritage Resource Act, 1999 (Act No. 25 of 1999)
NID	Notice of Intent to Develop
NLTA	National Land Transport Act, 2009 (Act No. 5 of 2009)
NO_X	Nitrogen oxides
NPOs	Non-Profit Organisations
NSSD	National Strategy for Sustainable Development
NW&SMP	National Water and Sanitation Master Plan
NWA	National Water Act 36, 1998 (Act No.36 of 1998)

NWSA	National Water Services Act, 1997 (Act No.108 of 1997)
OBP	Onderstepoort Biological Products
ODS	Ozone depleting substances
OHSA	Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)
PCB	Polychlorinated biphenyls
PM	Particulate matter
PMTE	Property Management Trading Entity
POPs	Persistent organic pollutants
PPE	Personal Protective Equipment
PPECB	Perishable Products Export Control Board
PRASA	Passenger Rail Agency of South Africa
PS	Performance Standards
RSA	Republic of South Africa
S&EIA	Scoping & Environmental Impact Assessment
SAFGG	South African Facility for Green Growth (/ the Project
SDGs	Sustainable Development Goals
SEMA	Special Environmental Management Act
SEP	stakeholder engagement plan
SO_2	Sulfur dioxide
SPLUMA	Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013)
UEA	Urban Environmental Accords
UNCED	UN Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
VGGT	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests
WMA	Water Management Areas
WML	Waste Management Licence
ESTA	Extension of Security of Tenure Act, 1997 (Act No. 62 of 1997)

RADP	Recapitalisation and Development Programme
CRDP	Comprehensive Rural Development Programme
RID	Rural Infrastructure Development
REID	Rural Enterprise and Industry Development
NARYSEC	National Rural Youth Service Corps

1. INTRODUCTION

1.1 BACKGROUND TO THE PROJECT

With greenhouse gas emissions of 544 million metric tons per year, the Republic of South Africa (RSA) is among the twenty biggest emitters of greenhouse gases in the world. At the same time, RSA is severely affected by the consequences of climate change with especially adverse impacts in the areas of water and agriculture. In response to this, the Government of RSA (GoSA) has targeted the "Green Economy" sector as one of the primary beneficiaries for investments and public support in several policies and strategic initiatives – including the National Development Plan 2030, the Green Economy Accord as well as National Strategy for Sustainable Development and Action Plan. At occasion of the UN COP 15 (2009), GoSA committed to reduce greenhouse gas emission by 42% until 2020. One particular contributor to achieve this ambitious goal is seen in supporting the South African private sector in transitioning to a low carbon and energy efficient economy through provision of public financial support instruments to enterprises in the Green Economy. The Industrial Development Corporation of South Africa (IDC/ Employer) is one of the institutions through which such financial support is provided to the South African private sector.

The German Financial Cooperation (FC) has been supporting GoSA in this transition process for several years, in particular in the areas of promotion of renewable energy, grid integration of renewables and energy efficiency. The link between water and energy/ efficiency is a particularly relevant aspect and is also addressed in the current project. The water-energy nexus, however, has different aspects. On the one hand, water-related infrastructure displays by far one of the greatest electricity savings potential and is thus a high priority for energy efficiency investment. Efficiency offers an important opportunity to achieve greater levels of long-term environmental and financial sustainability. On the other hand, new technologies to improve water availability or increase water quality, as well as the need for water recycling are often more energy-intensive and therefore energy consumption needs to be considered right from the outset through an integrated approach.

Although South Africa´s financial sector and institutions can be considered well developed and capitalized, companies operating in the Green Economy only have limited access to financial services. Especially young, innovative companies operating in the Green Economy face challenges to obtain loans from commercial banks which inhibits further investment and company growth.

The FC through the KfW Development Bank (KfW) has provided a development loan of USD 80 million to the IDC for the South African Facility for Green Growth (SAFGG/ the Project). The funds provided shall be extended by the IDC to eligible South African companies (Sub-borrowers) with the purpose to finance investments of innovative South African companies in the Green Economy. Investments supported under the SAFGG shall contribute to the mitigation of CO_2 and/ or shall have a beneficial impact on environmental protection and resource efficiency, e. g. *energy efficiency, renewable energy, water conservation/ (waste), water treatment, agriculture and forestry sector, and transport*.

Existing analyses have confirmed that applicable legislation in South Africa is well advanced. However, existing studies and experiences show that gaps remain in relation to international standards as e.g. International Finance Corporation (IFC) Performance Standards. Since some of the studies are outdated, a high-level gap analysis is needed to check the alignments and gaps between South African Legislation and international standards. The assignment shall check national legislation as well as sector specific and cross-sectoral risks and how they are mitigated.

1.2 TERMS OF REFERENCE (TOR)

Based on the above, Ibis Environmental Social Governance South Africa (Pty) Ltd (IBIS) has been appointed by KfW to undertake an independent review of national legal requirements, to assess whether the country system is sufficiently aligned with KfW's revised 2016 Sustainability Guideline. This involves a review and description of the institutional structures and legal framework governing the *energy efficiency, renewable energy, water conservation/ (waste), water treatment, agriculture and forestry and transport* sectors. In carrying out this assignment, the following has been completed:

- **High-Level Impact Scoping**: including the key environmental and social risks and impacts (direct, indirect, temporary and permanent) generally stemming from Projects in the above-mentioned sectors on a high level and a brief assess their significance (major, moderate, minor and negligible) during the construction, operation and maintenance phases.
- **High-Level Gap Analysis**:
    - Description of the legislative and regulatory framework at the national level:
      A comprehensive and appropriately detailed description of the host-country legislative framework relevant to the abovementioned sectors, including, the key laws and regulations in the area of environment, social aspects, labour

conditions and occupational health and safety, the context of environmental and social programs and regional development or sector development frameworks in place. The legislative framework identifies the relevant environmental and socio-economic standards and guidelines applicable to the assessment and to be adhered to during Project implementation (e.g. related to air emissions, wastewater discharge, noise, etc.).

- Description and assessment of the institutional set-up at the national level:
  A description and assessment of the institutional set-up (roles and responsibilities between different authorities), institutional capacities at different administrative levels and the institutions' capacities in Environmental & Social (E&S) risk management.
- Relevant Standards:
  A description of the relevant international environmental and social obligations of the country (conventions etc.) as well as details of the international environmental and social standards (hereafter the Relevant Standards) which are referenced under KfW's Sustainability Guideline, namely
  - IFC Performance Standards;
  - World Bank Group's Environmental, Health and Safety Guidelines, including:
    - General Environmental, Health and Safety (EHS) Guidelines; and
    - Sector specific EHS Guidelines.
  - Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation;
  - The Fundamental Conventions of the International Labour Organization (ILO);
  - For the resettlement aspects the UN Basic Principles and Guidelines on Development-based Evictions and Displacement, namely (42, 49, 52, 54 and 60) and guidance provided within the IFC (2002) Handbook for Preparing a Resettlement Action Plan and World Bank (2004) Involuntary Resettlement Sourcebook; and
  - For land tenure issues the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT).
- Description of gaps between the national legislation and international requirements:

A structured gap analysis to present the differences between the national legislation and the international requirements outlined above, highlighting the areas where national legislation is in compliance with the Relevant Standards, and high-level recommendations for the credit line to bridge the gaps between the policies, where the national legislations falls short of the Relevant Standards.

- **Concluding remarks:**
  A summary of the main findings, including a concise summary table of all the alignments, gaps and actions.

1.3 STRUCTURE OF THIS REPORT

This Gap Analysis Report has been structured as follows:

- **Section 1**: Introduction, Project background and ToR for the study;
- **Section 2**: Overview of the "Country-System" and the applicability to the South African legal framework for environmental and social risk management;
- **Section 3**: Scoping-level description of E&S risks and impacts associated with *energy efficiency, renewable energy, water conservation/ (waste), water treatment, agriculture and forestry and transport* sectors;
- **Section 4:** Legal and policy framework, including a description of Relevant Standards and national legislation;
- **Section 5:** Institutional structure and functioning of departments and regulatory bodies, including institutions' capacities in E&S risk management;
- **Section 6:** High-level gap analysis presenting the differences between the national legislation and the international requirements outlined above; and
- **Section 7**: Concluding remarks and recommendations to address regulatory gaps between the KfW requirements and the South African legal system.

The report provides Annexes that present supporting documents and pictures. The following Annexes are provided:

- **Annex A**: International requirements consulted for this assignment;
- **Annex B**: National legislation consulted for this assignment;
- **Annex C**: Comprehensive Legal Gap Analysis; and
- **Annex D**: Summary Gap Analysis Table.

1.4 LIMITATIONS

The assignment was carried out as per the Standard Terms of Reference (BMZ No 2016 68 284).

Descriptions of institutional structures and legal frameworks presented in this report are based on secondary and primary data sources available to IBIS, and information acquired from key interviews with regulating authority representatives. IBIS took all efforts in acquiring correct information pertaining to the practical operation of the different functional units responsible for executing responsibilities as outlined in relevant laws and regulations, including their capacity to carry out these functions.

IBIS assumes no responsibility or liability for errors in the public data utilised, technical information provided by KfW, or developments resulting from situations outside the scope of this Project. The inherent intention of this report is to outline the key gaps between the KfW Guideline, and the functioning country system, to determine where E&S management intervention is necessary.

The information provided is this report is high-level and the risks and impacts associated with each proposal will need to be assessed on a project-by-project basis.

2. USE OF COUNTRY SYSTEMS VERSUS INTERNATIONAL BEST PRACTICE

The use of a "Country-System" is common practice in the case of donor-based development, investments and/ or financing of government projects/ developments. Decades of development experience show that bypassing country systems and policies weakens a country's ability to determine its own future, with donors often deciding not to use country systems (particularly countries with weak systems) to avoid risk, such as misuse of funds.

To better understand the benefits and risks associated with adopting country systems, several resources were reviewed, including case studies and similar literature. This provided insight into the potential risks and challenges of adopting the South African country system in investing in the development of the Project. Similarly, this aided in assessing and comparing the actual capacity and functioning of the institutional structures responsible for E&S risk management, against their mandated responsibilities as held within South African law.

Based on a review of available literature, and through the undertaking of this Gap Analysis, it is evident that South Africa has a strong legal system that adequately addresses the identification and management of environmental risks and impacts. In the case of the World Bank's support of an Eskom Investment Support Project (World Bank, 2015), they approved the use of the country system *in lieu* of the World Bank Safeguard Policies. The World Bank assessed and approved the E&S impacts of the project in accordance with the borrower's own policies and legal requirements. They found that South Africa's environmental laws and policies are widely recognized as being of a high standard and spearheading good practices in Africa. The use of the country system similarly provided an opportunity to build on the strengths of South Africa's E&S safeguards, while identifying measures to further enhance national and corporate E&S systems. This sentiment is repeated in a Safeguard Diagnostic Review carried out by the World Bank in 2009. Certain areas of clarification to determine equivalence between the two systems were also required, largely related to (1) the level of evaluation applied to assessment of alternatives and cumulative impacts, (2) unclear requirement for conservation offsets, (3) consultations and disclosure for actions impacting natural habitats, and (4) the focus on instrument-based stakeholder engagement and unclear focus on project lifecycle (i.e. outside of the Environmental Impact Assessment process).

An assessment of the use of country systems carried out by the African Development Banks (AfDB) (2015) evaluated the “Equivalence” and “Acceptability” [1] of E&S safeguards of several African countries (South Africa included), and their implications for AfDB-financed operations in Africa. They found that South Africa scored a rating of 0.76 out of 1 for Equivalence and 0.81 out of 1 for Acceptability, highlighting the maturity and robustness of the South African country system. Amongst the six study countries in the assessment, South Africa stands out as the country with legal constraints and practices that are closest to AfBD safeguard requirements, as well as a strong will to innovate. The assessment found there were shortcomings relating to the consideration of vulnerable groups and gender, partial consideration of climate change and economic displacements and some weakness with respect to institutional aspects, including lack of social science experts, within regulatory bodies and among national environmental and social assessment consultants.

[1] **Equivalence** - describes the legal and regulatory framework applicable to environmental protection and social aspects of development against AfDB Safeguard operational objectives. **Acceptability** - describes rules, principles, procedures, norms and standards, implementation mechanisms applicable to E&S management of development and assesses capacity in the event of non-compliance with safeguard instruments.

3. ENVIRONMENTAL & SOCIAL RISKS

This section presents a high-level impact scoping of the E&S risks and impacts associated with the Project. This includes direct, indirect impacts (either temporary or permanent), as well as any cumulative impacts expected to arise from the Project.

3.1 Prevailing Environmental and Social Issues

E&S Area	Issues	Descriptions
Environment	Air Emissions and Ambient Air Quality	Emissions of air pollutants can occur from a wide variety of activities during the construction, operation, and decommissioning phases of a project. These activities can be categorized based on the spatial characteristic of the source including point sources, fugitive sources, and mobile sources and, further, by process, such as combustion, materials storage, or other industry sector specific processes.
	Energy Conservation	Energy management should be viewed in the context of overall consumption patterns, including those associated with production processes and supporting utilities, as well as overall impacts associated with emissions from power sources.
	Wastewater and Ambient Water Quality	Projects that have either direct or indirect discharge of process wastewater, wastewater from utility operations or stormwater to the environment.
	Water Conservation	Water conservation programs should be implemented commensurate with the magnitude and cost of water use.
	Hazardous Materials Management	Projects that use, store, or handle any quantity of hazardous materials, defined as materials that represent a risk to human health, property, or the environment due to their physical or chemical characteristics.
	Waste Management	Projects that generate, store, or handle any quantity of waste across a range of industry sectors. It is not intended to apply to projects or facilities where the primary business is the collection, transportation, treatment, or disposal of wastes.
	Noise	Impacts of noise beyond the property boundary of the facilities.

	Contaminated Land	Land contamination due to anthropogenic releases of hazardous materials, wastes, or oil, including naturally occurring substances.
OHS	General Facility Design and Operation	Permanent and recurrent places of work should be designed and equipped to protect OHS, including being able to withstand severe weather and facility shutdown and provide adequate workspace and exit routes, fire precautions, lavatories and showers, potable water supply, clean eating areas, adequate lighting, safe access, first aid, air supply, and work environment temperature
	Communication and Training	Ensure adequate provisions are made for OHS training, visitor orientation, new task employee and contractor training, basic OHS training, as well as ensuring adequate area signage, labelling of equipment, and hazard codes are communicated.
	Physical Hazards	Physical hazards represent potential for accident or injury or illness due to repetitive exposure to mechanical action or work activity. Physical hazards include rotating and moving equipment, noise, vibration, electrical, eye hazards, welding and hot work, industrial vehicle driving and site traffic, working environment temperature, ergonomics and repetitive movements, working at heights, and illumination.
	Chemical Hazards	Chemical hazards represent potential for illness or injury due to single acute exposure or chronic repetitive exposure to toxic, corrosive, sensitizing or oxidative substances. Chemical hazards include air quality, fire and explosions, corrosive, oxidizing and reactive chemicals and asbestos containing materials.
	Biological Hazards	Biological agents represent potential for illness or injury due to single acute exposure or chronic repetitive exposure.
	Radiological Hazards	Radiation exposure can lead to potential discomfort, injury or serious illness to workers.

	Personal Protective Equipment	Personal Protective Equipment (PPE) provides additional protection to workers exposed to workplace hazards in conjunction with other facility controls and safety systems.
	Special Hazard Environments	Special hazard environments are work situations where all of the previously described hazards may exist under unique or especially hazardous circumstances. These include confined space and lone and isolated workers.
	Monitoring	Occupational health and safety monitoring programs should verify the effectiveness of prevention and control strategies, this should also include accidents and diseases monitoring.
Community H&S	Water Quality and Availability	Groundwater and surface water are essential sources of drinking and irrigation water in developing countries, particularly in rural areas where piped water supply may be limited or unavailable and where available resources are collected by the consumer with little or no treatment.
	Structural Safety of Project Infrastructure	Hazards posed to the public while accessing project facilities may include, physical trauma associated with failure of building structures, burns and smoke inhalation from fires, injuries suffered as a consequence of falls or contact with heavy equipment, respiratory distress from dust, fumes, or noxious odours and exposure to hazardous materials.
	Traffic Safety	Traffic safety should be promoted by all project personnel during displacement to and from the workplace, and during operation of project equipment on private or public roads.
	Transport of Hazardous Materials	Compliance with local laws and international requirements applicable to the transport of hazardous materials further guidance should be given to minimize consequences of catastrophic releases of hazardous materials, which may result in toxic, fire, explosion, or other hazards during transportation.
	Disease Prevention	Issues include communicable diseases (relating to poor sanitation and living conditions, sexual transmission and vector-borne infections) and vector-borne diseases.

	Emergency Preparedness and Response	When a project operation loses control, or could lose control, of a situation that may result in risks to human health, property, or the environment, either within the facility or in the local community. Specific attention must be made to communication systems, emergency resources, training and updating of plans and business continuity and contingency.
Land Acquisition and Involuntary Resettlement	Involuntary Resettlement	When project design includes and/ or acquires land rights or use rights through expropriation or other compulsory procedures not in accordance with the legal system. Land rights or land use rights may also result in involuntary resettlement if land is acquired without appropriate negotiated settlements, restricts land use or access to natural resources, or areas with traditional or recognisable rights of use. Additional land legacy risks include historical involuntary resettlement, these may be long established, have vague details of acquisition/ lease arrangements and baseline data, change in ownership or lease, and where compensation of affected persons is uncertain or contested.
	Compensation and Benefits for Displaced Persons	Affected persons should be identified, including persons who are physically or economically displaced by land acquisition. Compensation should be provided to affected persons according to three different groups: (i) persons who have formal legal tights to the land or asset they occupy or use; (ii) persons who do not have formal legal rights to land or assets, but have a claim to land that is recognised or recognisable under national law; (iii) persons who have no recognisable legal right or claim to the land or assets they occupy or use.
	Community Engagement	Effective and open consultation should include all vulnerable groups. Cut-off dates should be provided for engagements regarding claims to ensure eligibility of these.
	Grievance Mechanism	Grievance mechanisms should be effective and easily accessible. Affected parties should be able to gain fair and timely compensation and assistance.

	Physical Displacement	Where projects physically relocate persons a resettlement action plan (RAP) should be designed and implemented to mitigate negative impacts of displacement. In designing the RAP, affected persons must be offered a choice of feasible resettlement options (housing or cash compensation); compensation at full replacement cost; relocation assistance.
	Economic Displacement	Where projects economically displace persons by loss of income or assets without relocation, a livelihood restoration plan (LRP) should be designed and implemented to compensate affected persons/ communicates. In designing the LRP compensation should be provided to affected persons which gives one adequate opportunity to re-establish livelihoods.
	Private Sector Responsibilities Under Government Managed Resettlement	Where government manage resettlement, private companies must address compensation gaps between government payment and international standards.

3.2 Sector Specific Risks

3.2.1 *E&S Risks: Energy Efficiency*

3.2.1.1 *Energy Conservation*

E&S Area	Issues	Description
Environment	Process Heating	Specific attention should be paid to heating load reduction, heat distribution systems, and energy conversion system efficiency improvements.
	Process Cooling	Specific attention should be paid to energy conversion, refrigerant compression efficiency, refrigeration system auxiliaries
	Compressed Air Systems	Specific attention should be paid to load reduction and distribution.

3.2.2 *E&S Risks Renewable Energy Sector*

3.2.2.1 *Wind Energy*

E&S Area	Issues	Description
Environment	Landscape, Seascape, and Visual Impacts	Depending on the location, a wind energy facility may have an impact on viewscapes, especially if visible from or located near residential areas or tourism sites.
	Noise	Noise-producing activities (aboveground and underwater) include blasting, piling, construction of roads and turbine foundations, the erection of the turbines themselves and operation of turbines.

	Biodiversity	Bird and bat collision-related fatalities; bat fatalities due to the potential impact of pulmonary barotrauma; displacement of wildlife; habitat conversion/degradation. In marine offshore environments, noise and benthic disturbance.
	Shadow Flicker	Shadow flicker may become a problem when potentially sensitive receptors (e.g., residential properties, workplaces, learning and/or health care spaces/facilities) are located nearby, or have a specific orientation to the wind energy facility.
	Water Quality	The installation of turbine foundations, underground cables, access roads, and other ancillary infrastructure may result in increased erosion, soil compaction, increased run-off, and sedimentation of surface waters. Offshore installations may disturb the marine seabed and may temporarily increase suspended sediments in the water column, as well as create localised seabed erosion.
OHS	Working at Heights and Protection from Falling Objects	Working at height occurs frequently throughout all phases of operation at any facility, and is especially relevant for maintenance purposes. Falling objects and adverse weather conditions (wind speed, extreme temperatures, humidity, and wetness) may also be an issue.
	Working over Water	Working over water occurs frequently throughout all phases of operation at wind energy facilities located offshore, and is especially relevant for maintenance purposes.
	Working in Remote Locations	Working in remote locations frequently throughout all phases of operation at any wind energy facility, and is especially relevant for maintenance purposes.
	Lifting Operations	Lifting operations are an integral component of the construction of any wind energy facility.
Community H&S	Blade Throw	Failure of the rotor blade can result in the “throwing” of a rotor blade, or part thereof, which may affect public safety. The overall risk of blade throw is extremely low.

	Aviation	If located near airports, military low-flying areas, or known flight paths, a wind energy facility (including anemometer mast) may impact aircraft safety directly through potential collision or alteration of flight paths. Wind energy facilities located near radar may impact the operation of aviation radar by causing signal distortion, which may cause loss of signal, masking real targets and/or erroneous signals on the radar screen, creating flight safety issues.
	Marine Navigation and Safety	If located near ports, harbours, or known shipping lanes, an offshore wind turbine may impact shipping safety through collision or alteration of vessel traffic.
	Electromagnetic Interface	Wind turbines could potentially cause electromagnetic interference with telecommunication systems (e.g., microwave, television, and radio).
	Public Access	Safety issues may arise with public access to wind turbines (e.g., unauthorized climbing of the turbine) or to the wind energy facility substation.
	Abnormal Load Transportation	Transportation of oversized or heavy wind turbine components (blades, turbine tower sections, nacelle, and transformers) and cranes to the site.

3.2.2.2 *Solar Energy*

E&S Area	Issues	Description
Environmental	Waste Management	Solid waste consists primarily of broken solar panels, scrapped building materials, excess concrete and cement, excavated material, rejected components and materials, packing materials (pallets, crates, plastics etc.) and human waste. These wastes will need to be adequately stored and disposed of.
	Air Quality	During the construction phase, various project components will produce dust and exhaust emissions such as transmission cable laying, switchgear, approach roads, internal road network and porta cabin construction will

		require land clearing, levelling, excavation, grading activities, vehicle movement and often the use of diesel generators.
	Soil Quality	Risks associated with the project activities include piling of module mounting structure and storage of diesel, spent oil or transformer oil.
	Loss of Vegetation	Construction usually involves land clearance, levelling, etc. causing loss of vegetation. The clearance of vegetation will be restricted to the project site. Clearing of vegetation is also required for the transmission lines.
OHS	Noise	Noise generating sources from operations of vehicular traffic, and construction equipment like bulldozers, scrapers, concrete mixers, generators, pumps, compressors, rock drills, pneumatic tools, and vibrators.
	Electric Shock	Risk of electrocution to personnel, risk is exacerbated by the nature and voltage of electricity on site and impossibility of total isolation.
	Physical hazards	Slips, trips and falls, collisions between man and machinery, handling heavy equipment.
Community H&S	Loss of Land/ Livelihood Conflict	Land acquisition may result in involuntary resettlement requiring compensation.
	Local Job and Economic Opportunity	Risk of companies employing locals but not ensuring basic amenities and facilities, engagement in forced and child labour and inadequate pay.

3.2.2.3 *Hydropower Energy*

E&S Area	Issues	Description

Environment	Watershed Management	Watersheds provide hydropower projects with essential ecosystem services including regulation of hydrologic regimes, regulation of stream sediment loads, and regulation of nutrient inputs into storage reservoirs, thereby making hydropower projects are highly reliant on these systems. Poor environmental management of catchment areas can compromise the operational efficiency of hydropower projects.
	Conversion of Aquatic and Terrestrial Habitats	Habitat degradation and conversion may occur as a result of reservoir creation, changes in hydrologic flow regime, dewatering river reaches, inter-basin transfer of water, development of access routes and transportation corridors, construction material extraction, or development of transmission line corridors.
	Changes in Stream Flows (including water, sediment and aquatic biota)	Hydropower plants can substantially modify river ecosystems instream from the dam or diversion scheme by changing water flow (volumes and timing), water quality (i.e. temperature, turbidity, or chemistry), morphology of the river channel and floodplains, and hydrologic connections between upstream and downstream and between a river and its floodplains/river banks.
	Connectivity and Fish Entrainment	Construction of dams or certain run-of-river water retention, diversion, and intake structures may physically obstruct upstream and downstream movements of fish and other aquatic organisms, causing a loss of connectivity between upstream and downstream components of the riverine ecosystem.
OHS	Construction OHS	Tunnelling (including geotechnical safety, ventilation, dust, illumination), use of explosives in the development of tunnelling works for water diversion and transport and in the quarrying of materials, and traffic safety as projects are usually in remote mountainous areas, with precarious road infrastructure; therefore, road traffic accident and fatalities are a major risk.
	Non-ionizing Radiation	Power plant workers may experience higher exposure to electric and magnetic fields (EMF) than the general public because of working in proximity to electric power generators, equipment, and connecting high-voltage transmission lines.

	Noise	Noise sources in operating hydropower power facilities consist mainly of the turbines and generators, which are typically located in enclosed building structures for protection against the elements, thus significantly attenuating environmental noise.
	Confined Spaces	Specific areas for confined space entry may include turbines and turbine wells, as well as certain parts of generator rooms (during maintenance activities).
	Electrical Hazards	Energized equipment and power lines can pose electrical hazards for workers at hydropower power plants.
Community H&S	Dam Safety and Emergency Response	Any type of reservoirs, dam failure (including the potential failure of coffer dams during construction) can lead to extensive downstream flooding with potentially catastrophic consequences, including loss of life and destruction of property, depending on the characteristics of land use downstream of the dam. Additional issues include drowning either at the site itself or downstream.
	Reservoir Slope Failures	Changes in loads on reservoir slope occur during reservoir filling and subsequently during variation in reservoir levels.
	Health Issues	Static or slow-moving water conditions can promote disease vectors that would otherwise not thrive in faster flowing unregulated rivers (such as mosquitoes that cause malaria or snails that cause schistosomiasis).

3.2.2.4 *Electric Power Transmission and Distribution*

E&S Area	Issues	Description
Environment	Terrestrial Habitat alteration	Construction and maintenance of transmission line rights-of way, especially those aligned through forested areas, may result in alteration and disruption to terrestrial habitat, including impacts to avian species and an increased risk of forest fires.

	Aquatic Habitat Alteration	Transmission and distribution lines, and associated access roads and facilities, may require construction of corridors crossing aquatic habitats that may disrupt watercourses and wetlands, and require the removal of riparian vegetation. Sediment and erosion from construction activities and storm water runoff may increase turbidity of surface watercourses.
	Electric and Magnetic Fields	*See Wind Energy.*
	Hazardous Materials	Hazardous materials include insulating oils/ gases (e.g. Polychlorinated Biphenyls [PCB] and sulfur hexafluoride [SF6], and fuels, in addition to chemicals or products for wood preservation for poles and associated wood construction material.
OHS	Live power lines	Workers may be exposed to occupational hazards from contact with live power lines during construction, maintenance, and operation activities.
	Working at height	*See Wind Energy.* Specific attention must be paid to working from heights on poles and structures.
	Electric and magnetic fields	*See Wind Energy.*
	Exposure to chemicals	Occupational exposures to chemicals in this sector primarily include handling of pesticides (herbicides) used for right–of-way maintenance, and exposure to PCB in transformers and other electrical components.
Community H&S	Electrocution	Hazards most directly related to power transmission and distribution lines and facilities occur as a result of electrocution from direct contact with high-voltage electricity or from contact with tools, vehicles, ladders, or other devices that are in contact with high-voltage electricity.

	Electromagnetic interference	The corona of overhead transmission line conductors and high frequency currents of overhead transmission lines may result in the creation of radio noise.
	Visual amenity	Power transmission and distribution are necessary to transport energy from power facilities to residential communities, but may be visually intrusive and undesirable to local residents.
	Noise and Ozone	Noise in the form of buzzing or humming can often be heard around transformers or high voltage power lines producing corona. Ozone may also be produced. Not a known health risk.
	Aircraft Navigation Safety	If located near an airport or known flight paths, can impact aircraft safety directly through collision or indirectly through radar interference.

3.2.3 *E&S Risks Transport Sector*

3.2.3.1 *Airports*

E&S Area	Issue	Description
Environmental	Noise and Vibrations	Sources of noise and vibrations from airport operations are aircraft during the landing and take-off cycles, ground operations equipment including aircraft taxiing; operation of ground support vehicles; aircraft auxiliary power units; aircraft engine testing activities in airports with aircraft maintenance activities; and indirect sources include ground vehicle traffic from access roads leading to the airport.
	Air Emissions	Sources of airport air emissions include combustion exhaust from aircraft during landing and take-off and ground operation, from ground service vehicles, vapours from fuel storage and handling, emissions from local ground transportation activities servicing the airport, and fuel combustion during fire training activities, combustion

		emissions from on-site electricity and heat generation systems, and emissions from solid waste incineration activities.
	Stormwater and Wastewater	Effluents mainly consist of stormwater runoff from paved surfaces and sanitary wastewater from public and employee services and from airplanes. Stormwater runoff may include pollutants associated with leaks and spills of oil, diesel, and jet fuels and maintenance of ground service vehicles, and fuel storage and handling activities.
	Hazardous Materials Management	Fuels may be stored in aboveground or underground storage tanks and conveyed to dispensing locations via aboveground or underground piping systems or tanker trucks.
	Waste Management	Generate solid, non-hazardous, waste food from food establishments, packaging materials from retail facilities, and paper, newspaper, and a variety of disposable food containers from offices, common passenger areas, airplanes. Airport operations may also generate liquid or solid hazardous wastes (used lubricating oils and solvents from aircraft and ground service vehicle maintenance).
	Energy and Water Consumption	Airports may consume significant levels of energy for space cooling and heating in terminals, external and internal lighting systems, and the operation of luggage conveyance systems. Water consumption may depend on the types of services offered.
OHS	Noise	Airport ground service personnel may be potentially exposed to extremely high levels of noise from taxiing aircraft, the operation of aircraft auxiliary power units, and ground service vehicles
	Physical Hazards	Service personnel may be exposed to a variety of physical hazards depending on the specific worker function. Which includes strains, repetitive motions, collisions, and exposure to weather elements. Workers may also be exposed to jet engine hazards.

	Chemical Hazards	Service providers may be exposed to chemical hazards, especially if their work entails direct contact with fuels or other chemicals, such as those used in de-icing and anti-icing. Work with fuels may increase risk of exposure to volatile organic compounds.
Community H&S	Wildlife Strikes	Collision between aircraft and wildlife which may result in damage to the aircraft or even its structural failure (e.g. engine failure from suction of birds).
	Operational Safety Management	Airport operators have certain key responsibilities necessary for the safe operation of aircraft during the landing and take-off cycle and during ground operations.
	Airport Security	Airport operators may also have certain key responsibilities necessary for the safety of passengers against the consequences of unlawful acts.

3.2.3.2 *Ports, Terminals and Harbours*

E&S Area	Issue	Description
Environment	Terrestrial and Aquatic Habitat Alteration and Biodiversity	Construction (including expansion) and operation of port and terminal facilities involves the reclamation, clearing and paving or compacting of land for loading/unloading zones, bulk dry/ liquid and containerized cargo storage areas, fuel depots, buildings, and roads; the alteration of coast lines for construction of breakwaters, shipyards, dockyards, wharves, piers, and vessel berths; and the transformation of the seabed to establish vessel basins (including areas for vessel turning) and navigation channels through dredging and may result in alteration of terrestrial, freshwater, brackish and marine habitats, with impacts to flora and fauna and related biodiversity.
	Climate Change Resilience	Port and terminal facilities are vulnerable to the direct and indirect impacts of climate change.

	Water Quality	Construction activities (clearing of vegetation, capital dredging, reclamation, paving, and construction of buildings), and operational activities (maintenance dredging, ship maintenance, and ship effluent disposal) can result in increased turbidity via suspension of sediment in the water column. Pollutants, stormwater and wastewater (land-based activities and ships) can have adverse impacts on aquatic flora and fauna, and human health.
	Air Emissions	During the construction phase, land-based activities may result in combustion emissions from the use of vehicles, equipment, and engines (such as trucks, excavators, barge-moving tugs, etc.) to undertake dredging, excavating, paving, material transport, and building construction activities.
	Waste management	Wastes from ports may include solid waste from cargo packaging and from administrative offices, as well as hazardous or potentially hazardous waste associated with vehicle maintenance operations, such as paint, scrap metal, used lubricating oils and engine degreasing solvents. Wastes originating from ships may include oily sludge, materials such as food packaging, and food waste.
	Hazardous Materials and Oil Management	Hazardous materials at ports typically include large volumes of hazardous cargo, oil, fuels, solvents, lubricants and other hazardous substances used in port activities including vessel, vehicle, equipment and grounds maintenance. Spills may occur due to accidents, equipment failure, or improper operating procedures or fuelling.
	Noise and Vibration (including underwater)	Noise and vibration may be generated during land-based port and terminal construction activities, such as blasting, piling, dredging, reclamation, and construction of breakwaters and access/internal roads. Excessive noise may also result from typical port operations include cargo handling, vehicular traffic, and loading/unloading of containers and ships.
OHS	Physical Hazards	The main sources of physical hazards at ports are associated with cargo handling and the use of related equipment, machinery, and vehicles.

	Chemical Hazards	Port workers may be exposed to chemical hazards, especially if their work entails direct contact with fuels or chemicals (including pesticides and fumigants), or depending on the nature of bulk and packaged products transferred in port activities. Work with fuels may present a risk of exposure to VOC via inhalation or skin contact during normal use or in the case of spills. Fuels, flammable liquid cargo, and combustible dust (e.g. from grain or coal) may also present a risk of fire and explosions.
	Confined Spaces	As in any industry sector, confined space hazards can be potentially fatal. The potential for accidents among port workers varies among port facilities and activities: confined space hazards may arise in ship cargo holds, silos, sewage tanks, and water tanks.
	Dust	Potential exposure to fine particulates is associated with handling dry cargo (depending on type of cargo handled, e.g., china clay, grain, and coal) and from roads.
	Noise	Noise sources in ports may include cargo handling, vehicular traffic, and loading/unloading containers and ships.
Community H&S	Port Marine Safety	Port operators have certain key responsibilities for the safe operation of ships, ranging from passenger safety to the safe access and manoeuvring of chemicals and oil transporting ships inside the harbour and port areas.
	Port Security	Port operators should have a clear understanding of their responsibilities, including international legal and technical obligations to provide security to passengers, crews, and personnel in port.
	Visual Impacts	Permanent and temporary installations and ships can make visual changes to the landscape. One of the most significant changes attributable to ports is night-time illumination, depending on the proximity of the port and associated bulk storage facilities to sensitive land uses such as residential or tourist areas. Excessive illumination may also result in changes to invertebrate flight paths and settlement/ breeding patterns

3.2.3.3 *Railways*

E&S Area	Issue	Description
Environment	Habitat Alteration and Fragmentation	The construction and maintenance of railroad rights-of-way may result in alteration and disruption to terrestrial and aquatic habitats.
	Emissions to Air	Locomotive engines may be significant contributors to air pollution in urban areas, including nitrogen oxides (NOX) and particulate matter (PM), and carbon dioxide (CO_2), a GHG. Transportation and transfer of dry granular materials (e.g. minerals and grain) may result in dust emissions, and storage and transfer of fuels or volatile chemicals may result in fugitive emissions.
	Fuel Management	Fuelling stations typically include aboveground storage tanks, piping, and filling equipment with the potential for soil and water resource contamination due to leaks and spills.
	Wastewater	Rail operations may generate sanitary wastewater primarily from passenger terminals and from passenger rail service.
	Waste	Trains and passenger train terminals may generate solid, non-hazardous, food waste from food establishments. The maintenance and upgrade of rail infrastructure may also result in the generation of non-hazardous and hazardous waste including lubricants from field maintenance equipment and steel and wood from rails and rail ties.
	Noise and Vibrations	Sources include rolling noise generated by the contact between wheel and rail during normal movement and braking; aerodynamic noise generated by the train pushing air (particularly for high speed trains); and traction noise generated by the engine and cooling fans.

	Hazardous Materials	Hazardous materials, including solvents, coolants, acids, and alkalis, may be used in locomotives and rolling stock maintenance operations. Polychlorinated biphenyls (PCB) may be found in older electrical equipment (e.g. transformers and capacitors), and asbestos may be present in older parts such as wheel bearings and seals for steam engines.
	Wastewater	Wastewater may contain residues from transported materials, paint, oil and grease, caustic solutions and coolants generated from car maintenance and refurbishment. Passenger trains also generate domestic wastewater, which is sometimes discharged directly to the land surface.
	Waste Management	Wastes are generated as a result of maintenance and refurbishment of locomotives and rolling stock and, to a lesser extent, from track maintenance and typically include solids from mechanical cleaning of rail cars; paint chips and sandblast grit; waste paint; spent solvent and solvent sludges; sludge from cleaning and wastewater treatment; waste oil, hydraulic fluid, and other petroleum-based fluids; petroleum-contaminated solids; spent coolant; metal filings and scrap; spent locomotive and signal batteries; and spent brake shoes.
OHS	Train / Worker Accidents	Railway workers in the vicinity of rail lines are exposed to moving trains.
	Noise and Vibration	Exposure to noise from locomotives, rolling stock, and machinery, as well as to significant repetitive mechanical shocks and / or vibrations.
	Diesel Exhaust	Exposure to exhaust from diesel locomotives and other diesel engines.
	Fatigue	Railway workers are often required to work irregular work hours which may result in fatigue.
	Electrical Hazards	Electrified railways use either overhead wires or a conductor rail (e.g. third rail) to transmit electrical power to the train locomotive or multiple units.

	Electric and Magnetic Fields	Exposure to electric and magnetic fields (EMF) due to working in proximity to electric power lines.
Community H&S	General Rail Operational Safety	Threat of serious injury or the potential loss of life due to train collisions with other trains or with road vehicles, as well as the possibility of derailment due to these or other operational causes
	Transport of Dangerous Goods	Dangerous goods frequently transported represent a potential risk of release to the environment in the event of accidents on a number of other causes.
	Level Crossings Safety	Level crossings (at-grade road / rail intersections) represent high-risk accident locations for railways.
	Pedestrian Safety	Trespassers on rail lines and facilities may incur risks from moving trains, electrical lines and equipment, and hazardous substances, among other issues.

3.2.3.4 *Shipping*

E&S Area	Issue	Description
Environment	Petroleum and Hazardous Materials Management	Accidental releases of fuel and cargo may occur as the result of accidents or during materials transfer at sea or in port. Anti-fouling paints used on ships' hulls may release biocides into the water during operation of ships. Hazardous materials, such as chlorofluorocarbons (CFC), PCBs, and asbestos may contribute to the generation of hazardous wastes during ship overhaul or decommissioning activities.
	Wastewater and Other Effluents	Potential release of oil or hazardous materials that may be mixed with ballast water, and the transfer of invasive alien aquatic organisms that may be taken up and discharged in ballasting operations. Grey water and black water can contain high levels of biochemical oxygen demand (BOD_5), bacteria, and other constituents potentially

		harmful to marine organisms. Bilge water and cargo tank wash water can contain oil and hazardous substances may be harmful if discharged to sea.
	Air Emissions	Air emission sources include diesel engine exhaust gases (NOx, sulfur dioxide (SO_2), hydrocarbons, carbon monoxide (CO), CO_2, and PM); shipboard Incineration (dioxins, furans and other persistent organic pollutants (POPs), and heavy metals; and refrigeration and fire-fighting equipment and systems (Ozone depleting substances (ODS) i.e. CFCs and halons).
	Waste	Generation of solid waste (non-hazardous garbage (similar to household waste) and hazardous wastes, (i.e. equipment maintenance fluids, solvents, and batteries); hazardous wastes (solvents, bilge sludge, mechanical maintenance solvents and waste oils, fluorescent light ballasts and lamp bulbs, lead-acid batteries, toxic paints and incinerator ashes, asbestos, PCBs, and CFCs and may also possess heavy metals.
OHS	Crew Accommodations and Working Spaces	Adequate provision of sanitary facilities, ventilation, heating and lighting, control of harmful noise, sanitation of galley areas, and fire prevention and control
	Physical Hazards	Slips and falls, manual handling accidents (e.g. lifting, setting down, pushing, pulling, carrying, or moving weight by hand), and machine operation accidents.
	Confined Spaces	*See Prevailing Environmental and Social Issues section.*
	Chemical Hazards	*See Prevailing Environmental and Social Issues section.*
	Security Issues	Piracy and armed robbery of vessels is a serious security and safety issue in some regions, posing a hazard to crew and passengers.

Community H&S	General Safety	Accident scenarios, including sinking/ capsizing of ships or fire and explosion have potential to result in significant casualties.
	Life Safety	Adequate provision and operational upkeep of such equipment as lifeboats, life-rafts, and rescue boats, life-jackets and immersion suits, life buoys, and other life-saving equipment.
	Fire Safety	Adequate fire safety provisions specifically applicable to cargo ships and tankers.

3.2.4 *E&S Risks Agriculture and Forestry Sectors*

3.2.4.1 *Agriculture*

E&S Area	Issues	Descriptions
Environment	Soil Conservation	Physical and chemical degradation of soils may result from unsuitable management techniques, such as use of inappropriate machinery or earthworks associated with annual crop preparation and infrastructure development.
	Nutrient Management	Nutrient management strategies should aim to maintain and/or improve soil fertility and optimize crop yield while minimizing off-site environmental impact.
	Residue and Solid Waste Management	Residues and by-products, as well as non-crop wastes, carcass products (including sick and diseased animals), waste feed, animal waste, non-conforming products or hazardous wastes from the production systems (e.g., pesticide containers, waste pesticides, and packaging) have the potential to contribute to adverse health, safety, or environmental impacts.

	Water and Energy Management and Consumption	Water and electricity consumption is often significant. *See General EHS Guidelines* as well as sector specific agricultural EHS guidelines for management procedures.
	Pest Management	Manage pests including insect pests, diseases, and weeds that may negatively affect annual crops so that they remain at levels beneath an economically damaging threshold.
	Hazardous Materials Management	*See Prevailing Environmental and Social Issues section*. Hazardous materials differ depending on production type.
	Biodiversity and Ecosystems	Direct impacts relate to habitat conversion or degradation, water usage, pollution, introduction of invasive species, inappropriate cultivation techniques, and quality and or availability of priority ecosystem services. Indirect impacts relate to in-migration, and induced changes to access for traditional land uses (including hunting, fishing, and recreation). Variations include contamination of aquatic systems.
	Genetically Modified Crops	The introduction of GM annual crops should be conducted in compliance with the host country's regulatory framework. Or the Cartagena Protocol on Biosafety should be verified and used to scientifically evaluate the potential impacts and risks.
	Air Quality	Atmospheric emissions are primarily associated with emissions of combustion by-products resulting from the operation of mechanized equipment or from combustion by-products from the disposal or destruction of crop residues or processing by-products. Impacts depend on the local context.
	Air Emissions	Particulate matter (dust), VOCs, odours are principal emissions from most production and processing.
	Greenhouse Gas Emissions	GHG emissions produced through the use of fossil energy used in production as well as crop production and from manure resulting in livestock production.

	Wastewater	Wastewater potentially has a high content of organic and inorganic materials from process wastewater, sanitary wastewater.
	Animal Diseases	Animal disease-causing agents can spread rapidly, especially in intensive livestock operations. Animal diseases can enter a facility with new animals, on equipment, and on people. Some diseases can weaken or kill large numbers of animals at an infected facility.
OHS	Chemical Hazards	*See Prevailing Environmental and Social Issues section*.
	Physical Hazards	Potential physical hazards include operational and workplace hazards (slips, trips and falls, ergonomics, sharp and moving objects, noise, vibration and adverse weather conditions, electric shocks, drowning), machinery and vehicles, confined and restricted space entry, as well as exposure to organic dust.
	Biological Hazards	Contact with venomous animals, such as stinging insects, spiders, scorpions, snakes, disease vectors (e.g., mosquitoes, ticks), and with certain wild mammals (e.g., tigers, wild pigs).
	Water-Borne Diseases	Workers may be directly or indirectly exposed to water-borne diseases due to frequent contact with water (ponds) and the close proximity of living quarters to surface water bodies.
Community H&S	Food Safety Impacts	A product recall caused by contaminated or adulterated products found in commerce that is attributable to a specific company can damage a viable business.
	Effects on water resources	The extraction of water may result in changes to the natural water regime.

3.2.4.2 *Forestry*

E&S Area	Issues	Descriptions
Environment	Sustainable Forestry Practices	The major environmental impact of manufacturing concerns the management of forest resources.
	Air Emissions	Wide variety of emissions to air according to the different processes employed, including combustion products, fibre, particle and veneer dryers, presses, dust, greenhouse gases.
	Wastewater	Wastewater potentially has a high content of organic and inorganic materials from process wastewater, sanitary wastewater.
	Hazardous Materials	*See Prevailing Environmental and Social Issues section.* Hazardous materials differ depending on production and process variations, and may include fuels, lubricants, pesticides.
	Solid Wastes	Solid waste in this sector includes wood waste (e.g. board off cuts), waste from water treatment processes, and ash from combustion of wood waste.
	Noise	Plants generate significant noise primarily from machinery (including debarking drums, sanding, cutting and chipping machinery) and mechanical breakdown processes.
	Habitat Alteration And Loss Of Biodiversity	The establishment of plantation forests and subsequent timber harvesting activities involves the replacement of the existing vegetation cover with native and/or non-native species resulting in the potential loss of habitat diversity and a corresponding loss of wildlife and plant species.
	Soil Erosion	May result from natural causes (e.g. wind and rain), timber harvesting operations, and from construction and use of road infrastructure.

	Soil Productivity	Forest harvest operations and road construction may result in physical impacts to soil including compaction, rutting, displacement, and erosion impacts.
	Visual Impact	Forestry operations and road systems may result in negative visual impacts to resources associated with other uses of the forest.
	Fire	Wildfires caused by natural events or human error are one of the most significant risks to the profitability and sustainability of forest resources.
OHS	Physical Hazards	Potential physical hazards include log handling, machinery, falling trees and cables, confined spaces and burns.
	Dust	Wood dust inhalation, especially of PM10, may cause irritation, asthma, allergic reaction, and nasopharyngeal cancer amongst wood processing workers.
	Noise	The machinery responsible for most milling and sawing operations emits levels of noise that are damaging to hearing.
	Chemicals	*See Prevailing Environmental and Social Issues section.* Chemicals and exposure differ depending on production and process variations, and may include gases, liquids and solids.
	Fire and Explosion	Explosions may present a serious hazard in areas where large amounts of finely divided combustible dust are present.
Community H&S	Water Resources	Reduction in water quality or quantity caused by forestry operations may affect water supplies needed for drinking, hygiene, and other ecosystem services.
	Fire	Fires originating in forests may endanger nearby communities.

	Transportation Pesticide exposure	Vehicles carrying heavy forest product or chemical loads on major and minor roads that pass through local communities may expose the public to significant risks. Pesticides are used on a large-scale, accidental spraying of local property may expose the public to unacceptable pesticide concentrations.

3.2.5 *E&S Risks: Water conservation / (waste)*

E&S Area	Issues	Descriptions
Environment	Water Monitoring and Management	Developing and implementing a water management program.
	Process Water Reuse and Recycling	Opportunities for water savings in industrial processes are highly industry specific. Specific attention should be paid to: washing machines, water reuse; water jets/sprays; and flow control optimisation.
	Building Facility Operations	Consumption of building and sanitary water is typically less than that used in industrial processes.
	Cooling Systems	Opportunities in cooling systems include closed circuit systems, limiting blowdown, using air cooling; use of treated wastewater, and reusing/ recycling cooling tower breakdown.
	Heating Systems	Heating systems based on the circulation of low or medium pressure hot water (which do not consume water) should be closed.

3.2.6 *E&S Risks Water Treatment Sector*

3.2.6.1 *Waste Management*

E&S Area	Issues	Descriptions
Environment	General Waste Management	Waste management should be addressed through a waste management system that addresses issues linked to waste minimization, generation, transport, disposal, and monitoring.
	Hazardous Waste Management	Hazardous wastes should always be segregated from non-hazardous wastes, specific attention should be paid to storage, transport, treatment and disposal, and monitoring.

3.2.6.2 *Water and Sanitation*

E&S Area	Issues	Descriptions
Environment	Water Withdrawal	Development of water resources often involves balancing competing qualitative and quantitative human needs with the rest of the environment.
	Water Treatment	Issues associated with water treatment include solid waste (process residuals, used filtration membranes, spent media and miscellaneous wastes), wastewater (filter backwash, reject streams from membrane filtration processes, and brine streams from ion exchange or demineralization processes), hazardous chemicals (used for coagulation, disinfection and water conditioning), air emissions (ozone and gaseous or volatile chemicals) and ecological impacts.

	Water Distribution	Maintenance of adequate pressure to protect water quality in the system as well as sizing and adequate maintenance to assure reliable delivery of water of suitable quality. The main issues include water system leaks and loss of pressure and water discharges.
	Faecal Sludge and Septage Collection	If suitable facilities for storage, handling and treatment of faecal sludge are not available, it may be indiscriminately dumped into the environment or used in unhygienic manner in agriculture. Greywater is sometimes collected and managed separately to sludge it may still contain high levels of pathogenic microorganisms, suspended solids and substances such as oil, fat, soaps, detergents, and other household chemical. The most significant impacts from wastewater collection include: domestic and / or industrial wastewater discharges; and leaks and overflows.
	Wastewater and Sludge Treatment and Discharge	The most significant environmental impacts related to wastewater and sludge treatment, discharge, and use include:·liquid effluents (irrigation or disposed); solid waste (sludge and solids); air emissions and odours (hydrogen sulfide, methane, ozone, volatile organic compounds, gaseous or volatile chemicals used for disinfection processes, and bioaerosols) ; hazardous chemicals (acids and bases); and ecological impacts.
OHS	Accidents and injuries	Hazards include open water, trenches, slippery walkways, working at heights, energized circuits, and heavy equipment. Confined space work is also often required.
	Chemical Exposure and Hazardous Atmosphere	Water and wastewater treatment involve use of potentially hazardous chemicals, including strong acids and bases, chlorine, sodium and calcium hypochlorite, and ammonia. Wastewater may contain potentially hazardous chemicals depending on the source water quality, drinking water treatment processes, and industries discharging to the sewer, including include chlorinated organic solvents and pesticides, PCBs, polycyclic aromatics, petroleum hydrocarbons, flame retardants, nitrosamines, heavy metals, asbestos, dioxins, and radioactive materials.

	Exposure to Pathogens and Vectors	Workers and staff at wastewater and sludge treatment facilities and fields where treated wastewater or sludge is applied, as well as operators of sludge collection vehicles, can be exposed to the many pathogens contained in sewage.
	Noise	High noise levels can be present in the vicinity of operating machinery and flowing water at water and sanitation facilities.
Community H&S	Water Intake (Water Supply Protection)	Both surface water and groundwater supplies can become contaminated with potentially toxic substances of natural and anthropogenic origins, including pathogens, toxic metals (e.g. arsenic), anions (e.g. nitrate), and organic compounds.
	Water Treatment	The most significant potential community health and safety impacts associated with water treatment include: drinking water quality and supply; and hazardous chemicals.
	Water Distribution	Even if water is effectively treated to remove contaminants and destroy pathogens, waterborne diseases outbreaks can occur because of deficiencies in the water distribution system.
	Wastewater and Septage Collection	Provision of collection services, or ensuring that collection services are available, is of primary concern.
	Wastewater and Sludge Treatment	Potential community health and safety impacts associated with wastewater and sludge treatment facilities include liquid effluents air emissions and odours; and physical hazards.
	Land Application	Hazards associated with crops irrigated with treated wastewater include excreta-related pathogens and toxic chemicals that may be present in the wastewater.

4. LEGAL FRAMEWORK AND HIGH-LEVEL GAP ANALYSIS

This section provides an overview of the legal framework applicable to the Project.

The section has been presented as follows:

- Section 4.1: International Framework; and
- Section 4.2: National Regulatory Framework

Refer to **Annexes A and B** for a summary of the legislation consulted for this assignment and their applicability to each sector under review.

4.1 INTERNATIONAL REGULATORY FRAMEWORK

This section provides a summary of the standard, on which KfW bases E&S performance for its investments. This standard considers the KfW Sustainability Guideline (April 2016), the IFC's Performance Standards (PS) (2012) applicable to the proposed, and the World Bank Groups Environmental, Health and Safety Guidelines, and its supporting documents.

4.1.1 *KfW Sustainability Guideline*

KfW Development Bank finances investments and related advisory services in developing and emerging countries on behalf of the German Federal Government. More specifically, KfW uses funds from the federal budget, which are topped up by the bank's own funds, in order to support the construction of economic and social infrastructure, the development of efficient financial sectors, and the implementation of environmental and climate protection measures and programmes to preserve natural resources. The most important objective of KfW's promotional activities is to help the Federal Government of Germany and its partner countries to achieve their overarching development goals (i.e. to reduce poverty, secure peace, support democracy, shape globalisation in an equitable manner and engage in environmental and climate protection).

In April 2016, KfW issued a new Sustainability Guideline which deals with the environmental and social impacts as well as risks of KfW financed projects and programs. KfW pursues the following guiding principles for its Financial Cooperation (FC) measures that are financed:

1. To avoid, reduce or limit environmental pollution and environmental damage including climate-damaging emissions and pollution;
2. To preserve and protect biodiversity and tropical rainforests and to sustainably manage natural resources;

3. To consider probable and foreseeable impacts of climate change including utilizing the potential to adapt to climate change. In this context climate change is understood as climate variability and long-term climate change;
4. To avoid adverse impacts upon the living conditions of communities, in particular indigenous people and other vulnerable groups, as well as to ensure the rights, living conditions and values of indigenous people;
5. To avoid and minimize involuntary resettlement and forced eviction of people and their living space as well as to mitigate adverse social and economic impacts through changes in land use by reinstating the previous living conditions of the affected population;
6. To ensure and support health protection at work and the occupational health and safety of people working within the framework of a FC measure;
7. To condemn forced labour and child labour, ban discrimination in respect of employment as well as occupation and support the freedom of association and the right to collective bargaining;
8. To protect and preserve cultural heritage; and
9. To support the executing agency in the management and monitoring of possible adverse environmental, social and climate impacts as well as risks within the framework of the implement FC measure.

The KfW Sustainability Guideline is effective for all measures initiated after 1 April 2016 and thus applies to the proposed project. To assure compliance with KfW's Sustainability Guideline, it is important that that potential negative environmental and social impacts are minimized, while striving to enhance benefits for local communities and the environment.

In this regard, the proposed project must identify and address potential impacts through an Environmental and Social Due Diligence (ESDD) to:

- Identify and assess the potential positive and negative environmental and social impacts stemming from the proposed project, through its planning, construction, operation and decommissioning phases; and
- To ensure appropriate mitigation, management, and monitoring measures are prescribed to ensure the implementation of an environmentally friendly project without compromising its technical and economic feasibility, whilst helping determine crucial elements that facilitate the making of choices and decisions.

According to Section 4.2 of the KfW Sustainability Guideline, when assessing the environmental, social and climate impact of FC measures, KfW must adhere to the KfW Group

Sustainability Policy and the specific developmental concepts and guidelines of the Federal Government of Germany for development cooperation.

Similarly, the foundation of the assessment of environmental, social and climate impacts of a FC measure is its compliance with relevant national standards and legal requirements as well as the assessment requirements of KfW. Compulsory for the ESDD of a FC measure are the standards of the World Bank Group (i.e. for public agencies the Environmental and Social Safeguards of the World Bank and the IFC Performance Standards for cooperation with the private sector) and their General and sector-specific EHS Guidelines as well as the Core Labour Standards of the ILO.

4.1.2 *International Finance Corporation's Sustainability Framework*

The IFC Sustainability Framework comprises IFC's Policy and Performance Standards on E&S Sustainability, and IFC's Access to Information Policy. The Policy on E&S Sustainability describes IFC's commitments, roles, and responsibilities related to E&S sustainability. IFC's Access to Information Policy reflects IFC's commitment to transparency and good governance on its operations and outlines the Corporation's institutional disclosure obligations regarding its investment and advisory services.

Eight PSs have been established that the IFC and their clients are required to meet throughout the life of an investment by the IFC. Performance Standard 1, as the overarching standard, establishes the importance of (i) integrated assessment to identify the E&S impacts, risks, and opportunities of projects; (ii) effective community engagement through disclosure of project-related information and consultation with local communities on matters that directly affect them; and (iii) the client's management of environmental and social performance throughout the life of the project. PS 2 to PS 8 establish objectives and requirements to avoid, minimize, and where residual impacts remain, to compensate/ offset for risks and impacts to workers, affected communities, and the environment. While all relevant E&S risks and potential impacts should be considered as part of the assessment, PS 2 through 8 describe E&S risks and impacts that require particular attention.

Of the eight PSs, the following (as per Table 1) have been identified as being applicable to the Project.

Table 1: IFC Performance Standards Applicable to the Project

PERFORMANCE STANDARD	REQUIREMENT
PS 1: Assessment and Management of Environmental and Social Risks and Impacts	Commercial clients/ investees are required to manage the environmental and social performance of their business activity, which should also involve communication between the client/ investee, its workers and the local communities directly affected by the business activity. This requires the development of a good management system, appropriate to the size and nature of the business activity, to promote sound and sustainable environmental and social performance as well as lead to improved financial outcomes.
PS 2: Labour and Working Conditions	For any business, its workforce is a valuable asset and a sound worker-management relationship is a key component of the overall success of the enterprise. By protecting the basic rights of workers, treating workers fairly and providing them with safe and healthy working conditions, commercial clients/ investees can enhance the efficiency and productivity of their operations and strengthen worker commitment and retention.
PS 3: Resource Efficiency and Pollution Prevention	Increased industrial activity and urbanization often generate increased levels of pollution to air, water and land that may threaten people and the environment at the local, regional and global level. Commercial clients/ investees are required to integrate pollution prevention and control technologies and practices (as technically and financially feasible as well as cost-effective) into their business activities
PS 4: Community Health, Safety, and Security	Business activities can increase the potential for community exposure to risks and impacts arising from equipment accidents, structural failures and releases of hazardous materials as well as impacts on a community's natural resources, exposure to diseases and the use of security personnel. Commercial clients/ investees are responsible for avoiding or minimizing the risks and impacts to community health, safety and security that may arise from their business activities
PS 5: Land Acquisition and Involuntary Resettlement	Project-related land acquisition and restrictions on land use can have adverse impacts on communities and persons that use this land. Involuntary resettlement refers both to physical displacement (relocation or loss of shelter) and to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood) as a result of project-related land acquisition and/ or restrictions on land use.
PS 6: Biodiversity Conservation and Sustainable Management of	Protecting and conserving biodiversity (including genetic, species and ecosystem diversity) and its ability to change and evolve, is fundamental to sustainable development. Commercial clients/ investees are required to avoid or mitigate threats to biodiversity

PERFORMANCE STANDARD	REQUIREMENT
Living Natural Resources	arising from their business activities and to promote the use of renewable natural resources in their operations.
PS 7: Indigenous Peoples	Indigenous Peoples, as social groups with identities that are distinct from mainstream groups in national societies, are often among the most marginalized and vulnerable segments of the population. In many cases, their economic, social, and legal status limits their capacity to defend their rights to, and interests in, lands and natural and cultural resources, and may restrict their ability to participate in and benefit from development. Private sector projects can create opportunities for Indigenous Peoples to participate in, and benefit from project-related activities that may help them fulfil their aspiration for economic and social development.
PS 8: Cultural Heritage	The importance of cultural heritage for current and future generations. Consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage, this PS aims to ensure that clients protect cultural heritage in the course of their project activities.

4.1.3 *World Bank Groups Environmental, Health and Safety Guidelines*

The World Bank Group Environmental, Health and Safety Guidelines (EHS Guidelines) are technical reference documents with general and industry-specific examples of good international industry practice. IFC uses the EHS Guidelines as a technical source of information during project appraisal. The EHS Guidelines contain the performance levels and measures that are normally acceptable to FC, and that are generally considered to be achievable in new facilities at reasonable costs by existing technology.

4.1.3.1 *General EHS Guidelines*

The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). These General EHS Guidelines are designed to be used together with the relevant Industry Sector EHS Guidelines which provide guidance to users on EHS issues in specific industry sectors (Refer to **Section 4.1.4**). The applicability of the EHS Guidelines should be tailored to the hazards and risks established for each project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the environment, and other project factors, are taken into account.

4.1.3.2 *World Bank Environmental and Social Framework*

The World Bank Group's Environmental and Social Framework (2018) Standard 10: Stakeholder Engagement and Information Disclosure provides further detail on stakeholder engagement and consultation than the IFC Performance Standards (2012). Standard 10 establishes a systematic approach to stakeholder engagement, enables assessment of level of stakeholder interest and support and enables stakeholder views to be taken into account, promotes and provides means for effective and inclusive engagement throughout a project's lifecycle, provides means for appropriate project information disclosure and in an appropriate manner and format, as well as provides guidance on raising and addressing grievances of stakeholders. Requirements of this are as follows:

- Engagement during project preparation by identifying and analysis stakeholders, implementing a stakeholder engagement plan (SEP), disclosing project information, and engaging in meaningful consultation;
- Engagement during project implementation and external reporting by continuous engagement in accordance with the SEP;
- Implementation of a grievance mechanism in proportion to the potential risks and impacts of the project which is accessible and inclusive; and
- Clear roles, responsibility and authority should be defined for the implementation and monitoring of stakeholder engagement activities.

4.1.4 *Sector Specific EHS Guidelines*

4.1.4.1 *Energy Efficiency*

The EHS Guidelines for Energy Conservation provides a guideline that is applicable to facilities and projects that use energy in the following applications: process heating and cooling; process and auxiliary systems such as motors, pumps, and fans; compressed air systems and heating, ventilation and air conditioning systems (HVAC); and lighting systems. The EHS guidelines indicate that energy management should be viewed in the context of overall consumption patterns including those associated with production processes and supporting utilities, as well as overall impacts associated with emissions from power sources.

- Energy Management Programs
  Energy management programs are required to include the following elements:
  - Identification, and regular measurement and reporting of principal energy flows within a facility at unit process level;
  - Preparation of mass and energy balance;

- Definition and regular review of energy performance targets, which are adjusted to account for changes in major influencing factors on energy use;
- Regular comparison and monitoring of energy flows with performance targets to identify where action should be taken to reduce energy use; and
- Regular review of targets, which may include comparison with benchmark data, to confirm that targets are set at appropriate levels.

- Energy Efficiency

  The guidelines recommend that for any energy-using system, a systematic analysis of energy efficiency improvements and cost reduction opportunities should be conducted that includes a hierarchical examination of opportunities in the following areas:
  - Demand/ Load Side Management:
    - Reduce loads on the energy system.
  - Supply Side Management by:
    - Reduce losses in energy distribution;
    - Improve energy conversion efficiency;
    - Exploit energy purchasing opportunities; and
    - Use lower-carbon fuels.

4.1.4.2 *Renewable Energy*

There is no EHS Guideline that specifically focuses on renewable energy. However, PS 3 (Resource Efficiency and Pollution Prevention) alludes to the fact that beyond the implementation of resource efficiency measures, clients should consider consider alternatives and implement technically and financially feasible and cost-effective options to reduce project-related greenhouse gas (GHG) emissions during the design and operation of the Project. These options include, but are not limited to, alternative project locations, adoption of renewable or low carbon energy sources, sustainable agricultural, forestry and livestock management practices, the reduction of fugitive emissions and the reduction of gas flaring.

Additionally, PS 3 indicates that for projects that are expected to or currently produce more than 25 000 tonnes of CO_2 equivalent annually, the client is expected to quantify direct emissions from the facilities owned or controlled within the physical project boundary, as well as indirect emissions associated with the off-site production of energy used by the Project. It is expected that the quantification of GHG emissions will be conducted on an annual basis in accordance with internationally recognized methodologies and good practice.

The EHS Guidelines for Wind Energy were developed in August 2015 and include information relevant to EHS aspects of onshore and offshore wind energy facilities. EHS issues associated

with the construction and operation of transmission lines are addressed in the EHS Guidelines for Electric Transmission and Distribution. Key issues covered include landscape, seascape and visual impacts; noise; biodiversity; shadow flicker and water quality.

4.1.4.3 *Water Conservation*

- Water Conservation

  The EHS Guidelines for Water Conservation state that water conservation programs should be implemented commensurate with the magnitude and cost of water use and that these programs should promote the continuous reduction in water consumption and achieve savings in water pumping, treatment and disposal costs. The guidelines cover water conservation measures such as: water monitoring/ management techniques; process and cooling/ heating water recycling, reuse, and other techniques; and sanitary water conservation techniques.

  General recommendations include:

  - Storm/ rainwater harvesting and use;
  - Zero discharge design/ use of treated waste water to be included in project design processes;
  - Use of localized recirculation systems in plant/ facility/ shops (as opposed to centralized recirculation system), with provision only for makeup water;
  - Use of dry process technologies e.g. dry quenching;
  - Process water system pressure management; and
  - Project design to have measures for adequate water collection, spill control and leakage control system.

4.1.4.4 *Water Treatment*

- Waste Management

  The EHS Guidelines for Waste Management cover facilities or projects dedicated to the management of municipal solid waste and industrial waste, including waste collection and transport; waste receipt, unloading, processing, and storage; landfill disposal; physico-chemical and biological treatment; and incineration projects. Industry-specific waste management activities applicable, for example, medical waste, municipal sewage, cement kilns, and others are covered in the relevant industry-sector EHS Guidelines, as is the minimization and reuse of waste at the source. Key issues covered include waste collection and transport; waste receipt, unloading, processing and storage; biological and physico-chemical treatment; incineration and landfilling.
- Water and Sanitation

The EHS Guidelines for Water and Sanitation include information relevant to the operation and maintenance of (i) potable water treatment and distribution systems, and (ii) collection of sewage in centralized systems (such as piped sewer collection networks) or decentralized systems (such as septic tanks subsequently serviced by pump trucks) and treatment of collected sewage at centralized facilities. The guidelines include detail on industry-specific impacts and management and performance indicators and monitoring. Key issues covered include water withdrawal; water treatment; water distribution; faecal sludge and septage collection; sewage; wastewater and sludge treatment and discharge.

4.1.4.5 *Agriculture and Forestry*

- Agriculture
    - Annual Crop Production

      The EHS Guidelines for Annual Crop Production contain the performance levels and measures that are generally considered to be achievable in crop production areas by existing technology at reasonable costs. Application of the guidelines to existing farming systems may involve the establishment of site-specific targets, with an appropriate timetable for achieving them. The document includes information relevant to large-scale production, harvesting, post harvesting processing and storage of major annual crops, including cereals, pulses, roots and tubers, oil-bearing crops, fibre crops, vegetables, and fodder crops, located in both temperate and tropical regions. It does not include the processing of raw materials into semi-finished and finished products. Key issues covered include soil conservation; nutrient management; crop residue and solid waste management; water management; pest management; fertilizers; biodiversity and ecosystems; genetically modified crops; energy use; air quality; GHG emissions;
    - Aquaculture

      The EHS Guidelines for Aquaculture provide information relevant to semi-intensive and intensive/ super-intensive, commercial aquaculture production of the main aquatic species, including crustaceans, molluscs, seaweeds and finfish, located in developing countries in temperate and tropical regions. Key issues covered include threats to biodiversity; contamination of aquatic systems; water-borne diseases and food safety impacts.
    - Dairy Processing

The EHS Guidelines for Dairy Processing facilities applies to the reception, storage, and industrial processing of raw milk and the handling and storage of processed milk and dairy products. The guidelines don't cover farming activities or collection of raw milk from farmers, as they are covered in the EHS Guidelines for Mammalian Livestock Production. Key issues covered include wastewater; solid waste; air emissions and energy consumption.

- Fish Processing

  The EHS Guidelines for Fish Processing include information relevant to fish processing facilities, including the post-harvest processing of fish, crustaceans, gastropods, cephalopods, and bivalves, originating from sea or freshwater catch or from farming operations in fresh or salt water. The guidelines do not cover primary fishery activities, or the production of fish in aquaculture. The latter is covered in the EHS Guidelines for Aquaculture. Key issues covered include solid waste and by-products; wastewater; air emissions and energy consumption.

- Mammalian Livestock Production

  The EHS Guidelines for Mammalian Livestock Production includes information relevant to cattle ranching and farming, dairy farming, and hog and pig farming. Sheep and goat farming operations, while not explicitly discussed, are similar to the operations included in these guidelines. This document does not address feed production, dairy processing, or meat processing, which are covered under other EHS Guidelines. Key issues covered include waste management; wastewater; air emissions; hazardous materials; ecological impacts and animal diseases.

- Meat Processing

  The EHS Guidelines for Meat Processing include information relevant to meat processing, focusing on bovine and porcine slaughtering and processing from reception of the animals until the carcasses are ready for sale or further processing. This document pertains to facilities that provide simple processing of the by-products of meat slaughtering. Key issues covered include solid waste and by-products; wastewater; air emissions and energy consumption.

- Perennial Crop Production

  The EHS Guidelines for Perennial Crop Production include information relevant to large-scale plantation crops and out grower systems and focuses on the primary production and harvesting through farming and plantation forestry of major multi-year food, fibre, energy, ornamental, and pharmaceutical crops, located in both temperate and tropical regions. It includes tree crops (such as

olives, citrus, coffee, rubber, eucalypts, and cacao) as well as banana, sugarcane, and palm oil. It does not include the processing of raw materials into semi-finished and finished products. Key issues covered include soil conservation; nutrient management; crop residue and solid waste management; water management; pest management; fertilizers; biodiversity and ecosystems; genetically modified crops; energy use; air quality and GHG emissions.

- Poultry Processing

  The EHS Guidelines for Poultry Processing include information relevant to processing of chickens but can be applied to other similar types of poultry processing, such as turkey and ducks. These guidelines cover process steps from the reception of live birds, slaughter, evisceration, and simple rendering. Poultry rearing is addressed in the EHS Guidelines for Poultry Production. Key issues covered include solid organic wastes and by-products; wastewater; air emissions and energy consumption.

- Poultry Production

  The EHS Guidelines for Poultry Production include information relevant to intensive poultry (including ducks and turkeys) production. Key issues covered include waste management; wastewater; air emissions; hazardous materials and animal diseases.

- Sugar Manufacturing

  The EHS Guidelines for Sugar Manufacturing include information relevant to sugar manufacturing facilities. Key issues covered include solid waste and by-products; wastewater and air emissions.

- Vegetable Oil Production and Processing

  The EHS Guidelines for Vegetable Oil Production and Processing are applicable to facilities that extract and process oils and fats from a variety of seeds, grains, and nuts; these include canola, castor, cottonseed, mustard, olive, palm, palm-kernel, peanut (groundnut), rapeseed, safflower, sesame, soybean, and sunflower. Additionally, covered are crude oil production and refining processes, from the preparation of raw materials to the bottling and packaging of final products for human or animal consumption. These EHS Guidelines do not however apply to the production of biofuels. Key issues covered include solid waste and by-product; water consumption and management; energy consumption and management; air emissions; GHG emissions and hazardous materials.

- Forestry
    - Board and Particle-based Products

      The EHS Guidelines for Board and Particle-based Products apply to the manufacture of board and particle-based products such as particle-board, oriented stand board (OSB), medium density fiberboard (MDF), plywood and glued and laminated products. They also apply to plants that make board from other raw materials such as sugar cane bagasse, straw, and linen. Key issues covered include sustainable forestry practices; air emissions, wastewater; hazardous materials; solid wastes and noise.
    - Forest Harvesting

      The EHS Guidelines for Forest Harvesting Operations include information relevant to the management of both plantation and natural forests, in temperate, boreal and tropical zones. Key issues covered include habitat alteration and loss of biodiversity; water quality; soil productivity; hazardous materials management and visual impact.
    - Pulp and Paper Mills

      The EHS Guideline for Pulp and Paper Mills includes information relevant to pulp and paper manufacturing facilities including wood-based chemical and mechanical pulping, recycled fiber pulping, and pulping based on non-wood raw materials such as bagasse, straw, and reed. Key issues covered include wastewater; air emissions; waste and noise.
    - Sawmilling and Wood-based Products

      The EHS Guidelines for Sawmilling and Manufactured Wood Products include information relevant to projects and facilities such as furniture manufacturing, as well as plants manufacturing glue laminated boards and beams. It includes preservative treatment of timber and timber products. Plywood or other wood-derived board products are described in the EHS Guidelines for Board and Particle-Based Products. Key issues covered include sustainable forestry practices; solid waste generation; air emissions; wastewater, noise and fire.

4.1.4.6 *Transport*

- Airports

  The EHS Guidelines for Airports apply to the operation of commercial airports. The document does not include activities associated with aircraft operators including aircraft maintenance activities, which are covered by the EHS Guidelines for Airlines above. Key issues covered include noise and vibrations; stormwater and wastewater;

hazardous materials management; solid waste; air emissions and energy and water consumption.

- Ports, Habours and Terminals

  The EHS Guidelines for Ports, Harbours, and Terminals are applicable to marine and freshwater ports, harbours, and terminals for cargo and passengers. Key issues covered include terrestrial and aquatic habitat alteration and biodiversity; climate change resilience; water quality; air emissions; waste management; hazardous materials and oil management and noise and vibration (including underwater).

- Railways

  The EHS Guidelines for Railways are applicable to activities typically conducted by rail infrastructure operators dedicated to passenger and freight transport. The guidelines are organized into two main areas, namely rail operations, covering construction and maintenance of rail infrastructure as well as operation of rolling stock, such as locomotives and rail cars; and, locomotive maintenance activities, including engine services, and other mechanical repair and maintenance of locomotives and railcars. Key issues covered include habitat alteration and fragmentation; air emissions; fuel management; wastewater; waste and noise.

- Shipping

  The EHS Guidelines for Shipping include information relevant to the operation and maintenance of ships used for the transport of bulk cargo, and goods and apply to vessels operated with fossil fuels and do not address issues specific to nuclear-powered vessels. Key issues covered include petroleum and hazardous materials management; wastewater and other effluents; air emissions and solid waste generation and management.

4.1.5 *Other Applicable Guidelines*

In addition to the above standards, KfW also adopts the following guideline addressing the protection of Human Rights:

4.1.5.1 *Construction Industry Development Board (CIDB), Environmental Management Specifications*

This standard establishes requirements for procurement within the construction industry which are aimed at bringing about standardisation and uniformity in construction procurement documentation, practices and procedures.

4.1.5.2 *Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation.*

When German development agencies prepare programme proposals, it is mandatory to appraise the relevant human rights risks and impacts. The guidelines are designed to provide assistance with this human rights appraisal. They aim at providing a mechanism for the early detection of human rights ricks and the development of approaches and strategies to minimize and avoid them; providing focus on the inclusion of marginalised groups; and strengthening the impact of human rights (e.g. accountability, participation, empowerment, non-discriminatory access to and quality of basic services).

They illustrate selected human rights risks and propose ways of enhancing the human rights orientation of development interventions in different sectors. The human rights due diligence requirements as laid out in these guidelines are also the basis for reporting, evaluation and accountability mechanisms.

4.1.5.3 *The Fundamental Conventions of the International Labour Organization (ILO)*

The ILO's Governing Body has identified eight conventions as "fundamental", covering subjects that are considered as fundamental principles and rights at work, including:

1. Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87);
2. Right to Organise and Collective Bargaining Convention, 1949 (No. 98);
3. Forced Labour Convention, 1930 (No. 29);
4. Abolition of Forced Labour Convention, 1957 (No. 105);
5. Minimum Age Convention, 1973 (No. 138);
6. Worst Forms of Child Labour Convention, 1999 (No. 182);
7. Equal Remuneration Convention, 1951 (No. 100); and
8. Discrimination (Employment and Occupation) Convention, 1958 (No. 111).

These principles are also covered in the ILO's Declaration on Fundamental Principles and Rights at Work (1998).

4.1.5.4 *The United Nations Basic Principles and Guidelines on Development-based Evictions and Displacement*

The present guidelines address the human rights implications of development- linked evictions and related displacement in urban and/or rural areas. The following are of particular relevance:

- No. 42 - eviction notice should allow those impacted to take an inventory in order to assess the values of their properties, investments and other material goods that may be damaged;
- No. 49 - evictions must not take place in inclement weather, at night, during festivals or religious holidays, prior to elections, or during or just prior to school examinations;
- No. 52 - the Government and any other parties responsible for providing compensation and sufficient alternative accommodation, or restitution when feasible, must do so immediately upon the eviction, except in cases of force majeure as well as ensure that members of the same extended family or community are not separated as a result of evictions;
- No. 54 - all evicted persons who are wounded and sick, as well as those with disabilities, should receive the medical care and attention they require to the fullest extent practicable and with the least possible delay, without distinction on any non-medically relevant grounds. When necessary, evicted persons should have access to psychological and social services. Special attention should be paid to the health needs of women and children; and
- No. 60 - When eviction is unavoidable, and necessary for the promotion of the general welfare, the State must provide or ensure fair and just compensation for any losses of personal, real or other property or goods, including rights or interests in property.

4.1.5.5 *The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT)*

The purpose of these guidelines is to serve as a reference and to provide guidance to improve the governance of tenure of land, fisheries and forests with the overarching goal of achieving national food security. The VGGT seeks to:

1. Improve tenure governance by providing guidance and information on internationally accepted practices for systems that deal with the rights to use, manage and control land, fisheries and forests;
2. Contribute to the improvement and development of the policy, legal and organizational frameworks regulating the range of tenure rights that exist over these resources;
3. Enhance the transparency and improve the functioning of tenure systems; and
4. Strengthen the capacities and operations of implementing agencies; judicial authorities; local governments; organizations of farmers and small-scale producers, of fishers, and of forest users; pastoralists; indigenous peoples and other communities;

civil society; private sector; academia; and all persons concerned with tenure governance as well as to promote the cooperation between the actors mentioned.

The guideline focuses on allocation of, and changes to, tenure rights and duties; administration of tenure as well as responses to climate change and emergencies, specifically in relation to conflicts in respect to tenure of land, fisheries and forests.

4.1.6 *International Agreements and Conventions*

The South African government plays a role in supporting and implementing several international agreements and conventions, either as a direct signatory, or through its role in supporting national commitments. Table 2 below provides a list of these conventions and agreements, and a statement of each ones aims and objectives.

Table 2: Applicable International Conventions and Agreements

AGREEMENT / CONVENTION	BRIEF DESCRIPTION
C40 network member	A network of the world's megacities committed to addressing climate change. C40 supports cities to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on climate change.
Carbon Disclosure Project (CDP)	CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts. CDP aims to make environmental reporting and risk management a business norm, and drive disclosure, insight and action towards a sustainable economy.
Convention on Biological Diversity (CBD)	The CBD, known informally as the Biodiversity Convention, is a multilateral treaty. CBD's objective is to develop national strategies for the conservation and sustainable use of biological diversity and to promote sustainable development. CBD was signed by 150 government leaders at the 1992 Rio Earth Summit. The Convention recognizes that biological diversity is about more than plants, animals and micro-organisms and their ecosystems – it is about people and the need for food security, medicines, fresh air and water, shelter, and a clean and healthy environment in which to live.
Convention Concerning the Protection of the World Cultural and Natural Heritage	This Convention sets out the duties of States Parties in identifying potential sites and their role in protecting and preserving them. Each signatory pledges to conserve not only the World Heritage sites situated on its territory, but also to protect its national heritage.
Durban Adaptation Charter	Launched at the United Nations Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP) 17, the Durban Adaptation Charter commits Local Governments to local climate action in their jurisdiction that will assist their communities to respond to and cope with climate change risks thereby reducing vulnerability.
Mexico City Pact (Global Cities Covenant on Climate)	Mexico City Pact is a voluntary initiative of mayors and local authority representatives that aims to advance climate actions. Signatories commit to 10 action points, including the reduction of emissions, adaptation to the impacts of climate change and fostering city-to-city cooperation.

AGREEMENT / CONVENTION	BRIEF DESCRIPTION
Sustainable Development Goals (SDGs)	In 2015 a set of Sustainable Development Goals (SDGs) replaced the Millennium Development Goals (MDGs) following a two-year process of global consultations and intergovernmental negotiations. The 2030 Agenda for Sustainable Development brings together the three aspects of sustainable development – the economic, environmental and social - and includes 17 Global Goals, 169 targets and 230 indicators that apply to all countries, with the aim of achieving them by the year 2030.
Ramsar Convention (Convention on Wetlands of International Importance)	Ramsar Convention is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".
United Nations Framework Convention on Climate Change (UNFCCC);	The UNFCCC is an intergovernmental treaty developed to address the problem of climate change. The Convention, which sets out an agreed framework for dealing with the issue, was negotiated from February 1991 to May 1992 and opened for signature at the June 1992 UN Conference on Environment and Development (UNCED). The ultimate objective of the Convention is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system." It states that "such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner."
UNESCO Man and the Biosphere Programme (Biosphere Reserves)	Launched in 1971, UNESCO's Man and the Biosphere Programme (MAB) is an Intergovernmental Scientific Programme that aims to establish a scientific basis for the improvement of relationships between people and their environments. MAB combines the natural and social sciences, economics and education to improve human livelihoods and the equitable sharing of benefits, and to safeguard natural and managed ecosystems, thus promoting innovative approaches to economic development that are socially and culturally appropriate, and environmentally sustainable.
Urban Environmental Accords (UEA)	The UEA is an international collaborative organization working to develop the Urban Environmental Evaluation Index together with UNEP and apply it to cities worldwide. UEA sets out 21 specific actions for sustainable urban living. The Accords addresses seven environmental areas common to all the world's large cities: water, energy, waste, urban design, transportation, urban nature, and environmental health.

4.2 NATIONAL REGULATORY FRAMEWORK

The National regulatory structure is presented below. It highlights the relevant national laws applicable to the Project.

4.2.1 *Overarching National Legislation*

The following legislation is applicable across all sectors under review.

4.2.1.1 *The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)*

The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996) (the Constitution) is the supreme law of the Republic of South Africa and any act or conduct inconsistent with it is invalid and will have no force of law. Within the Constitution, environmental provisions are included in the Bill of Rights in Chapter 2 of the Constitution. In terms of Section 24 of the Constitution, everyone has the right:

a. To an environment that is not harmful to their health or well-being; and
b. To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
  i. Prevent pollution and ecological degradation;
  ii. Promote conservation; and
  iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

4.2.1.2 *The National Environmental Management Act, 1998 (Act No.107 of 1998)*

The primary objective of the National Environmental Management Act, 1998 (Act No.107 of 1998) (NEMA) is to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.

A key aspect of the NEMA is that it provides a set of environmental management principles that apply throughout the Republic to the actions of all organs of state that may significantly affect the environment. Section 2 of the NEMA contains principles (Table 3) relevant to the proposed project, and likely to be utilised in the process of decision making by the Department of Environmental Affairs (DEA).

Table 3: NEMA Section 2 - Environmental Management Principles

SUB-SECTION	DESCRIPTION
(2)	Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
(3)	Development must be socially, environmentally and economically sustainable.
(4)(a)	Sustainable development requires the consideration of all relevant factors including the following: i. That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; ii. That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;

SUB-SECTION	DESCRIPTION
	iii. That waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner.
(4)(e)	Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.
(4)(i)	The social, economic and environmental impacts of activities, including disadvantages and benefits, must be considered, assessed and evaluated, and decisions must be appropriate in the light of such consideration and assessment.
(4)(j)	The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.
(4)(p)	The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.
(4)(r)	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.

As these principles are utilised as a guideline by the competent authority in ensuring the protection of the environment, the proposed project should, where possible, be undertaken in accordance with these principles. Where this is not possible, deviation from these principles would have to be very strongly motivated.

The NEMA introduces the duty of care concept, which is based on the policy of strict liability. The duty of care extends to the prevention, control and rehabilitation of significant pollution and environmental degradation. It also dictates a duty of care to address emergency incidents of pollution. A failure to perform this duty of care may lead to criminal prosecution and may lead to the prosecution of managers or directors of companies for the conduct of the legal persons. Employees who refuse to perform environmentally hazardous work, or whistle blowers, are protected in terms of the NEMA.

The NEMA also enables a series of Acts known as the Special Environmental Management Acts (SEMA's). These focus on specific facets of environmental management that fall under the umbrella of the NEMA but are not identified specifically in the Act, e.g. in specific regions (coastal zone or for specific types of industry, waste management or air emissions). The following are considered SEMA's (all are discussed below):

- National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM: BA);

- National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEM: PAA);
- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM: WA);
- National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM: AQA); and
- National Environmental Management: Integrated Coastal Management Act, 2008 (Act No.24 of 2008) (NEM: ICM).

In terms of Chapter 5 of NEMA, any activities identified in the 2017 EIA Regulations2, the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008) (NEM: WA) Waste Management Regulations or the National Environmental Management: Air Quality Act, 2004 (Act No.39 of 2004) (NEM: AQA) Regulations must undertake either a Basic Assessment (BA) Process or a Scoping & Environmental Impact Assessment (S&EIA) process.

The 2017 EIA Regulations provide the procedures that relate to the preparation, evaluation, submission, processing and consideration of Environmental Authorisation (EA) applications for activities subject to assessment. The purpose of these regulations is to avoid or mitigate detrimental impacts on the environment. Listing Notices 1 (No. 327 of 2017) and 3 (No. 325 of 2017) and Listing Notice 2 (No. 324 of 2017) of the Regulations provide the Listed Activities requiring a BA or a full S&EIA, respectively.

Activities in terms of the NEM: PAA or NEM: BA may not require an EIA process, but will require some form of permitting/ licensing (refer to the details further in the report under each section). These statutory processes must comply with the requirements prescribed in the relevant regulations and must be completed before the competent authorities are able to issue a decision either authorising or rejecting the proposal.

4.2.1.3 *National Environmental Management Laws Amendment Act, 2014 (Act No. 25 of 2014)*

The National Environmental Management Laws Amendment Act, 2014 (Act No. 25 of 2014) (NEMLAA) published on 2nd June 2014 came into effect on 2nd September 2014. NEMLAA

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2 The Environmental Impact Assessment (EIA) Regulations are a series of legal documents providing details on the required processes for authorisation for activities that are deemed to have potentially negative impacts on the environment. Listed activities are described in terms of specific thresholds related to location and extent.

forms part of a suite of Acts which has given rise to the “One Environmental System” for the country relating to activities that require environmental authorisation. The “One Environmental System” was implemented on 8th December 2014 with the intention of streamlining the licensing processes for mining, environmental authorisations and water use. The system aims to improve the ease of doing business.

4.2.1.4 *National Water Act 36, 1998 (Act No.36 of 1998)*

The purpose of the National Water Act 36, 1998 (Act No.36 of 1998) (NWA) is to ensure that sustainability and equity are identified as central guiding principles in the protection, use, development, conservation, management and control of water resources. These guiding principles recognise the basic human needs of present and future generations, the need to protect water resources, the need to share some water resources with other countries, the need to promote social and economic development through the use of water and the need to establish suitable institutions in order to achieve the purpose of the NWA. The principal concerns in terms of the Act are the potential for the proposed development to pollute surface and groundwater resources, and to ensure that water is used as efficiently as possible.

Of particular relevance are Sections 19, 20, 21 and 22 of the NWA. Section 19 deals with the prevention and remedying effects of pollution. Section 20 deals with the control of emergency incidents and requires that persons who own, control, occupy or use the land in question are responsible for taking all reasonable measures to prevent any pollution of a water resource from occurring, continuing or recurring. If these measures are not taken, the agency concerned may itself do whatever is necessary to prevent the pollution or remedy its effects and to recover all reasonable costs from the persons responsible for the pollution. Section 21 of the NWA specifies land-derived wastewater activities as a water use for which a licence must be obtained from the Department of Water and Sanitation (DWS). Section 22 outlines the permissible water use for which a licence is not required.

Chapter 4 Part 1 (that is Section 21 of the Act) sets out general principles for regulating water use for which a Water Use Licence (WUL) is required and is defined broadly to include:

a) Taking water from a water resource;
b) Storing water;
c) Impeding or diverting the flow of water in a watercourse;
d) Engaging in a stream flow reduction activity contemplated in Section 36;
e) Engaging in a controlled activity identified as such in Section 37(1) or declared under Section 38(1);

f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
g) Disposing of waste in a manner which may detrimentally impact on a water resource;
h) Disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;
i) Altering the bed, banks, course or characteristics of a watercourse;
j) Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and using water for recreational purposes.

Chapter 7 (Sections 77 - 90) deals with the establishment, governance and functions of Catchment Management Agencies (CMA). The establishment of CMAs are mainly to delegate water resource management at all 19 Water Management Areas (WMA) in South Africa, to the regional or catchment level. It serves to involve local communities in addressing local concerns as well as to facilitate local participation within the framework of the National Water Resource Strategy established in terms of Chapter 2 of the Act. Where the necessary capacity does not exist to establish a CMA, an advisory committee may be appointed under Chapter 9 to develop the necessary capacity as a first step towards establishing an agency.

4.2.1.5 *South African Water Quality Guidelines*

The DWS has provided comprehensive water quality guidelines and targets associated with all types of water use. The water quality guideline is a set of information provided for a specific water quality constituent. It consists of the water quality criteria, including the Target Water Quality Range, for that constituent together with other support information such as the occurrence of the constituent in the aquatic environment, the norms used to assess its effects on water uses, how these effects may be mitigated, possible treatment options, etc.

The South African Water Quality Guidelines consists of guidelines for domestic, recreational, industrial and agricultural water uses, guidelines for the protection of aquatic ecosystems as well as guidelines for the protection of the health and integrity of aquatic ecosystems and guidelines for the protection of the marine environment. Each of these guidelines provides scientific and technical information for a particular water quality constituent in the form of numerical data and/ or narrative descriptions of its effects on the fitness of water for a particular use or on the health of aquatic ecosystems.

4.2.1.6 *National Environmental Management: Waste Act, 2008 (Act No.59 of 2008)*

The NEM: WA aims to enforce an integrated approach to waste management, with emphasis on prevention and reduction of waste at source and, where this is not possible, to encourage reuse and recycling in preference to disposal. Section 16 (Chapter 4) of NEM: WA deals with the general duty in respect to waste management and mandates the generator of wastes to take all reasonable measures to:- avoid the generation of waste and where such generation cannot be avoided, to minimise the toxicity and amounts of waste that are generated; reduce, re-use, recycle and recover waste; where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner; manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts; prevent any employee or any person under his or her supervision from contravening this Act; and prevent the waste from being used for an unauthorised purpose.

Section 19 of the NEM: WA list the activities in respect of which a Waste Management Licence (WML) is required in accordance with Section 20(b) of the Act and is Regulated by the List of Waste Management Activities that have, or are likely to have, a detrimental effect on the Environment (NEM: WA Regulation 921 of 2013, as amended). The Listed Activities are divided into Category A activities, for which a BA process as prescribed by the 2017 EIA Regulations is required; Category B activities, for which an EIA process as prescribed by the 2017 EIA Regulations is required; and Category C activities, requiring waste registration for which compliance with Norms and Standards as set by the Minister is required.

4.2.1.7 *National Environmental Management: Waste Act, 2008 (Act No.59 of 2008): National Norms & Standards*

In 2008 the NEMA was amended by providing an enabling provision that allows Ministers and MECs to adopt or develop norms or standards for any NEMA or associated SEMA BA Listed Activities, parts of Listed Activities of combinations of Listed Activities, and prescribe such norms or standards in order to meet the requirements of the NEMA. As such, the NEMA allows a person to commence with a listed activity without prior EA, on condition that the conduct of such listed activity is compliant with a standard. Standards therefore are an additional tool for Integrated Environmental Management (IEM) in South Africa and an alternative to the EIA process. Only activities requiring a BA process in terms of the 2017 EIA Regulations may be considered for the development of standards.

The required characteristics of a standard are not defined in the NEMA but are rather contained within certain sections of the NEMA. The following characteristics of standards have been identified based on the provision of the NEMA:

1. Standards are enforceable;
2. Standards are inflexible rules which can be uniformly applied; and
3. Standards provide specific performance criteria or outcomes which can be measured for compliance purposes.

4.2.1.8 *National Environmental Management: Waste Amendment Act, 2014 (Act No. 26 of 2014)*

The National Environmental Management: Waste Amendment Act, 2014 (Act No. 26 of 2014) (NEM: WAA) came into effect on the 2nd June 2014 and includes among others, the substitution and deletion of certain definitions contained in NEM: WA (2008) and the inclusion of Schedule 3: Defined Wastes.

The defining changes in this Act also included the substitution and deletion of definitions, various administrative requirements, enabling of a pricing structure for applications and fines and to establish a Waste Management Bureau.

4.2.1.9 *National Environmental Management: Air Quality Act, 2004 (Act No.39 of 2004)*

The NEM: AQA replaces the repealed Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965). The NEM: AQA provides for the protection and enhancement of the quality of air in South Africa and the prevention of air pollution as well as ecological degradation. The Act also defines the national norms and standards regulating air quality management and monitoring, as well as defines specific air quality measures for implementation. Chapter 4 and 5 of the Act deals with air quality management measures and licensing of Listed Activities, respectively. The Listed Activities and associated minimum emission standards identified in terms of Section 21 of Chapter 4 of the Act are provided for in the NEM: AQA Regulations 893 of 2013. The Regulations include Listed Activities provided for as Category 1 – 10 contains rules concerning emission measurement and analysis methods, time allowed for compliance and monitoring of compliance.

4.2.1.10 *National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)*

The NEM: BA provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA as contained in the Chapters 4 and 5. It includes the protection of species and ecosystems that warrant the sustainable use of indigenous biological

resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources and the establishment and functions of a South African National Biodiversity Institute.

Since NEM: BA is a SEMA, any instances where this Act is applicable the process will be included in the NEMA EIA process; however, in some instances e.g. disturbance of critically endangered or endangered vegetation types/ species, specific permits may be required from the relevant provincial environmental authorities.

4.2.1.11 *National Environmental Management: Protected Area Act, 2003 (Act No.57 of 2003)*

The NEM: PAA provides norms and standards for the management of protected areas within the country and should be read along with the NEM: BA as they have essentially the same underlying objective. The Act verifies the existence of private nature reserves and similar protected biospheres and includes these areas in the register of protected areas of South Africa.

When considering site locations for any activities associated with the Project, it is recommended that the NEM: PAA is referred to, to ensure that the activity is not located within or near to protected areas, and if it is, then consultation with the relevant conservation body must be undertaken.

Since the NEM: PAA is a SEMA, any activities located within or near to protected areas will require authorisation in terms of the EIA Regulations, 2017.

4.2.1.12 *National Environmental Management: Integrated Coastal Management Act, 2008 (Act No.24 of 2008)*

The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) (NEM: ICM), as amended in 2014, establishes a system of integrated coastal and estuarine management in South Africa. The Act provides, within the framework of the NEMA, for the coordinated and integrated management of the coastal zone by all spheres of government in accordance with the principles of cooperative governance.

The Act requires that each coastal municipality designate coastal access land to secure public access to that coastal public property. The Minister may declare an area within the coastal zone to be a special management area and appoint a manager for each special management area. Estuaries within the Republic must be managed in accordance with a national estuarine management protocol and estuarine management plans for each estuary. The Act further provides with respect to, among other things, competent authorities, a national coastal

management programme and provincial and municipal coastal management programmes, environmental authorizations and marine and coastal pollution control including the control of discharge of effluent waters, the incineration of waste and the dumping of waste at sea.

4.2.1.13 *National Forest Act, 1998 (Act No. 84 of 1998)*

The National Forest Act, 1998 (Act No. 84 of 1998) (NFA) provides for the protection of forests as well as specific tree species, quoting directly from the Act: *"no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated"*.

The Department of Agriculture, Forestry and Fisheries (DAFF) published a revised and updated list of protected trees in 2014 which no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister.

The national DAFF holds the mandate to implement the NFA, any specified trees must be identified and mapped, and an Application for Removal submitted to the regional office of the DAFF.

4.2.1.14 *Marine Living Resources Act, 1998 (Act No.18 of 1998)*

The Marine Living Resources Act, 1998 (Act No. 18 of 1998) provides for the conservation of the marine ecosystem, the long-term sustainable utilisation of marine living resources and the orderly access to exploitation, utilisation and protection of certain marine living resources. The Act concerns the establishment of continuation of several institutions involved in fisheries management and conservation of marine living resources, for the conservation of marine living resources and the regulation of commercial and local fishing. Part I of Chapter 3 makes provision for fisheries management plans and fishing priority areas. One Part of Chapter 3 is entirely dedicated to high seas fishing. Chapter IV provides for the establishment of marine protected areas. Remaining provisions of the Act concern the use of gear and prohibited activities and law enforcement.

4.2.1.15 *National Heritage Resources Act, 1999 (Act No.25 of 1999)*

The National Heritage Resource Act, 1999 (Act No. 25 of 1999) (NHRA) is applicable for the protection of archaeological and paleontological resources and is the responsibility of the

provincial heritage resources authority. All archaeological objects, paleontological material and meteorites are the property of the State and as such, the Act requires the immediate reporting of any discovery of archaeological or paleontological objects or material or a meteorite in the course of development to the responsible heritage resources authority or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

In terms of Section 38 of the NHRA, authorisation is required for developments that affect any heritage resource, specifically in relation to the following activities:

- The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- The construction of a bridge or similar structure exceeding 50 m in length;
- Any development or other activity which will change the character of a site—
  - exceeding 5 000 m^2 in extent; or
  - involving three or more existing erven or subdivisions thereof; or
  - involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- The re-zoning of a site exceeding 10 000 m^2 in extent; or
- Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

Also note that a permit is required to alter or demolish any structure or part of a structure, which is older than 60 years or to disturb, destroy, damage, excavate, alter or deface any archaeological, historically significant sites, paleontological site or grave older than 60 years.

As a minimum, if any of the activities above are triggered, a Notice of Intent to Develop (NID) must be submitted to the relevant agency. If it is determined that an impact on heritage resources is likely, an Archaeological Impact Assessment must be undertaken by a registered heritage practitioner. Although the process makes use of a different form to the EIA process, any authorisation in terms of the NHRA must be done in conjunction with the EIA process.

4.2.1.16 *Hazardous Substance Act, 1973 (Act No.15 of 1973)*

The aim of the Hazardous Substances Act, 1973 (Act No. 15 of 1973) (HSA) is to provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the

generation of pressure thereby in certain circumstances, and for the control of certain electronic products; to provide for the division of such substances or products into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances and products; and to provide for matters connected therewith.

The regulations provide classification of Group IV Hazardous Substances which may be used for medical, scientific, agricultural, commercial or industrial purposes, and any radioactive waste arising from such radioactive material. Anyone selling, using, letting, operating or installing classified substances is required to obtain a license from the National Health authority.

4.2.1.17 *Spatial Planning and Land Use Management Act, 2013 (Act No.16 of 2013)*

The Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013) (SPLUMA) provides for the sustainable and efficient use of land in South Africa. It includes standardized measures for a uniform, effective and comprehensive system of spatial planning and land use management and development at national and local level. Specifically, Chapter 3 of the SPLUMA defines spatial planning at municipal and provincial level and includes general principles, which shall apply to all organs of state and other authorities responsible for the implementation of legislation regulating the use and development of land. Those principles concern, among other things management of prime and unique agricultural land and protection of consistency of land use measures with environmental protection and is vested on the local municipality. The SPLUMA requires that the national and provincial spheres of government and each municipality must prepare spatial development frameworks as determined by the Act. A municipality must, after public consultation, adopt a single land use scheme and may pass by-laws aimed at enforcing its land use scheme. Upon receipt of a land use application, the Municipality will establish a Municipal Planning Tribunal in order to determine the outcome of a land use application.

4.2.1.18 *Deeds Registries Act, 1937 (Act No 47 of 1937)*

The Act consolidates and amends all enacted laws in South Africa relating to title deeds prior to 1937. The Act provides for administrative duties of the registrar and a regulations board, the Act further provides provisions for registration of a deed, registration of land and dealing the State land, townships and settlements, bonds, rights in immovable property, antenuptial contracts, and other issues relating to title deeds such as cancellation, transfer, taxes, change of name.

4.2.1.19 *Prevention of Illegal Eviction and Unlawful Occupation of Land Act, 1998 (Act No 19 of 1998)*

The Act is applicable to all land (rural and urban, as well as private and state land) and protects all occupiers (including those without permission of the owners or person in charge of the land). The Act stipulates that unlawful occupiers may only be evicted in terms of the provision of this legislation. Evictions without a court order issued in terms of the Act constitutes a criminal offence to which the owner / person who is guilty of the offence may be fined and / or imprisoned.

Owners who are in intending to evict unlawful occupiers are required to give them at least two weeks' written notice prior to the owner's intention to do so. Notice is also required to be given to the municipality. The notice is required to include mention to the application of a court order for eviction and the date and time to which this application would be heard, the reason for the application and the rights of the unlawful occupier to appear in court to defend the case as well as their entitlement to apply for legal aid.

The court when deciding to issue an eviction order is obliged to consider the rights and needs of the elderly, children, disabled persons and households headed by women. In the case that the unlawful occupier has inhabited the land for a period longer than six (6) months, the court must consider whether alternative land is available or could be made available.

The Act further sets provisions for urgent applications for evictions.

4.2.1.20 *Extension of Security Tenure Act, 1997 (Act No 62 of 1997), as amended*

The Extension of Security of Tenure Act (Act No. 62 of 1997) 1997 ("ESTA") provides measures to facilitate long-term security of land tenure and regulates:

- The conditions of residence on agricultural land;
- The conditions on and circumstances under which the right of persons to reside on agricultural land may be terminated; and
- The conditions and circumstances under which persons, whose right of residence may be terminated, may be evicted from agricultural land.

The Act regulates the relationship between the people that live on land they do not own, but with the consent of the owner or person in charge of the farm. The Act places substantive rights and responsibilities on both parties, sets out processes of eviction, and provides instruments to enable Government to provide long-term security of tenure to those who live on farms and peri-urban land they do not own.

ESTA only applies and protects people defined as “occupiers”, where an “occupier” is defined as:

“a person residing on land which belongs to another person. and who has or on 4 February 1997 or thereafter had consent or another right in law to do so, but excluding—

a. *a labour tenant in terms of the Land Reform (Labour Tenants) Act, 1996 (Act No. 3 of 1996); and*
b. *a person using or intending to use the land in question mainly for industrial. mining, commercial or commercial farming purposes, but including a person who works the land himself or herself and does not employ any person who is not a member of his or her family; and*
c. *a person who has an income in excess of the prescribed amount”*

4.2.1.21 *Land Reform (Land Tenants) Act, 1996 (Act No 3 of 1996)*

The Act provides for security of tenure of labour tenants and those persons occupying or using land as a result of their association with labour tenants; to provide for the acquisition of land and rights in land by labour tenants; and to provide for matters connected therewith.

A labour tenant is a person who lives on the farm and has a right to use the owners farm (or other land belonging to the owner) and who in exchange works for the owner. A labour tenant may also provide labour via someone else.

A farm worker who is paid primarily in cash for their labour does not qualify as a labour tenant.

4.2.1.22 *Communal Property Associations Act, 1996 (Act No 28 of 1996)*

The Act enables communities to form juristic persons, to be known as communal property associations in order to acquire, hold and manage property on a basis agreed to by members of a community in terms of a written constitution; and to provide for matters connected therewith.

4.2.1.23 *Upgrading of Land Tenure Rights Act, 1991 (Act No 112 of 1991), as amended*

The Act provides for the upgrading and conversion into ownership of certain rights granted in respect of land, for the transfer of tribal land in full ownership to tribes, and for matters connected therewith.

4.2.1.24 *Restitution of Land Rights Act, 1994 (Act No 22 of 1994), as amended*

The Act provides for the restitution of rights in land to persons or communities Dispossessed of such rights after 19 June 1913 as a result of past racially Discriminatory laws or practices; to establish a Commission on Restitution of Land Rights and a Land Claims Court; and to provide for matters connected therewith.

The Act empowers the Minister of Land Affairs to purchase, acquire in any other manner or expropriate land, a portion of land or a right in land for the purpose of the restoration or award of such land, portion of land or right in land to a claimant or for any other related land reform purpose; and to provide for matters connected therewith.

4.2.1.25 *Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970)*

Subdivision of agricultural land is not permitted without the consent of the Minister of Agriculture in terms of the Act. The Act is implemented by DAFF. In the event that the Project requires the subdivision of land zoned as Agriculture, a registered planner must submit the necessary documentation to the relevant authorities. If no subdivision is required, either a consent use or exemption must be obtained from DAFF if the facilities are to be located on property zoned for Agriculture.

4.2.1.26 *National Building Regulations and Building Standards Act, 1977 (Act No.103 of 1977)*

The National Building Regulations and Building Standards Act, 1977 (Act No.103 of 1977) (NBRBSA) provides for the promotion of uniformity in the law relating to the erection of buildings in the areas of jurisdiction of local authorities and for the prescribing of building standards. Local authorities, the Gauteng Department of Trade and Industry, are responsible for the administration of the National Building Regulations and control the on-site activities during construction and upgrade of projects. The Act requires that certified architects or engineers, appointed by the developer, are required to perform specific functions and prepare and submit to the local authority a rational design or rational assessment where compliance with the requirements of sub-regulation (1) is to be satisfied in terms of sub-regulation(1)(b)(ii) of Schedule AZ4 of the National Building Regulations.

4.2.1.27 *National Health Act, 2003 (Act No.61 of 2003)*

The main objectives of the National Health Act, 2003 (Act No. 61 of 2003) (NHA) are to regulate national health and to provide in uniformity in respect of health services across the nation. The NHA serves to provide a framework for a structured uniform health system within South Africa, taking into account the obligations imposed by the Constitution and other

national, provincial and local governments laws with regard to health services. The Act recognises that no person may be refused emergency medical treatment and that everyone has the right to an environment that is not harmful to their health.

The NHA also provides for the prevention of nuisance and offensive conditions and provides for municipal health services including water quality monitoring, waste management, and environmental pollution control. Activities that may potentially affect the health of any persons, is required to comply with prescribed norms and standards as provided in the Act.

This Act has specific reference to waste disposal of potentially hazardous materials and proximity of development sites to cemeteries.

There is no formal process related to the NHA and the developer will be notified in writing of any decision made by the relevant authority. Although the national Department of Health has the mandate to implement the Act, provincial health departments generally provide guidance and authority for activities within their mandate.

4.2.1.28 *Labour Relations Act, 1995 (Act No.66 of 1995)*

The Labour Relations Act, 1995 (Act No. 66 of 1995) sets out the laws that govern labour in South Africa. It is guided by Section 27 of the Constitution, which entrenches the rights of workers and employers to form organisations for collective bargaining. Together with the Basic Conditions of Employment Act, 1977 (Act No. 75 of 1977) (see below), it also ensures social justice by establishing the rights and duties of employers and employees. In addition, it regulates the organisational rights of trade unions deals with strikes and lockouts, workplace forums and other ways of resolving disputes. It provides a framework for the resolution of labour disputes through the Commission for Conciliation, Mediation and Arbitration (CCMA), Labour Court and Labour Appeal Court.

4.2.1.29 *Basic Conditions of Employment Act, 1977 (Act No.75 of 1977)*

The Basic Conditions of Employment Act, 1977 (Act No. 75 of 1977) gives effect to the constitutional right to fair labour practices by establishing and making provision for the regulation of basic conditions of employment and obligates South Africa as a member state of the ILO. The Act regulates working time, leave requirements, the particulars of employment and remuneration, termination of employment, prohibition of employment of children and forced labour, variation of basic conditions of employments, sectoral determinations, establishes the Employment Conditions Commission, and provides mechanisms for monitoring, enforcement and legal proceeding regarding labour.

4.2.1.30 *Occupational Health and Safety Act, 1993 (Act No.85 of 1993)*

The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHSA) provides for the protection of workers at the workplace. The Act requires that as far as reasonably practicable, employers must ensure that their activities do not expose non-employees to health hazards. The importance of the Act lies in its numerous regulations, many of which will be relevant to the Project. Furthermore, the installation of Major Hazard Installation (MHI) requires the completion of a quantitative risk assessment (and associated emergency response plan) as part of the application process for registration from the Department of Labour (DoL).

4.2.1.31 *Compensation for Occupational Injuries and Diseases Act, 1993 (Act No.130 of 1993)*

The aim of the Compensation for Occupational Injuries and Diseases Act, 1993 (Act No.130 of 1993) (COIDA) is to provide for compensation in the case of disablement caused by occupational injuries and diseases, sustained or contracted by employees in the course of their employment, or death resulting from injuries and diseases.

Workers who are injured on duty or obtain an occupational disease can claim compensation for temporary or permanent disablement. If workers die as a result of an injury on duty, their dependants will also be entitled to claim compensation. Employers that registered their employees are protected against civil claims in this regard. The COIDA basically prevents employees covered by the act from suing their employers for damages in terms of common law.

4.2.1.32 *Disaster Management Act, 2002 (Act No.98 of 2002)*

The Disaster Management Act, 2002 (Act No. 98 of 2002) provides for an integrated and co-ordinated disaster management policy focusing on preventing or reducing disaster risk, mitigating severity of disasters, emergency preparedness, rapid and effective response to disasters and post-disaster recovery. The Act establishes an intergovernmental structures and policy framework by facilitating coordination between national, provincial and local governments. The Act vests responsibility in each sphere of government to administer provisions over disaster management frameworks, centres and vests powers and duties of each entity.

Chapter 5 vests responsibility in municipal governments to establish an independent municipal disaster framework and the implementation of such. The Project must recognise the requirements of this framework and cooperate with such

4.2.1.33 *Civil Aviation Act, 2009 (Act No. 13 of 2009)*

The Civil Aviation Regulations 2011 were put in place in terms of the Act to provide for standards, licensing procedures, certification, operation and general regulations pertaining to the aviation industry.

The application for the Project is related to possible obstacles that may affect the safety and security of aircraft, people and related infrastructure.

The International Civil Aviation Organisation (ICAO) defines an obstacle as:

- All fixed or mobile objects or parts thereof, whether temporary or permanent that:
    - Are located on an area intended for the surface movement of aircraft; or
    - Extend above a defined surface intended to protect aircraft in flight; or
    - Stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

The South African Civil Aviation Authority (CAA) requires that all obstacles as identified in the regulations and confirmed by the CAA, are registered with them. Any structure exceeding 45m in heights must have day and night markings attached.

Consultation with the CAA to determine the applicability of this process is advised. In the event that the development does require registration, the required forms must be completed and submitted to the CAA.

4.2.1.34 *White Paper on National Climate Change Response Policy, 2011*

The National Climate Change Response Policy (NCCRP) White Paper presents the South African Government's vision for an effective climate change response and the long-term, transition to a climate-resilient and low carbon economy and society.

In this regard, South Africa will:

- Effectively manage inevitable climate change impacts through interventions that build and sustain South Africa's social, economic and environmental resilience and emergency response capacity.
- Make a fair contribution to the global effort to stabilise GHG concentrations in the atmosphere at a level that avoids dangerous anthropogenic interference with the climate system within a timeframe that enables economic, social and environmental development to proceed in a sustainable manner.

In terms of adaptation, the NCCRP includes a risk-based process to identify and prioritise short- and medium-term adaptation interventions to be addressed in sector plans.

4.2.1.35 *National Strategy for Sustainable Development and Action Plan, 2011–2014*

The National Strategy for Sustainable Development and Action Plan (NSSD) is a proactive strategy that regards sustainable development as a long-term commitment, which combines environmental protection, social equity and economic efficiency with the vision and values of the country. The strategy provides for the establishment of a national committee on sustainable development. The Department of Environmental Affairs will establish and oversee the committee that will operate across government spheres to engage civil society, NGOs, the private sector, academia, independent reviewers and other multiple stakeholders.

The following five strategic objectives are identified in the NSSD:

- Enhancing systems for integrated planning and implementation;
- Sustaining our ecosystems and using natural resources efficiently;
- Towards a green economy;
- Building sustainable communities; and
- Responding effectively to climate change.

4.2.1.36 *National Development Plan Vision, 2030*

The National Development Plan (NDP) aims to eliminate income poverty (reduce the proportion of households with a monthly income below R 419 per person (in 2009 prices) from 39 percent to zero) and reduce inequality (the Gini coefficient should fall from 0.69 to 0.6 by 2030) by *inter alia*:

- Establishing a competitive base of infrastructure, human resources and regulatory frameworks;
- Establishing effective, safe and affordable public transport;
- Producing sufficient energy to support industry at competitive prices, ensuring access for poor households, while reducing carbon emissions per unit of power by about one-third;
- Ensuring that all South Africans have access to clean running water in their homes;
- Realising a food trade surplus, with one-third produced by small-scale farmers or households; and
- Ensure household food and nutrition security.

4.2.2 *National Legislation Specific to the Energy Efficiency Sector*

4.2.2.1 *White Paper on Energy Policy, 1998*

The White Paper on Energy Policy, 1998 sets out five policy objectives: increasing access to affordable energy services; improving energy governance; stimulating economic development; managing energy-related environmental and health impacts; and securing supply through diversity. The Policy gives a mandate to the Department of Energy (DoE) to pursue Energy Efficiency programmes which is one of the lowest cost options for reducing energy consumption.

4.2.2.2 *National Energy Efficiency Strategy 2005*

The National Energy Efficiency Strategy (NEES) provided and outline of how the country could achieve an overall energy intensity reduction target of 12% by 2015. Sectoral energy efficiency improvement targets were provided as follows:

- Industry and Mining (15%)
- Commercial and Public buildings (15%)
- Residential (10%)
- Transport (10%)
- Power Generation Sector (15%)

The Implementation plans were drawn up for each of the sectors with forecasted targets of energy use reductions based on assumptions about energy demand over the next 10 years (2005 – 2015 using 2000 as the baseline year), including the associated drivers, such as the economic development and population growth.

The NEES was subsequently revised in 2011. A National Energy Efficiency Action Plan was developed in 2012 describing the implementation of the strategy. In 2014, the Energy Efficiency Target Monitoring System was established to monitor the progress made towards meeting the original targets. According to the DoE, the results of the analysis of the data indicated that significant progress had been made between 2000 and 2012 in improving energy intensity, exceeding expectations for most sectors. The improvements in energy intensity reflected a combination of autonomous change, technological advancements, and deliberate interventions to improve energy efficiencies.

4.2.2.3 *Draft Post 2015 National Energy Efficiency Strategy*

The post-2015 NEES aims to build on the achievements of the 2005 NEES by stimulating further energy efficiency improvements through a combination of fiscal and financial

incentives, a robust legal and regulatory framework, and enabling measures. The strategy lists the following expected 2030 impacts (reduction in final energy consumption) from 2015:

- Economy Wide – 29%
- Industry Sector – 15%
- Public & Commercial Sector – 37%
- Agriculture Sector – 30%
- Transport Sector – 39%

4.2.2.4 *Draft Regulations Registration Reporting on Energy Management and Submission of Energy Management Plans*

The regulations aim to compel organisations to report energy data as well as energy management plans to the DoE based on the following criteria:

- A data provider operating in the sectors that are defined in Annexure A of the regulations and whose total annual energy consumption exceeds 180 terajoules (TJ), is compelled to measure and collect the energy consumption data for various energy carriers (i.e. electricity, coal, diesel etc – as prescribed in Annexure B of the regulations).
- A data provider whose total annual energy consumption exceeds 400 terajoules (TJ), in addition to complying with the submission of energy consumption data as per above, is required to submit to the DoE an energy management plan, prepared in accordance with the South African National Standard (SANS) 50001.

The energy management plan must be applicable for a period of five years from the date of submission to the DoE and must include the following

- An energy baseline prepared in accordance with SANS 50010;
- The areas of energy efficiency savings potential;
- Energy performance indicators for monitoring and measuring energy performance;
- A list of measures to achieve the energy efficiency savings potential which are technically viable, cost effective and within the financial means of the data provider, and are to be implemented over the five-year period;
- Timelines for the implementation of the measures; and
- The period for the review of the energy management plan.

4.2.2.5 *Regulations in terms of Section 12L of the Income Tax Act 1962 on the Allowance for Energy Efficiency Saving*

The Section 12L Tax incentive, of the Income Tax Act 1962 (Act No. 58 of 1962), was promulgated in 2013 and is claimable until 1st January 2020. It provides an allowance for businesses to implement energy efficiency savings. The savings allow for tax deduction of 45c/kwh saved on energy consumption. The incentive allows tax deduction for all energy carriers (not just electricity) with the exception of renewable energy sources. For the eligibility to claim the deductions, measurements must be kWh equivalent. The verified and measured energy efficiency saving must be over a period of 12 months known as implementation/assessment period which is compared in contrast with the 12 months of baseline measurement. The baseline measurement and savings are verified and measured by a South African National Accreditation System (SANAS) accredited Measurement and Verification (M&V) Body which assigns an M&V professional. The South African National Energy Development Institute (SANEDI) plays the role of implementing and overseeing the application process of the incentive claimant to the issuing of the 12L Tax Incentive certificate at the application approval. The tax incentive was increased from R0.45 /kWh to R0.95/kWh energy saved in 2015. Furthermore, it was announced in the 2019 Budget Speech that the Section 12L incentive had been extended until 31 December 2022.

4.2.2.6 *Carbon Tax Bill*

The carbon tax has been in development since 2015 with a draft and final carbon tax bill now published, following several rounds of comments from industry, NGOs and civil society. The final Carbon Tax Bill was tabled on 20 November 2018 and submitted to Parliament for approval. During the mid-term budget speech, the Minister of Finance indicated that carbon tax would be effective from June 2019. With implementation on 1 June 2019 to the end of the first phase on 31 December 2022, the tax will range from R6 to R48 a ton of carbon dioxide, or equivalent GHG, emitted. While the nominal tax rate for the first phase is R120 a ton, the bill provides for tax-free emission allowances ranging from 60% to 95%.

One of the tax-free allowances provided for is referred to as the Performance allowance. This allowance takes into account the measures implemented to reduce greenhouse gas emissions. The bill provides a formula that essentially compares a company's greenhouse gas emission intensity to the sector's greenhouse gas emissions intensity benchmark. If the company intensity is better than the sector's intensity, it is allowed a maximum tax-free allowance of 5 per cent for the above average performance. This allowance essentially introduces an energy efficiency benchmark.

4.2.3 *National Legislation Specific to the Renewables Energy Sector*

4.2.3.1 *National Energy Act, 2008 (Act No. 34 of 2008)*

The National Energy Act, 2008 (Act No. 34 of 2008) aims to ensure that diverse energy resources are available, in sustainable quantities and at affordable prices, to the South African economy in support of economic growth and poverty alleviation, taking into account environmental management requirements and interactions amongst economic sectors; to provide for energy planning, increased generation and consumption of renewable energies, contingency energy supply, holding of strategic energy feedstocks and carriers, adequate investment in, appropriate upkeep and access to energy infrastructure; to provide measures for the furnishing of certain data and information regarding energy demand, supply and generation; to establish an institution to be responsible for promotion of efficient generation and consumption of energy and energy research.

4.2.3.2 *National Gas Act, 2001 (Act No. 48 of 2001)*

The Act aims to:

- Promote the orderly development of the piped gas industry;
- Establish a national regulatory framework;
- Establish a National Gas Regulator as the custodian and enforcer of the national regulatory framework; and to provide for matters connected therewith.

Although mainly responsible for piped gas developments, the Act does provide for the development of alternative gas sources and to facilitate investment in the gas industry. Registration with the National Energy Regulator of South Africa (NERSA) is required in terms of the Act for the following activities:

1. Production of gas;
2. Importation of gas;
3. Transmission of gas for own exclusive use; and
4. Small biogas projects not connected to the national gas pipeline grid.

4.2.3.3 *Electricity Regulation Act, 2006 (Act No. 4 of 2006)*

The Act undertakes to:

- Establish a national regulatory framework for the electricity supply industry;
- Make the NERSA the custodian and enforcer of the national electricity regulatory framework;

- Provide for licences and registration as the manner in which generation, transmission, distribution, trading and the import and export of electricity are regulated; and
- Provide for matters connected therewith.

The applicability of this Act to the Project relates directly to the use of the generated electricity. Certain exemptions are identified in the Act with regard to the obligation of a generator to apply for and hold a license. These are:

- Any generation plant constructed and operated for demonstration purposes only and not connected to an inter connected power supply;
- Any generation plant constructed and operated for own use; and
- Non-grid connected supply of electricity except for commercial use.

4.2.3.4 *White Paper on Energy Policy, 1998*

Refer to **Section 4.2.2.1.**

4.2.3.5 *White Paper on the Promotion of Renewable Energy and Clean Energy Development, 2002*

The White Paper sets out Government's vision, policy principles, strategic goals and objectives for promoting and implementing renewable energy in South Africa. Additionally, it has the following two goals:

- To inform the public and the international community of the Government's goals, and how the Government intends to achieve them; and
- To inform Government agencies and Organs of State of these goals, and their roles in achieving them.

It furthermore commits Government to a number of enabling actions to ensure that renewable energy becomes a significant part of its energy portfolio over the next ten years.

4.2.4 *National Legislation Specific to the Water Conservation Sector*

4.2.4.1 *National Water Resource Strategy, 2013*

The major focus of the National Water Resource Strategy is equitable and sustainable access and use of water by all South Africans while sustaining South Africa's water resource. Equity and redistribution will be achieved through the authorisation process and other mechanisms and programmes, such as water allocation reform, financial support to emerging farmers and support to urban and rural local economic development initiatives.

Climate change outcomes in terms of rainfall and temperature will have a negative impact on water storage. Water demand is likely to grow at about 1.2% over the next ten years. South Africa therefore needs to find new ways of reducing water demand and increasing availability – which move beyond 'traditional engineering solutions' of infrastructure development. Ensuring a sustainable water balance requires a multitude of strategies, including water conservation and water demand management, further utilisation of groundwater, desalination, water re-use, rain water harvesting and treated acid mine drainage.

The strategies that will inform future water resource planning, management and investment and key issues include:

- Greater focus on water conservation and water demand management;
- Increased value and utilisation of ground water;
- Re-use of waste water at the coast as well as in inland systems;
- Opportunity for more dams (though limited) and transfer schemes (and where the opportunity exists, it is at great cost) desalination:
    - Small scale seawater desalination already being used in certain areas;
    - Treated mine water desalination becoming more important; and
    - Desalination of sea water on a large scale.
- Catchment rehabilitation, clearing of invasive alien plants and rainwater harvesting is growing in importance; and
- Making more water available in the future, but at sharply rising costs.

4.2.5 *National Legislation Specific to the Water Treatment Sector*

4.2.5.1 *National Water Services Act, 1997 (Act No.108 of 1997)*

The National Water Services Act, 1997 (Act No.108 of 1997) (NWSA) provides for the rights of access to basic water supply and basic sanitation, the setting of national standards and of norms and standards for tariffs, water services development plans, regulatory framework for water services institutions and water services intermediaries. It also provides for the establishment and disestablishment of water boards and water services committees and their powers and duties as well as the monitoring of water services and intervention by the national and provincial Authorities.

4.2.5.2 *National Water and Sanitation Master Plan*

The National Water and Sanitation Master Plan (NW&SMP) forms part of a suite of initiatives led by the DWS), in conjunction with other government departments and agencies, the private sector and civil society. These initiatives aim to ensure that the crisis in the water and

sanitation sector is addressed with the aim of attaining a water secure future with reliable and safe water and sanitation services for all, and that these contribute towards meeting national development objectives.

The NW&SMP sets a schedule of prioritised actions for the period to 2030 that aimed at creating a water and sanitation sector that can meet national objectives as set out in the NDP and the internationally agreed SDGs. The plan also defines roles and responsibilities in government, the private sector and civil society for the implementation of the plan.

4.2.6 *National Legislation Specific to the Agriculture and Forestry Sector*

4.2.6.1 *National Forest Act, 1998 (Act No. 84 of 1998)*

Refer to Section 4.2.1.13.

4.2.6.2 *Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983)*

The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA) provides control over the use of natural resources to promote conservation of soil, water and vegetation and to combat invasive plant species. The CARA regulates such by vesting authority into officials to exercise powers relating to this Act, prohibiting activities causing the spread of weeds and invader plants, implementing control measures, enforcing schemes whereby schemes are monetary requirements subject to those in activity with the contents of this Act, and vests the right in officials to render advice and conduct investigations deemed necessary to matters relating to the utilization and conservation of natural resources, and provides the means to establish conservation committees and conservation advisory boards.

4.2.6.3 *Fertiliser, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947)*

The Act aims to control the sale and use of substances that may prove detrimental to livestock and the environment. Its main functions are to:

- Provide for the appointment of a Registrar of Fertilizers, Farm Feeds and Agricultural Remedies;
- Allow for the registration of fertilizers, farm feeds, agricultural remedies, stock remedies, sterilizing plants and pest control operators;
- Regulate or prohibit the importation, sale, acquisition, disposal or use of fertilizers, farm feeds, agricultural remedies and stock remedies; and
- Provide for the designation of technical advisers and analysts.

In 2012, the Minister for DAFF signed into effect Regulation 732 in terms of this Act. This regulation has specific references to the creation, use and sale of organic fertilisers. Any fertiliser that contains organic material that is sold on to another party must be registered as a fertiliser with the Department.

4.2.6.4 *Genetically Modified Organisms Act, 1997 (Act No. 15 of 1997)*

The Genetically Modified Organisms Act, 1997 (Act No.15 of 1997) was implemented in 1999 and aims to ensure that all activities involving genetically modified organisms (GMOs) are carried out in such a way as to limit the possible harmful consequences to human and animal health and the environment. The Act makes provision for a Registrar; two regulatory bodies i.e. Advisory Committee and the Executive Council, as well as inspectors.

The objectives of the Act are as follows:

- Provide measures to promote responsible development, production, use, application, import and export of GMOs;
- Ensure that all activities involving GMOs are conducted in such a manner as to limit possible harmful consequences to the environment, human and animal health;
- Ensure effective waste management;
- Stipulate requirements and criteria for risk assessment;
- Ensure that GMOs are appropriate and do not present a hazard to the environment; and
- Establish appropriate procedures for the notification of specific activities involving GMOs.

The Act places various restrictions on the research, production, and marketing of GMOs. The Act requires a permit for conducting most GMO-related activities, and conducting such activities entails putting in place scientifically-based risk assessment measures and notifying the public before the release of GMOs into the environment. If the Executive Council deems it fit to do so, an applicant for a permit for a GMO-related activity may also be required to conduct an environmental risk assessment. The Act also requires the registration of all facilities where GMO-related activities take place. It further requires that safety to the environment be demonstrated before GMOs can be approved for release.

4.2.6.5 *Agricultural Pests Act, 1983 (Act No. 36 of 1983)*

The purpose of the Agricultural Pests Act, 1983 (Act No. 36 of 1983) and its regulations is to provide for measures by which agricultural pests may be prevented and combated. The Act also mandates the Directorate Plant Health to regulate plants, plant products and other

regulated articles when imported into South Africa. Plants, plant products and related materials are capable of harbouring quarantine pests, which if they enter South Africa with imported commodities and establish, may endanger the South African agricultural, horticultural or forestry sectors.

4.2.6.6 *National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)*

The purpose of the National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998), as amended by the National Fire Laws Amendment Act, is to prevent and combat veld, forest and mountain fires throughout South Africa. The Act applies to the open countryside beyond the urban limit and puts in place a range of requirements. It also specifies the responsibilities of land owners. The term 'owners' includes lessees, people in control of land, the executive body of a community, the manager of State land, and the chief executive officer of any local authority.

4.2.6.7 *Animal Protection Act, 1962 (Act No. 71 of 1962)*

The Animal Protection Act, 1962 (Act No. 71 of 1962) covers "domestic animals and birds, and wild animals, birds, and reptiles that are in captivity or under the control of humans."

The Act contains a detailed list of prohibited acts of cruelty including overloading, causing unnecessary suffering due to confinement, chaining or tethering, abandonment, unnecessarily denying food or water, keeping in a dirty or parasitic condition, or failing to provide veterinary assistance. The anti-cruelty provisions of the Act apply to farmed animals. The Livestock Welfare Coordinating Committee (LWCC), managed by the South African Meat Industry Company, has the power to deal with production and game animal issues in farming. The NSPCA serves on the LWCC and ensures that animal welfare standards are being met and promoted.

4.2.6.8 *Animal Health Act, 2002 (Act No. 7 of 2002)*

The Animal Health Act, 2002 (Act No. 7 of 2002) provides measures to promote animal health and to control animal diseases, regulates the importation and exportation of animals and establishes animal health schemes.

4.2.6.9 *Meat Safety Act, 2000 (Act No. 40 of 2000)*

The Meat Safety Act, 2000 (Act No. 40 of 2000) provides measures to promote meat safety and the safety of animal products; to establish and maintain essential national standards in respect of abattoirs; to regulate the importation and exportation of meat and to establish meat safety schemes. Specific regulations relating to ostrich, poultry, game, crocodile and red meat have been promulgated under the Act.

4.2.6.10 *Additional Legislation*

The following Acts are applicable to the Agriculture and Forestry Sector and will need to be considered on a project by project basis.

- Agricultural Debt Management Act, 2001 (Act No. 45 of 2001);
- Agricultural Development Fund Act, 1993 (Act No. 175 of 1993);
- Agricultural Laws Rationalisation Act, 1998 (Act No. 72 of 1998);
- Agricultural Produce Agents Act, 1992 (Act No. 12 of 1992);
- Agricultural Product Standards Act, 1990 (Act No. 119 of 1990);
- Agricultural Research Act, 1990 (Act No. 86 of 1990);
- Agriculture Laws Extension Act, 1996 (Act No. 87 of 1996);
- Animal Identification Act, 2002 (Act No. 6 of 2002);
- Animal Improvement Act, 1998 (Act No. 62 of 1998);
- Co-operatives Act, 1981 (Act No. 91 of 1981);
- Fencing Act, 1963 (Act No. 31 of 1963);
- Forestry Laws Amendment Act, 2005 (Act 35 of 2005);
- Groot Constantia Trust Act, 1993 (Act No. 58 of 1993);
- KwaZulu Cane Growers' Association Act Repeal Act, 2002 (Act No. 24 of 2002);
- Land and Agricultural Development Bank Act, 2002 (Act No. 15 of 2002);
- Liquor Products Act, 1989 (Act No. 60 of 1989);
- Marketing of Agricultural Products Act, 1996 (Act No. 47 of 1996);
- Onderstepoort Biological Products Incorporation Act, 1999 (Act No. 19 of 1999);
- Perishable Products Export Control Act, 1983 (Act No. 9 of 1983);
- Plant Breeders' Rights Act, 1976 (Act No. 15 of 1976);
- Plant Improvement Act, 1976 (Act No. 53 of 1976);
- Societies for the Prevention of Cruelty to Animals Act, 1993 (Act No. 169 of 1993);
- South African Abattoir Corporation Act, 1992 (Act No. 120 of 1992); and
- Veterinary and Para-veterinary Professions Act, 1982 (Act No. 19 of 1982).

4.2.7 *National Legislation Specific to the Transport Sector*

4.2.7.1 *National Land Transport Act, 2009 (Act No. 5 of 2009)*

The National Land Transport Act, 2009 (Act No. 5 of 2009) (NLTA) prescribes that any measures relating to public transport must promote the efficient use of energy resources and limit adverse environmental impacts in relation to land transport.

4.2.7.2 *Civil Aviation Act, 2009 (Act No. 13 of 2009)*

Refer to **Section 4.2.1.33**.

4.2.7.3 *National Railway Safety Regulator Act, 2002 (Act No. 16 of 2002)*

The key objective of the National Railway Safety Regulator Act, 2002 (Act No. 16 of 2002) is to establish a Railway Safety Regulator, independent from the railway industry, which has appropriate legislative power, enforcement capability and human resource capacity to oversee railway safety. The Railway Safety Regulator has the power to enforce and improve the level of operational safety.

4.2.7.4 *National Ports Act, 2005 (Act No. 12 of 2005)*

The National Ports Act, 2005 (Act No. 12 of 2005) seeks primarily to give effect to the Government's Policy on Commercial ports that outlines the role of ports in the South African economy. Transnet National Ports Authority developed Port Rules in terms of Section 80(2) of the Act "for the control and management of ports and the approaches thereto and for the maintenance of safety, security and good order in the ports". The Port Rules as approved by the Minister of Transport, came into effect on 6 March 2009, as published in the Government Gazette No. 31986 on 6 March 2009.

4.2.7.5 *Advertising on Roads and Ribbon Development Act, 1940 (Act No. 21 of 1940)*

The Advertising on Roads and Ribbon Development Act, 1940 (Act No. 21 of 1940) regulates the display of advertisements outside certain urban areas at places visible from public roads, and the depositing or leaving of disused machinery or refuse and the erection, construction or laying of structures near certain public roads, and the access to land from specified roads.

4.2.7.6 *South African National Roads Agency Limited and National Roads, 1998 (Act No. 7 of 1998*

The South African National Roads Agency Limited and National Roads, 1998 (Act No. 7 of 1998 make provision for a national roads agency for the Republic to manage and control the Republic’s national roads system and take charge, amongst others, of the development, maintenance and rehabilitation of national roads within the framework of government policy; for that purpose to provide for the establishment of The South African National Roads Agency Limited, a public company wholly owned by the State; to provide for the governance and management of the Agency by a board of directors and a chief executive officer, respectively, and to define the Agency’s powers and functions and financial and operational accountability, and regulate its functioning.

4.2.7.7 *Marine Traffic Act, 1981 (Act No. 2 of 1981)*

The Marine Traffic Act, 1981 (Act No. 2 of 1981) regulates and lays down certain rules pertaining to marine traffic in South Africa. The Act applies to every ship using South African territorial waters and to the master of such ship or, if the master is not the owner, to the owner of such ship.

4.2.7.8 *Marine Pollution (Prevention of Pollution from Ships), 1986 (Act No. 2 of 1986)*

The Marine Pollution (Prevention of Pollution from Ships), 1986 (Act No. 2 of 1986) provides for the protection of the sea from pollution by oil and other harmful substances discharged from ships, and for that purposes to give effect to the International Convention for the Prevention of Pollution from Ships as amended by the Protocol of 1978.

4.2.7.9 *White Paper on National Transport, 1996*

The White Paper on National Transport Policy, 1996 is the key transport policy document in South Africa and guides all transport legislation and planning. The broad goal for transport is 'the smooth and efficient interaction that allows society and the economy to assume their preferred form' (Department of Transport 1996). To this end, the policy is divided into two key areas – infrastructure and operations and control.

4.2.7.10 *National Freight Logistics Strategy, 2005*

The National Freight Logistics Strategy, 2005 sets the strategic framework for institutional reform and industrial structuring to ensure a more efficient freight system allowing improved system access to marginalised service providers and cargo owners, while applying downward pressure on prices and transit times.

4.2.7.11 *Public Transport Strategy, 2007*

The Public Transport Strategy has two key focus areas, namely accelerated modal Upgrading and Integrated Rapid Public Transport Networks. The Public Transport Strategy is a key driver of other strategies developed within the transport sector. In the decade since the Strategy was launched, progress has been slow, largely due to resistance from minibus-taxi operators. In addition, the experience of Johannesburg and Cape Town in particular has indicated that operating costs are higher, and fares income lower, than had been forecast.

4.2.7.12 *National Transport Master Plan, 2016*

The National Transport Master Plan (NATMAP 2050) aims to achieve an integrated, smart and efficient transport system supporting a thriving economy that promotes sustainable

economic growth, supports a healthier lifestyle, provides safe and accessible mobility options, includes all communities and preserves the environment. Of particular relevance and important to the Green Transport Strategy is Strategic Pillar 7: Preservation of the Environment linked to Chapter 9 of the NATMAP Report.

NATMAP Environmental Objectives:

1. Reduce greenhouse gases and other emissions;
2. Minimise transport's impact on the environment;
3. Reduce traffic congestion; and
4. Minimise environmental impact by promoting public passenger transport, choosing optimal transport modes, using low carbon-emitting energy and renewable energy resources.

4.2.7.13 *Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000)*

Preferential Procurement Regulations prescribe 70% and 80% locally-made content of the bus body for, city and commuter buses, respectively.

4.2.7.14 *Additional Legislation*

The following Acts are applicable to the Transport Sector and will need to be considered on a project by project basis.

- Aviation:
    - Aviation Act, 1962 (Act No. 74 of 1962);
    - Carriage by Air Act, 1946 (Act No. 17 of 1946);
    - Air Services Licensing Act, 1990 (Act No. 115 of 1990);
    - Airports Company Act, 1993 (Act No. 44 of 1993);
    - Air Traffic and Navigation Services Company Act, 1993 (Act No. 45 of 1993);
    - Convention on the International Recognition of Rights in Aircraft Act, 1993 (Act No. 53 of 1993);
    - International Air Services Act, 1993 (Act No. 60 of 1993);
    - South African Civil Aviation Authority Levies Act,1998 (Act No. 41 of 1998);
    - South African Airways Unallocatable Debt Act, 2000 (Act No. 7 of 2000);
    - South African Maritime and Aeronautical Search and Rescue Act, 2002 (Act No. 44 of 2002); and
    - Convention on International Interests in Mobile Equipment Act, 2007 (Act No. 4 of 2007).

- Motor Vehicles:
    - Road Transportation Act, 1977 (Act No. 74 of 1977);
    - Urban Transport Act, 1977 (Act No. 78 of 1977);
    - Road Traffic Act, 1989 (Act No. 29 of 1989);
    - Financial Supervision of the Road Accident Fund Act, 1993 (Act No. 8 of 1993);
    - Road Accident Fund Act, 1996 (Act No. 56 of 1996);
    - Cross Border Road Transport Act, 1998 (Act No. 4 of 1998);
    - Transport Appeal Tribunal Act, 1998 (Act No. 39 of 1998);
    - National Land Transport Interim Arrangements Act, 1998 (Act No. 45 of 1998);
    - National Road Traffic Act, 1996 (Act No. 93 of 1996);
    - Administrative Adjudication of Road Traffic Offences Act, 1998 (Act No. 46 of 1998);
    - Road Traffic Laws Rationalisation Act, 1998 (Act No. 47 of 1998);
    - Road Accident Fund Commission Act, 1998 (Act No. 71 of 1998); and
    - Road Traffic Management Corporation Act, 1999 (Act No. 20 of 1999).
- Railways and Harbours:
    - Railway Purchase Act,1971 (Act No. 25 of 1971);
    - Railway and Harbours Purchase Act,1977(Act No. 47 of 1977);
    - Railway Construction Act,1985 (Act No. 75 of 1985); and
    - Second Railway Construction Act,1985 (Act No. 94 of 1985).
- Roads:
    - South African Transport Services Conditions and Service Act,1988 (Act No. 41 of 1998);
    - Legal Succession to the South African Transport Services Act, 1989 (Act No. 9 of 1989);
    - National Roads Act, 1972 (Act No. 54 of 1971);
    - National Road Safety Act, 1972 (Act No. 9 of 1972);
    - South African Roads Board Act, 1988 (Act No. 74 of 1988);
    - Transport Deregulation Act, 1988 (Act No. 80 of 1988); and
    - Merchant Shipping Act, 1951 (Act No. 57 of 1951).
- Shipping:
    - Carriage of Goods by Sea Act, 1986 (Act No. 1 of 1986);
    - Shipping and Civil Aviation Laws Rationalisation Act, 1994 (Act No. 28 of 1994);

- Wreck and Salvage Act, 1996 (Act No. 94 of 1996);
- South African Maritime Safety Act, 1998 (Act No. 5 of 1998);
- South African Maritime Safety Authority Levies Act, 1998 (Act No. 6 of 1998);
- Ship Registration Act, 1998 (Act No. 58 of 1998); and
- Sea Transport Documents Act, 2000 (Act No. 65 of 2000).

4.2.7.15 *Additional Requirements*

- *Fuel Economy and CO_2-Labelling*

The South African Automotive Industry in conjunction with the Department of Minerals and Energy introduced a standardised fuel economy and CO_2 emission testing and labelling system for application to new passenger cars at Dealerships in July 2008. The system allows comparison of different models when tested under the same speed, acceleration and braking cycles while carrying the same load and using the same fuel.

In terms of the requirement standardised fuel economy (l/ 100km) and CO_2 emissions in (g/ km) of the type of vehicle must be displayed in the windscreen area of a vehicle as per a certain predetermined format.

- *Transport of Dangerous Goods*

The transport of dangerous goods is regulated by the SANS, which legislates the design, construction, testing, approval and maintenance of road vehicles and portable tanks.

- *Biofuels Regulatory Framework*

The Biofuels Regulatory Framework provides for mandatory blending requirements for petrol and diesel of between 2-10% v/v bioethanol and 5% v/v biodiesel. The legislation has been gazette, with the operation date to be determined by the Minister. It is uncertain if the regulation will be implemented, with the result that the private sector currently is largely unwilling to invest in the production of biofuels to generate cleaner fuels. Recent publications indicate that the Government plans to have the framework approved by Cabinet before the end of March 2019.

5. INSTITUTIONAL FRAMEWORK

This section describes the institutional structures and system functions in place at a national, level, that have responsibility for E&S licensing and other requirements associated with the Project.

5.1 SECTOR APPLICABILITY

Table 4 provides a summary of the relevant national government institutions and their applicability to each sector under review.

Table 4: National Government Institution Sector Applicability

GOVERNMENT INSTITUTION	SECTOR APPLICABILITY					
	Energy Efficiency	Renewable Energy	Water Conservation/ (Waste)	Water Treatment	Agriculture & Forestry	Transport
Department of Environmental Affairs	X	X	X	X	X	X
Department of Water and Sanitation			X	X	X	
Department of Energy	X	X				X
Department of Transport						X
Department of Agriculture, Forestry and Fisheries			X		X	
Department of Rural Development and Land Reform	X	X	X	X	X	X

5.2 SOUTH AFRICAN GOVERNMENT

South Africa is constituted into national, provincial and local spheres of government that are distinctive, interdependent and interrelated. All three spheres are mandated to carry autonomous but interrelated legislative and administrative functions.

National government is vested with the legislative authority to pass legislation of any matter, excluding matters stipulated in Schedule 5 of the Constitution. Additionally, the national government has authority to devolve or delegate any of its legislative powers to any legislative body in another sphere of government. Functional areas of concurrent National and Provincial

legislative competence are stipulated in Schedule 4 (A). Shared functions between the two spheres include but are not limited to agriculture, environment, indigenous law and customary law, nature conservation (excluding marine resources), pollution control and soil conservation.

Local governments have executive authority over matters listed in Schedule 4 (B) and 5 (B) of the Constitution, as well as matters devolved from national and provincial legislature. This executive authority is exercised by promulgating by-laws that are non-conflicting yet independent to provincial ordinances and national acts. These activities include but are not limited to administering management of air pollution, municipal planning, municipal health services and water and sanitation services limited to potable water supply systems and domestic wastewater and sewage disposal systems. Local governments often attain environmental management administrative functions through devolution of powers from national or provincial spheres.

The following sections outline the different institutional structures in the national sphere of government, according to their mandate and their administrative function. Figure 1 provides a high-level overview of the relevant national ministries and departments.

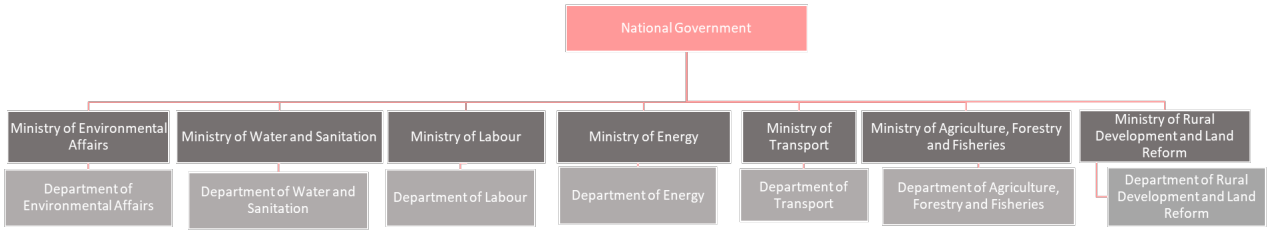
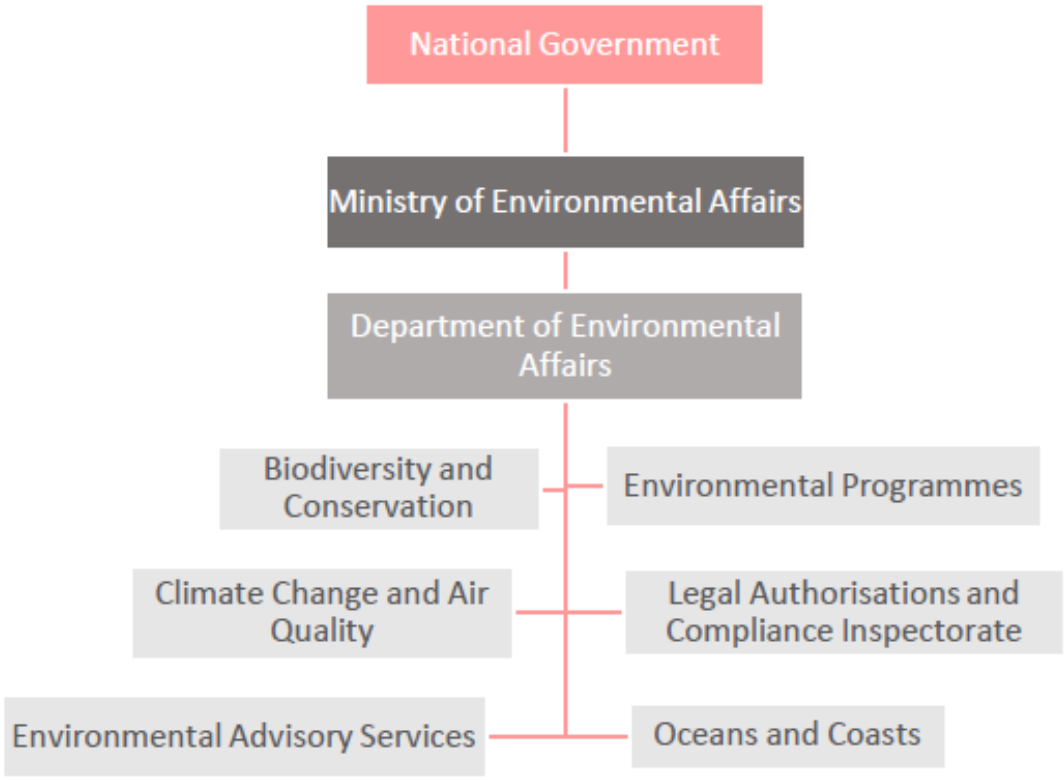


Figure 1: High-level overview of relevant national government ministries and departments

5.3 NATIONAL AUTHORITIES

5.3.1 *Department of Environmental Affairs*

The DEA is mandated to realise the right of citizens to an environment that is not harmful to their health or wellbeing, and an environment that is protected for the benefit of present and future generations. The Department is responsible for providing leadership in environmental management, conservation and protection towards sustainability for the benefit of South Africans and all persons internationally.



The DEA fulfils its functional responsibilities through eight Branches (see Figure 2). The Branches, their responsibilities and relevance to the Project are outlined below.

Figure 2: Department of Environmental Affairs

Biodiversity and Conservation: Establishes, manages and maintains ecologically representative national and cross-border protected areas.

Climate Change and Air Quality: Regulates and manages the improvement of air and atmospheric quality and strategically leads, monitors and reports international, national and significant provincial and local responses to climate change.

Chemicals and Waste Management: Manages, implements and enforces chemicals and waste management policies and legislation in compliance with chemicals and waste management authorisations, directives and agreements.

Environmental Advisory Services: Provides advisory and implementation support services to the Department's national and international environmental and sustainable mandates.

Environmental Programmes: Implements considered environmental projects under titles of Environmental Protection and Infrastructure Programmes; Information Management and Sector Coordination and Natural Resource Management.

Legal Authorisations and Compliance Inspectorate: Promotes development of a legal regime, licencing and authorisation system to promote enforcement and compliance to environmental related legislation.

Oceans and Coasts: Promotes, manages and provides strategic leadership on ocean and coastal conservation.

5.3.2 *Department of Water and Sanitation*

The DWS is the custodian of South Africa's water resources and is responsible for ensuring that South African's are afforded access to clean water and functional sanitation, as well as promoting effective and efficient water resource management in a socially sustainable manner. Vested by the NWA, the DWS ensure that water resources are "protected, used, developed, conserved, managed and controlled" in a manner that considers the following but is not limited to:

a) "*meeting the basic human needs of present and future generations;*
b) *promoting equitable access to water;*
c) *redressing the results of past racial and gender discrimination;*
d) *promoting the efficient, sustainable and beneficial use of water in the public interest;*
e) *facilitating social and economic development;*
f) *providing for growing demand for water use;*
g) *protecting aquatic and associated ecosystems and their biological diversity;*
h) *reducing and preventing pollution and degradation of water resources; and*
i) *meeting international obligations*" (Republic of South Africa, 1998).

The NWA makes provision for various institutional bodies, responsible for various scales, and aspects of water resources management, as illustrated in Figure 3. These include:

- Advisory Committee to the Minister;
- International Water Management Institutions (International Bodies);
- Catchment Management Agencies;
- Water User Associations; and
- DWS National and Regional Offices.

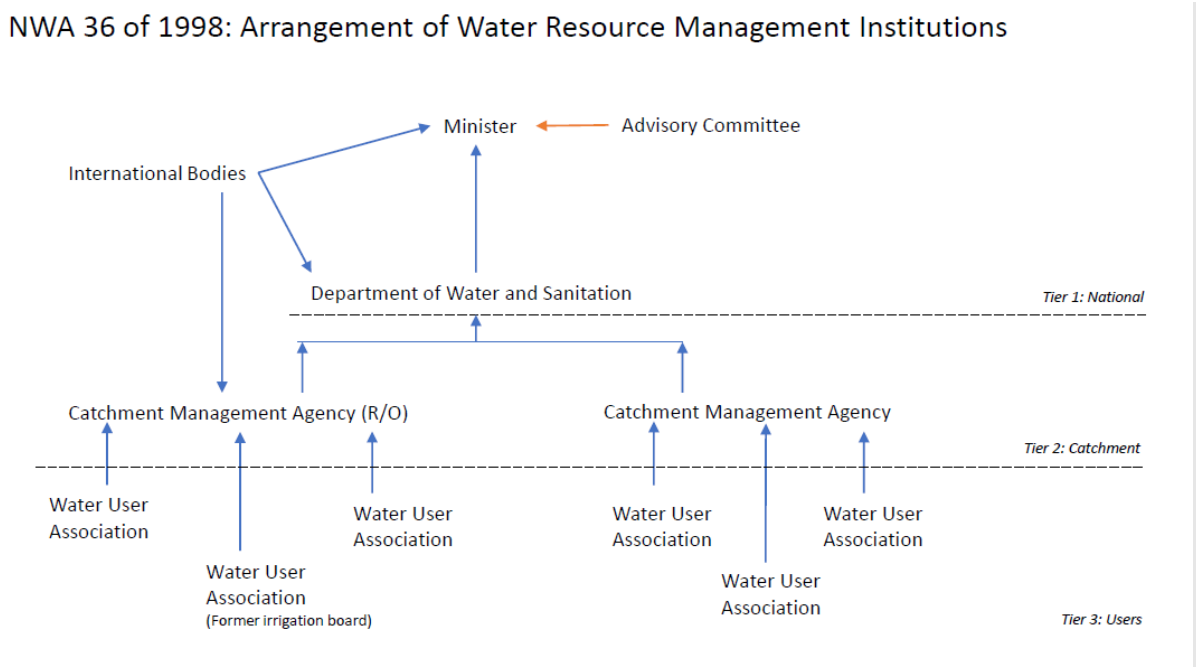


Figure 3: Interaction between water resource management institutions

The DWS fulfils its functional responsibilities through five Programmes (see Figure 4 below). The Programmes, their responsibilities and relevance to the Project are outlined below.

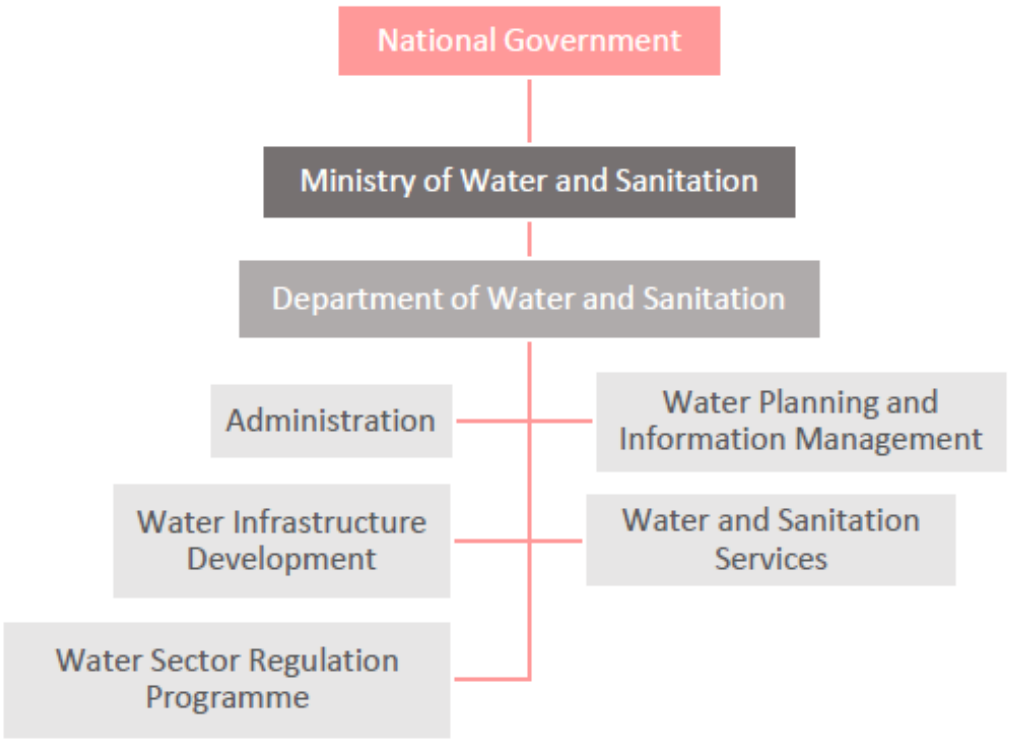


Figure 4: Department of Water and Sanitation

Administration: Providing strategic leadership, management and support services to the DWS and manages specific projects relating to international relations and mine water.

Sub-Programmes include: Ministry, Departmental Management, Internal Audit, Financial Management, International Water Support, Programme Management Unit, Corporate Services, Office Administration.

Water Planning and Information Management: Develops a knowledge base and implements policies, procedures and integrated planning strategies for water resources and water and sanitation services. This includes national level planning and support to municipalities to provide sustainable sanitation services.

Sub-Programmes include: Integrated Planning, Water Ecosystems, Information Management, Water Services and Local Water Management, Sanitation Planning and Management

Water Infrastructure Development: Responsible for developing, rehabilitating and refurbishing raw water resources and water and sanitation services infrastructure aiming to meet socio-economic and environmental needs of South Africa. Specific focus includes water and sanitation infrastructure to provide for new and rehabilitating existing water services infrastructure and building knowledge base on all aspects of water and sanitation to facilitate informed water and sanitation management decision-making.

Sub-Programmes include: Water and Sanitation Services Infrastructure, Infrastructure Development and Rehabilitation, Operation of Water Resources.

Water and Sanitation Services: Ensures responsible provision of sustainable water and dignified sanitation services. The Programme acts in a supporting capacity for all development of infrastructure for sanitation services for improved quality of life.

Sub-programmes include: Water and Sanitation Services Management and Support, National Sanitation Services, and Water Sector Support.

Water Sector Regulation Programme: Ensures development, implementation, monitoring and review of regulations throughout the water and sanitation value chain in accordance with the provisions of the NWA, the NWSA and related water and sanitation policies.

Sub-Programmes include: Compliance Monitoring, Economic and Social Regulation, Enforcement, Institutional Oversight, Water Use Authorisation and Administration, Water and Sanitation Services and Sanitation Regulation, Water Services Resource Management and Support (DWS, 2015).

5.3.3 *Department of Labour*

The DoL aims to strive towards a labour market that is conducive to investment, economic growth, employment creation and decent work. The Departments duty is to play a role in reducing unemployment, poverty and inequality through policies and programmes that are aimed at improving economic efficiency and productivity, employment creation, labour relations, eliminating inequality and discrimination in the workplace and alleviating poverty in employment.

The DoL fulfils its functional responsibilities through four Programmes (see **Error! Reference source not found.** below). The Programmes, their responsibilities and relevance to the Project are outlined below.

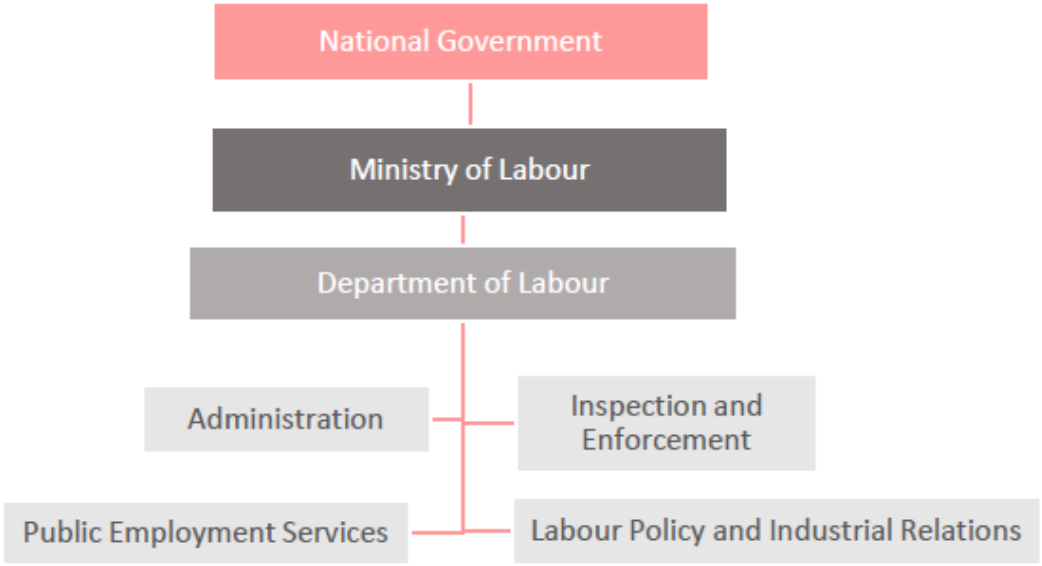


Figure 5: Department of Labour

Administration: Responsible for the management, strategic and administrative support services to the Ministry and the Department.

Sub-Programmes Include: Office of the Chief Operations Officer, Corporate Services, and Office of the Chief Financial Officer.

Inspection and Enforcement Services: Responsible for regulating non-employment and employment conditions through inspection and enforcement to achieve compliance with all labour market policies.

Sub-programmes Include: Management and Support Services: Inspection and Enforcement Services, Occupational Health and Safety, Registration: Inspection and Enforcement

Services, Compliance, Monitoring and Enforcement, Training of staff: Inspection and Enforcement Services, Statutory and Advocacy.

Public Employment Services: Assists companies and workers to adjust to changing labour market conditions and regulate private employment agencies. The programme provides oversight to the Sheltered Employment Factories and Subsidies to Designated Workshops, Productivity South Africa, Unemployment Insurance Fund and the Compensation Fund.

Sub-Programmes include: Management and Support Services: Public Employment Services, Employer Services, Work-Seeker Services, Designated Groups Special Services.

Labour Policy and Industrial Relations: Facilitates the establishment of equitable and sound labour relations environment and ensures the promotion of South Africa's interests in international labour matters through research, analysing and evaluating labour policy, and providing statistical data on the labour market.

Sub-Programmes include: Management and Support Services: Labour Policy and Industrial Relations, Strengthen Civil Society, Collective Bargaining, Employment Equity, Employment Standards, Commission for Conciliation, Mediation and Arbitration, Research, Policy and Planning, Labour Market Information and Statistics, National Economic Development and Labour Council.

5.3.4 *Department of Energy*

The DoE is responsible for ensuring development, utilisation and management of South Africa's energy sources. The DoE delivers on its mandate through eight programmes (see **Error! Reference source not found.** below) as described below.

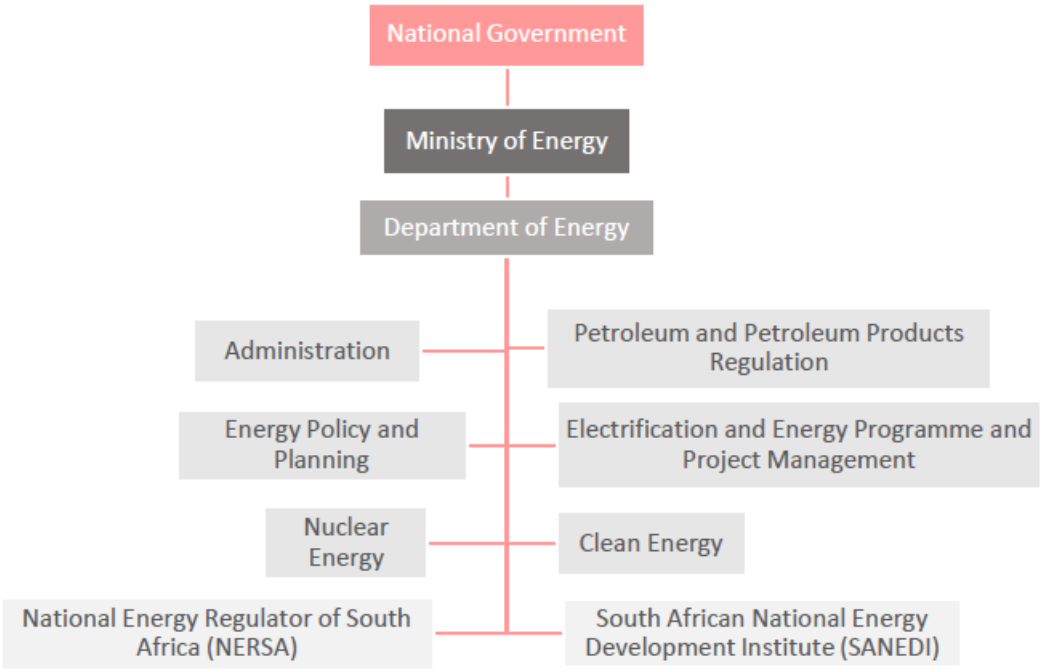


Figure 6: Department of Energy

Administration: This branch provides strategic support and management services to the Ministry.

Energy Policy and Planning: This branch is responsible for developing, maintaining and implementing an integrated energy policy and planning framework. The overarching goal of the branch is to ensure that there is investment in the energy sector through evidence-based planning and policy setting while ensuring that there is increased competition through regulation. Therefore, the branch ensures that there is an improvement in the country's energy security through supply and demand side management options.

Petroleum and Petroleum Products Regulation: This branch's responsibility is to manage the regulation of petroleum and petroleum products to ensure optimum and orderly functioning of the petroleum industry to achieve Government's developmental goals.

Electrification and Energy Programme and Project Management: This branch is responsible for managing, coordinating and monitoring programmes and projects focused on access to energy.

Nuclear Energy: This branch is responsible for managing the South African nuclear energy industry and control nuclear material in terms of international obligations, nuclear legislation and policies to ensure the safe and peaceful use of nuclear energy.

Clean Energy: This branch manages and facilitates the development and implementation of clean and renewable energy initiatives as well as the Energy Efficiency Demand Side Management (EEDSM) programme.

In addition, there are a number of state-owned entities that report to the Minister of Energy. The relevant entities for this work are; the NERSA and the SANEDI.

South African National Energy Development Institute

The SANEDI was established in 2011 under the National Energy Act, 2008 (Act No. 34 of 2008). The Act provides for SANEDI to direct, monitor and conduct energy research and development, promote energy research and technology innovation as well as undertake measures to promote energy efficiency throughout the economy.

To fulfil its mandate, two programmes have been established;

- Applied Energy Research, Development and Innovation
- Energy Efficiency

The Applied Energy Research, Development and Innovation Programme further consists of six sub-programmes:

- Renewable Energy;
- Cleaner Fossil Fuels;
- Data and Knowledge Management;
- Cleaner Mobility;
- Smart Grids; and
- Working for Energy.

The Energy Efficiency programme involves the implementation of projects such as Standards and Labelling of Appliances, National Energy Efficiency Hub, Bridging Information Gap of Energy Efficiency in Buildings (bigEE) and 12L Income Tax Incentive among many other energy efficiency projects. These projects are tackled in partnership with both international and national stakeholders who contribute extensively in funding and knowledge support. SANEDI plays the role of implementing and overseeing the application process of the incentive claimant to the issuing of the 12L Tax Incentive certificate at the application approval.

National Energy Regulator of South Africa

The NERSA is a regulatory authority established as a juristic person in terms of Section 3 of the National Energy Regulator Act, 2004 (Act No. 40 of 2004). NERSA's mandate is to regulate the electricity, piped-gas and petroleum pipelines industries in terms of the Electricity Regulation Act, 2006 (Act No. 4 of 2006), Gas Act, 2001 (Act No. 48 of 2001) and Petroleum Pipelines Act, 2003 (Act No. 60 of 2003). The structure of the Energy Regulator consists of nine members, five of whom are part-time and four are full-time, including the Chief Executive Officer (CEO). The Energy Regulator is supported by personnel under the direction of the CEO.

5.3.5 *Department of Transport*

The Department of Transport's (DoT) mission is to lead the development of efficient integrated transport systems by creating a framework of sustainable policies and regulations; and implementable models to support government strategies for economic, social and international development. The DoT is mandated to manage aviation, motor vehicles, railways and harbours, roads and shipping. Fulfilling its mandate, the DoT operates via six branches (see **Error! Reference source not found.**below).

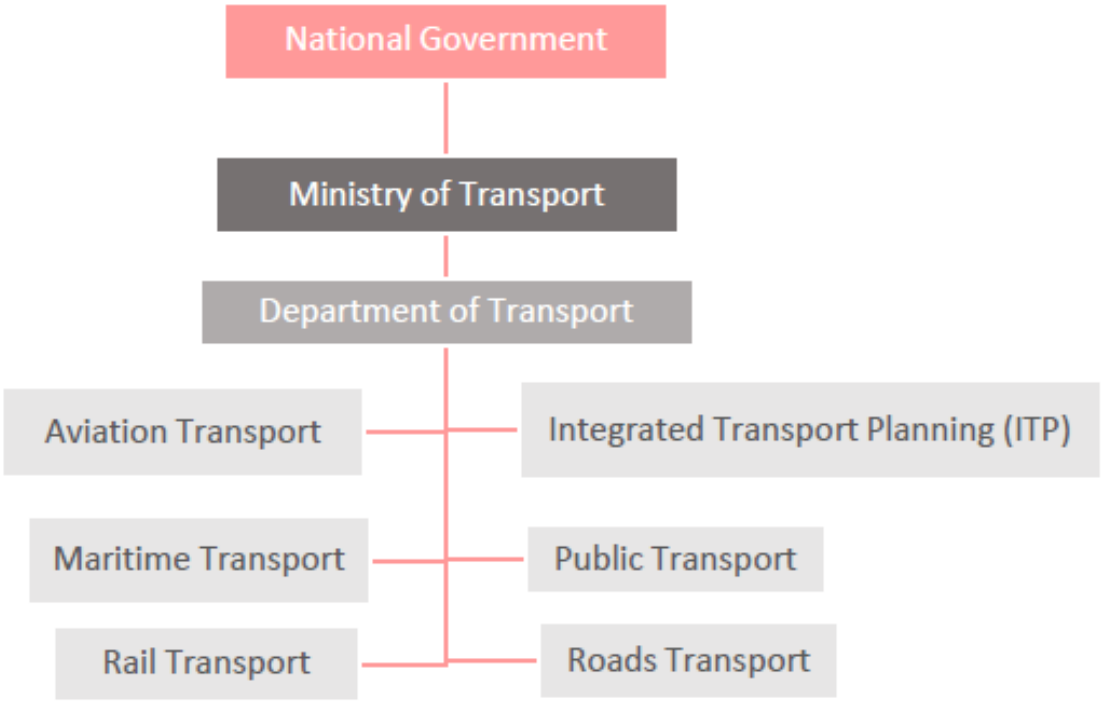


Figure 7: Department of Transport

Aviation Transport: The facilitation of development of an economically viable air transport authority that is safe, secure, efficient, environmentally friendly and compliant with international standards through regulation and investigation and oversees aviation public entities.

Sub-programmes include three public entities: Air Traffic and Navigation Services SOC Limited; Airport Company South Africa; and the South Africa Civil Aviation Authority.

Integrated Transport Planning (ITP): The ITP is mandated to manage and facilitate national transport planning, related policies and strategies, as well as to coordinate regional and inter-sphere relations including economic modelling and analysis of the transport sector.

Chief Directorates include: Macro Sector Planning; Research and Innovation; Modelling and Economic Analysis; Regional Integration; and Freight Logistics.

Maritime Transport: The Branch is responsible for research, analysing and developing maritime transport policies and strategies that promote maritime safety, security, environmental protection, infrastructure planning and industry development; audit the effectiveness and amend existing related legislative framework; ensure compliance of current policies and legislation with international standards and conventions; evaluate and adopt conventions, multilateral and bilateral agreements; facilitate the implementation of policies and legislation; as well as ensure that policies and legislative framework is conducive to the promotion of economic growth and facilitates job creation.

The Branch has oversight on eight ports across South Africa.

Sub-programmes include two public entities: Ports Regulator of South Africa and South African Maritime Safety Authority (SAMSA).

Public Transport: To promote safe, reliable, effective, efficient, coordinated, integrated and environmentally friendly public transport system by developing norms and standards, regulations and legislation to guide development of public transport for rural and urban passengers; as well as to regulate the interprovincial public transport and tourism services and monitor and evaluate the implementation of the Public Transport Strategy and the National Land Transport Act.

Areas of influence: Bus Rapid Transport (five systems); two Public Transport Entities.

Rail Transport: Facilitate and coordinate the development of sustainable rail transport policies, rail economic and safety regulation, infrastructure development strategies and

systems that reduce system costs and improves customer services. The Branch monitors and oversees the Railway Safety Regulator (RSR) and the Passenger Rail Agency of South Africa (PRASA), where focus also lies in the implementation of integrated passenger rail services in all spheres of government.

Sub-programmes include five Rail Public Entities (Autopax, Intersite Investment, Metro Rail, Passenger Rail Agency, Premier Classe) and the Railway Safety Regulator.

Roads Transport: Regulates road traffic management and ensures the maintenance and development of the integrated road network by developing standards and guidelines, as well as providing oversight on road agencies and provincial road expenditure.

Sub-programmes include two Road Public Entities (Road Accident Fund and South African National Roads Agency) and three Road Regulators (Cross-Border Road Agency, Road Traffic Infringement Agency and Road Traffic Management Corporation).

5.3.6 *Department of Agriculture, Forestry and Fisheries*

The DAFF legal mandate covers the agriculture, forestry and fisheries value chains from inputs, production and value adding to retailing. DAFF's strategic goals include effective and efficient strategic leadership, governance and administration; enhance production, employment and economic growth in the agriculture, forestry and fisheries sector; enabling production, employment and economic growth in the sector; enabling food security and sector transformation; and sustainable use of natural resources in the sector. DAFF fulfils its mandate through five branches (see Figure 8 below) and various independent entities.

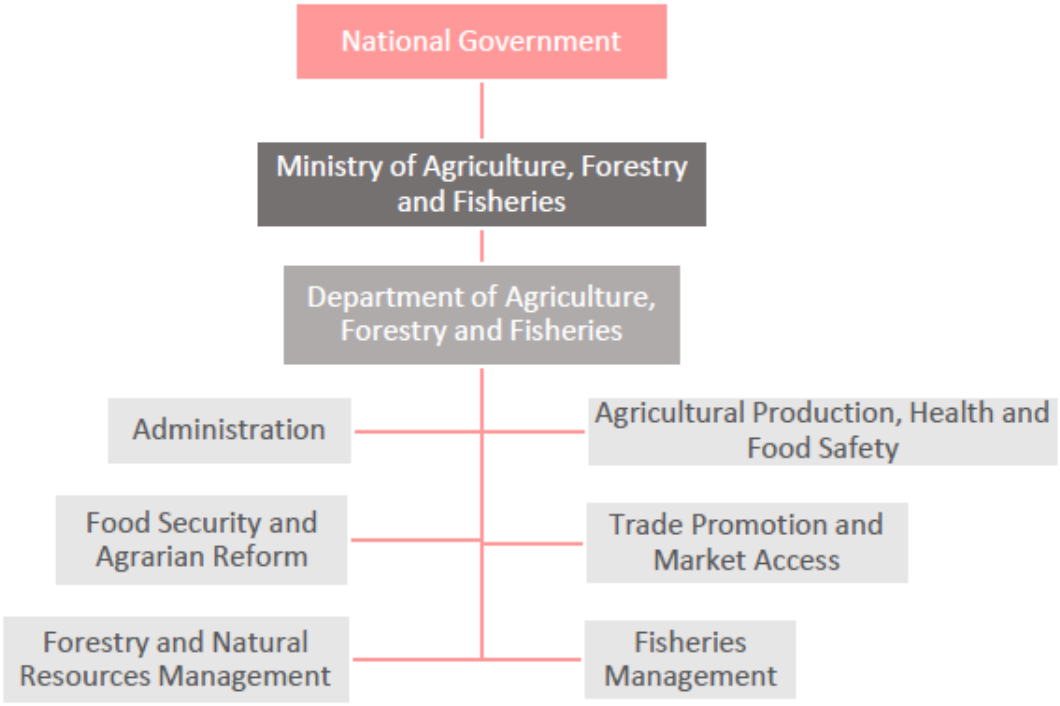


Figure 8: Department of Agriculture, Forestry and Fisheries

Administration: Provides strategic leadership, management and support services to DAFF through various sub-programmes.

Sup-programmes include: Ministry, Office of the Director General, Corporate Services; Financial Administration; Policy, Planning and Monitoring and Evaluation; and Stakeholder Relations, Communications and Legal Services.

Agricultural Production, Health and Food Safety: Promotes sustainable agricultural production by managing risks associated with animal disease, plant pests, genetically modified organisms and registration of products used in agriculture, promote food safety and creating an enabling environment for increased sustainable agricultural production.

Sub-programmes include: Plant Production and Health; Animal Production and Health; and Inspection and Quarantine Services.

Food Security and Agrarian Reform: Facilitates and promotes household food security, agrarian reform programmes and initiatives by implementing the National Policy on Food Nutrition Security that targets subsistence, smallholder and commercial producers.

Sub-programmes include: Food Security; Sector Capacity Development; and National Extension Support Services.

Trade Promotion and Market Access: Promotes economic development, trade and market access for agriculture, forestry and fisheries products as well as fosters international relations for these sectors.

Sub-programmes include: International Relations and Trade; Cooperatives and Rural Enterprise Development; and Agro-processing and Marketing.

Forestry and Natural Resources Management: Develops and facilitates implementation of policies and targeted programmes to ensure proper management of forests and the sustainable use and protection of land and water, as well as to manage agricultural risks and disasters.

Sub-programmes include: Forestry Operations; Forestry Development and Regulations; and Natural Resources Management.

Fisheries Management: Promotes the development, management, monitoring and sustainable use of marine living resources and the development of the countries fisheries sectors. Aquaculture growth and fisheries economic development to enhance sustainable livelihoods.

Sub-programmes include: Aquaculture and Economic Development; Fisheries Research and Development; Marine Resources Management; and Monitoring Control and Surveillance.

Other entities reporting to the Minister of DAFF include the Agricultural Research Council (ARC); Marine Living Resources Fund (MLRF); National Agricultural Marketing Council (NAMC); Onderstepoort Biological Products (OBP); Perishable Products Export Control Board (PPECB); and Ncera Farms (Pty) Ltd.

5.3.7 *Department of Rural Development and Land Reform*

The Department of Rural Development and Land Reform's aim is to initiate, facilitate, coordinate, catalyse and implement an integrated rural development programme. The Department's key priorities include the roll out the Comprehensive Rural Development Programme to all rural municipalities; improve productivity in land reform projects through effective implementation of the Recapitalisation and Development Programme (RADP); expedite the finalisation of land claims; improve corporate governance and ensure enhanced service delivery; implement proper change management and innovation strategies; and enhance the efficiency of information management systems. The Department of Rural Development and Land Reform fulfils its mandate through five branches (see Figure 8 below).

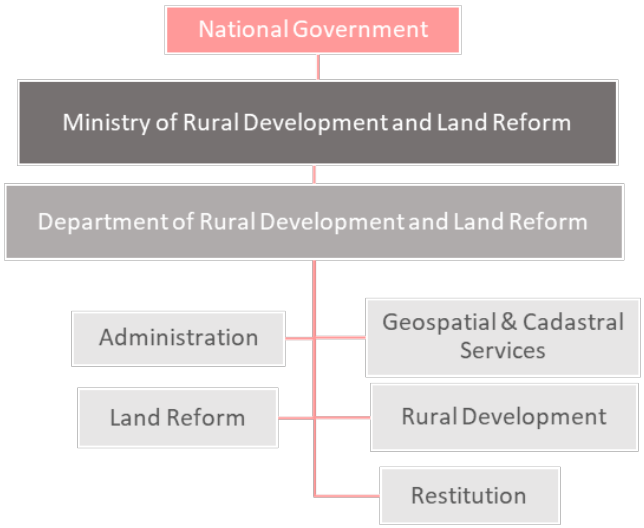


Figure 9 Department of Rural Development and Land Reform

Administration: Provide strategic leadership, management and support services to the department.

Sub-programmes include: Ministry, Office of the Director-General, Corporate Support Services, Corporate Services, Financial Services and Provincial Coordination.

Geospatial & Cadastral Services: Provide geospatial information, cadastral surveys, deeds registration and spatial planning as well as technical services in support of sustainable land development.

Sub-programmes includes: Registration of Deeds Trading Account, National Geomatics Management Services, Spatial Planning and Land Use Management, Registration of Deeds Training Account and the South African Council for Planners.

Rural Development: Initiate, facilitate, coordinate and act as a catalyst for the implementation of a Comprehensive Rural Development Programme (CRDP) leading to sustainable and vibrant rural communities.

Sub-programmes include: Rural Infrastructure Development (RID), Rural Enterprise and Industry Development (REID), National Rural Youth Service Corps (NARYSEC).

Restitution: Settle and finalise land restitution claims under the Restitution of Land Rights Act, (Act No. 22 of 1994).

Sub-programmes include: Restitution National Office, Restitution Provincial Offices and Restitution Grants.

Land Reform: Initiate sustainable land reform programme in South Africa.

Sub-programmes include: Land Reform National Office, Land Reform Provincial offices, Land Reform Grants, KwaZulu-Natal Ingonyama Trust Board, Communal Land Rights Programme and Agricultural Land Holding Account.

6. HIGH-LEVEL GAP ANALYSIS

Annex C presents a summary of key gaps between the KfW Guideline and its overarching E&S performance, against the country-systems, per sector under review. Please note that these tables are repetitive in nature given that the legal framework and institutions that govern E&S are largely the same for each sector.

Annex D presents a consolidated view of the recommended actions against the key gaps recorded in the comprehensive gap analysis.

7. Conclusion and Recommendations

7.1 Use of South Africa Country System versus KfW Sustainability Guidelines

It is evident, through the completion of this Gap Analysis, that South Africa has a strong and mature legal system that addresses environmental risk and impact. The county system is largely in-line with Best International Practice.

Some aspects that have historically been identified as gaps in the South African System relate to (1) level of evaluation applied to assessment of alternatives and cumulative impacts, (2) unclear requirement for conservation offsets, (3) consultations and disclosure for actions impacting natural habitats, and (4) and the focus on instrument-based stakeholder engagement and unclear focus on project lifecycle (i.e. outside of the EIA process).

As noted in Section 2, the AfDB (2015) evaluated the “Equivalence” and “Acceptability” of the South African country system against the Banks environmental and social safeguards. Their findings showed that South Africa is a mature system and is very close to being at a best practice level, having scored 0.76 (out of 1) for Equivalence and 0.81 for Acceptability. The assessment did, however, find certain shortcomings relating to the consideration of vulnerable groups and gender, partial consideration of climate change and economic displacements and some weakness with respect to institutional aspects, including lack of social science experts, within regulatory bodies and among national environmental and social assessment consultants.

7.1 High Level Scoping – E&S Risks and Impacts

There are a number of risks and impacts associated with the energy efficiency, renewable energy, water conservation/ (waste), water treatment, agriculture and forestry, and transport sectors as outlined in Section 3.2, these are further underpinned by general E&S related risks and impacts outlined in Section 3.1. While these are extensive, they are high-level and not project specific. For each project going forward it would be expected that risks and impacts are guided by this document and further interrogated to ensure all risks and impacts at sector and project level are adequately considered and addressed.

7.2 Institutional Framework Summary

Relevant national departments for energy efficiency, renewable energy, water conservation/ (waste), water treatment, agriculture and forestry, and transport sectors include the

Department of Environmental Affairs, Department of Water and Sanitation, Department of Labour, Department of Energy, Department of Transport and the Department of Agriculture, Forestry and Fisheries which are outlined and described in **Section 5**. The departments detailed in this report are recognised as the principal departments for each sector analysed with regards to managing E&S risk. These departments are applicable as follows:

GOVERNMENT INSTITUTION	SECTOR APPLICABILITY					
	Energy Efficiency	Renewable Energy	Water Conservation/ (Waste)	Water Treatment	Agriculture & Forestry	Transport
Department of Environmental Affairs	X	X	X	X	X	X
Department of Water and Sanitation			X	X	X	
Department of Energy	X	X				X
Department of Transport						X
Department of Agriculture, Forestry and Fisheries			X		X	
Department of Rural Development and Land Reform	X	X	X	X	X	X

All departments are characterised by various institutional strengths and weaknesses which are described in *Annex C.*

7.3 COMPARATIVE ANALYSIS – LEGISLATIVE AND REGULATORY FRAMEWORK

Whilst there are gaps that exist in the South Africa legal system it is broadly comparable to the KfW Sustainability Guideline and the IFC Performance Standards on Environmental and Social Sustainability. This is particularly evident with respect to: the identification and assessment of environmental impacts; the involvement of stakeholders (consultation and disclosure of information); biodiversity management; pollution prevention and control; labour management; and occupational health and safety.

The following areas were considered to have Partial Gaps or Gaps with respect to the KfW and IFC Performance Standards on Environmental and Social Sustainability:

- ESMS – There are no specific requirements for an ESMS in South African legislation. NEMA requires the development of an EMPr which incorporates aspects of E&S

management for the Project life cycle. Depending on the nature and scale of Projects, EIA approvals (EA) can also require an ESMS to be developed for the construction and operational phases as a condition;

- E&S Policy - South African legislation does not require the development of an E&S Policy;
- Roles and Responsibilities - NEMA requires "*an indication of the persons responsible for the implementing of impact management actions*". There is no specific requirement to define roles and responsibilities in detail for effective ESMS/ EMPr implementation;
- Monitoring - South African legislation does cover management and monitoring of environmental and social risks and impacts. However, it is lacking with respect to the monitoring of the performance and the effectiveness of the ESMS implementation;
- Stakeholder Engagement: NEMA sets out detailed requirements for public participation process (PPP) as contained in Section 6 of GNR326 but does not specifically refer to the development of a SEP, and requirement for PPP is limited to the EIA process. No requirement for ongoing engagement during construction and operation. Requirements for ensuring adequate participation of vulnerable groups are not specified;
- Sharing of Information: As above NEMA does not provide for on-going reporting to Interested and Affected Parties beyond the record of decision, and through-out the Project lifecycle;
- Grievance Mechanism: Whilst legislation allows for the protection of whistle-blowers and for interested and affected party to be consulted during the EIA process (including the right to appeal) it does not specify that a formal stakeholder (or interested and affected party) grievance redress mechanism be developed by the Project;
- Resource Efficiency: Whilst legislation requires that best practicable environmental options must be selected to improve the efficient use of resources, this does not specifically refer to GHG emissions;
- Third Party/ Affected Community Safety Risks: The national legislation and local by-laws identify and assess the risks associated with hazardous chemicals and substances and the potential for community exposure;
- Hazardous Materials Management and Safety: The national legislation and local by-laws identify, assess and control the risks associated with hazardous chemicals and substances and the potential for community exposure;
- Ecosystem Services: The risk and identification of ecosystem services is largely addressed through the various legislation listed. However, there is no legislation

directly relating to climate change risk and impacts on ecosystem services and associated mitigation measures;

- Occupational Health and Safety: The legislation and regulations are considered comprehensive and adequately compare to the IFC PS and industry guidelines;
- Cultural Heritage: Although historical artefacts and or graves found during excavation and or redevelopment are legally required to be reported, a Chance Find Procedure is not a specific requirement as part of the Project's ESMS/ EMPr; and
- Capacity Support to Executing Agencies: The capacity and competency of regulatory authorities in South Africa varies substantially by location and function. Based on IBIS' experience, national government generally has a lesser degree of capacity and competency as implementing agents in the provincial and local spheres of government.

Annex C presents a summary of key gaps between the KfW Guideline and its overarching E&S performance, against the country-systems.

Annex D presents a consolidated view of the recommended actions against the key gaps recorded in the comprehensive gap analysis.

8. REFERENCES

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- South African Environmental and Social legislation (as listed in *Annex A*).
- The Fundamental Conventions of the International Labour Organization.
- The Rights of Indigenous Peoples: South Africa, 2009.
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- The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests.
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- The World Bank Group. 2015. Setting Standards for Sustainable Development, Update and Review of the World Bank's Safeguard Policies: South Africa Case Study for Eskom Investment Support Project.

ANNEX A – INTERNATIONAL REGULATORY FRAMEWORK

Requirement	Sector Applicability					
	Energy Efficiency	Renewable Energy	Water Conservation / (Waste)	Water Treatment	Agriculture & Forestry	Transport
International						
Construction Industry Development Board, Environmental Management Specifications	X	X	X	X	X	X
EHS Guideline for Pulp and Paper Mills					X	
EHS Guidelines for Airports						X
EHS Guidelines for Annual Crop Production					X	
EHS Guidelines for Aquaculture					X	
EHS Guidelines for Board and Particle-based Products					X	
EHS Guidelines for Dairy Processing					X	
EHS Guidelines for Energy Conservation	X					
EHS Guidelines for Fish Processing					X	
EHS Guidelines for Forest Harvesting					X	
EHS Guidelines for Mammalian Livestock Production					X	
EHS Guidelines for Meat Processing					X	
EHS Guidelines for Perennial Crop Production					X	
EHS Guidelines for Ports, Harbours, and Terminals						X
EHS Guidelines for Poultry Processing					X	
EHS Guidelines for Poultry Production					X	
EHS Guidelines for Railways						X
EHS Guidelines for Sawmilling and Manufactured Wood Products					X	
EHS Guidelines for Shipping						X
EHS Guidelines for Sugar Manufacturing					X	
EHS Guidelines for Vegetable Oil Production and Processing					X	

Requirement	Sector Applicability					
	Energy Efficiency	Renewable Energy	Water Conservation / (Waste)	Water Treatment	Agriculture & Forestry	Transport
EHS Guidelines for Waste Management				X		
EHS Guidelines for Water and Sanitation				X		
EHS Guidelines for Water Conservation			X			
EHS Guidelines for Wind Energy		X				
Guidelines on Incorporating Human Rights Standards and Principles, Including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation.	X	X	X	X	X	X
IFC PS 1: Assessment and Management of Environmental and Social Risks and Impacts	X	X	X	X	X	X
IFC PS 2: Labour and Working Conditions	X	X	X	X	X	X
IFC PS 3: Resource Efficiency and Pollution Prevention	X	X	X	X	X	X
IFC PS 4: Community Health, Safety, and Security	X	X	X	X	X	X
IFC PS 5: Land Acquisition and Involuntary Resettlement	X	X	X	X	X	X
IFC PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	X	X	X	X	X	X
IFC PS 7: Indigenous Peoples	X	X	X	X	X	X
IFC PS 8: Cultural Heritage	X	X	X	X	X	X
KfW Sustainability Guideline	X	X	X	X	X	X
The Fundamental Conventions of the International Labour Organization	X	X	X	X	X	X
The UN Basic Principles and Guidelines on Development-based Evictions and Displacement	X	X	X	X	X	X
The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests					X	
World Bank Environmental and Social Framework	X	X	X	X	X	X

ANNEX B – NATIONAL REGULATORY FRAMEWORK

Requirement	Sector Applicability					
	Energy Efficiency	Renewable Energy	Water Conservation / (Waste)	Water Treatment	Agriculture & Forestry	Transport
National						
Advertising on Roads and Ribbon Development Act, 1940 (Act No. 21 of 1940)						X
Agricultural Pests Act, 1983 (Act No. 36 of 1983)					X	
Animal Health Act, 2002 (Act No. 7 of 2002)					X	
Animals Protection Act, 1962 (Act No. 71 of 1962)					X	
Basic Conditions of Employment Act, 1977 (Act No.75 of 1977)	X	X	X	X	X	X
Carbon Tax Bill	X					
Civil Aviation Act, 2009 (Act No. 13 of 2009)	X	X	X	X	X	X
Communal Property Associations Act, 1996 (Act No 28 of 1996)	X	X	X	X	X	X
Compensation for Occupational Injuries and Diseases Act, 1993 (Act No.130 of 1993)	X	X	X	X	X	X
Conservation of Agricultural Resources Act, 1983 (Act No.43 of 1983)					X	
Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)	X	X	X	X	X	X
Deeds Registries Act, 1937 (Act No 47 of 1937)	X	X	X	X	X	X
Disaster Management Act, 2002 (Act No.98 of 2002)	X	X	X	X	X	X
Draft Post 2015 National Energy Efficiency Strategy	X					
Electricity Regulation Act, 2006 (Act No. 4 of 2006)	X	X				
Extension of Security Tenure Act, 1997 (Act No 62 of 1997), as amended	X	X	X	X	X	X

Requirement	Sector Applicability					
	Energy Efficiency	Renewable Energy	Water Conservation / (Waste)	Water Treatment	Agriculture & Forestry	Transport
Fertiliser, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947)					X	
Genetically Modified Organisms Act, 1997 (Act No. 15 of 1997)					X	
Hazardous Substance Act, 1973 (Act No.15 of 1973)	X	X	X	X	X	X
Labour Relations Act, 1995 (Act No.66 of 1995)	X	X	X	X	X	X
Land Reform (Land Tenants) Act, 1996 (Act No 3 of 1996)	X	X	X	X	X	X
Marine Living Resources Act, 1998 (Act No.18 of 1998)	X	X	X	X	X	X
Marine Pollution (Prevention of Pollution from Ships), 1986 (Act No. 2 of 1986)						X
Marine Traffic Act, 1981 (Act No. 2 of 1981)						X
Meat Safety Act, 2000 (Act No. 40 of 2000)					X	
National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977)	X	X	X	X	X	X
National Development Plan Vision, 2030	X	X	X	X	X	X
National Energy Act, 2008 (Act No. 34 of 2008)		X				
National Energy Efficiency Strategy 2005	X					
National Environmental Management Act, 1998 (Act No.107 of 1998)	X	X	X	X	X	X
National Environmental Management Laws Amendment Act, 2014 (Act No. 25 of 2014)	X	X	X	X	X	X
National Environmental Management: Air Quality Act, 2004 (Act No.39 of 2004)	X	X	X	X	X	X
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	X	X	X	X	X	X
National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)	X	X	X	X	X	X
National Environmental Management: Protected Area Act, 2003 (Act No.57 of 2003)	X	X	X	X	X	X

Requirement	Sector Applicability					
	Energy Efficiency	Renewable Energy	Water Conservation / (Waste)	Water Treatment	Agriculture & Forestry	Transport
National Environmental Management: Waste Act, 2008 (Act No.59 of 2008)	X	X	X	X	X	X
National Environmental Management: Waste Act, 2008 (Act No.59 of 2008): National Norms & Standards	X	X	X	X	X	X
National Environmental Management: Waste Amendment Act, 2014 (Act No. 26 of 2014)	X	X	X	X	X	X
National Forest Act, 1998 (Act No. 84 of 1998)	X	X	X	X	X	X
National Freight Logistics Strategy, 2005						X
National Gas Act, 2001 (Act No. 48 of 2001)		X		X		
National Health Act, 2003 (Act No.61 of 2003)	X	X	X	X	X	X
National Heritage Resources Act, 1999 (Act No.25 of 1999)	X	X	X	X	X	X
National Land Transport Act, 2009 (Act No. 5 of 2009)						X
National Ports Act, 2005 (Act No. 12 of 2005)						X
National Railway Safety Regulator Act, 2002 (Act No. 16 of 2002)						X
National Strategy for Sustainable Development and Action Plan, 2011–2014	X	X	X	X	X	X
National Transport Master Plan, 2016						X
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)					X	
National Water Act 36, 1998 (Act No.36 of 1998)	X	X	X	X	X	X
National Water and Sanitation Master Plan				X		
National Water Resource Strategy, 2013			X			
National Water Services Act, 1997 (Act No.108 of 1997)				X		
Occupational Health and Safety Act, 1993 (Act No.85 of 1993)	X	X	X	X	X	X
Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000)						X
Prevention of Illegal Eviction and Unlawful Occupation of Land Act, 1998 (Act No 19 of 1998)	X	X	X	X	X	X

Requirement	Sector Applicability					
	Energy Efficiency	Renewable Energy	Water Conservation / (Waste)	Water Treatment	Agriculture & Forestry	Transport
Public Transport Strategy, 2007						X
Regulations in terms of Section 12L of the Income Tax Act 1962 on the Allowance for Energy Efficiency Saving	X					
Restitution of Land Rights Act, 1994 (Act No 22 of 1994), as amended	X	X	X	X	X	X
South African National Roads Agency Limited and National Roads, 1998 (Act No. 7 of 1998)						X
South African Water Quality Guidelines	X	X	X	X	X	X
Spatial Planning and Land Use Management Act, 2013 (Act No.16 of 2013)	X	X	X	X	X	X
Subdivision of Agricultural Land Act, 1970 (Act No. 70 of 1970)	X	X	X	X	X	X
White Paper on Energy Policy, 1998	X	X				X
White Paper on National Climate Change Response Policy, 2011	X	X	X	X	X	X
White Paper on National Transport, 1996						X
White Paper on the Promotion of Renewable Energy and Clean Energy Development, 2002		X				

ANNEX C – E&S GAP ANALYSIS

See E&S Gap Analysis presented as a separate excel document.

ANNEX D – E&S GAP ANALYSIS – SUMMARY ACTION PLAN

No high potential risks were identified in the gap analysis, while 15 medium potential risks, 12 low and 13 very low potential risks were identified. The Table presented below provides a summary of the recommended actions and mitigation measures of medium risks, as presented in Annex C - Environmental & Social Gap Analysis – Summary Action Plan. The summary table presents a consolidated view of the action's items and mitigation measures for all medium potential risks identified.

In each case the broad gap area is presented, along with the recommended actions/ mitigation measures, the significance of the gap, as well as an indication of the applicable IFC Performance Standard and KfW Sustainability Standard. The ordering of the actions broadly considers (1) environmental and social risk management, (2) labour and working conditions, (3) resource efficiency, (4) community health and safety and (5) land acquisition and resettlement.

Standard (IFC and KfW)	Gap Area	Recommended Actions / Mitigation	Significance of Gap
IFC PS 1 and KfW 9	**Capacity and Competency:** Based on IBIS' experience, national government (including the Department of Water and Sanitation, the Department of Environmental Affairs and the Department of Labour) generally has a lower degree of capacity and competency as implementing agents. However, the capacity and competency of regulatory authorities in South Africa varies substantially by location and function.	KfW and their E&S advisors should support the implementing agencies in undertaking management and monitoring of the following: • Monitoring of any Environmental Authorisations conditions (by the provincial authorities); • Monitoring of Water Use Licence requirements (DWS); • Monitoring of occupational health and safety and major hazards (national Department of Labour); and • Provide training opportunities to relevant Department employees on to improve aptitude of competent authorities.	**Medium**
IFC PS 1 and KfW 9	**ESMS:** Although not an ESMS, NEMA requires the development of an Environmental Management Programme (EMPr) which incorporates E&S management for the project life cycle. Depending on the nature and scale of Projects, EIA approvals (Environmental Authorisations) can require an ESMS to be developed for the construction and operational phases as a condition.	Implement an ESMS for the programme that covers both construction and operational related aspects by the Project to ensure that E&S issues are adequately managed. Alternatively expand EMPr to cover the breadth of E&S requirements commensurate with the nature and scale of the Project.	**Medium**
IFC PS 1 and KfW 9	**E&S Policy:** South African legislation does not require the development of an E&S Policy.	Develop an E&S Policy as part of ESMS development proposed above.	**Medium**

Standard (IFC and KfW)	Gap Area	Recommended Actions / Mitigation	Significance of Gap
IFC PS 1 and KfW 9	**Roles and Responsibilities:** NEMA Appendix 4 Section 1 (i-j) requires "an indication of the persons responsible for the implementing of impact management actions". No specific requirement to define roles and responsibilities in detail.	Review Environmental Control Officer (ECO) contracts to ensure qualifications of assigned individual are appropriate and there is adequate and clear definition of roles and responsibilities. Ensure that all written appointments are undertaken in line with the OHS Act requirements (16.1, 16.2, H&S Representatives, General Machinery Regulations, Fire, First Aid, etc).	**Medium**
IFC PS 1 and KfW 9	**Monitoring:** South African legislation sufficiently covers management and monitoring of environmental risks and impacts. However, as the development of an ESMS is not specifically legislated this presents a gap relative to the IFC PS1 standard.	Undertake regular monitoring of ESMS implementation and effectiveness during construction and operational phases of the Project.	**Medium**
IFC PS 1 and KfW 9	**Information:** NEMA does not provide for on-going reporting to IAP's beyond the record of decision, and through-out the Project lifecycle.	Develop project wide SEP as overarching management plan to guide ongoing engagement for construction and operation of Projects, this should include stakeholder mapping and analysis of issues and risks specific to each stakeholder group. Develop site specific procedures (include engagement actions per stakeholder group, provision of information, frequencies, issues discussed etc.) to guide implementation of this plan for each Project.	**Medium**
IFC PS 1 and KfW 9	**Stakeholder Engagement:** NEMA sets out detailed requirements for public participation process (PPP) as contained in Section 6 of GNR326 but does not specifically refer to the development of a Stakeholder Engagement Plan (SEP), and requirement for PPP is limited to the Environmental Impact Assessment (EIA) process. No requirement for	Develop project wide SEP as overarching management plan to guide ongoing engagement for construction and operation of Projects, this should include stakeholder mapping and analysis of issues and risks specific to each stakeholder group. Develop site specific procedures (include engagement actions per stakeholder group, provision of information, frequencies, issues discussed etc.) to guide implementation of this plan for each Project.	**Medium**

Standard (IFC and KfW)	Gap Area	Recommended Actions / Mitigation	Significance of Gap
	ongoing engagement during construction and operation. Requirements for ensuring adequate participation of vulnerable groups are not specified.		
IFC PS 1 and KfW 9	**Grievance Mechanism:** Whilst legislation allows for the protection of whistle-blowers and for interested and affected party to be consulted during the EIA process (including the right to appeal) it does not specify that a formal stakeholder (or interested and affected party) grievance redress mechanism be developed by the Project.	In conjunction with the inception of an SEP (as above) develop internal and external grievance procedures. Procedures must be freely accessible and allow for transparent grievance redress and includes timeframes, roles and responsibilities etc.	**Medium**
IFC PS 2 and KfW 7	**Labour and Working Conditions:** No legislative gaps identified, however experiences currently faced with regards to community involvement increase potential risk of Projects. Labour disputes and unrest, strikes and union action remain ongoing issues in SA. Preferential and local procurement remain high on the agenda of unions and communities in areas of development and growth.	Although there are no specific actions required, it is recommended that working conditions and contracts of directly employed and third-party labour are routinely reviewed to ensure compliance with legal requirements. IBIS recommends taking cognisance of the Preferred Procurement Regulations when developing tender documents and generating contracts to ensure that specific local content requirements are met.	**Medium**
IFC PS 3 and KfW 3	**Resource Efficiency**: Whilst legislation requires that best practicable environmental options must be selected to improve the efficient use of resources, this does not specifically refer to GHG emissions.	Ensure the implementation of technical and financially feasible measures for improving efficiency in consumption of energy, water, as well as other resources and material inputs. This should include measures that reduce project-related GHG emissions during the design and operation of the project.	**Medium**

Standard (IFC and KfW)	Gap Area	Recommended Actions / Mitigation	Significance of Gap
IFC PS 5 and KfW 5	**Compensation and Benefits for Displaced Persons:** Formal landowners / users are paid for the purchase of their land and unlawful occupiers who have occupied the site for a period of more than six months when evicted / displaced alternative land should be made available for them by an organ of state for the relocation of the unlawful occupant. However, there are no regulations that provide specifically for compensation and benefits for displacing unlawful occupants who have inhabited the site for less than six months.	Ensure South African legislative requirements are complied with at all times. All displaced persons should be provided with compensated for loss of property at full replacement cost, provided with appropriate development benefits and livelihood restoration through a fully participatory and consultative process. See Resettlement and Livelihood Restoration Planning and Implementation below.	**Medium**
IFC PS 5 and KfW 5	**Community Engagement:** The Prevention of Illegal Eviction and Unlawful Occupation of Land Act requires all land owners to duly notify and engage with unlawful occupants prior to obtaining a court order for potential eviction off land. NEMA sets out detailed requirements for public participation process (PPP) as contained in Section 6 of GNR326, but does not specifically refer to the development of a Stakeholder Engagement Plan (SEP), and requirement for PPP is limited to the Environmental Impact Assessment (EIA) process. No requirement for ongoing engagement during construction and operation. Requirements for ensuring adequate participation of vulnerable groups are not specified.	As per Stakeholder Engagement in PS 1.	**Medium**

Standard (IFC and KfW)	Gap Area	Recommended Actions / Mitigation	Significance of Gap
IFC PS 5 and KfW 5	**Grievance Mechanism:** Whilst legislation allows for the protection of whistle-blowers and for interested and affected party to be consulted during the EIA process (including the right to appeal) it does not specify that a formal stakeholder (or interested and affected party) grievance redress mechanism be developed by the Project.	As per Grievance Management and Mechanism in PS 1. Grievance Mechanism for any displacement process should be standalone and managed discretely from the wider project Grievance Mechanism to ensure accessible means of seeking redress for resettlement affected households.	**Medium**
IFC PS 5 and KfW 5	**Resettlement and Livelihood Restoration Planning and Implementation:** Whilst legislation provides for impact assessments to be undertaken and management plans to manage and mitigate risks may be required to be developed as a result of this, there are no specific legislative guidelines and requirements for Resettlement and Livelihood Restoration Plans to be developed and implemented in the project area.	Ensure resettlement and livelihood restoration planning adequately considers all persons that will be affected by economic and / or physical displacement and sets appropriate eligibility criteria. Government should be consulted throughout the process of resettlement planning and implementation to ensure best practice.	**Medium**
IFC PS 5 and KfW 5	**Private Sector Responsibilities Under Government Managed Resettlement:** There is no legal requirement for the private sector to manage resettlement processes in collaboration with government. In terms of the Prevention of Illegal Eviction and Unlawful Occupation of Land Act (Act No 19 of 1998), South African legislation only stipulates that government is required to find alternative land for unlawful occupiers who	Assess the extent to which government-led processes address the requirements of IFC PS5. In the case that the assessment finds the process being followed is inadequate and may affect the projects social license to operate, proactively engage the government to improve the process in order to increase alignment with IFC PS 5 requirements.	**Medium**

Standard (IFC and KfW)	Gap Area	Recommended Actions / Mitigation	Significance of Gap
	have inhabited land for a period of more than six months.		

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