



MINISTRY OF COMMERCE, TRADE AND INDUSTRY

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

Agribusiness and Trade Project

Project ID: No. P156492

September 2016

EXECUTIVE SUMMARY

Project Description

The Zambia Agribusiness and Trade Project (ATP) is a national project that aims to support all relevant actors of the economy across the country. The Project will be comprised of two components that will focus on fostering Market Linkages in Agribusiness and Strengthening the Regulatory and Institutional Framework for Agribusiness and Trade. There will further be a component that will be a supporting pillar on Project Management and Monitoring and Evaluation.

Rationale for ESMF

The proposed project activities are expected to have low environmental impacts, which can be readily mitigated through an environment and social impacts assessment process. All site specific details and approach will be informed through a demand driven and consultative approach. The project is likely to involve the; Construction of last mile infrastructure (small infrastructure works to build or upgrade markets points and associated structures), Community level agro-processing, Small scale agricultural support projects and support to national quality infrastructure institutions (hard infrastructure e.g. accommodation/ equipment. These activities will require the preparation of Environmental Social Management Plans (ESMPs). Since the exact locations of the activities and scope of works are not yet identified, the relevant instrument is an Environmental and Social Management Framework (ESMF). The ESMF provides project description, environment and social baseline, identification of anticipated risks and impacts, management and monitoring plan and institutional arrangements.

The negative environmental impacts that are likely to be caused by the proposed subprojects will include, but not limited to: loss of vegetation due to site preparation, increase in noise levels due to construction, generation of domestic and construction waste, increased effects on aesthetics, visual intrusion and changes in landscapes. The project envisages a number of positive social impacts as the project aims to contribute to increased access to market value chains, improved livelihoods and revenue, job creation and improved packaging and marketing of agro business products.

The ESMF which has been prepared, disclosed prior to appraisal, includes provides detailed step-by-step processes for identification and screening of the sub-projects of critical environment and social risks; procedures for evaluation of significance of environmental risks and impacts; development of site specific mitigation and monitoring plan when subproject details are identified; and institutional arrangement for safeguards implementation and capacity building measures. The ESMF provides guidance for development of any associated Environmental and Social Management Plans (ESMP) that will present mitigation measures to address the potential environmental and social impacts of the Project at the subproject level, once the activities location and scope have been identified. The ESMPs will be prepared, consulted with local communities and disclosed prior to commencement of detailed planning and physical works, consistent with the World Bank policy on Environmental Assessment (OP4.01). Management and supervision requirements for the physical, chemical and biological environment (waste, water and sanitation etc.),

health and safety of construction workers and safety and security of neighboring communities are built into the ESMF.

Implementation and Monitoring System

The Ministry of Commerce, Trade and Industry (MCTI) will be responsible for the overall coordination and implementation of the ATP. The project at MCTI will fall under the Department of Planning and Information that will host the Project Implementation Unit (PIU). The Ministry's Department of Planning and Information being the focal point will host the PIU for the ATP that will be responsible for the overall coordination of the project including facilitation of any decisions of a policy nature relating to the project.

The PIU will be responsible for undertaking compliance monitoring and impacts mitigation measures. The PIU must ensure that the project implementers submit reports on work progress and any challenges in observing the Environmental and Social Safeguards. The monitoring results should form a major part of the reports to be submitted to MCTI, the World Bank and shared with ZEMA where applicable.

ESMF outline

The first three Chapters (Chapters 1 to 3) of the ESMF provide background information that starts with a description of the proposed project which is followed by a brief explanation of the methodology used in formulating the ESMF as well as baseline information. Chapter 4 provides an overview of the World Bank Operational Policies and national environmental management policies and regulations. The last four chapters of the ESMF provide guidelines on potential environmental and social impacts that are anticipated for various proto-type sub-projects, respective possible mitigation measures as well as relevant institutional arrangements for implementation and monitoring of safeguards. Chapter 8 of the ESMF takes into account prevailing institutional capacities and needs and recognizes the need for capacity building in safeguards application and monitoring.

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ACRONYMS

AER	Agro-Ecological Regions
AIDS	Acquired Immune Deficiency Syndrome
ATP	Agro-Business Project
CBE's	Community Based Enterprises
CBO's	Community Based Organizations
CEEC	Citizens Economic Empowerment Commission
CSO	Central Statistical Office
DMMU	Disaster Management and Mitigation Unit
EA	Environmental Assessment
ECZ	Environmental Council of Zambia
EMA	Environmental Management Act
ESIA	Environmental Social Impact Assessment
ESMP	Environmental Social Management Plan
FMO	Financial Management Officer
GBV	Gender Based Violence
GDP	Gross Domestic Product
GMA's	Game Management Areas
GRZ	Government of the Republic of Zambia
HIV	Human Immunodeficiency Virus
IPM	Integrated Pest Management Plan
ITCZ	Intertropical Convergence Zone
M&E	Monitoring and Evaluation
MCTI	Ministry of Commerce Trade and Industry
MSME	Micro – Small and Medium Enterprises
MTEF	Medium Term Expenditure Framework
NGO's	Non-Governmental Organizations
NHCC	National Conservation Commission
OP/BP	Operational Bank Policy
PIU's	Project Implementing Units
PMC	Project Management Consultants
PMP	Pest Management Plan
PPE	Personal Protective Equipment
PSC	Project Steering Committee
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
R-SNDP	Revised Sixth National Development Plan
SME	Small and Medium Enterprises
SMF	Environmental and Social Management Framework
STI's	Sexually Transmitted Infections
TA	Technical Assistance
ZDA	Zambia Development Agency
ZEMA	Zambia Environmental Management Agency
ZPPA	Zambia Public Procurement Authority

1.1 Project Background

The Zambia Agribusiness and Trade Project (ATP) is a national project that aims to support all relevant actors of the economy across the country. The Project will be comprised of two components; (a) Market Linkages in Agribusiness; and (b) Strengthening the Regulatory and Institutional Framework for Agribusiness and Trade. There will also be a supporting pillar on Project Management and Monitoring and Evaluation.

Zambia is a lower-middle-income country with close to 16 million inhabitants, a Gross Domestic Product (GDP) estimated at US\$ 27.07 billion in 2014 and per capita income of approximately US\$ 1,721. Zambia has made significant socio-economic progress over the past two decades. A relatively stable macroeconomic environment and improved macroeconomic policies since the mid-1990s were further supported by improved copper prices in the 2000s, resulting in an average annual growth of about 7.5% between 2007 and 2014. The government consolidated macroeconomic stability and successfully navigated the shocks connected with the 2008 global economic and financial crises. However, economic challenges have returned as copper prices have fallen 52% since their peak in 2011.

Zambia needs to diversify its sources of growth in order to sustain GDP growth, as well as to create employment for its fast growing, urban and youthful population. Zambia's performance in job creation and poverty reduction have not been commensurate with its GDP growth - employment is estimated to have grown annually by only 3.1% on average in 2004-2014, less than half of its GDP growth. Despite a recent spike in non-copper merchandise exports, its economy remains overly dependent on copper, and concentrated in urban sectors. Although mining accounts for 77% of total exports, this industry only employs 1.7% of the total labor force (8.3% of total formal sector jobs). Overall, labor participation rates are falling whilst youth unemployment is rising.

1.2 ESMF Objectives

The objectives of this ESMF are:

- To establish clear procedures and methodologies for the environmental and social planning, review, approval and implementation of subprojects to be financed under the ATP;
- To specify appropriate roles and responsibilities, and outline the necessary reporting procedures, for managing and monitoring environmental and social concerns related to subprojects;
- To determine the training, capacity building and technical assistance needed to successfully implement the provisions of the ESMF;
- To establish the project funding required to implement the ESMF requirements;
- To provide practical resources for implementing the ESMF, including general guidance on development of ESMPs and their implementation.

1.2.1 Objectives of the Resettlement Policy Framework

A Resettlement Policy Framework (RPF) has been developed as a separate document to address matters that relate to involuntary resettlement. The overall objective of this RPF is to provide guidance on how to deal with issues relating to land acquisition, compensation and resettlement during the implementation of the ATP.

The specific objectives of the RPF are as follows:

- (a) to minimise, as much as possible, acquisition of land for implementation of project sub-components, where such acquisition or project related activities will result in adverse social impacts;
- (b) to ensure that where land acquisition is necessary, this is executed as sustainable programs to enable people share in the project benefits,
- (c) to ensure meaningful consultation with people to be affected or displaced; and
- (d) to provide assistance that will mitigate or restore the negative impacts of ATP implementation on the livelihoods of people affected in order to improve their livelihoods or at least restore to pre-project levels.

1.2.2 Pest Management Plan

Since the Bank Policy 4.09 on Pest Management has been triggered, this requires a Pest Management Plan (PMP). Considering the overall use or procurement of pesticides is minimal, the PMP is a generic document attached to the ESMF (Appendix 9) and will be incorporated in the ESMP's during the implementation phase of the project where necessary. The overall objective of the Pest Management Plan (PMP) is to provide guidance for the screening of pesticides, fertilizers, and other chemicals and their safe handling and disposal. The specific objectives of the PMP are to:

- (a) Promote ecologically based Integrated Pest management (IPM) and reduce reliance on synthetic pesticides;
- (b) Reduce health and environmental risks.

1.3 Project Description

The Project will be comprised of two components;

- Market Linkages in Agribusiness; and
- Strengthening the Regulatory and Institutional Framework for Agribusiness and Trade.

There will be a supporting pillar on Project Management and Monitoring and Evaluation. Graphical Illustration of the project is as shown in figure 1 below.

Zambia Agribusiness and Trade Project

Market linkages in Agribusiness		Strengthening the Regulatory and Institutional Framework for Agribusiness and Trade	
<p style="text-align: center;">Building Productive Alliances</p> <ul style="list-style-type: none"> Matching grants to productive organizations Capacity building of productive organizations and Pas Last mile infrastructure 	<p style="text-align: center;">MSME Supplier Development Program</p> <ul style="list-style-type: none"> Brokerage and TA for growth MSMEs Business Linkage fund 	<p style="text-align: center;">Strengthening Capacity for Investment Promotion, Regulation, Competition and Entrepreneurship</p> <ul style="list-style-type: none"> Improve institutional framework for agribusiness and trade 	<p style="text-align: center;">Promoting trade facilitation</p> <ul style="list-style-type: none"> Developing a National Logistics Strategy Strengthening National Quality Infrastructure
US\$18 MM	US\$12 MM	US\$2.5 MM	US\$3.8 MM
Project management and M&E (US\$3.7 MM)			

Figure 1: Zambia Agribusiness and Trade Project Components

1.3.1 Component 1: Market Linkages in Agribusiness

This component focuses on the development of market linkages in agribusiness, focusing on two sets of beneficiaries: emerging, poor farmers and growth-oriented agribusiness Micro – Small and Medium Enterprises (MSMEs). Project interventions will have a particular emphasis on improving the ability of emerging farmers and agribusiness MSMEs to sustainably and commercially link into larger markets by structuring support around offtake opportunities that the private sector themselves identify as high potential. A linkages approach increases income, productivity and employment growth for all those economic actors involved in the value-chains where they engage, and directly and indirectly affected by the Project activities.

Specifically, Component 1 aims to pro-actively enable larger buyers to purchase from Zambian firms and farmers at the quality, quantity and consistency they need. This offers stable demand – and thus income – for famers and MSMEs – and promotes upgrading of farm and MSME activities, hence positioning them for further growth in formal markets domestically, and potentially regionally and internationally.

While component 1 activities will be open for participation to all eligible producers and MSMEs from around the country, the Project’s outreach activities and initial target areas will cover the regions that have both high poverty density and agro-processing activities such as Lusaka, Kabwe, Ndola, Livingstone and Chipata.

This component will operate on the basis of two models as sub-components. Sub-component 1a namely Building Productive Alliances which will involve investment in Producer Organizations (POs); Investment in Producer Organization’s facilitation/ capacity building; and may include last mile infrastructure investments to unlock more productive alliances. Sub-component 1b namely the MSME Supplier Development

Programme, will involve connecting agribusiness MSMEs to markets, provision of business development services, matching grant funds and promoting access to finance.

The eligible project beneficiary typically would not have monetary wealth wherefore assets, land size and existing sales will be considered by the project as part of the matching contribution. The matching grants are expected to be in the \$1,000-3,000 range per household. The socio-economic characterization of beneficiaries will be part of the application process and be used to track success of investments. Applications for matching grants require social management plans and annual reporting on social impact.

1.3.2 Component 2: Strengthening the Regulatory and Institutional Framework for Agribusiness and Trade

The objective of this Component is to strengthen the regulatory and institutional framework for agribusiness and trade to assist the development of market linkages in agribusiness. This will involve;

Strengthening Capacity for Investment Promotion, Regulation, Competition and Entrepreneurship:

- ❖ Strengthened Investment Policy and Promotion Capacity.
- ❖ Improved Institutional Capacity for the Business Regulatory Review Agency
- ❖ Strengthening Institutional Capacity of Competition and Consumer Protection Commission.
- ❖ Strengthen Institutional Coordination and Capacity for Entrepreneurship.
- ❖ Strengthening the Capacity of the National Quality Infrastructure System.
- ❖ Promoting Trade Facilitation:
- ❖ Developing a National Logistics Strategy
- ❖ Supporting the Strengthening of the National Quality Infrastructure

Supporting Pillar: Project Management and Monitoring and Evaluation

This Component will provide financing for the activities of the Project Implementation Unit (PIU) that will be set up under the Ministry of Commerce, Trade and Industry to oversee the implementation of project activities, fiduciary management, monitoring and evaluation (M&E), and reporting.

In addition, the project will be designed in such a way that it would be possible to carry out an impact evaluation in order to assess the additionality of the project. The continuous M&E of the implementation of policies and key programs will be a critical role of the PIU and therefore a strong emphasis will be put on capacity building.

1.4 Safeguards Approach

The project includes a number of activities for which screening may be required leading to preparation of ESMP's. For instance, construction of last mile infrastructure under sub-component 1a would require screening and where applicable undertake the necessary environmental assessment. The ESMF provides the procedures to

address the environment and social risks. However the details under this sub-component such as the site details, including designs are expected to be available during the course of project implementation. Table 1 highlights the anticipated subprojects and investments envisaged under the project.

Table 1; Anticipated Sub Projects/Investments

Project Category	Project Component	Anticipated Sub-Projects
Infrastructure/Construction related	Component I	<ul style="list-style-type: none"> • Construction of last mile infrastructure (small infrastructure works to build or upgrade markets points and associated structures)
Income Generating Activities		<ul style="list-style-type: none"> • Community level agro-processing • Small scale agricultural support projects
Infrastructure/Construction related	Component II	<ul style="list-style-type: none"> • Support to National Quality Infrastructure institutions (hard infrastructure e.g. accommodation/ equipment)

1.5 Potential Impact and Bank Policies Triggered

During the implementation of the project and associated subprojects, preparation, construction and operational activities are likely to result in the following environmental and social impacts; job creation and business opportunities, loss of vegetation during site preparation, increased levels of construction and domestic waste, increased noise levels, visual intrusion and alteration in aesthetics and increased incidences of HIV/AIDS and Sexually Transmitted Infections (STI's). Since most of the specific project activities and locations have not yet been agreed on, the proposed environmental assessment instrument is an Environmental Social Management Framework (ESMF). The ESMF also includes provisions related to compliance with the World Bank safeguard policies:

- **OP/BP 4.01 - Environmental Assessment**

The safeguards policy on Environmental Assessment is triggered notwithstanding the project having a bigger component on Technical Assistance (TA). The project is likely to involve some infrastructure works to build or upgrade small markets in selected agro economic zones across Zambia. The TA will focus on promoting an environment for entrepreneurship and investment and facilitating national and regional trade. The component on supporting job creation and growth in agribusiness is likely to involve some small infrastructure works to build or upgrade markets points and associated auxiliary structures in the agri-business value chain. This will require that the following safeguards Instruments be prepared namely; an ESMF for the project

prior to appraisal and subsequently an ESMP where required. A generic ESMP is part of this ESMF document.

- **OP 4.09 - Pest Management**

The policy on Pest Management is triggered, as it is likely to involve investment activities that will require the procurement of farming inputs such as fertilizers, pesticides and fungicides to support the agro - sector. This will require that a Pest Management Plan (PMP) be developed. Since they will not be significant pest management issues on the project, the PMP will form part of the ESMF (Appendix 9) and the ESMP.

- **OP/BP 4.12 – Involuntary Resettlement:**

The Project includes investments in critical market and common use infrastructure. While the exact sites are not known at this time, such construction activities may require land acquisition or require temporary relocation of traders currently occupying the sites while market points are built. An RPF has been prepared, and as necessary, site-specific full or abbreviated RAPs should be prepared during implementation. The project also proposes to address agribusiness on a policy level, and such policies may have implications for land tenure.

1.6 Institutional Arrangements

The Ministry of Commerce, Trade and Industry (MCTI) will be responsible for the overall coordination and implementation of the ATP. The project at MCTI will fall under the Department of Planning and information.

1.6.1 Department of Planning and Information - MCTI

The Ministry's Department of Planning and Information being the focal point will host the PIU for the ATP that will be responsible for the overall coordination of the project including facilitation of any decisions of a policy nature relating to the project.

1.6.2 Project Implementation Unit

To assist with the implementation and management functions of the project, the Ministry of Commerce, Trade and Industry will set up a Project Implementation Unit (PIU) which will be staffed as follows:

- **Project Manager;** who will be responsible for the smooth implementation and day to day running and administration of the project with an overall oversight in Procurement, Financial Management, Communication and Monitoring & Evaluation and Safeguards;
- **Agribusiness Officer;** who will provide agribusiness related technical advice on operations and management of the project;
- **Monitoring and Evaluation Officer** who be responsible for keeping a tag on the key performance indicators agreed for the project;
- **Financial Management Officer (FMO,);** to undertake financial management, disbursement and selected administrative functions of the project;
- **Communications Officer;** to coordinate an effective communication strategy to enable the project achieve its goal; and

- **Procurement Officer (PO);** who will coordinate all procurement functions of the project.

In addition, the PIU will be accountable for the implementation of the ESMF and the RPF. The EMSF implementation take place within the overall framework of the ATP programme implementation arrangements. Should the current institutional arrangements change, then the proposed ESMF implementation arrangements should be adjusted accordingly.

1.6.3 Project Steering Committee

In order to ensure efficient oversight of the Project, there shall be a Project Steering Committee, with a mandate, composition and requisite resources. The Project Steering Committee shall be chaired by the Permanent Secretary for Commerce, Trade and Industry and comprised of representatives from different public and private institutions including as in table 2. In order to ensure that a quorum is met at all steering committee sitting, the representatives of the various organization will be asked to official delegate a representative to represent them should they be unable to attend.

Table 2: Composition of Steering Committee

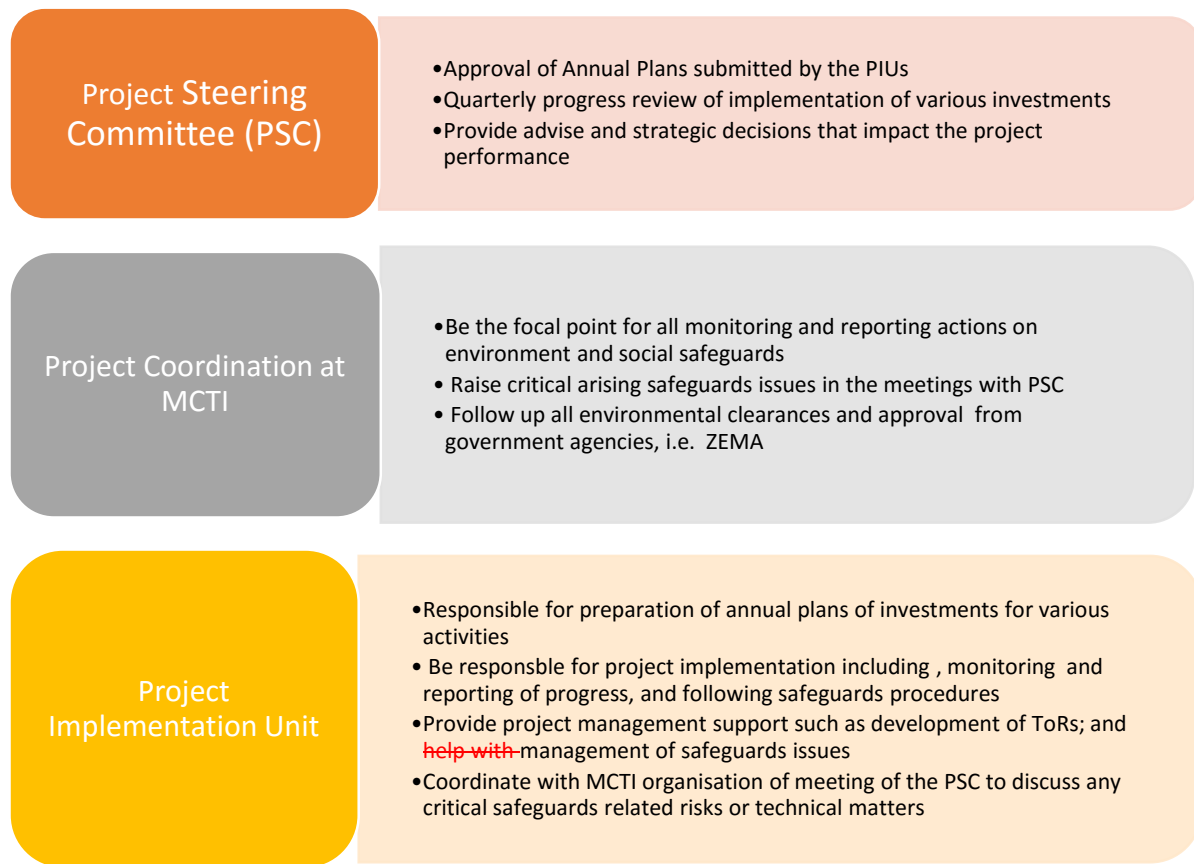
Organization	Representative on Steering Committee
Ministry of Commerce, Trade and Industry	Permanent Secretary
Ministry of Finance	Permanent Secretary
Ministry of National Development Planning,	Permanent Secretary
Ministry of Agriculture	Permanent Secretary
Ministry of Livestock Development and Fisheries,	Permanent Secretary
Zambia Development Agency	Director General
Industrial Development Corporation,	Chief Executive Officer
Zambia National Farmers Union,	Executive Director
Zambia Association Of Manufacturers	Chief Executive Officer
Zambia Chamber of Small and Medium Business Associations SME Associations.	Chief Executive Officer

The Steering Committee shall be responsible, among other things, for overseeing overall Project implementation, providing policy guidance to the project, ensuring inter-agency coordination of the Project, reviewing the annual work plans, and approving Budgets. The Committee will also consider issues to do with resettlement during the course of the project if they arise. In such cases, other relevant government departments will be coopted into the steering committee since it is envisaged that such cases are unlikely to arise.

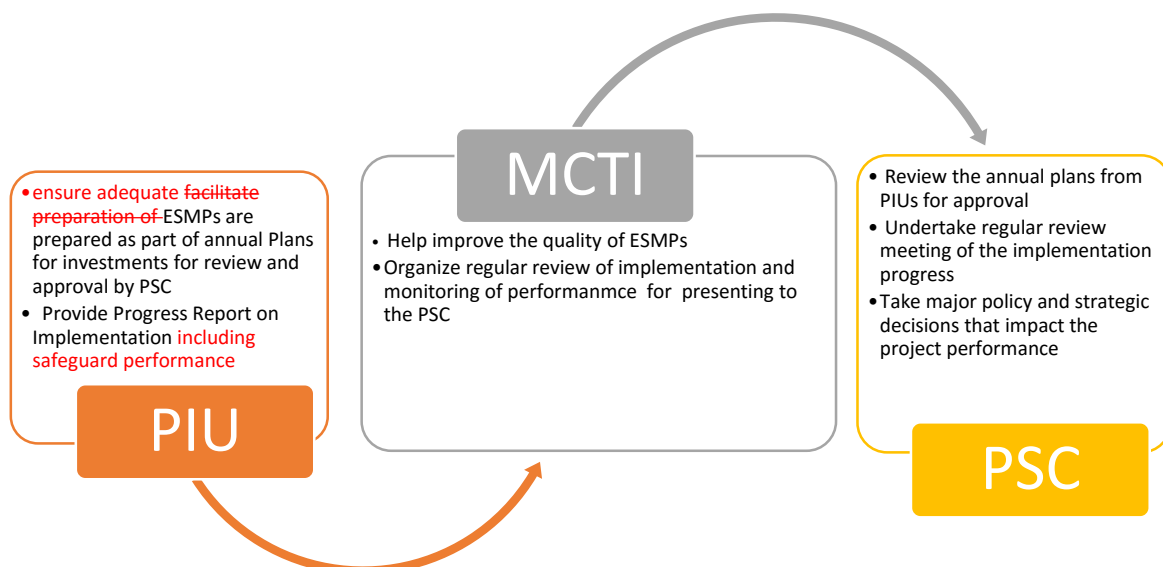
1.6.4 Responsibility matrix of institutions during implementation

For purposes of the EMSF, there are three layer structure for project management – Project Steering Committee (PSC); Project Coordination at MCTI and Project Implementing Unit (PIU). The following two charts describes their responsibilities and accountabilities for Environmental and Social Safeguards.

Responsibilities and Accountabilities for ESMF



Organogram for Decision Meeting



2.1 Review of Literature

Secondary sources of information were obtained through a review of available documents, as well as consultations held with key stakeholders across the Country. Existing literature was the primary source for describing institutional, policy and legal frameworks. From the literature, all possible envisaged environmental and social impacts were listed and evaluated based on policy and legal requirements using matrices and maps. The data on geology and soils, climate, water resources, biodiversity, human and ecosystems were obtained from existing literature.

2.2 Analysis of Baseline Environmental Data

The ESMF recognizes the existence of available environmental baseline information. This data was compiled with the purpose of describing and evaluating the current environmental status of targeted project across Zambia. The baseline information included environmental information relevant to all project components, drawing on existing information from projects in the targeted areas. The description of the baseline environment was based on the following data:

- Physical environment: the information collected included geology, topography, soils, climate and ecosystem and hydrology.
- Biological environment: data on flora, fauna, endemic and endangered species, critical/sensitive habitats, including protected areas and reserves was collected.

2.3 Site Visits and Workshop Discussions

Several site visits were conducted as part of the design process of the project to the interventions areas in beneficially areas as well as in the surrounding districts. Additionally, several stakeholder workshops took place during the project preparation process to (Annex 8).

2.4 Analysis of Safeguard Policies and Regulations

Projects funded by the World Bank, should fully comply with the World Bank safeguard policies and the legislation in Zambia. The relevance of safeguard policies on this project's planning and implementation of the components and associated sub-projects countrywide was assessed. The World Bank Safeguard policies also require compliance to all relevant local, national and international policies and legal requirements. The chapter 3 provides the rationale for triggering the policies. The relevant national polices and legislation have been reviewed in the subsequent chapter 4. In the Zambian context, the Zambia Environmental Management Agency (ZEMA) is the competent authority in the approval of safeguards instruments and post-approval monitoring. Chapter 5 outlines the analytical work, management and monitoring instruments for each of the relevant policies.

3.1 Baseline Information

Baseline information includes description of the current situation in terms of the socioeconomic environment, ecological and physical environment. Zambia is divided into ten provinces namely; Central, Copperbelt, Western, North-Western, Eastern, Northern, Muchinga, Luapula and Southern. The proposed ATP project will be implemented in all the ten provinces and will cut across various sectors like Agriculture, Trade and Industry.



Figure 2: Map of Zambia and the 10 Provinces (Sourced from <http://zambiaflora.com/speciesdata/about.php>)

3.2 Physical environment

3.2.1 Topography

In terms of topography Zambia is on the great plateau of Central Africa, at an average altitude of 1200m. The lower parts of the plateau have a reliable supply of water during the dry season and they are flooded in the rainy season. Zambia is high plateau, deeply entrenched by the Zambezi River (and its tributaries, the Kafue and Luangwa) and the Luapula River. The Zambezi flows to the south, turning east towards the Zimbabwe border areas. The northern part of Zambia have three major lakes namely, Tanganyika, Mweru and Bangweulu while Kariba stretches along the southern borders with Zimbabwe. In the Eastern part, the Mafinga Mountains form part of a great

escarpment running down the east side of the Luangwa river valley. The country rises to a higher plateau in the east. The country has three main topographical features:

- mountains with an altitude of at least 1500m;
- a plateau with an altitude ranging from 900 to 1500 m; and
- lowlands with an altitude of between 400 and 900m.

3.2.2 Soils

Soils in Zambia have been formed from a great diversity of parent materials. However, the characteristics and distribution of the soils are largely influenced by climate particularly rainfall. Zambia lies roughly between latitudes 8° and 18° south of the equator. Zambia experiences strongly clear rainy and dry seasons, the rainy season starts late October in the north and November in the south and lasts up to April and March respectively. Mean annual rainfall exceeds 1100mm in the western part of Northern and the northern part of North-Western Provinces, decreasing southward to Southern Province, only 700mm in southeastern margin of the country. Mean annual temperatures range between 19 – 22°C except in the major river valleys of Zambezi, Luangwa and Luapula. Zambia ranges roughly between 600m and 2000m in the elevation, and it consists of level to gently undulating plateau except the escarpments zones which divide the middle Zambezi and Luangwa valleys.

Geomorphology of Zambia has shown the first four legends as Montane Zone, Central African Plateau, Escarpment Zone and Rift Trough, respectively. The latter two topographical features show the elevation from transitional to lower one. Zambia is underlain by a wide range of rock types. Except the Kalahari system that has been formed from the tertiary to recent period and has covered the west and north-west side of the country, such igneous rocks as granite, gabbro and others in various ages probably older than the Pre-Cambrian period, and the Basement complex which consisted of ancient crystalline rocks like schist, gneiss, quartzite and migmatite in the Pre-Cambrian period formed the Central African Plateau in the north, east and south-east side of the country. In the south-west, west and north-west side of the country, such sedimentary rocks as shale, sandstone, mudstone and limestone in the Katanga system, and in the east, south-east side of the country, lava (basalt), marl, sandstone and others in the Karroo system both from the Lower Paleozoic to the Mesozoic periods also formed the stable land blocks overlying the Basement Complex. These systems and the Complex accompanied by repeated folding and metamorphism through the geological ages have altered the original of the rocks, followed by their slow protrusion, erosion and weathering, various types of soils were formed.

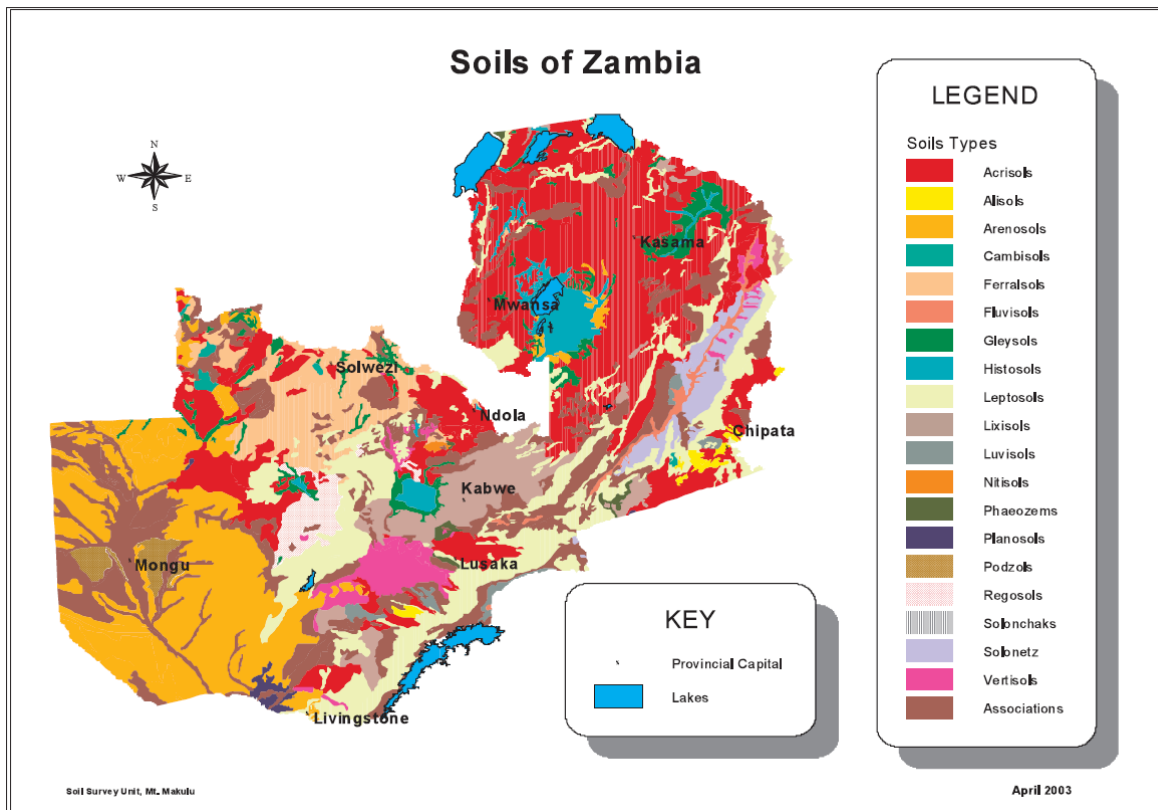


Figure 3: Soils of Zambia

3.3.1 Hydrology

Zambia is drained by the Congo in the north and Zambezi in the south. The main Zambezi drainage system occupies most of the western portion of the country and some discontinuous areas in the south. The Kafue system originates in the Copperbelt region and drains the central region of the country. The Luangwa system, with its tributary of Lunsemfwa, drains much of the eastern parts of the country. In the north the Chambeshi River originates in the north-east and drains much of the southern parts of Northern Province before discharging into the Bangweulu swamps. The drainage into Lake Tanganyika in the north consists of the Lufubu and some minor streams. Almost all the rainfall in the country falls during the period November to April, so that the dry season months of May to October do not contribute to stream flow. Consequently, most small streams dry up while in the many larger streams flow is reduced to a small fraction of the wet season discharge. Surplus water (i.e., the amount of precipitation that goes to stream flow and groundwater recharge) varies throughout the country but ranges from 150 – 550 mm in the Copperbelt and Northern Provinces and northern parts of eastern Province to 50 – 100 mm in Central, Lusaka, Southern and Western Provinces and the southern parts of eastern Province. Runoff in the Luangwa basin is approximately 13% of the mean yearly rainfall compared to 24% in the Kafue basin. The quality of water is generally good except in the Kafue River system where surface water may be contaminated in some places due to industrial, urban and agriculture activities.

Natural wetlands in the form of swamps and floodplains hold considerable amounts of runoff water but also lose a lot of water through evaporation especially in the dry

season. Dambos are seasonal wetlands that are waterlogged during the wet season and occur in the upper reaches of drainage systems and constitute up to 10% or more of the landscape on the plateau.

3.3.2 Climate

The climate in Zambia is characterized by alternating wet (rainy) and dry seasons. The rainy season lasts from November to March or April. Rainfall in Zambia is influenced by the southward movement of the equatorial low pressure belt in the summer months that is linked to the migration of the overhead sun and the Inter-Tropical Convergence Zone (ITCZ) which is a zone in which the Congo air and southeast and northeast trade winds converge. The mean annual rainfall distribution in Zambia is characterized by a decrease from north to south (Figure 4.2) that may be attributed to the shorter time the south is influenced by the ITCZ. The coefficient of variation (CV) of annual precipitation currently ranges from 10 – 20% in Copperbelt and Northern Provinces and the northern districts of Kalabo and Lukulu in Western Province to 20 – 30% in Central, Eastern, Lusaka and Southern Provinces and the rest of Western Province.

In the north, rainfall is 1,250 mm or more a year decreasing southwards to Lusaka where it is about 750 mm. South of Lusaka climate is dictated more by the east and southeast trade winds which have lost much of their humidity so far inland. Rainfall in this area is between 500 and 750 mm. In some years the influence of the tropical zone is felt further to the south, resulting in excessive rain in the Southern Province and partial drought in the north. Except for very rare showers in August, rain is confined to the wet season, which sometimes starts as early as October and finishes as early as March. At the height of the rainy season, it rains on seven or eight days out of ten.

Average temperatures are moderated by the height of the plateau. Maxima vary from 15 - 27°C in the cool season with morning and evening temperatures as low as 6 - 10°C and occasional frost on calm nights in valleys and hollows which are sheltered from the wind. In the cool season, the prevailing winds, dry south easterlies, come from the southern hemisphere belt of high pressure. Invasions of cold air from the south-east bring cloudy to overcast conditions. During the hot season maximum temperatures may range from 27 - 35°C. However, the mean annual temperature ranges between 18 - 20°C. The highest annual average temperature is 32°C and the lowest temperature averages 4°C. Annual temperature variation is greatest at Livingstone, the most southerly town and least at Mbala, the town nearest the equator.

3.3.3 Climate Change and Impacts on Agriculture

The key climatic hazards Zambia is facing are droughts, floods, and to some extent extreme temperatures. All of them have negative effects on agriculture. Excessive precipitation in Zambia's non-drought prone region, an increased frequency of droughts in the drought-prone regions, and a generally shortening of the growing season affect agricultural production and food security negatively, which then reduces the livelihoods as well as the adaptive capacity of individuals and communities. During the agricultural season of 2004/05, two thirds of the country lacked the much-needed rainfalls, creating 120,000 tons of food shortage and 1.2 million starving people until the subsequent year's harvest. Cotton and tobacco fields, which typically resist drought seasons, have also been affected. Floods have also become more recurrent, and even started affecting areas that had never experienced flooding before. The magnitude and timing of the floods also caused problems, as the regions

that are used to the floods were caught unprepared by earlier occurrences and higher magnitudes (Couroche Kalantary, 2010).

3.3 Ecological

3.3.1 Forests

There are 480 forest reserves in Zambia covering a total land area of about 7.2 million hectares. Local forests are meant to conserve forest resources for sustainable use by local people, while National Forests protect major catchment areas. Several if not most of the National Forests overlap Game Management Areas (GMAs). As a result of expanding settlements and agriculture activities some forest reserves have been encroached upon and depleted. Consequently the Government has excised and degazetted some reserves, reducing the area and number of forests.

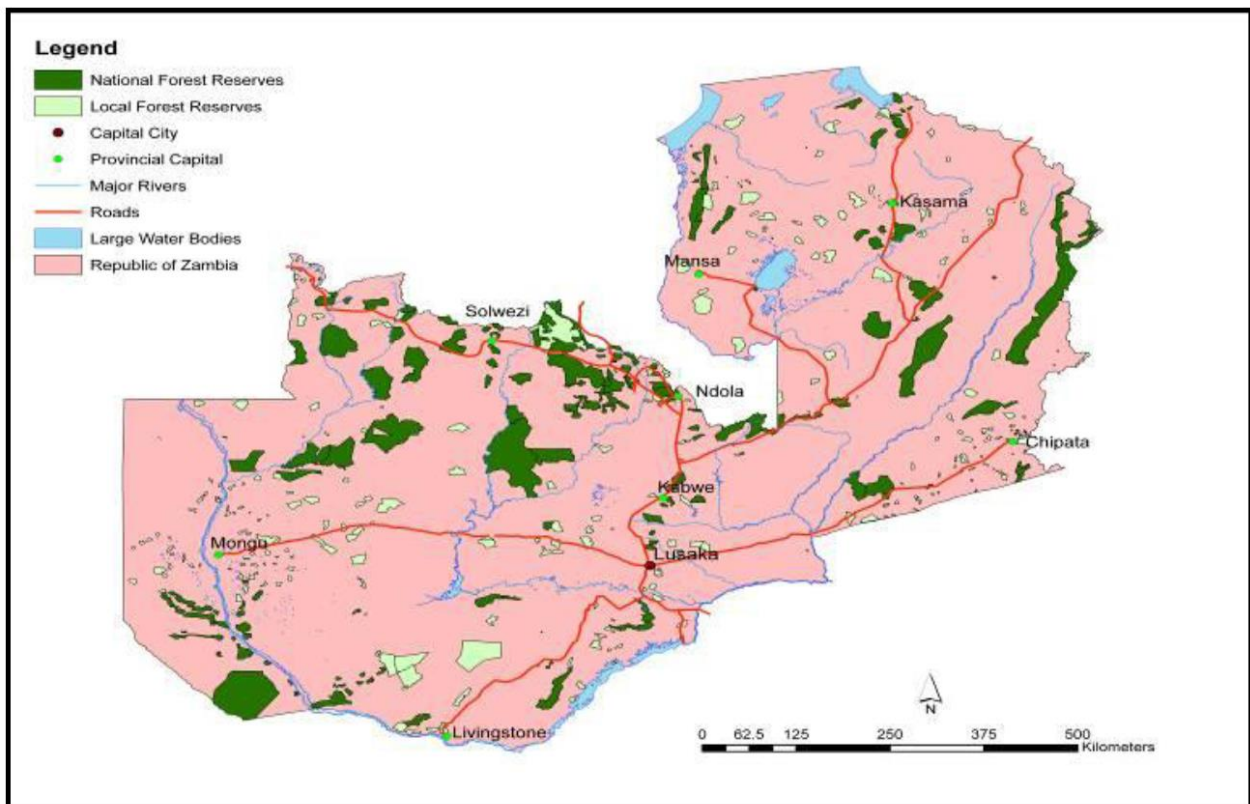


Figure 4: Gazetted Forests across Zambia

According to Zambia's Fourth National Report on Implementation of the Convention on Biological Diversity (CBD), about 249 Forest Reserves (51%) are either encroached or depleted due to over-exploitation of wood products, settlement, cultivation and inadequate natural resources governance. This has resulted in the loss of forest reserves - whose numbers have reduced and changed to other land uses. About 2% of the National Forests are "depleted," while 46% are "encroached" and 52% are "intact." Seventeen Forest Reserves have been degazetted for other land use, representing about 3% of the total area of Forest Reserves. More local forests have been excised than National Forests. Local forests in the Copperbelt, and in Eastern and Lusaka Provinces have been more affected than those elsewhere. This may be attributed to high urbanization leading to high demand for forest products and land. It is expected

that the opening of new mines in Northwestern Province will bring pressure on the undisturbed forest reserves.

3.3.2 Biodiversity

It is estimated that there are about 7,774 species of organisms that occur in Zambia with micro-organisms comprising 8%, plants 47%, and fauna 45% of this biodiversity. The diversity of fauna has been estimated at 3,407 species, of which 1,808 are invertebrates, 224 are mammals, 409 are fish, 67 are amphibians, 150 are reptiles, and 733 are birds. Floristic diversity is dominated by herbs and woody plants with an estimated 4,600 species of flora, of which 211 are endemic. There are 19 National Parks established to conserve faunal biodiversity, comprising about 8% of the total land area. Table 2 below shows the list of endangered and vulnerable species across Zambia.

Table 3: List of Endangered and Vulnerable species in Zambia. Based on Chidumayo and Aongola (1998).

Group/ Subgroup	Species (Common name)	Threat status
Fauna		
Mammalia	<i>Crocidura ansellorum</i>	Endangered
	<i>Crocidura pitmani</i>	Vulnerable
	<i>Rhynchocyon cirnei</i> (Checkered Elephant shrew)	Vulnerable
	<i>Plerotes anchietae</i>	Vulnerable
	<i>Pipistrellus anchietae</i>	Vulnerable
	<i>Otomops martiensseni</i>	Vulnerable
	<i>Lycaon pictus</i> (African wild dog)	Endangered
	<i>Acinoyx jubatus</i> (Cheetah)	Vulnerable
	<i>Panthera leo</i> (Lion)	Vulnerable
	<i>Loxodonta africana</i> (Elephant)	Endangered
	<i>Diceros bicornis</i> (Black rhinoceros)	Endangered
	<i>Kobus leche kafuensis</i> (Kafue lechwe)	Vulnerable
	<i>Kobus leche smithemani</i> (Black lechwe)	Vulnerable
	Aves	<i>Egretta vinaceigula</i> (Slaty Egret)
<i>Falco fasciinucha</i> (Taita Falcon)		Vulnerable
<i>Falco naumanni</i> (Lesser Kestrel)		Vulnerable
<i>Bugeranus carunculatus</i> (Wattled Crane)		Vulnerable
<i>Crex</i> (Corncrake)		Vulnerable
<i>Sarothrura ayresi</i> (White-winged Flufftail)		Endangered
<i>Agapornis nigrigenis</i> (Black-cheeked Lovebird)		Endangered
<i>Pogoniulus makawai</i> (White-chested Tinkerbird)		Vulnerable
<i>Hirundo atrocaerulea</i> (Blue Swallow)		Vulnerable
Insecta		<i>Eriksonia acraeina</i>
	<i>Monardithemis flava</i>	Vulnerable
	<i>Lanistes neavei</i>	Vulnerable
	<i>Bellamyia crawshayi</i>	Endangered
	<i>Bellamyia mweruensis</i>	Endangered
	<i>Bellamyia pagodiformis</i>	Endangered
Trees	<i>Pterocarpus angolensis</i>	Locally Vulnerable
	<i>Afzelia quanzensis</i>	Locally Vulnerable
	<i>Daniela ostiniana</i>	Locally Vulnerable
	<i>Khaya nyasica</i>	Locally Vulnerable
	<i>Mitragyna stipulosa</i>	Locally Vulnerable

Most of these parks were set aside during the Colonial Era and formally established after Zambia's independence in the early 1970s. Sustainable use of wildlife and its habitats in the parks is promoted through eco-tourism while settlements and hunting are prohibited. It is important to note that only the surface of land contained within parks is protected; subsurface mineral deposits are not withdrawn from entry. The Ministry of Mines and Minerals Development controls the extraction of all minerals in Zambia (IRG, 2011).

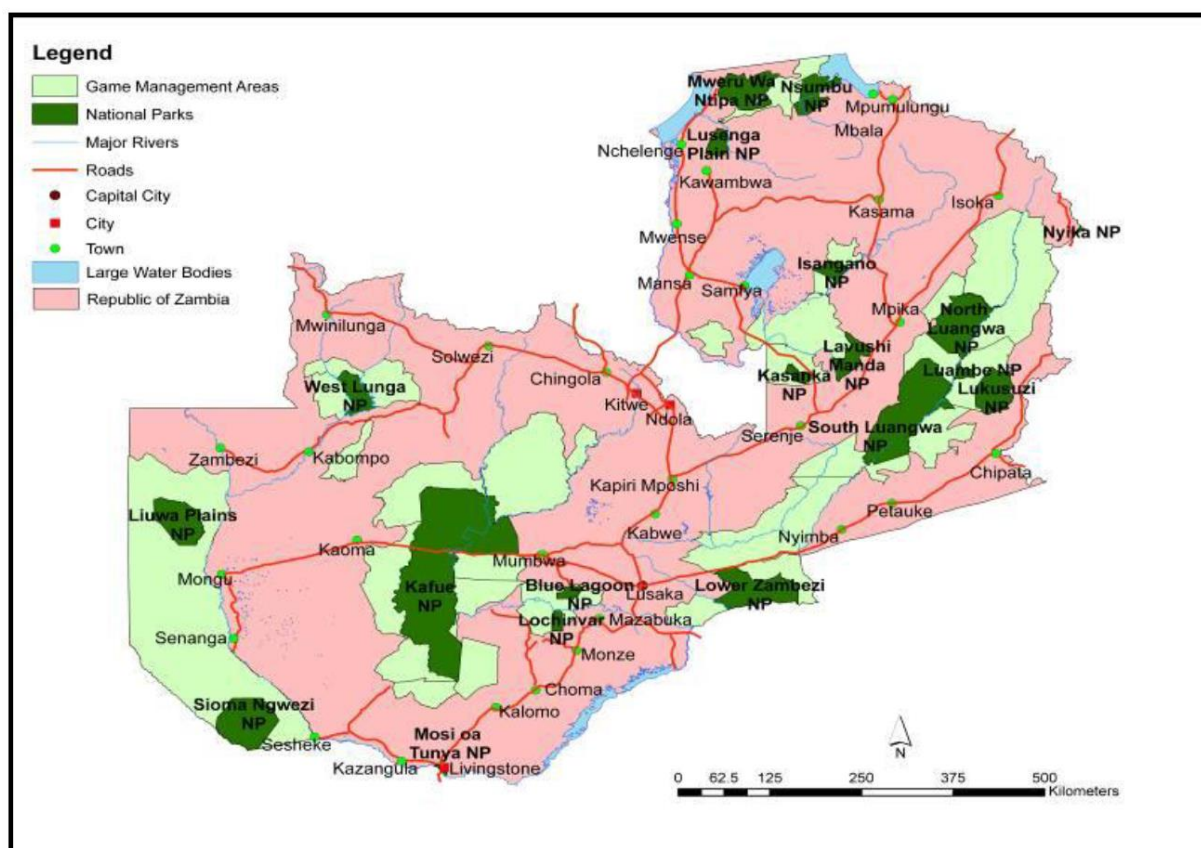


Figure 5: National Parks and Game Management Areas across Zambia

Game Management Areas are protected areas established by law to control the hunting of wild animals through a licensing system. There are 36 GMAs that were essentially set up as buffer zones to the National Parks, covering an additional 23% of the land area. The GMAs are communally owned areas where human habitation is permissible, along with economic activities that are not detrimental to wildlife management. Additionally, Zambia has eight designated Ramsar sites covering more than 4 million ha and 39 Important Bird Areas, 15 of which overlap with national parks. Within the National Forest system, 59 botanical reserves have been established to conserve floral biodiversity; 29 of these reserves are either encroached or depleted with a variety of reasons cited such as unmaintained reserve boundaries and inadequate capacity within the Forestry Department. The 4th National Report estimated that 31 species are endangered or vulnerable (i.e. *threatened*); however a recent query of the International Union for the Conservation of Nature (IUCN) Red List found an increase in this number to 47. Of these *threatened* species, five are

considered *critically endangered*, 12 are *endangered*, and another 30 are considered *vulnerable*. It is difficult to determine whether the increase in the number of threatened species can be attributed to a decrease in populations or if better assessments have been undertaken, improving the baseline data. Many of these endangered and critically endangered listed species are aquatic organisms found in select lakes or river systems in Zambia and are primarily threatened by siltation, dams, direct or indirect poisoning, or competition from non-native species (IRG, 2011).

3.3.3 Ecosystems and Land Cover

Based on the vegetation of Zambia, there are 16 main ecosystems in the country. These ecosystems are dynamic due to the influence of climate and geomorphological processes. Over the last million years, there have been drastic changes in the extent of these ecosystems which have been triggered by changes in climate. In recent times, biotic factors, such as cultivation, fire and herbivory, have played a significant role in altering the structure and functioning of these ecosystems. These are important considerations in biodiversity management. Ecosystems with the highest species biodiversity are Acacia savanna (munga) and *Brachystegia-Julbenardia* (miombo) woodlands followed by *Colosphospermum* (mopane) woodland and floodplain/swamp grassland. Termitary is a transition ecosystem between wetland grassland and upland woodland that is characterized by wooded termite mounds (termitary) surrounded by grassland and is important for grazing. Montane forest, although of limited extent in the country, has the highest number of endemic woody plants. The diversity of ferns and orchids is correlated to ecosystem diversity. The diversity of some invertebrates (Arachnids and butterflies) and ferns shows a south-north increase while that of other invertebrates (*Hemiptera* and *Hymenoptera*) shows the opposite trend. These diversity gradients are related to rainfall/moisture gradient (IRG, 2011).

3.3.4 Agro-ecological regions

The agro-ecology of Zambia is roughly divided into three regions according to the rainfall and soil characters. The following is the general features of these three regions.

Region I

The Region with less than 800 mm of annual rainfall accounts for 12% of the total land area. The total acreage amounts to 17.3 million hectares, the smallest among the three regions. The region includes: the arid zone covering South Province, East Province, the Gwembe Valley of Central Province, and the semi-arid zone of West and South Provinces. The planting season of crops is short normally in the range of 80 -120 days. Accordingly it is suitable for growing such the drought resisting crops as millet, sorghum, sesame and cotton. With irrigation, however, maize can be cultivated even in dry season. The region is also suitable for raising cattle, while the cultivation of cassava is limited. The valley area along the Zambezi River is lowland, consequently the temperature and humidity are high. Due to the habitat of tsetse flies, cattle raising is not feasible (JAICAF, 2008).

Region II

The Region is located at the center of the country, and includes Western Province, Central Province and Eastern Province and a part of Northern Province. Total acreage amounts to about 27.4million hectares, accounting for 42% of the total national acreage, ranking at the second among the three regions. From the aspect of agricultural uses, the soil appears most fertile. The annual rainfall is 800-1000 mm and

no freezing even during the low temperature season. The crop planting period is for 100-140 days. Region II is further divided into II-a and II-b Sub-Regions. The II-a Sub-Region is located in the fertile plateau covering the four provinces of Central, Lusaka, Southern and Eastern, generally with the original fertile soil. There the sedentary agriculture develops, and such various crops as maize, cotton, tobacco, sunflower, soybean, groundnut and wheat by irrigation are planted. The area is also suitable for flowers and vegetable production like paprika. The Sub-Region II-b is included in Western Province, where sandy soil is predominant. The area is suitable for the production of cashew nut, rice, cassava, millet, vegetables, timbers, and livestock production like beef, dairy and poultry (JAICAF, 2008).

Region III

The Region is one of the highest rainfall areas with the average annual rainfall of 1,000-1,500 mm. The period suitable for crop production is 120-150 days. The region accounts for 46% of the whole national acreage, and covers Northern Province, Luapula Province, Copperbelt Province, the most part of Northwest Province, and a part of Central Province. Except Copperbelt Province, the soil in the Region is in an advanced stage of leaching and acidification, yet in applying the lime it can be used as farmland. It is suitable for the production of millet, cassava, sorghum, beans and groundnut. Coffee, sugarcane, rice and pineapple are also planted. The stream water without interruption throughout the year can be utilized for small-scale irrigation. Development of freshwater fish and aquaculture are also expected (JAICAF, 2008).

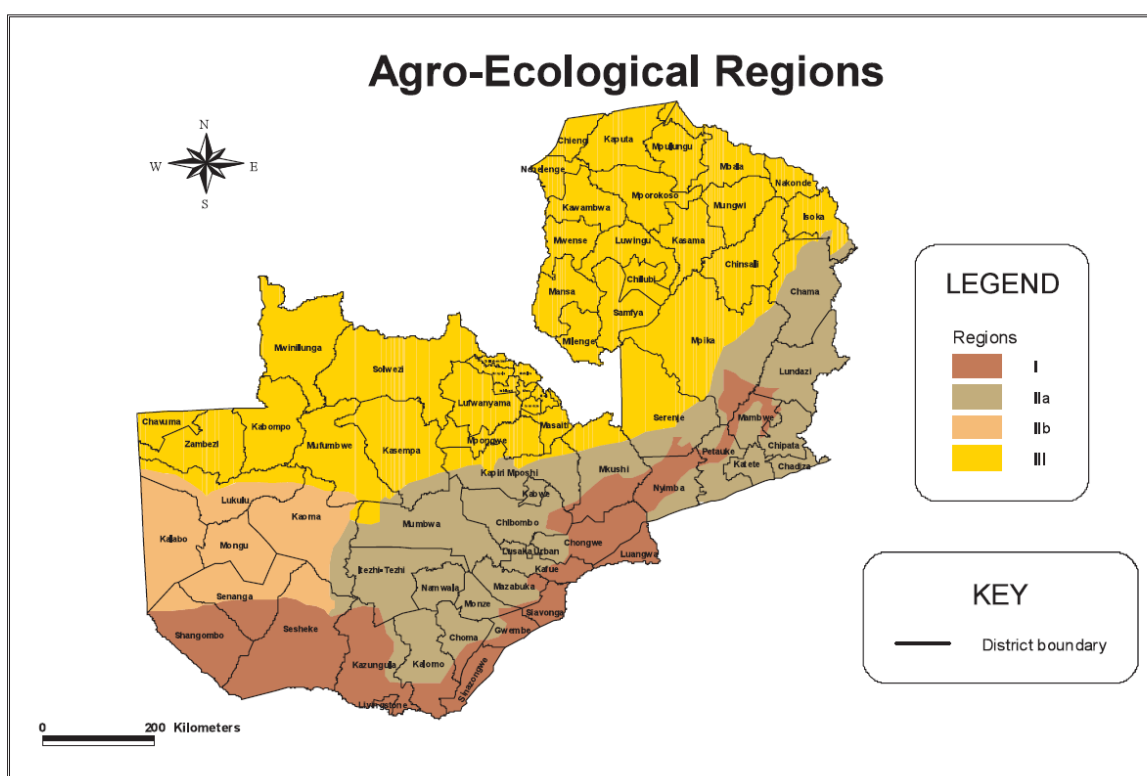


Figure 6: Agro - Ecological Regions of Zambia

3.3.5 Protected Areas

The Convention on Biological Diversity (CBD) defines a protected area as a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives. Similarly, in-situ conservation refers to the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings and, in the case of domesticated or cultivated species, in the surroundings where they have developed their distinctive properties.

The protected area system in Zambia consists of national parks (IUCN protected area category II), bird sanctuaries (IUCN protected area category IV), game management areas (GMAs, IUCN protected area category VIII), important bird areas (IBAs, IUCN protected area category IV), forest and botanical reserves (IUCN protected area categories IV and VIII) and national heritage sites (IUCN protected area categories III and X). National parks were established by government primarily for the conservation of biodiversity. There are 19 national parks in Zambia and these cover a total area of 6.358 million hectares (ha). Sustainable use of wildlife and its habitats in national parks is promoted through eco-tourism while settlements and hunting are prohibited.

Bird sanctuaries have the same status as national parks but are usually smaller in size. There are two bird sanctuaries in the country. Important Bird Areas (IBAs) are identified based on internationally agreed criteria and are established for the long term viability of naturally occurring bird populations across the range of those species for which a site-based conservation approach is appropriate. There are 42 IBAs in Zambia and some of these are in national parks and these also include the two Ramsar sites (Bangweulu Swamps and Kafue Flats) in the country.

Game management areas (GMAs) were established by government to control the hunting of game and protected animals through a licensing and monitoring system. There are 34 GMAs in Zambia which cover a total of 16.57 million ha. Because other forms of land use, such as settlements and agriculture are allowed, GMAs are not strictly protected areas.

Forest reserves were established by government to conserve forest resources for sustainable use by local people in the case of local forests and to protect major catchment areas and biodiversity in the case of national forests. There are 432 forest reserves in Zambia which cover a total of 7.4 million ha. Settlements and cultivation are normally not permitted in forest reserves while removal of any plant is only permissible under license as is livestock grazing. Other forest reserves are managed as botanical reserves that serve three objectives: (i) preservation of relic vegetation types and/or plant species, (ii) genetic banks for multiplication and breeding programs, (ii) reference sites in determining human impacts on forest ecosystems outside reserves. There are 59 botanical reserves in Zambia which cover a total area of 148,000 ha but form part of the country's forest reserve system.

3.4 The Socioeconomic Environment

3.4.1 Agricultural Sector

Zambia is endowed with a large land resource base of 42 million hectares of which only 1.5 million hectares is cultivated every year. There are abundant water resources for irrigation and the country has 40% of the water in Central and Southern Africa. Agricultural output in Zambia increased from 18% of the Gross Domestic Product (GDP) in 2008 to about 20% of GDP in 2009. This was as a result of increased area planted, good rainfall patterns in the whole country, as well as favorable agriculture policies by the government. The country recorded increased production of major crops during the 2009/10 agricultural season compared to the 2008/09 season, including; sunflower (118% increase), soya beans (50% increase), rice (39% increase), maize (31% increase), tobacco (7% increase) and wheat (5% increase). The agricultural sector continues to be the backbone of the Zambian economy as it contributes to the growth of the economy and also to exports. Primary agriculture contribute about 35% to the country's total non-traditional exports (all the country's exports other than copper and cobalt) and about 10% of the total export earnings for the country. The sector also provides employment to 70% of the labour force. As such, agriculture has continued to receive priority attention by the government, through increased budget support aimed at increasing agriculture productivity to ensure food security, income generation, creation of employment opportunities and poverty reduction (ZDA, 2014).

However, poverty in rural Zambia in 2015 affects an estimated 78% of smallholder households.¹ Female-headed households (84.7%) are more likely to live in poverty than male-headed households (75.5%) (IAPRI, 2016).

The majority of small and medium farm households are headed by men while 26% is headed by women and livelihoods amongst the rural population is mainly land dependent. Average size of a smallholder farm is 3.6 ha. Of the 3.6ha, 2.1 ha is cultivated land. While there's a perception in Zambia that land is abundant, 56.7% of farmers, in the 2015 survey, said that there was no land available to them in the vicinity to expand their production. The highest% age reporting no additional land availability was in Eastern and Southern Provinces.

Household members, on average, travel 2.9km from their homes to their nearest field. 57% of Zambian cultivate less than 2 ha and another 30% cultivate less than 5 ha.

Land ownership by smallholders is typically either allocated by traditional leaders or through inheritance. Only 5.7% of smallholder fields were purchased. This is reflected in the fact that a similar proportion (6%) reports having a chiefs' certificate of landholders in while close to 90% have customary ownership without titles. Those who hold title to their land on average own larger land-holdings (IAPRI, 2016).

¹ Smallholder households as defined as households owning less than 20 ha.

Among the smallholder farmers, educational attainment is four years for the adult males and two years for adult females (IAPRI, 2016).

89.4% of smallholder households grow maize on 53.6% of land, groundnuts and cassava are grown on 7.5% and 10.6% of available land respectively. 3.8% of households use hired labor, with male-headed households more likely to hire labor than female headed (IAPRI, 2016).

Mechanization is low in smallholder farms – 1.8% utilizes machine power while animal draft is used by 36.5%. 25.6% report using fertilizers and 14.1% use herbicides. Male-headed households are more likely to have access to improved inputs. 52.2% of households indicated that the reason for non-use of fertilizer was lack of affordability (either direct purchase or through membership of cooperative purchase groups). An additional 10% did not purchase because the Farmer Input Support Program (FISP) was not available in their area. Overall, 76.3% reported lack of funds to purchase fertilizers. 33.5% of all households received FISP fertilizers in 2014/15 up from 9.1% in 2008/09. FISP has mainly benefitted households cultivating larger landholdings (5 ha or more). On a national level, 44% of smallholders are members of a farmer association and/or local savings and loan society (IAPRI, 2016).

Yields can vary dramatically depending on availability of input for smallholder farmers – on average, maize yields is 1,000 kg/ha higher on fields where fertilizer were applied than those without. Reflecting the lower access to inputs in female-headed households, yields are consistently lower. However, the orange sweet potato is an exception where female-headed households record almost the double yields of their male counter parts (IAPRI, 2016).

27.3 of all rural agricultural household livelihoods are as subsistence farmers and do not sell any crops. An additional 9.3% are near subsistence, selling less than 10% of their crops. 12.4% sell 10-25% of crops, 20.9% sell 25-50% and 19.8% sell 50-75% of their crops. 10.3% sell 75% or more. Households with larger landholdings are more likely to have a higher level of commercialization. On average, female-headed households are less commercialized than their male-headed counterparts. And while rural households commonly sell maize, 50% of all maize sales are done by less than 5% of landholders. Additionally, 38.7% of rural agricultural households are net purchasers of maize whether they grow the crop or not (IAPRI, 2016).

Table 4: Households growing and selling from own production

Crops	% households
Maize	52.5
Sorghum	14.6
Rice	67.2
Millet	43.5
Groundnuts	56.1
Soya beans	83.6
Seed cotton	99.1
Mixed beans	67.3
Cowpeas	35.0
Sweet potato (white/yellow)	60.8

Cassava	22.3
Sweet potato (orange)	46.8
Fruits and vegetables	35.7
Other crops	53.4

Source: IAPRI, 2016.

Credits were obtained by 15% of the rural agricultural smallholder households in 2014/15. Close to 10% of such credits were provided through out-grower schemes with an additional 3.3% acquired from friends, relatives or informal moneylenders. Larger landholding households are more likely to obtain credit, and on average, female-headed households obtained fewer loans. 17.8% of male-headed households obtained credit, but only 9.6% of the female-headed households. Only 10.4% of smallholder owners have access to a bank account, but 53.6% use mobile phones (IAPRI, 2016).

48.7% of rural agricultural smallholder households report that at least one household member has income from business outside crop commercialization and 29.4% of households have a member who earns an employment income. The main business activities include charcoal production and sale (13%), local beer brewing (13%) and fishing (10%). Employment is mostly from work on other smallholder farms (40%) or commercial farms (7%). 10% of households receive income from household members working in private companies (16%), as civil servants (10%) or through casual labor (21%). 21% of households receive some income through remittances. A higher percentage, 29%, of female-headed households report receiving remittances (IAPRI, 2016).

The most common livestock held by rural agricultural smallholder households in Zambia is chicken (80%), followed by goats (35.1%), cattle (31.1%) and pigs (16.3%). On average, households owning chickens own 13 birds. Cattle owning households on average own 8 heads. Goat owning households on average own 7 animals and pig owning households on average own 5 pigs. Male-headed households are more likely to own livestock than female-headed households (IAPRI, 2016).

3.4.2 Manufacturing and Agro-Processing

Agriculture is also a major employer in Zambia and currently employs about half the total workforce in Zambia. However agriculture alone is not enough to bring about meaningful development to the Zambia people, there is need for Zambia to diversify from primary agriculture into agro processing. Alternative or additional income generating opportunities are needed to support the millions of poor families who can no longer support their livelihoods from the land alone. Agro processing - turning primary agricultural products into other commodities for market - has the potential to provide those opportunities.

The manufacturing industry contributed an average of 7.2% to Zambia's Gross Domestic product during the period 2010-2015 compared to an average of 10% over the previous five years. The Food, Tobacco and Beverages, within which agro-processing falls, has been the largest growth subsector over the period. The contribution of the manufacturing sector to employment in Zambia is still sub-optimal. In 2014, the manufacturing sector accounted for 223,681 jobs (representing a 3.2% rise

from 2012) of which 7.1% constituted formal jobs. The total manufacturing sector jobs represented 3.8% of the 5.9 million total employed population, while sectors such as Agriculture, Forestry and Fishing accounted for 48.9% and Mining and Quarrying at 1.4%.

The manufacturing sector is second highest in terms of the Foreign Direct Investment (FDI) inflows and stocks after the mining sector representing about 22% of total net inflows in 2013. The manufacturing sector also accounts for the highest actualized investment of 33% followed by agriculture with 21%. In terms of the stock of FDI by sector the manufacturing was second to the mining sector at US \$1.41 billion in 2013 from about US \$0.99 billion in 2012 representing 42% rise. With increased investment it is hoped that the sector can contribute more to Zambia economic wellbeing and bring about tangible benefits to the Zambian people such as employment creation and poverty alleviation.

Among the major constraints to the manufacturing sector's growth include limited access to key domestic markets such as mines, chain stores and government procurement; limited beneficiation; limited diversification and low levels of investment; the limited access to affordable long term finance and prevalence of outdated technology. Other constraints are limited access to appropriate manufacturing related technical skills to meet industry needs, especially in engineering related fields; and underdeveloped conformity assessment and quality infrastructure and services. Further, stiff competition from imports constrained the growth of the manufacturing sector and its contribution to GDP, job and wealth creation. With respect to agro-processing, the major constraints to the development and growth of agro industrial enterprises largely relate to inadequate raw material supplies, limited access to appropriate technology, limited capacity to maintain existing technologies, failure by locally processed products to compete against imports, low viability of existing agro processing enterprises and limited access to credit.

Large part of agricultural production undergoes some degree of transformation between harvesting and final use. The industries that use agricultural, fishery and forest products as raw materials comprise a very varied group. They range from simple preservation (such as sun drying) and operations closely related to harvesting to the production, by modern, capital-intensive methods, of such articles as textiles, pulp and paper (ZDA, 2014).

The Agro processing sector provides an opportunity for small scale producers to engage in small scale enterprises and for increase income and access to food for the poor, by establishing small scale, appropriate and sustainable processing businesses that are flexible, require little capital investment and can be carried out without the need for sophisticated or expensive equipment.

Agro processing Opportunities in Zambia include: Peanut butter production Cashew nut processing Animal or Stock feed production Cassava Processing (food and other industrial products) Cashew nut Processing Grain Milling (Rice, Maize, Wheat etc.) Edible oil Production, Fruit Canning and Juice Extraction Meat, dairy, leather and leather products Fish canning and fish meal production Cotton Spinning and Textiles Bio-diesel production and ethanol production Honey processing.

Recognising the challenges and opportunities in the, Government's focus in industrial policy is to promote domestic value addition with a desire to see an increased participation of MSMEs in formal business that can generate jobs and wealth. Government also seeks to promote and provide domestic and foreign market access opportunities to Zambian manufacturers, including those involved in agro processing, to domestic and regional value chains. In ensuring that these broad objectives are met, policy interventions in the areas of competition, quality assurance and creating an enabling environment for business will be implemented in the medium term. The Agriculture sector will therefore continue to be a priority sector over the medium term due its important role in providing raw materials for value addition and other agribusiness opportunities.

3.4.3 Leveraging Agricultural Potential

Zambia's agricultural potential remains largely untapped but policy attention is shifting favourably towards crop diversification and export promotion. Linking Zambian farmers to markets, for example throughout grower schemes, improves the quality and quantity of supply and spurs long-term agricultural growth. Improving market information enables smallholder farmers to conduct agriculture as business and to contribute fully to economic development and poverty reduction in Zambia.

3.4.4 Diversifying Agricultural Production

Despite significant increases in variety and production, crop diversification still has a long way to go in Zambia. After promoting maize cultivation in the 1970s, the government has broadened its focus in support of crops such as cassava, sorghum and cowpeas, but profit margins remain very low. The diversification into cash crops faces problems with market access, infrastructure and human capital. With privatisation and trade reforms in the early 2000s, the production of export crops has risen steadily but still runs far behind maize production (figure 7). Agricultural exports (e.g. cotton, tobacco, spices, horticultural products and honey) have registered the strongest growth among non-mineral exports in most recent years.

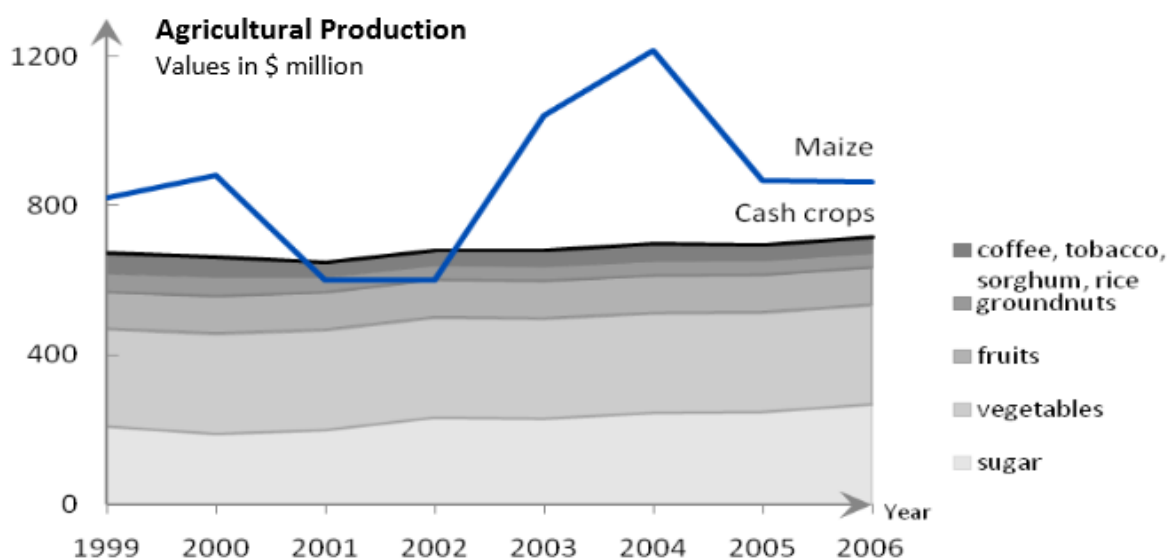


Figure 7: Agriculture Production

3.4.5 Linking Farmers to Value Chains

Successful examples of linking farmers to value chains have been in contract farming involving small-scale growers as an important route to achieving sustained expansion of production. In the cotton sector, private companies have been active in setting up out grower schemes (OGS) – such as Dunavant’s “distributor model” – which now involve some 220 000 small farmers. Since privatisation in 1999, cotton production has steadily grown by about 15 per cent a year. Other sectors follow this example: Shoprite’s subsidiary Freshmark sources 97% of its stock of fruit and vegetables from local farmers; subsidiary processor Freshpikt consistently buys from 200 small-scale producers for regional markets. To improve smallholders’ competitiveness in the international markets, the non-profit Zambia Export Growers’ Association (ZEGA) offers business advice, financial counselling and training. It also aims to improve quality standards and to train managers for OGS. However, OGS face increasing challenges to sustaining their competitiveness. Low productivity, high rates of loan non-repayment and widespread side-selling from farmers discourage agribusiness enterprises. Companies have therefore preferred to increase volumes of production by expanding the area and number of contracted smallholders, rather than investing in extension services to increase growers’ productivity.

3.4.6 Improving Market Information

Poor infrastructure leads companies to concentrate in easily accessible areas, cutting off smallholders in the countryside from transaction flows. Deficiencies in the physical infrastructure hamper the timely exchange of goods and information about marketing opportunities, thus curbing sustainable agribusiness development for smallholders. The development of markets and access to them is crucial. “It is very difficult to push change on the technological or input side if there is not a proper market. Linkages to agro-processing and other value-adding activities might create (Felgenhauer, 2007).

3.4.7 Trade

Zambia implements a liberal trade policy, being party to two Free Trade Areas in the COMESA and SADC Regions. These offer duty free quota free market access for Zambian goods into the region and represent an important trading partner for Non-Traditional Exports due to proximity as well as the preferential treatment offered to Zambian goods.

Total export earnings declined from US\$9.7 billion recorded in 2014 to US\$7.0 billion in 2015. This picture was true for both Traditional and Non Traditional Exports (NTEs), where traditional exports declined from US\$7.2 billion to US\$5.3 billion while NTEs declined from US\$2.4 billion to US\$1.7 billion in 2015. The share of NTEs to total exports also declined from 27.8% to 24.3% during the review period.

The country, in 2015 recorded a negative trade balance of US\$1.5 billion, the first trade deficit since 2006. Among the factors attributable to this decrease in export earnings was the decline in copper prices on the global market coupled with the depreciation of the Kwacha against major foreign currencies, particularly during the last quarter of the year. This emphasises the need to diversify from exports of primary commodities to value added goods and from over-dependence on copper exports for foreign earnings at national level.

The major exports products included intermediate goods mainly comprising of copper cathodes, sections of cathodes of refined copper, and other related copper products which accounted for over 80% of total exports. The main NTE products included semi-manufactured gold, refined copper wire, precious stones, sulphuric acid, cotton, tobacco and raw cane sugar. The dominant import products were mainly capital and consumer goods, collectively accounting for about 60% of Zambia's imports from the rest of the world.

The top five major markets in order of ranking were Switzerland representing an average of 44.3% of total export earnings. This was followed by China, Singapore, South Africa, and DR Congo with 14.5, 7.8, 7.7 and 7.6% respectively. It is worth noting that the regional market was the major export destination for NTEs with Congo DR having the largest share of NTEs to the region, at 35%, by South Africa. Sulphuric acid and Portland were the major products exported to DRC, while refined copper wire and semi-manufactured gold being the NTEs to South Africa. Other regional markets for NTEs were Zimbabwe, Malawi, Kenya, Burundi, Tanzania, and Mozambique.

In terms of focus at policy and programme level, Government seeks to consolidate market access arrangements with bilateral, regional trading partners and preferential trading partners and facilitate trade by reducing times and procedures for exporters and importers. The aim is to take advantage of export market access opportunity in order to increase exports. The same applies to domestic market access, where the aim is to link farmers and small businesses to manufacturers and distribution chains such as supermarkets.

3.4.8 Land Tenure and Titling System

The details about land tenure and titling systems are covered in the RPF and therefore only brief descriptions of these issues are included here.

Land tenure is the way in which rights in land are held and in Zambia tenure is categorized into two tenure systems namely, statutory tenure and customary. Statutory land tenure refers to state Land which is administered by the Lands Commissioner through local authorities on behalf of the President since all land in the country is vested in the Republican President on behalf of the people. The president of Zambia holds the country's land in perpetuity on behalf of the Zambian people. The president has delegated his powers to make and execute grants and disposition of land to the Commissioner of Lands. The Commissioner has agents who plan the land into plots and thereafter select and recommend suitable candidates to the Commissioner of Lands for issuance of certificate of title. The Commissioner's agents in this regard, are the District, Municipal, and City Councils. These agents use the Town and Country Planning Act to plan the land in their areas in their capacities as planning authorities under the Act. Customary land tenure system applies in areas under the jurisdiction of traditional authorities (chiefs/chieftainesses). The traditional system of tenure is the most prevalent among the majority Zambians who live in rural areas. Approximately 94% of the country is officially designated as customary area. It is occupied by 73 tribes, headed by 240 chiefs, 8 senior chiefs and 4 paramount chiefs. Usually, tenure under customary lands does not allow for exclusive rights in land. No single person can claim to own land as the whole land belongs to the community. Land is deemed as belonging to members of the community for their own use (Republic of Zambia, 1995). It is a valuable heritage

for the whole community. Communal lands in most of the African countries including Zambia have sprung from a concept of ancestral trust committed to the living for their own interest and for the interest of the unborn.

4.1 Introduction

The ATP will be implemented by the MCTI based in Lusaka with provincial and local presence through Government Agencies and Municipalities. The MCTI will provide overall policy guidance and has the responsibility for policy making. The PIU will act as the implementing agent on behalf of MCTI and provide overall coordination of the implementation of the ATP and will monitor performance to ensure that the objectives of the project are achieved. The PIU will actively involve other Ministries, the private sector and other stakeholders including farmer-groups. Environmental issues cut across a wide variety of sectors and there are a number of government institutions and agencies outside of the Zambia Environmental Management Agency (ZEMA), which are involved in aspects of environmental management and these institutions and their legislative responsibilities are summarized in Table 3. Depending on the nature of the ATP subprojects, representatives of these institutions may provide technical assistance to the Project District Focal Point in the preparation and implementation of subprojects and Environmental Social Management Plans (ESMPs).

4.2 Overview of Relevant Zambian Policies and Plans

Zambia has over the past two decades developed a number of policies, plans and legislation to guide private and public institutions to pursue environmentally and socially sustainable development agenda in various sectors of the economy. Environmental and social issues are crosscutting and this is reflected in the various legislative frameworks, policies and legal structures that are in place. This subsequent section outlines some of the policies, plans and current legislation in place that are relevant to the proposed agribusiness trade project that will focus on small infrastructure works to build or upgrade markets points and associated auxiliary structures in the agri-business value chain.

4.2.1 Vision 2030

Zambia's Vision 2030, completed in 2005, is a long-term planning instrument which reflects the collective understanding, aspirations, and determination of Zambia to become a middle income country. The Vision 2030 was developed in response to a 15 year focus on macroeconomic stability and market liberalization which was useful in stabilizing the economy, but did little to address ingrained poverty and socio-economic development. The Vision 2030 signaled a return to development planning and a focus on poverty reduction in Zambia. In the vision 2030 the country envisages that Zambians, by 2030, aspire to live in a strong and dynamic middle-income industrial nation that provides opportunities for improving the well-being of all, embodying values of socio-economic justice, underpinned by the principles of:

- (i) gender responsive sustainable development;
- (ii) democracy;
- (iii) respect for human rights;
- (iv) good traditional and family values;
- (v) positive attitude towards work;
- (vi) peaceful coexistence and;

(vii) private-public partnerships.

The vision 2030 principles are relevant to the agro-business project as they show the country's commitment to:

- inclusion of women and vulnerable groups to agro value chains,
- creating an enabling environment that promote divergent views, peace and stability that are a hallmark of democracy to help foster and safeguard investments,
- private – public partnership in order to foster sustainable economic growth and ensuring development activities do not pose a danger to the environment and the well-being of communities near mining areas.

4.2.2 Revised Sixth National Development Plan (2013-2016)

The Revised Sixth National Development Plan (R-SNDP) 2013-2016 is a medium term plan that is primarily aimed at refocusing Government priorities and policies to be in line with the current Government development paradigm. The R-SNDP is primarily an investment plan which focuses on capital investment areas with a bias to rural development and job creation. This approach, therefore, identifies the main growth areas or sectors as Skills Development, Science and Technology, Agriculture, Livestock and Fisheries, Energy, and infrastructural development particularly transport infrastructure while enhancing human development related sectors of Water and Sanitation, Education and Health. The other equally important sectors to stimulate rural development and job creation which are mainly driven by private sector such as Tourism, Manufacturing and Mining will be implemented through the normal recurrent annual budget and Medium Term Expenditure Framework (MTEF). In addition, the Government will also put in place appropriate policy environment for the sectors to thrive. Therefore, the strategic focus of this Plan is to primarily focus on job creation, rural development and promote inclusive growth while investing in human development to take care of macro-economic fundamentals (R-SNDP, 2014).

Agriculture, Livestock and Fisheries

With more than 50% of the employed population in the Agriculture Sector, agriculture development is critical for achieving inclusive growth and poverty reduction. To attain a transformation of the sector, significant challenges have to be addressed. These include unbalanced agriculture policies which have favoured maize production and disadvantaged the production of other crops. The Sector has not effectively utilized research and development, farm mechanization, science and technology and ICT to increase yields and maximize the comparative advantage of different areas of the country and access production and market information. Poor storage, inadequate irrigation and other infrastructure challenges have resulted in post-harvest wastages and over-reliance on rain-fed agriculture. In order to address these challenges, Government will promote and enhance crop diversification from maize to other crops such as soya beans, wheat, rice, cashew nuts, beans, cotton, groundnuts, coffee, tea, oil crops and tubers. In addition, measures will be undertaken to increase area under irrigation, increase area planted through development of farm blocks, enhance productivity through expansion and decentralization of research and extension services, promote the utilization of improved seed varieties and other improved agricultural technologies, and promote farm mechanization. In the livestock sub-sector, the focus will be to increase livestock numbers through the establishment of livestock breeding centers, promotion of artificial insemination, construction of dams

and canals to support agriculture production and establishment of milk collection centers. Priority will also be put on infrastructure development and rehabilitation, enhancing livestock disease control including compulsory dipping, surveillance and research, developing livestock standards and grades, and promoting processing of livestock and livestock products. In the fisheries sub-sector, the strategic focus will be on development of smallholder aquaculture and improvement of infrastructure for fisheries research and marketing as well as promoting co-management of capture fisheries in natural water bodies to ensure sustainability of fisheries resources. The Government will support the above strategies in agriculture by improving access to finance especially in rural areas. The Government will also promote guaranteed security on land tenure as collateral for small scale farmers to access finance for productive assets, technology and other inputs (R-SNDP, 2014).

Agriculture, Agribusiness and Diversification

Consistent with the national development plan, the diversification programme seeks to move away from over dependence on the mining sector to other economic activities. The agriculture sector has been identified as a key growth sector to support the national diversification programme with strong emphasis on value addition to endowments in the various regions in order to create jobs and contribute to the industrialization of the Country.

Government therefore seeks to create an enabling environment for the agriculture and agribusiness including manufacturing sector to effectively contribute to economic growth and poverty reduction. This is espoused in the Industrialization and Job Creation Strategy Paper of 2013 and will be a major thrust in the implementation of agriculture and industrial policy. The R-SNDP is relevant to the ATP as it recognizes the need for investment into the agriculture sector and agro processing.

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4.2.3 Commercial, Trade and Industrial Policy, 2010

The CTI Policy seeks to stimulate and encourage value addition emphasizes the need to link production to markets including domestic and international markets. Produce from the agriculture sector have been identified as key inputs into the manufacturing sector and trade activities. The focus of the ATP is consistent with the objectives and aspirations of the CTI Policy that emphasizes implementation of interventions that are key to the realization of the national diversification programme.

4.2.4 National Employment and Labour Market Policy, 2006

The National Employment and Labour Market Policy (NELM) addresses measures that relate to the removal of any legal or institutional impediments to the development of a conducive environment for harmonious industrial and labour relations. Further, the policy endeavours to provide a labour market management mechanism that will be able to respond effectively and efficiently to the demands of a liberalized market economy. The labour policy objectives are consistent with ATP.

4.2.5 National Agricultural Policy (2016) and Agriculture Sector Investment Plan (2013)

The Second National Agricultural Policy (NAP) seeks to develop an efficient, competitive and sustainable agriculture sector that assures food and nutrition security, increased employment opportunities and incomes. It recognizes the role of the sector in the diversification of the economy and the need for interventions to strengthen the capacity of farmer groups and cooperatives in production, processing, marketing and trade in the areas of crop, livestock and fisheries. It also recognizes the importance and role of the private sector investment and support in agro-processing and marketing. The Zambia National Agriculture Sector Investment Plan (NAIP, 2014-2018) emphasizes the need for diversification and job creation in the agriculture sector. Its overall objective is to facilitate and support the development of a sustainable, dynamic, diversified and competitive agricultural sector that assures food security at household and national levels and maximizes the sector's contribution to GDP. One of the key programmes identified in the plan is market access and services development. The ATP is complementary to both the NAP and NAIP in its focus to promote agribusiness and market linkages between farmers and market operators as well as the support it intends to give to agribusiness oriented MSMEs.

4.2.6 The Competition and Consumer Protection Policy, 2009

The policy seeks to develop and facilitate an enabling national environment which is transparent, equitable, and efficient as well as provide for procedural fairness for business and consumers. The policy was developed to address gaps in the policy and legal environment in respect to competition and consumer welfare. It was this policy that led to the repeal and replacement of the Competition and Fair Trading Act of 1994 Act with the Competition and Consumer Protection Act No. 24 of 2010.

This Policy and subsequent legislation led to the strengthening of the implementing Agency i.e. the Competition and Consumer Protection Commission (CCPC) and the introduction of a Competition Tribunal that would act as an appellant body on the decisions of the CCPC on in its investigations and rulings on competition and consumer complaints.

The policy seeks to deter uncompetitive practices by businesses, thereby creating a fair environment for all businesses including the MSMEs for the benefit of consumers.

4.2.7 National Quality Policy, 2011

The National Quality Policy seeks to establish a National Quality Infrastructure (NQI) and technical regulation framework that will ensure that locally produced goods and services are recognised and accepted by Zambia's trading partners. The policy objectives include the following:

- To ensure that goods and services produced in Zambia meet the local and international quality requirements;
- Ensure that quality consciousness is raised among both suppliers and consumer;
- To develop capacity at both human and institutional levels to support standardisation, quality assurance;

- The policy seeks to restructure Zambia's quality infrastructure, including the institutional framework, in line with international best practices.

4.2.8 Micro, Small and Medium Enterprise Development Policy, 2010

The Micro, Small and Medium Enterprise Policy seeks to facilitate the creation and development of viable MSMEs that contribute to job creation and GDP. The policy advocates for the utilisation and value addition to local raw materials in identified regional areas as well as strengthening of forward linkages between MSMEs and large scale companies including through sub-contracting. Through interventions under this policy, government seeks to improve productivity and enhance local economic development.

The focus areas for MSME support relate to capacity development, access to market opportunities, finance and infrastructure and providing a conducive business environment.

4.2.9 The National Decentralisation Policy, 2013

The objectives of Decentralisation in Zambia stems from the need for the citizenry to exercise control over its local affairs and foster meaningful development which requires that some degree of authority is decentralised to provincial, district and sub-district levels as well as Councils, in the background of centralisation of power, authority, resources and functions, which has in turn subjected institutions at provincial, district and sub-district levels to absolute control by the center. In order to remove the absolute control by the center, it is necessary to transfer the authority, functions and responsibilities, with matching resources to lower levels. The vision of Government to achieve a decentralised system within a unitary State in Zambia. In order to achieve the Government's vision in decentralisation and with particular reference to the ATP, one of the policy objectives being pursued relates to empowering provinces, districts and communities in order to achieve effective social economic development.

4.2.10 National Policy on Environmental (NPE), 2005

Zambia's National Environmental Policy is aimed at promotion of sustainable social and economic development through sound management of the environment and natural resources. The policy seeks, among other things, to: secure for all persons now and in the future an environment suitable for their health and well-being; promote efficient utilization and management of the country's natural resources and encourage, where appropriate long - term self-sufficiency in food, fuel wood and other energy requirements; facilitate the restoration, maintenance and enhancement of the ecosystems and ecological processes essential for the functioning of the biosphere and prudent use of renewable resources; integrate sustainable environment and natural resources management into the decentralized governance systems and ensure that the institutional framework for the management of the environment and natural resources supports environmental governance in local government authorities; enhance public education and awareness of various environmental issues and public participation in addressing them; and promote local community, NGO and private sector participation in environment and natural resource management.

The key principles applicable to the ZMERIP are that:

- (1) every person has a right to a clean and healthy environment;

- (2) every person has a duty to promote sustainable utilization and management of the environment and natural resources, including taking legal action against any person whose activities or omissions have or are likely to have adverse effects on the environment;
- (3) women should effectively participate in policy, program and project design and implementation to enhance their role in natural resource use and management activities;
- (4) there is need to use natural resources sustainably to support long-term food security and sustainable economic growth;
- (5) rational and secure tenure over land and resources is a fundamental requirement for sustainable natural resource management; and
- (6) trade-offs between economic development and environmental degradation can be minimized through use of EIA instruments and environmental monitoring.

For the proposed ATP it is important to recognize the linkage between environment and development. It is also important to realize that the two are not mutually exclusive, but rather complementary. More important for the component on the project whose key objective is integration and provision of sustainable livelihoods, the project should integrate gender, children and other vulnerable groups' concerns in environmental planning at all levels, to ensure sustainable social and economic development.

4.2.11 National Water Policy, 1994

The National Water Policy of 1994 embraces modern principles of water resources management and endeavors to deal with the challenges of poverty reduction, all aspects of water including resource management, development, and service delivery conforming to the current global and regional trends and the requirements as reflected under the new Sustainable Development Goals that replace the Millennium Development Goals (MDGs). The overall policy goal is sustainable management and utilization of water resources in order to:

- (i) provide water of acceptable quality and of sufficient quantities,
- (ii) ensure availability of efficient and effective water and sanitation services that satisfy the basic requirements of every Zambian; and
- (iii) enhance the country's natural ecosystems.

One of its objectives is to promote public and private sector participation in water resources management, development, supply and conservation. The principles that will guide the management of water resources include the following:

- (i) management, protection and conservation of water resources to be undertaken in an integrated manner;
- (ii) all people to have access to potable water and sanitation services to reduce incidences of water related diseases;
- (iii) water resources shall be optimally, equitable and rationally allocated and regulated to ensure sustainable optimal economic returns and social enhancement;
- (iv) water resources management will be based on the concept of decentralization and will promote local participation with the catchment as the unit of water management;
- (v) promote the empowerment of user communities to own, manage and invest in water resources development;

(vi) pollution of water resources shall follow the "Polluter Pays" principle to ensure water user responsibility.

4.2.12 The National Forest Policy of Zambia, 1998

This policy aims at promoting sustainable contribution of national forests, woodlands and trees towards improvement of the quality of life in the country by conserving the resources for the benefit of the nation and to the satisfaction of diverse and changing needs of the Zambian population, particularly rural smallholder farmers and entrepreneurs. The policy prevents changes in land-use, which promote deforestation, constrain farm forestry or endanger the protection of forests with cultural or biodiversity or water catchment conservation values, and it also discourages excisions in gazetted forest, except in cases of environment friendly public utility, for which suitable inter-sectoral and local consultations will be established.

The policy further recognizes environmental impact assessment as an important tool for new projects as one way of promoting sustainable management of forest resources. This will require that activities on the agro business such as the development of small infrastructure comply with EIA regulations to minimize impacts on vegetation and forest cover

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4.3 Relevant Zambian Legislation

The table below shows an overview of the relevant Zambia legislation, their interpretation and relevance to the ZMERIP Project.

Table 5: Relevant Zambia Legislation and Interpretation

Legislation	Interpretation of Legislation	Relevance to the Project
Anti-Gender-Based Violence Act, 2010.	An Act to provide for the protection of victims of gender-based violence; constitute the Anti-Gender-Based Violence Committee; establish the Anti-Gender-Based Violence Fund; and provide for matters connected with, or incidental to, the foregoing.	The ATP will give priority to vulnerable grouping such as women by linking them to markets and value chains in order to improve their financial security and independence
Business Regulatory Act, 2014	An Act to provide for an efficient, cost effective and accessible business licensing system; provide a set of principles and interventions to guide regulatory agencies when regulating and licensing business activities in accordance with a law under their mandate; provide for the classification of, and criteria for, licensing; establish an e-register and assign a control number for laws regulating business; provide for the establishment of regulatory services centers, regulatory clearance systems and a single licensing system for business in each sector or group of businesses in a sector; establish the business Regulatory Review Agency and provide for their functions and powers; and provide for matters connected with, or incidental to, the foregoing.	The project aims to promote improved business environment for facilitating trade and investment in agribusiness and related sectors therefore the Business Regulatory Agency will very important to the implementation of this project. The project also aims to strengthen the institutional Capacity of the Business Regulatory Review Agency
Citizens Economic Empowerment Act, 2006	An Act to establish the Citizens Economic Empowerment Commission and to define its functions and powers; establish the Citizens Economic Empowerment Fund; promote the economic empowerment of targeted citizens, citizen empowered companies, citizen influenced companies and citizen owned companies; promote gender-equality in accessing, owning, managing, controlling and exploiting economic resources; encourage an increase in broad-based and effective ownership and meaningful participation of targeted citizens, citizen empowered companies, citizen influenced companies and citizen owned companies in the economy in order to contribute to sustainable economic growth; remove social customs, statutory provisions or other practices that limit access to any particular gender to skills training that is essential for effective participation in the economic sector; promote the employment of both gender by removing structural and discriminatory constraints that hinder any particular gender	On the ATP increased access to markets and value addition will help local producers and traders maximize returns on their investments. This will further create synergies and improved visibility to access extra funding from the Citizens Economic Empowerment Fund (CEEC) to grow their businesses, enhance productivity and increased access to the market.

Legislation	Interpretation of Legislation	Relevance to the Project
	from employment opportunities and in so doing ensure equitable income distribution; promote equal opportunity of targeted citizens and citizen empowered companies, citizen influenced companies and citizen owned companies in accessing and being awarded procurement contracts and other services from State institutions; promote Greenfield investment through joint ventures and partnerships between local and foreign investors in order to enhance broad-based economic empowerment; and provide for matters incidental to or connected to the foregoing.	
Competition and Consumer Protection Act, 2010	An Act to encourage competition in the economy by prohibiting anti-competitive trade practices; to regulate monopolies and concentrations of economic power; to protect consumer welfare; to strengthen the efficiency of production and distribution of goods and services; to secure the best possible conditions for the freedom of trade; to expand the base of entrepreneurship; and to provide for matters connected with or incidental to the foregoing	The project will have a component of Strengthening the Regulatory and Institutional Framework for Agribusiness and Trade for the institutions like Competition and Consumer Protection Commission. The project also aims to promote fair trade and competition hence the relevance to the project.
Control Goods Act 1997	An Act to enable the President to provide by regulation for the control of the distribution, disposal, purchase and sale, and the wholesale and retail prices of any manufactured or unmanufactured commodity or of any animal or poultry, or of any class of any such commodity, animal or poultry, for the control of imports into and exports from Zambia, and for other purposes incidental and supplementary to the foregoing.	The project will be seeking to enhance trade facilitation to boost Non Traditional Exports to the region. It is there therefore important that the regulations of movement and distribution of goods are adhered to.
Disaster Management Act, 2010	An Act to establish and provide for the maintenance and operation of a system for the anticipation, preparedness, prevention, coordination, mitigation and management of disaster situations and the organization of relief and recovery from disasters; establish the National Disaster Management and Mitigation Unit and provide for its powers and functions; provide for the declaration of disasters; establish the National Disaster Relief Trust Fund; provide for the responsibilities and involvement of the members of the public in disaster management; and provide for matters connected with, or incidental to, the foregoing.	Farmers in the agricultural sector in Zambia have in the last two decades become prone to the effects of climate change, such as excessive rainfall and droughts. The Disaster Management and Mitigation Unit (DMMU) has been established and mandated to anticipate, prepare and manage disasters should they occur.
Employment Act, 1997	An Act to provide legislation relating to the employment of persons; to make provision for the engagement of persons on contracts of service and to provide for the form of and enforcement of contracts of service; to make	During project implementation and associated sub projects, various individuals will be engaged to perform multiple tasks. This will

Legislation	Interpretation of Legislation	Relevance to the Project
	<p>provision for the appointment of officers of the Labour Department and for the conferring of powers on such officers and upon medical officers; to make provision for the protection of wages of employees; to provide for the control of employment agencies; and to provide for matters incidental to and consequential upon the foregoing.</p>	<p>require that all contractors on the project adhere to the provision of the employment act and the national labour laws. This will be achieved by creating a conducive work environment, treating workers in a humane manner and remuneration is favorable.</p>
<p>Environmental Impact Assessment Regulations, 1997</p>	<p>A developer shall not implement a project for which a project brief or an environmental impact statement is required under these Regulations, unless the project brief or an environmental impact assessment has been concluded in accordance with these Regulations and the Council has issued a decision letter.</p>	<p>The various activities to be undertaken on the project are likely to trigger environmental and social impact and this will require that site specific environmental instruments be prepared to eliminate or minimize possible impact. At national level, In Zambia the Environmental Impact Assessment (EIA) regulation of 1997 gives guidance, schedules and categories the various project types and the relevant EIA studies to undertaken. It further gives provision on post EIA approval management of projects and guidelines for developing Environmental Social Management Plans (ESMP's) and Resettlement Action Plans (RAP's).</p>
<p>Environmental Management Act, 2011.</p>	<p>An Act to continue the existence of the Environmental Council and re-name it as the Zambia Environmental Management Agency; provide for integrated environmental management and the protection and conservation of the environment and the sustainable management and use of natural resources; provide for the preparation of the State of the Environment Report, environmental management strategies and other plans for environmental management and sustainable development; provide for the conduct of strategic environmental assessments of proposed policies, plans and programmes likely to have an impact on environmental management; provide for the prevention and control of pollution and environmental degradation; provide for public participation in environmental decision making and access to environmental information; establish the Environment Fund; provide for environmental audit and monitoring; facilitate the</p>	<p>Implementation of the ATP is likely to involve some small infrastructure works to build or upgrade markets points and associated auxiliary structures in the agri-business value chain. This will require that a generic ESMP's be prepared in accordance with the provisions of the ZEMA EIA regulations.</p>

Legislation	Interpretation of Legislation	Relevance to the Project
	implementation of international environmental agreements and conventions to which Zambia is a party; repeal and replace the Environmental Protection and Pollution Control Act, 1990; and provide for matters connected with, or incidental to, the foregoing.	
Fisheries Act, 2011	An Act to provide for the appointment of the Director of Fisheries and fisheries officers and provide for their powers and functions; promote the sustainable development of fisheries and a precautionary approach in fisheries management, conservation, utilisation and development; establish fisheries management areas and fisheries management committees; provide for the regulation of commercial fishing and aquaculture; establish the Fisheries and Aquaculture Development Fund; repeal and replace the Fisheries Act, 1974; and provide for matters connected with, or incidental to, the foregoing.	Fisheries including aquaculture continues to be the main stay of many farmers across Zambia and is a rich source of protein. This has however remained at subsistence levels despite the country being endowed with abundant water resources. The ATP will work closely with the fisheries department in order to maximise returns from this sector and contribute to improved nutrition across the country.
Forests Act, 2015	An Act to provide for the establishment and declaration of National Forests, Local Forests, joint forest management areas, botanical reserves, private forests and community forests; provide for the participation of local communities, local authorities, traditional institutions, non-governmental organisations and other stakeholders in sustainable forest management; provide for the conservation and use of forests and trees for the sustainable management of forests ecosystems and biological diversity; establish the Forest Development Fund; provide for the implementation of the United Nations Framework Convention on Climate Change, Convention on International Trade in Endangered Species of Wild Flora and Fauna, the Convention on Wetlands of International Importance, especially as Water Fowl Habitat, the Convention on Biological Diversity, the Convention to Combat Desertification in those Countries experiencing Serious Drought and/or Desertification, particularly in Africa and any other relevant international agreement to which Zambia is a party; repeal and replace the Forests Act, 1999; and provide for matters connected with, or incidental to, the foregoing.	The project is unlikely to involve activities that will involve loss of vegetation. The small infrastructure works to build or upgrade markets points and associated auxiliary structures in the agri-business value chain will have a small footprint and the loss of vegetation will be insignificant.
Gender Equity and Equality Act, 2015	An Act to establish the Gender Equity and Equality Commission and provide for its functions and powers; provide for the taking of measures and making of strategic decisions in all spheres of life in order to ensure gender equity, equality and integration of both sexes in society; promote gender equity and	The project will mainstream gender equality into its project activities to help groupings such as women and children that are marginalized, are more susceptible to climate change,

Legislation	Interpretation of Legislation	Relevance to the Project
	<p>equality as a cross cutting issue in all spheres of life and stimulate productive resources and development opportunities for both sexes; prohibit harassment, victimisation and harmful social, cultural and religious practices; provide for public awareness and training on issues of gender equity and equality; provide for the elimination of all forms of discrimination against women, empower women and achieve gender equity and equality by giving effect to the Convention on the Elimination of all Forms of Discrimination against Women, the Protocol to the African Charter on Human and People's Rights on the Rights of Women in Africa and the SADC Protocol on Gender and Development; and provide for matters connected with, or incidental to, the foregoing.</p>	<p>economic shocks and environmental – social risks be more resilient.</p>
Human Rights Commission Act, 1996	<p>An Act to provide for the functions and powers of the Human Rights Commission; to provide for its composition and to provide for matters connected with or incidental to the foregoing.</p>	<p>The proposed ATP will enhance access markets and value chains to in order to help farming communities get returns from their investments. Increased revenues and quality of life will ensure that farmers have a dignified life and a say on their welfare and plight.</p>
Lands Act, 1964	<p>An Act to provide for the continuation of leaseholds and leasehold tenure; to provide for the continued vesting of land in the President and alienation of land by the President; to provide for the statutory recognition and continuation of customary tenure; to provide for the conversion of customary tenure into leasehold tenure; to establish a Land Development Fund and a Lands Tribunal; to repeal the Land (Conversion of Titles) Act; to repeal the Zambia (State Lands and Reserves) Orders, 1928 to 1964, the Zambia (Trust Land) Orders, 1947 to 1964, the Zambia (Gwembe District) Orders, 1959 to 1964, and the Western Province (Land and Miscellaneous Provisions) Act, 1970; and to provide for matters connected with or incidental to the foregoing.</p>	<p>The ATP will involve the development of small infrastructure works to build or upgrade markets points and associated auxiliary structures in the agri-business value chain. This will require that the provisions on the lands act are taken into consideration with regard to titling and land tenure.</p>
Local Government Act, 1995	<p>An Act to provide for an integrated three tier local administration system; to define the functions of local authorities; to repeal the Local Administration Act and certain related laws; and to provide for matters connected with or incidental to the foregoing.</p>	<p>Project implementation and supervision will require the support of local authorities country wide as they have strong links with the grassroots and farming communities in their jurisdiction. The function of the local authorities are guided by the provision of the Local Government Act</p>

Legislation	Interpretation of Legislation	Relevance to the Project
National Heritage Conservation Commission Act, 1989	An Act to repeal and replace the Natural and Historical Monuments and Relics Act; to establish the National Heritage Conservation Commission; to define the functions and powers of the Commission; to provide for the conservation of ancient, cultural and natural heritage, relics and other objects of aesthetic, historical, prehistorical, archaeological or scientific interest; to provide for the regulation of archaeological excavations and export of relics; and to provide for matters connected with or incidental to the foregoing.	The project will develop a chance finds procedure to guide contractors on reporting channels and processes. The National Heritage and Conservation Commission (NHCC) will be notified should a chance find be cited and offer guidance on how such sensitive findings should be handled.
Non-Governmental Organisations Act, 2009	An Act to provide for the co-ordination and registration of non-governmental organisations; establish the Non-Governmental Organisations' Registration Board and the Zambia Congress of Non-Governmental Organisations; constitute the Council of Non-Governmental Organisations; enhance the transparency, accountability and performance of non-governmental organisations; and provide for matters connected with or incidental to the foregoing	Non-Governmental Organizations (NGO's) are some of the major stakeholders on the project, Their involvement on the project will range from; information dissemination, educational activities and livelihood initiatives. This will require that NGO's are registered, regulated and adhere to ethical practices set by the Non-Government Organizations Registration Board and The Zambia Congress of Non-Governmental Organizations.
Occupational Health and Safety Act, 2010	An Act to establish the Occupational Health and Safety Institute and provide for its functions; provide for the establishment of health and safety committees at workplaces and for the health, safety and welfare of persons at work; provide for the duties of manufacturers, importers and suppliers of articles, devices, items and substances for use at work; provide for the protection of persons, other than persons at work, against risks to health or safety arising from, or in connection with, the activities of persons at work; and provide for matters connected with, or incidental to, the foregoing.	During the implementation of project activities, personnel involved in construction of infrastructure and their operation will be required to adhere to best practices with regards to Occupational Health and Safety. Procedures and manuals and regular onsite training will be undertaken to ensure personnel working on site are conversant with the information contained. The project will ensure that high risk areas are clearly marked with restricted access and the provision of the relevant Personal Protective Equipment (PPE) will be mandatory.
Public Health Act, 1995	An Act to provide for the prevention and suppression of diseases and generally to regulate all matters of public health in Zambia.	During project implementation, all activities will incorporate measures that prevent and

Legislation	Interpretation of Legislation	Relevance to the Project
		minimize the spread of diseases in order to protect the health of the general public.
Public Procurement Act, 2008	An Act to continue the existence of the Zambia National Tender Board and re-name it as the Zambia Public Procurement Authority; revise the law relating to procurement So as to ensure transparency and accountability in public procurement; regulate and control practices relating to public procurement in order to promote the integrity of, fairness and public confidence in, the procurement process; repeal and replace the Zambia National Tender Board Act, 1982; and provide for matters connected with or incidental to the foregoing	The project will involve the procurement of works, goods and services and this will require that the process follow the Zambia Public Procurement Authority (ZPPA) guidelines to ensure fairness, transparency, integrity, accountability and promote public and stakeholder confidence. The process will be further complimented by World Bank procurement polices
Roads and Road Traffic Act, 1995	An Act to make provision for the care, maintenance and construction of roads in Zambia, for the control of motor traffic, for the licensing of drivers and motor vehicles, for the compulsory third party insurance of motor vehicles, for the licensing and control of public service vehicles and public services, and for other miscellaneous provisions relating to roads and motor traffic.	During implementation of project activities, they is likely to be disruption to roads and traffic in surrounding areas. This will be during construction activities requiring earthworks in close proximity to roads and delivery of materials. Constructors will be required to adhere to set speed limits, undertake works and bulk deliveries away from off pick time and work within the project footprint to minimize intrusion into surrounding areas.
Standards Act, 1994	An Act to provide for standards of quality control for certain commodities; to continue the Zambia Bureau of Standards and to re-define its powers and functions; to establish the Standards Council of Zambia; to repeal the Zambia Bureau of Standards Act; and to provide for matters connected with or incidental to the foregoing	The project will have a component of strengthening the National Quality Infrastructure systems and institutions and their support to Agribusiness under which the Zambia Bureau of Standards falls.
The Zambia Chartered Institute of Logistics and Transport Act, 2014	An Act to provide for the establishment of the Zambia Chartered Institute of Logistics and Transport and provide for its powers and functions; Constitute the National Council for the Institute and provide or its functions and powers; provide for the qualifications for membership of the institute; provide for the registration of members to practice as logisticians or transportation; provide for the constitution of the Disciplinary Committee and other committees of the	SMEs will continually be faced with the moving, handling, processing, and storage of Agro products from producer to consumer. The coordination, planning, and implementation of such activities are likewise integral to the implementation of this project.

Legislation	Interpretation of Legislation	Relevance to the Project
	Institute; and provide for matters connected with, or incidental to, the foregoing.	
Urban and Regional Planning Act, 2015	An Act to provide for development, planning and administration principles, standards and requirements for urban and regional planning processes and systems; provide for a framework for administering and managing urban and regional planning; provide for a planning framework, guidelines, systems and processes for urban and regional planning; establish a democratic, accountable, transparent, participatory and inclusive process for urban and regional planning that allows for involvement of communities, private sector, interest groups and other stakeholders in the planning, implementation and operation of human settlement development; ensure functional efficiency and socio-economic integration by providing for integration of activities, uses and facilities; establish procedures for integrated urban and regional planning in a devolved system of governance so as to ensure multi-sector cooperation, coordination and involvement of different levels of ministries, provincial administration, local authorities, traditional leaders and other stakeholders in urban and regional planning; ensure sustainable urban and rural development by promoting environmental, social and economic sustainability in development initiatives and controls at all levels of urban and regional planning; ensure uniformity of law and policy with respect to urban and regional planning; repeal the Town and Country Planning Act, 1962, and the Housing (Statutory and Improvement Areas) Act, 1975; and provide for matters connected with, or incidental to, the foregoing.	Project implementation is likely to involve construction activities. These activities are likely to alter the landscape of the current layout of target areas. The project in collaboration with the local authorities in which these areas fall will ensure the designs and plans adhere with the Urban and Regional Planning of the areas so as to be in harmony with the councils' expansion master plan.
Water Act, 1964	An Act to consolidate and amend the law in respect of the ownership, control and use of water; and to provide for matters incidental thereto or connected therewith.	The abstraction or use of water during construction and operational activities will be required to be done in a sustainable manner. This will reduce or eliminate incidences of infringing on the rights of other water users to access the resource.
Water Resources Management Act, 2011	An Act to establish the Water Resources Management Authority and define its functions and powers; provide for the management, development, conservation, protection and preservation of the water resource and its ecosystems; provide for the equitable, reasonable and sustainable utilisation of the water resource; ensure the right to draw or take water for domestic and	During the implementation of the ATP any activities that are likely to affect water resources will be required to comply with the provision of the water resources will ensure that

Legislation	Interpretation of Legislation	Relevance to the Project
	<p>non-commercial purposes, and that the poor and vulnerable members of the society have an adequate and sustainable source of water free from any charges; create an enabling environment for adaptation to climate change; provide for the constitution, functions and composition of catchment councils, sub-catchment councils and water users associations; provide for international and regional co-operation in, and equitable and sustainable utilisation of, shared water resources; provide for the domestication and implementation of the basic principles and rules of international law relating to the environment and shared water resources as specified in the treaties, conventions and agreements to which Zambia is a State Party; repeal and replace the Water Act, 1949; and provide for matters connected with, or incidental to, the foregoing.</p>	<p>water resources and ecosystems are protected.</p>
<p>Weights and Measures Act, No. 12 of 2003</p>	<p>An Act to establish standards of weights and measures based on the metric system; to provide for enforcement of the standards of weights and measures; to repeal the Weights and Measures Act and the Metric Systems Act; and to provide for matters incidental to or connected with the foregoing.</p>	<p>The project will have a component of strengthening the National Quality Infrastructure systems and institutions and their support to Agribusiness under which the Zambia Weights and Measures Agency falls. Bureau of Standards falls.</p>
<p>Zambia Development Agency Act, 2006</p>	<p>An Act to foster economic growth and development by promoting trade and investment in Zambia through an efficient, effective and coordinated private sector led economic development strategy; to establish the Zambia Development Agency as a one stop facility which will ensure, among other matters, client focus, dialogue with the private sector and create confidence in public sector support for business; to provide for the functions and powers of the Agency; to attract and facilitate inward and after care investment; to provide and facilitate support to micro and small business enterprises; to promote exports and globalisation; to streamline bureaucratic procedures and requirements faced by investors; to facilitate industrial infrastructure development and local services; to promote greenfield investments through joint ventures and partnerships between local and foreign investors; to promote and encourage education and skills training so as to increase productivity in business enterprises; to encourage measures to increase Zambia's capacity to trade and enable business to participate in a competitive global environment; to</p>	<p>Income generation activities on the project will require support from the Zambia Development Agency (ZDA) that works with various micro, small business enterprises and established companies across Zambia. ZDA will help create synergies and connect identified beneficiaries to value chains and market for their products.</p>

Legislation	Interpretation of Legislation	Relevance to the Project
	ensure that the private sector takes advantage of and benefits from international and regional trade agreements; and to provide for matters connected with or incidental to the foregoing.	
Zambia Wildlife Act, 2015	An Act to governing the affairs of the Zambia Wildlife Authority; establish the Department of National Parks and Wildlife in the Ministry responsible for tourism; provide for the establishment, control and management of National Parks, bird and wildlife sanctuaries and for the conservation and enhancement of wildlife eco-systems, biological diversity and objects of aesthetic, pre-historic, historical, geological, archeological and scientific interest in National Parks; provide for the promotion of opportunities for the equitable and sustainable use of the special qualities of public wildlife estates; provide for the establishment, control and co-management of Community Partnership Parks for the conservation and restoration of ecological structures for non-consumptive forms of recreation and environmental education; provide for the sustainable use of wildlife and the effective management of the wildlife habitat in Game Management Areas; enhance the benefits of Game Management Areas to local communities and wildlife; involve local communities in the management of Game Management Areas; provide for the development and implementation of management plans; provide for the regulation of game ranching; provide for the licensing of hunting and control of the processing, sale, import and export of wild animals and trophies; provide for the implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the Convention on Wetlands of International Importance especially as Waterfowl Habitat, the Convention on Biological Diversity, the Lusaka Agreement on Cooperative Enforcement Operations Directed at Illegal Trade in Wild Fauna and Flora and other international instruments to which Zambia is party; repeal the Zambia Wildlife Act, 1998; and provide for matters connected with, or incidental to, the foregoing.	The construction, activities on the project may affect flora and fauna in the area. The project will ensure that all personnel on site undergo orientation on how to handle the siting of wild species.

4.3.1 Additional Relevant Policy and Legislation

Additional legislation relevant which may be of relevance for components of the project, will be included as it becomes relevant in implementation:

- (i) Agricultural Lands Act , December 23, 1960
- (ii) Lands Acquisition Act Chapter 189 of the Laws of Zambia, February 10, 1970
- (iii) Local Government Act Chapter 281 of the Laws of Zambia , September 16, 1991
- (iv) Public Roads Act, 2002
- (v) Town & Country Planning Act Chapter 283 of the laws of Zambia, November 16, 1962.

4.4 World Bank Safeguard Policies Overview

As a key financing institution, the World Bank is committed to supporting developmental projects, while eliminating or minimizing any adverse impacts or risks on the environment, society and human health. These impacts can be severe or moderate, localized or regional, short or long term. In order to minimize and manage environmental and social impacts, the Bank's operational policies are triggered and the environmental assessment (EA) is key process of the Bank due diligence. These safeguards provide a mechanism and tools for ensuring integration of environmental concerns and social issues into the planning and implementation of development projects financed by the Bank.

The Bank has a total of ten safeguard policies which can be triggered depending on the nature and complexity of the proposed projects or sub-projects. In the context of the proposed mining remediation and improvement project, and the associated sub-projects, three (3) of the ten (10) safeguard policies have been triggered. The table below shows the World Bank safeguard policies that have been triggered to mitigate possible impacts during the project and in associated sub-projects.

Table 6: World Bank Safeguards Policies and their relevance to Zambia Agro-Business and Trade Project

Safeguard Policies	Triggered	Relevance of World Bank Safeguards policies to the mining remediation and improvement project and associated sub-projects
Environmental Assessment OP/BP 4.01 including Environmental Health and Safety Guidelines	Yes	The safeguards policy on Environmental Assessment is triggered notwithstanding the project being mainly TA. The project is likely to involve some infrastructure works to build or upgrade small markets in selected agro economic zones across Zambia. The TA will focus on promoting an environment for entrepreneurship and investment and facilitating national and regional trade. The component on supporting job creation and growth in agribusiness is likely to involve some small infrastructure works to build or upgrade markets points and associated auxiliary structures in the agri-business value chain. This will require that the following safeguards instruments be prepared namely; an ESMF for the project prior to appraisal and subsequently an ESMP a generic ESMP will be added as a chapter to this document. The ESMP will guide on the best practices for waste management and any other safeguards concerns that will be identified. In addition, the World Bank Group Environmental, Health and Safety Guidelines are applicable to the project, with the following specific guidelines to be adopted and utilized by the contractors and other project implementers: general, occupational health and safety, community health and safety, waste management facilities. ²
Natural Habitats OP/BP 4.04	No	The Bank policy on Natural habitats is not triggered as the proposed small infrastructure will have a small footprint and will not have significant ecological impacts on any natural habitats.
Forests OP/BP 4.36	No	The policy on Pest Management is not triggered as the project will not promote the use of pesticide but will focus on enhancing agro business value chains
Pest Management OP 4.09	Yes	The policy on Pest Management is triggered as it is likely to involve investment activities that will require the procurement of farming inputs such as fertilizers, pesticides and fungicides to support the agro - sector. This will require that a Pest Management Plan (PMP) be developed. Since they will not be significant pest management issues on the project, the PMP will form part of the ESMF and the ESMP.
Physical Cultural Resources OP/BP 4.11	No	The policy on Physical Culture Resources (PCR) is not triggered as the construction of market points will cover a small footprints and the unearthing of PCR is highly unlikely. Precautionary, the ESMP will address how to manage chance finds.

² World Bank Group EHS Guidelines:

http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines

Safeguard Policies	Triggered	Relevance of World Bank Safeguards polices to the mining remediation and improvement project and associated sub-projects
Indigenous Peoples OP/BP 4.10	No	The policy is not triggered as the geographical areas in consideration are not likely to have indigenous people as defined by the Bank policy.
Involuntary Resettlement OP/BP 4.12	Yes	Component 3 includes investments in critical market and common use infrastructure. While the exact sites are not known at this time, such construction activities may require land acquisition or require temporary relocation of traders currently occupying the sites while market points are built. An RPF has been prepared, and as necessary, site-specific abbreviated RAPs should be prepared during implementation. The project also proposes to address agribusiness on a policy level, and such policies may have implications for land tenure.
Safety of Dams OP/BP 4.37	No	The policy is not triggered as it will not involve the construction or maintenance of dams as defined by the Bank policy.
Projects on International Waterways OP/BP 7.50	No	The policy is not triggered as it will not involve financing activities or subprojects lying within riparian areas of international waterways.
Projects in Disputed Areas OP/BP 7.60	No	The policy is not triggered as it will not finance any activities in disputed areas or territories.

4.5 Complementarity between Zambian Legislation and World Bank Safeguard Policies

A comparison between Zambian legislation and the operational safeguard policies the World Bank reveals no significant differences or gaps. There are more similarities than there are differences. The two sets of policies and legislation recognize the importance of environmental and social benchmarks in order to mainstream environmental and social issues in development project, and will play a complementary role in the project.

Table 7: Complementary roles of World Bank Polices and Zambian Legislation

WB Safeguard Polices		Zambian Legislations
Environmental	4.01 Environmental Assessment (1999)	<ul style="list-style-type: none"> • Disaster Management Act, 2010 • Environmental Impact Assessment Regulations, 1997 • Environmental Management Act, 2011. • Fisheries Act, 2011 • Forests Act, 2015 • Lands Act, 1964 • Occupational Health and Safety Act, 2010 • Public Health Act, 1995 • Roads and Road Traffic Act, 1995 • Urban and Regional Planning Act, 2015 • Water Act, 1964 Water Supply and Sanitation Act, 1997 • Water Resources Management Act, 2011 • Zambia Wildlife Act, 2015
Social	4.12 Involuntary Resettlement (2001)	<ul style="list-style-type: none"> • Anti-Gender-Based Violence Act, 2010. • Disaster Management Act, 2010 • Environmental Impact Assessment Regulations, 1997 • Environmental Management Act, 2011. • Gender Equity and Equality Act, 2015 • Human Rights Commission Act, 1996 • Lands Act, 1964 • Local Government Act, 1995 • National Heritage Conservation Commission Act, 1989 • Public Health Act, 1995

There is a need to streamline and harmonize the various pieces of legislation. Currently, the EMA is probably the closest to overarching legislation for environmental planning and protection. This would require the amendment of the other sectoral acts recognizing the EMA as the main legislation. This is achievable because there is coherence and harmony at the broader national level (Vision 2030 and the Sixth National Development Plan).

5.1 Impact Identification, and Mitigation measures

During the implementation of the ATP, different types of sub-projects will be prepared and delivered in the Project's outreach activities and initial target areas will cover the regions that have both high poverty density and agro-processing activities such as Lusaka, Kabwe, Ndola, Livingstone and Chipata. These sub-projects will have different types of negative environmental and social impacts associated with them. In this chapter the ESMF identifies possible impacts and mitigation measures that will be incorporated into an ESMP during project implementation. This ESMF will form part of the tender documents for construction works. An ESMP for construction will be prepared by the Contractor and approved by the [Supervising Engineer or PIU] prior to start of works. The ESMP will incorporate the relevant aspects of the WBG Environmental, Health and Safety Guidelines (General Guideline and relevant agribusiness guidelines)³ Issues related to involuntary resettlement and compensation that may arise as a direct consequence of the sub-projects are dealt with separately in the Resettlement Policy Framework (RPF).

5.2 Environmental and Social Impacts

The proposed sub projects in the two broad categories are likely to result into both negative and positive environmental and social impacts. The table below (Table 8) presents a summary of the social impacts and mitigation or enhancement measures that are relevant to the interventions under the project.

³http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines

Table 8: Identification of Risks Impacts and Mitigation measures of planned subprojects

Project Component	Project	Risk/Impact	Mitigation Measures	Responsibility	Accountable
Component 1	Construction of last mile infrastructure (small infrastructure works to build or upgrade markets points and associated structures	<ul style="list-style-type: none"> • Generation and poor disposal of construction waste during works 	<ul style="list-style-type: none"> • Waste and debris, including sediments and vegetation shall be managed and kept in temporary controlled area and transported in a secure manner for disposal in appropriate disposal facility. 	Contractors supervisor Site	Construction Company
		<ul style="list-style-type: none"> • Potential increased exposure from generation of dust and noise pollution due to operation of different types of equipment and machinery 	<ul style="list-style-type: none"> • Dust suppression measures will be undertaken and construction and use of machinery will be restricted to normal working hours and will meet regulatory requirements. There will be no excessive idling of construction vehicles at sites. There will be no open burning of construction / waste material at the site. 	Contractors supervisor Site	Construction Company
		<ul style="list-style-type: none"> • Safety and security of community during construction works 	<ul style="list-style-type: none"> • The construction areas will be properly secured with signposting, warning signs, barriers and traffic diversions. Signage should inform the public of potential hazards. Provision of safe passages and crossings for pedestrians, along with active traffic management. Adjustment of working hours to prevent disruption of pedestrian access and local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement Community to be informed about possible temporary restrictions to access. • On the job training of workers and provision of appropriate PPE by contractors. 	Contractors Site Safety Officers	Construction Company and Security company

Project Component	Project	Risk/Impact	Mitigation Measures	Responsibility	Accountable
		<ul style="list-style-type: none"> • Increase incidences of HIV/AIDS and sexually Transmitted infections 	<ul style="list-style-type: none"> • Workers and community members to be sensitized on the dangers posed by HIV/AIDS or other STCs as well as the means of prevention. 	Contractors Site Safety Officers	Construction Company
		<ul style="list-style-type: none"> • Poor living conditions and sanitation workers 	<ul style="list-style-type: none"> • If labor camps need to be set up, proper water supply and waste management systems should be provided. 	Project Manager, Contractors Site supervisor and Contractors Site Safety Officers	Construction Company and PIU
		<ul style="list-style-type: none"> • Loss of Vegetation cover 	<ul style="list-style-type: none"> • The Construction footprint will be restricted to the site design and loss of vegetation will be kept to a minimum. Furthermore, Construction workers will be sensitized on the natural physical-chemical and biological environment around the project site. 	Project Manager, Contractors Site supervisor and Contractors Site Safety Officers	Construction Company
	Community level agro-processing	<ul style="list-style-type: none"> • Change of land use 	<ul style="list-style-type: none"> • Site selection will be in line with the municipalities' development plans; • Site Selection will focus on areas already owned by beneficiaries to eliminate the possibility of land acquisition. The project will ensure active community participation to create employment and livelihood initiatives. 	Project Manager, Community Leaders and Local Authorities	Ministry of Lands, Local Authority and PIU
		<ul style="list-style-type: none"> • Generation of waste 	<ul style="list-style-type: none"> • During operation and project implementation, environmental management plans will incorporate best practices in waste management. 	Project Manager, Community Leaders and Local Authorities	Community Leaders, Local Authorities

Project Component	Project	Risk/Impact	Mitigation Measures	Responsibility	Accountable
	Small scale agricultural support projects	<ul style="list-style-type: none"> Varieties not suitable to local conditions and hybrids may increase costs for pest and disease management 	<ul style="list-style-type: none"> Selection and varieties of species to be financed on the project will be done with consultation with the Ministry of Agriculture and their extension officers. The PMP will further guide on the use, storage and selection chemicals that have minimal or negligible harm to the environment. 	Project Manager and the Ministry of Agriculture, Ministry of Fisheries and Livestock	Ministry of Agriculture and Ministry of Fisheries and Livestock Extension Officers
		<ul style="list-style-type: none"> Loss of vegetation cover and indigenous plant species 	<ul style="list-style-type: none"> The footprint will be restricted to reduce on the loss of vegetation 	Project Manager, Community Leaders and Local Authorities	Project Manager and Site Community Leader
		<ul style="list-style-type: none"> Increased use of pesticides and fertilizers 	<ul style="list-style-type: none"> The use of pesticides and fertilizers will be discouraged by selecting plant species that require less industrial chemicals to grow. 	Project Manager, Community Leaders and Local Authorities	Project Manager and Site Community Leader
		<ul style="list-style-type: none"> Increased abstraction of water, for watering 	<ul style="list-style-type: none"> The project will ensure that it finances activities that promote sustainable water utilization. It will further promote the best practices in water use and management. 	Project Manager, Community Leaders and Local Authorities	Project Manager and Site Community Leader
		<ul style="list-style-type: none"> Alteration of top soil and increased levels of dust 	<ul style="list-style-type: none"> Dust Suppression will be employed by watering dry areas periodically. 	Project Manager, Community Leaders and Local Authorities	Project Manager and Site Community Leader
		<ul style="list-style-type: none"> Visual intrusion and changes to the landscape 	<ul style="list-style-type: none"> Site Selection will take into consideration current land use to ensure proposed activities do not alter the aesthetics and general landscape. 	Project Manager, Community Leaders and Local Authorities	Project Manager and Site Community Leader

Project Component	Project	Risk/Impact	Mitigation Measures	Responsibility	Accountable
Component 2	Support to National quality infrastructure institutions (hard infrastructure e.g. accommodation and equipment facility)	<ul style="list-style-type: none"> • Generation and poor disposal of construction waste during works 	<ul style="list-style-type: none"> • Waste and debris, including sediments and vegetation shall be managed and kept in temporary controlled area and transported in a secure manner for disposal in appropriate disposal facility. 	Contractors Site supervisor	Construction Company
		<ul style="list-style-type: none"> • Potential increased exposure from generation of dust and noise pollution due to operation of different types of equipment and machinery 	<ul style="list-style-type: none"> • Dust suppression measures will be undertaken and construction and use of machinery will be restricted to normal working hours. There will be no excessive idling of construction vehicles at sites. There will be no open burning of construction / waste material at the site 	Contractors Site supervisor	Construction Company
		<ul style="list-style-type: none"> • Safety and security of community during construction works 	<ul style="list-style-type: none"> • The construction areas will be properly secured with signposting, warning signs, barriers and traffic diversions. Signage should inform the public of potential hazards. Provision of safe passages and crossings for pedestrians, along with active traffic management. Adjustment of working hours to prevent disruption of pedestrian access and local traffic patterns, e.g. avoiding major transport activities during rush hours or times of livestock movement. Community to be informed about possible temporary restrictions to access; • On the job training of workers and provision of appropriate PPE by contractors. 	Contractors Site Safety Officers	Construction Company and Security Company
		<ul style="list-style-type: none"> • Increase incidences of HIV/AIDS and 	<ul style="list-style-type: none"> • Workers to be sensitized on the dangers posed by HIV/AIDS and the means of prevention. 	Contractors Site Safety Officers	Construction Company

Project Component	Project	Risk/Impact	Mitigation Measures	Responsibility	Accountable
		sexually Transmitted infections			
		<ul style="list-style-type: none"> Poor living conditions and sanitation workers 	<ul style="list-style-type: none"> If labor camps need to be set up, proper water supply and waste management systems should be provided. 	Project Manager, Contractors Site supervisor and Contractors Site Safety Officers	Construction Company
		<ul style="list-style-type: none"> Loss of Vegetation cover 	<ul style="list-style-type: none"> The Construction footprint will be restricted to the site design and loss of vegetation will be kept to a minimum. Furthermore, Construction workers will be sensitized on the natural physical-chemical and biological environment around the project site. 	Project Manager, Contractors Site supervisor and Contractors Site Safety Officers	Project Manager and Site Community Leader

CLASSIFICATION OF SUB-PROJECTS, SCREENING APPROVAL AND IMPLEMENTATION CHAPTER 6

6.1 Subproject Preparation and Approval

The identification of sub-projects will be done based on commercial viability, socio-economic needs and environmental consideration. The prioritization of sub-projects under the ATP will be based on further environmental and social analysis, including inputs from public participation to be facilitated during implementation by the PIU, Local Authorities such as Municipalities and stakeholders such as the Ministry of Agriculture and NGO's. Technical guidance and input into preparation of subproject proposals is crucial to ensure that all environmental and social concerns are thoroughly considered from the start of the identification and planning process. The following is an outline of the process that will be undertaken to oversee the subproject identification, preparation, screening, approval and implementation process for small infrastructure construction or upgrade, waste management as well as other sub-projects. The process will be guided by the Environmental Management Act, EIA regulations and World Bank safeguard policies in order to address environmental and social management considerations under the project.

6.2 Environmental and Social Screening

This section outlines the stages of the environmental and social screening process (the screening process) leading towards the review and environmental approval of any sub-project that will be undertaken on the agribusiness and trade project. To facilitate environmental and social screening, the ESMF has provided a checklist for subproject screening that will assist stakeholders, proponents and project staff with the identification of environmental and social issues relating to the subproject location and the surrounding environment based on available knowledge and field investigations. Once a subproject/subcomponent is specified for a particular location, the proponent with assistance from the PIU safeguard consultant and the subproject coordinator will complete the environmental and social checklist. In some instances, a field appraisal may be required depending on the information in the environmental and social checklist. (Annex 1)

6.2.1 Environmental Screening

A desk appraisal of the planned activities plans, including designs, will be carried out by the beneficially District Agriculture Officers and community leaders with the support from the PIU. This initial screening will be carried out through the use of the Environmental and Social Screening Form. This form will be completed by the PIU's safeguard consultant. Completion of this screening form will facilitate the identification of potential environmental and social impacts, determination of their significance, assignment of the appropriate environmental category, proposal of appropriate mitigation measures, and conduct any further work, if necessary.

6.2.2 Assigning the Environmental Categories and preparing ESMPs

The assignment of the appropriate environmental category will be based on the World Bank safeguard policy categorization and on the provisions of the ZEMA EIA Regulation project schedule, depending on type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts. Field appraisals will be required for category A sub-projects and other projects which are deemed to have moderate to significant impacts.

A generic Environmental and Social Management Plan (ESMP) that addresses impacts at all the stages of a sub project cycle (design, implementation and operational phases) is annexed with this framework. As adapted, has to be followed during the design, implementation and post implementation/operational phases of a specific sub-project investment. The plan gives the mitigation measures for each sub-project investment that will eliminate/mitigate adverse or negative environmental impacts. However, these plans need to be made site specific for each of the sub-project after undertaking the necessary assessments. The responsibility of handling mitigation measures for various environmental concerns at various stages of the project will be designated to different agencies according to the type and geographical location of the sub-projects.

Table 9: World Bank Project Categorization

Classification	Type of sub-project	Safeguard Instrument
Category A:	A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. These impacts may affect an area broader than the sites or facilities subject to physical works. The agri-business project has been categorized as B and is envisaged not to have activities or subproject that fall within category A.	During project design and preparation the project will not have any category A subprojects as defined by the Bank Policy. Therefore, no ESIA will be developed or required on the project.
Category B:	A <i>Category B</i> project has potential adverse environmental impacts on human populations or environmentally important areas - including wetlands, forests, grasslands, and other natural habitats - which are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects. The scope of EA for a <i>Category B</i> project may vary from project to project, but it is narrower than that of Category A assessment. Like Category A, a <i>Category B</i> environmental assessment examines the project's potential negative and positive environmental impacts and recommends any measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance.	This will be applicable on activities on the projects that will involve the Construction of last mile infrastructure (small infrastructure works to build or upgrade markets points and associated structures). An ESMP or Environmental checklists/simplified ESMPs depending on the scale and intensity of impacts of subprojects will be

Classification	Type of sub-project	Safeguard Instrument
		applicable in identification and mitigation of impacts.
Category C:	A Category C project is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required.	This is relevant to the subprojects and activities that will focus on technical assistance without any physical works.

6.2.3 Appraisal and Approval of Environmental and Social Work

The Environmental Management Act (2011) of the Laws of Zambia read together with Statutory Instrument No. 28 of 1997 provides for Environmental Impact Assessment regulations that classify projects into either the First Schedule or Second Schedule depending on the size, nature and anticipated environmental consequences of a project or sub-project. The Zambia EIA Regulations provide lists of projects or sub-projects proto-types which fall under the two categories, detailed in Annex 4.

The completed screening form along with any additional planning reports (e.g. ESMP or RAP) is forwarded together with the overall sub-project application to the review authority – PIU in this regard. The first step in the approval process is to determine if all the relevant information has been provided, and is adequate. The competent authority in the PIU will also check if the beneficiaries and technical team have thoroughly considered all environmental and social issues with regards to the identification of potential adverse effects arising from the sub-project as well as mitigating measures to adequately address negative impacts. If, based on the desk appraisal and field appraisal, national legislation requires further review, PIU will refer the application to the competent approval authority, and ZEMA with recommendations for approval, conditions and implementation supervision (e.g. erosion control, waste management, human safety). The Terms of Reference and when need arises to have them drafted should be sent to the World Bank for review and disclosure on Info shop respectively.

6.3 Public Consultation and Disclosure

According to Zambia's EIA regulations (SI No. 28 of 1997) and World Bank Safeguards Policies, public consultations are an integral component of the EIA requirements, and the Guidelines identify the following principal elements:

- Developers are required to conduct public consultations during the preparation of Project Briefs and EIAs.
- The Director General of the Environmental Management Agency may, on the advice of the Technical Committee on Environment (TCE), conduct his or her own public consultation to verify the works of a developer.
- Formal EIA documents are made available for public review and comments. Documents to which the public has access include Project Briefs, EIA terms of reference, draft and final EIA reports, and decisions of the Director General of the

Environmental Management Agency regarding project approval. The Director General, on the advice of the TCE, will develop practices and procedures for making these documents available to the public.

- Decision Letter approving projects will be published by the developer and displayed for public inspection.
- Public consultations are critical in preparing an effective proposal for the implementation of the project activities. These consultations should identify key issues and determine how the concerns of all parties will be addressed in response to the terms of reference for the EIA, which might be carried out for construction and rehabilitation proposals.

The ZEMA EIA regulations provide details concerning the public consultation methods. Such methods include information notices, brochures/fliers, interviews, questionnaires, community meetings and public hearings. In terms of Zambia's EIA process, public consultation should be undertaken during;

- The preparation of the EIA terms of reference;
- The carrying out of an EIA;
- Government review of an EIA report; and
- The preparation of environmental terms and conditions of approval.

For the ATP, the first step will be to hold public consultations with the local communities and all other interested/affected parties during the screening process. These consultations will be aimed at briefing the communities about the project activities, how the activities will be carried out and what sectors of the environment are likely to be impacted. The public consultations will be done in a participatory manner to encourage the communities to contribute to the screening process.

Adherence to World Bank and Zambian environmental and social policies and legislation usually raises challenges during the implementation phase of most projects. Therefore, the importance of monitoring is critical to the successful implementation of projects and sub-projects under ATP.

The objectives of the environmental and social monitoring plan (ESMP) for the ATP are to:

- (1) Generate and provide policy makers, decision makers (at national and provincial level), implementers (at district and sub-district and community levels) investors⁴, financiers and controlling authorities with timely information on the progress being achieved. This monitoring information will enable implementers to make informed decisions regarding appropriate adjustments in the implementation of the sub-projects;
- (2) Determine whether the goals and objectives of the mitigation measures on ATP have been achieved. This assessment of performance compares the baseline environmental and social conditions with the actual conditions at the time of monitoring of the projects and sub-projects in order to assess the extent to which the original environmental and social conditions have been restored, improved or made worse;
- (3) Ensure that all activities relating to the operation and maintenance are being carried out in a manner that protects the environmental and social conditions without compromising the health and social well-being of the beneficiaries and target communities; and
- (4) Ensure, where required, that any changes to the ESMPs are made with necessary suggestions for additional training and institutional capacity building in order to improve the performance of the ESMP implementation.

Supervision and monitoring is a key component of the ESMP during project implementation. Monitoring should be undertaken during the ATP implementation phase to authenticate the effectiveness of impact management, including the extent to which mitigation measures are being successfully implemented. An ESMP should have the following components:

- Compliance monitoring;
- Impact monitoring; and
- Cumulative impact monitoring.

The aim of monitoring will be to:

1. Improve environmental and social management practices;
2. Check the efficiency and quality of the EA processes;
3. Establish the scientific reliability and credibility of the EA for the project; and
4. Provide the opportunity to report the results on safeguards and impacts and proposed implementation of mitigation measures.

⁴ Investors are mainly from the private sector while financiers are bilateral and multilateral donors and MDBs

7.1 Compliance Monitoring

This is to authenticate that the required mitigation measures, which are the environmental and social commitments agreed on by the implementing agency, local implementing agencies and contractors are being adhered to. A monitoring framework will be developed based on agreed prototype sub-projects as they are specified in the positive list of projects. The PIU will be responsible for undertaking compliance monitoring.

7.2 Impact Monitoring

Monitoring of sub-projects impacts mitigation measures should be the duty of the PIU. The Environmental and Social Safeguards agreed in the contract specifications should be monitored to ensure that works are proceeding in accordance with the laid down mitigation measures. The PIU and implementing agencies should ensure that the project implementers submit reports on work progress and any challenges in observing the Environmental and Social Safeguards. The monitoring results should form a major part of the reports to be submitted by the PIU to MCTI and shared with ZEMA where applicable.

7.3 Cumulative Impacts Monitoring

The impacts of the ATP on the environmental and social resources within the project areas should be monitored with consideration to other developments which might be established or already existing. There should be collaboration between the PIU and proponents of other development projects to compare Environmental and Social Safeguards guiding the individual projects implementation to ensure coordinated and comprehensive management of cumulative impacts. There are two aspects of monitoring in the PIU include; the first aspect takes into account the monitoring at ward and community level (project site) where the project is being implemented and; secondly, at the larger scale for all sub-projects at district and provincial level.

7.4 Annual Monitoring and Reviews

Environmental monitoring needs to be carried out during the implementation of the sub-projects. Monitoring of the compliance of sub-project implementation with the mitigation measures set out in the sub-project's ESMP and/or RPF/RAP will be carried out by the PIU, where relevant, jointly with the support from community leaders and local authorities. Compliance monitoring comprises on-site inspection of activities to verify that measures identified in the ESMP and/or RPF/RAP are being implemented. One of the monitoring tasks is to ensure that the contractor is achieving the required standards and quality of work. The PIU will oversee the inspections. An annual inspection report must be submitted (together with the monitoring report) to the World Bank for review and approval. Annual reviews may be carried out by an independent consultant, NGO or other service provider that is not otherwise involved with ATP. The purpose of the reviews is to:

- To assess compliance with ESMF procedures, learn lessons, and improve future ESMF performance;

- To assess the occurrence of, and potential for, cumulative impacts due to project-funded and other development activities.

The annual reviews will be a principal source of information to the PIU for improving performance. Thus, they should be undertaken after the annual report on monitoring has been prepared and before World Bank supervision of the project.

7.5 Supervision requirement and Environmental and Social Monitoring Plan

Environmental supervision needs to be carried out during all phases including construction, operation and maintenance of sub-projects in order to measure the success of the mitigation measures implemented. Sub-project designs must include a monitoring framework, together with safeguard indicators. The monitoring requirements of the ESMF that take into consideration the environmental and social mitigations measures are:

- i. Mitigations measures outlined in the ESMP are fully implemented in consultation with all stakeholders involved at national, provincial, district, and ward and community levels;
- ii. Adherence to the policies and legal requirements as outlined in the World Bank, and national legal frameworks;
- iii. The local people's expectations and regulations are taken into account;
- iv. All the stakeholders and institutions involved in implementations of the sub-projects ought to be familiarized with the challenges of identification of impacts and mitigation measures prescribed for each sub-project.

An Environmental and Social Management Plan (ESMP) is required for sub-projects that have distinct mitigation measures such as physical works or management activities. Where required, the ESMP must be included in the sub-project application.

7.6 Monitoring Indicators

The monitoring of sub projects runs according to the following plan: the beneficiaries themselves will include mitigation mechanisms in the application for a sub project. The mitigation mechanisms are part of the appraisal, and the satisfactory fulfilment of the mitigation mechanisms is routinely monitored by the PIU or the PIU's designated agent. The communities are trained by the PIU in environmental and social management in accordance with the ESMP. Where relevant, the district officers of relevant line ministries from the District Planning Sub-Committee, including Water, Agriculture, Forestry, Fisheries, Environmental Resources, Community Development and the District physical planners have routine contact with the sub-projects and oversee the effectiveness of mitigation mechanisms monthly. Thirdly the PIU performs quarterly monitoring and a final audit at the end of the project cycle.

Monitoring indicators that show the environmental and social performance of the project, and in particular demonstrating that mitigation measures are working effectively are an important component of the ESMF. The ESMP will be required to contain information on:

1. Nature of project being implemented;

2. Environmental and social impacts associated with the project;
3. Mitigation or enhancement measures for addressing the identified impacts;
4. Indicators for assessing progressing and effectiveness of mitigation or enhancement measures;
5. Monitoring schedule outlining the timing and frequency of monitoring the indicators;
6. Responsible office or organization to undertake the monitoring.

Selected indicators should be measured in units of, for example, time (i.e. duration), frequency (i.e. how often), area or volume (e.g. size of area land used for a specific project), length (e.g. length of canal affected), quantity (e.g. number of persons engaged in environmental health community generated projects).

Monitoring of Environmental and Social Indicators

The goal of monitoring is to measure the success rate of the project, determine whether interventions have resulted in effective mitigation of negative impacts, or whether further interventions are needed or monitoring is to be extended in some areas. Monitoring indicators (as in table 9 below) dependent on specific project contexts. In most subprojects they are expected to be simple, mostly visual confirmation of environmental mitigation and good housekeeping measures.

Table 10: Monitoring Indicators

Monitoring level	Monitoring Issue	Verifiable Indicators	Responsibility
ESMF LEVEL	Adequate dissemination of ESMF and stakeholder capacity building and Training Programmes	Record of meetings and workshops	MCTI, Local Authorities, Private Sector, NGO's and World Bank
PROJECT INVESTMENT LEVEL	Prepare Environmental Assessment Instruments	Consultants hired to prepare ESMP's and RAP Documents	ATP PIU & Consultants
	Environmental Permits	Environmental Permits for sub projects	
	Monitoring & Evaluation	ESMPs	
		Monitoring Reports Annual Environmental Reports	

The ESMPs will identify the following:

- Monitoring indicators to be measured for evaluating the performance of each mitigation measure;
- Monitoring mechanisms and methodologies;
- Monitoring frequency;
- Monitoring locations;
- Monitoring budget.

The specific indicators for each sub-projects will be developed depending on the design of the sub-project. It is important to measure the overall success of sub-project in terms of the planned mitigation measures and determining whether the desired environmental and social performance is being achieved.

7.7 Environmental and Social Safeguards Monitoring Responsibility

The PIU will have the overall responsibility for coordinating and monitoring implementation of the ESMF. In addition, this will include conducting sensitization programmes to inform stakeholders about the framework and how it is to be implemented in the context of stakeholder participation.

7.7.1 National level

The implementing agency, PIU, acting for the MCTI, will be responsible for the overall environmental and social monitoring of the sub-projects through various implementing partners.

7.7.2 District level

The sub-projects monitoring will be implemented by the relevant stakeholders in different locations. Although the PIU is hosted under the MCTI, the ATP recognizes the need for stakeholder participation for monitoring at various levels. These include among others local authorities, Government Agencies, Non-Governmental Organizations, Private Sector Organizations, Civil Societies and Development Partners. Successful implementation of the ESMF, the ESMP and the monitoring plan will require input, expertise and resources from all the key stakeholders. It will also require the participation and involvement of the local people and the Local Leaders. Therefore these key stakeholders would need to collaborate in sub-project monitoring at all levels including at national, district and local levels.

8.1 National stakeholders

It is expected that the following institutions will play an active role in various components of the implementation of the ESMF on the ATP.

8.1.1 The Ministry of Commerce Trade and Industry

Policy decisions within the Ministry of Commerce, Trade and Industry are made by the Minister. The chief executive in the ministry is the Permanent Secretary who oversees six departments each headed by a Director. The departments are Planning and Information, Human Resources and Administration, Industry, Foreign Trade, Cooperatives and Domestic Trade and Commerce.

The PIU will be established under the Ministry. The Ministry will be hosting a World Bank funded project for the first time and does not have a dedicated safeguards unit. Safeguard monitoring and compliance will however be complemented by Consultants as and when need arises.

8.1.2 The Ministry of Finance (MoF)

The Ministry is charged with economic, national development planning and budgeting, and financial management responsibilities. The Ministry is headed by a Minister, while the administrative and technical team is headed by the Secretary to the Treasury who is assisted by two Permanent Secretaries responsible for Economic Management and Finance respectively. As the Ministry is responsible for coordinating national economic management, mobilizing and managing public resources in a transparent and accountable manner for sustainable national development, it will be a channel through which funds from the WB will be transmitted to the MCTI and ATP. There will be need to enhance the capacity of the Ministry in financial management of World Bank funded projects.

8.1.3 Ministry of National Development Planning

The Ministry is charged with national planning and monitoring and evaluation as well as the coordination of economic and technical assistance from cooperating partners. In view of its mandate, the Ministry will be part of the project steering committee and in so doing ensure that project implementation is complementary to national development objectives.

8.1.4 Ministry of Agriculture

The Ministry of Agriculture is responsible for administering and implementing policies and programmes to facilitate and support the development of a sustainable, diversified and competitive agriculture sector that assures food and nutrition security, contributes to job creation, and maximises profits and the sector's contribution to GDP.

Given its important role in promoting production in the agriculture sector, the Ministry will form part of the steering committee and in so doing ensure that the project effectively supports the policy objective for the sector.

8.1.5 Ministry of Livestock Development and Fisheries

The Ministries of Fisheries and Livestock is responsible for promoting the growth of the two sectors by implementing policies and programmes in that regard. Given this role, the Ministry will be part of the project steering committee and help identify sub projects in the livestock and fisheries sector.

8.1.6 The Ministry of Local Government and Housing

The Ministry is charged with the administration of the local government system and will ensure that the people in the project areas are provided with the necessary municipal services. The Ministry of Local Government and Housing, is multi-functional in nature and oversees the implementation of delegated functions and responsibilities by the local authorities by managing the social, economic and political spheres of governance. This is in line with the Decentralisation Policy.

The ministry is responsible for Co-ordination of Local Government Administration, Regulation and provision of social amenities, Affairs and House of Chiefs, Water Supply and Sanitation, Provision of housing, Provision of municipal infrastructure services and support services, and Provision of feeder, community and urban roads

8.1.7 Zambia Environmental Management Agency

The mandate of Zambia Environmental Management Agency (ZEMA) formerly called Environmental Council of Zambia (ECZ), is drawn from the Environmental Management Act (EMA) No. 12 of 2011. ZEMA plays a regulatory, advisory, consultative, monitoring, co-ordination and information dissemination role on all environmental issues in Zambia. This institution sufficient institutional capacity to support project implementation and provisions of the ESMF.

8.1.8 Community Based Organisations

The ATP will work with Community Based Organisations (CBOs) such as cooperatives and strengthen their capacities in the areas of agribusiness and market linkages. These will be provided capacity building in various areas relevant to the project.

8.1.9 Vulnerable Social Groups

Typical vulnerable social groups may include women-headed households; widows and elderly (both men and women); rural youths; and people living with HIV-AIDS or caring for HIV-AIDS patients and orphans. These vulnerable social groups will be factored into the ATP environmental and social safeguards. This may be directly or through NGOs working these groups in the sub-project areas.

8.1.10 Private Sector

The participation and role of private sector partners in the project is important due to the scale of operations, employment opportunities and their significant contribution to the

GDP of Zambia. Private sector stakeholders range from large corporate, small and medium enterprises, to farmers. Given the right incentives and information, the private sector have the potential to play leading roles in promoting innovative technologies, providing financial services and for market linkages for products. Private sector actors in the project areas could also be engaged in supporting environmentally sound practices.

Relevant private sector players that will be important in the project include financial institutions, associations of farmers, manufacturers and small businesses and retail trading entities. Capacity Building Requirements The main stakeholders for implementation of the ESMF are the line ministries, in particular the district representatives, the District Councils and District Planning Sub-Committee. Capacity building will be provided based on the needs of the specific actors in the sub-projects. Planning, designing and implementing of the ATP programs and sub-projects in the target districts require an understanding of the environmental, social impacts and mitigation measures at community ward and district levels. Training events focusing on these thematic areas will take the form of courses, workshops and specific seminars at national, provincial and district level. Where necessary awareness campaigns may be used to complement or reinforce the trainings.

8.2 Capacity Building Requirements

The main stakeholders for implementation of the ESMF are the line ministries and district representatives, implementing agencies of the relevant sub-components and the local authorities in the location of sub-projects as required. Capacity building will be provided based on the needs of the specific actors. Planning, designing and implementing of the ATP programs and sub-projects in the target districts require an understanding of the environmental, social impacts and mitigation measures at community ward and district levels. Training events focusing on these thematic areas will take the form of courses, workshops and specific seminars at national, provincial and district level. Where necessary awareness campaigns may be used to complement or reinforce the trainings. Specific workshops on the ESMF/RPF and relevant World Bank safeguard policies triggered by this project will be organized for all key stakeholders. The technical staff in District Planning Sub Committee will be trained in World Bank safeguards requirements and the agreed requirements and procedures in this ESMF, in order to routinely support and monitor sub-projects.

The following additional training topics are proposed:

1. Environmental and social Screening Process and Checklists;
2. Zambian EIA Procedural Frameworks;
3. Preparation of simplified ESMP for sub-projects;
4. Environmental and Social Clauses in Contractors' contract and bidding documents;
5. Management of Pesticides, where applicable

Relevant staff in the PIU and the MCTI will be required to undergo some capacity building to have knowledge and understanding of the implementation of relevant World Bank policies triggered by the project.

The awareness creation, capacity building and training workshops will focus on (a) strengthened institutional coordination; (b) improved information for decision makers; and (c) targeted awareness creation. The target group will consist of selected officers directly involved in the implementation of the ATP.

Table 11: Capacity Building Requirements

Entity	Responsibilities under ESMF	Capacity building requirements
Ministry of Commerce Trade and Industry	<ul style="list-style-type: none"> • Screening of sub-projects • Monitoring of compliance and implementation of mitigation mechanisms 	<ul style="list-style-type: none"> • For new PIU: workshops on the ESMF/RPF and relevant World Bank safeguard policies • Environmental and social Screening Process and Checklists • Zambian EIA Procedural Frameworks • Preparation of simplified ESMP for sub-projects • Environmental and Social Clauses in Contractors' contract and bidding documents • Management of Pesticides , where applicable
NGO/CBOs	<ul style="list-style-type: none"> • Facilitate subproject implementation process 	<ul style="list-style-type: none"> • Participatory Rapid Appraisal methodology and training of trainers • Workshop on the ESMF/RPF and relevant World Bank safeguard policies, including SGBV prevention mechanisms
Communities and beneficiaries	<ul style="list-style-type: none"> • Oversight of implementation of Subprojects, including environmental and social mitigation mechanisms 	<ul style="list-style-type: none"> • Basic environmental and social safeguards, training, including monitoring

8.2.1 Safeguard Compliance in Participatory Project Planning, Implementation and Community Engagement

Community driven projects and community ownership are essential in ensuring compliance to environmental and social safeguards. Based on various levels of interactions and consultations with communities in the target districts and lessons from on-going similar projects, it is notable that public sector institutions service delivery does not adequately meet communities' expectations. In such cases, NGOs, CBOs and to some extent private sector players have attempted to fill the gap left by public sector institutions in providing support services and undertaking capacity building interventions for the communities.

These support and capacity services are critical in empowering communities to take responsibility for their own development through planning and managing their own projects – in this case, projects and sub-projects that promote local integration of

affected and targeted communities. When communities get empowered in this way, it follows that they will take greater responsibility for the ensuring compliance to environmental and social safeguards. Specific courses and participation meetings will be arranged between communities and District Officers, NGOs/CBOs and the private sector representatives. The following training topics are proposed:

- Avoiding and Mitigating Environmental and Social Impacts in Community Planning;
- Establishing and enforcing Community Rules for Safeguarding;
- Community Development Planning and Responsibilities;
- Defining Sustainable Development Projects;
- Inclusion of Vulnerable Groups in Community Planning and Projects;
- Conflict Resolution in Community Decision Making;
- Roles and Responsibilities of District Councils and Community in Safeguarding and Conflicts.

At the local ward levels, it will be important to provide capacity building support in ESMF implementation to the local structures that will be involved in sub-project activities. Local government structures have a role in monitoring implementation of sub-projects and will need capacity building in ESMF implementation.

8.3 Monitoring Indicators

Monitoring indicators are a very important part of the monitoring plan. The indicators should be:

- (i) Specific to avoid ambiguity of items being measured;
- (ii) Measurable to facilitate quantification; and
- (iii) Quantifiable to be easily translated into units of measurement and to facilitate verification.

The table below (table 11) highlights the various monitoring indicators for the proposed subprojects on the ATP project.

Table 12: Monitoring Indicators and Anticipated Sub Projects

Project Category	Anticipated Sub-Projects	Monitoring Indicators
Infrastructure/Construction related	<ul style="list-style-type: none"> • Construction of last mile infrastructure (small infrastructure works to build or upgrade markets points and associated structures) 	<ul style="list-style-type: none"> • Increased access to agro-business value chains • Improved packaging and value addition to agro products • Increased productivity and revenue

Income Generating Activities	<ul style="list-style-type: none"> • Community level agro-processing • Small scale agricultural support projects 	<ul style="list-style-type: none"> • Increased levels of income in target communities and reduction in poverty • Reduced report of malnutrition among vulnerable groups like children and women • Creation of sustainable value chains for produce and services
Infrastructure/Construction related	<ul style="list-style-type: none"> • Support to National Quality Infrastructure institutions (hard infrastructure e.g. accommodation/ equipment) 	<ul style="list-style-type: none"> • Increased access to agro-business value chains • Improved packaging and value addition to agro products • Increased productivity and revenue • Improved data collection and baseline information on agro – business activities

8.4 Budget

The project has earmarked US\$100,000 for implementation of Environmental and Social Safeguard due diligence actions, mitigation measures, capacity building and monitoring activities defined in the ESMF.

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ANNEX 1: ENVIRONMENTAL AND SOCIAL SCREENING FORM

PART A: GENERAL INFORMATION

Project Name
Estimated Cost ()
Project Site
Project Objectives
Proposed Main Project Activities
Name of Evaluator/s
Date of Field Appraisal

PART B: BRIEF DESCRIPTION OF THE PROPOSED ACTIVITIES

- Provide information on the type and scale of the construction/rehabilitation activity (e.g. area, land required and approximate size of structures)
- Provide information on the construction activities including support/ancillary structures and activities required to build them, e.g. need to quarry or excavate borrow materials, water source, access roads etc.
- Describe how the construction/rehabilitation activities will be carried out. Include description of support/activities and resources required for the construction/rehabilitation.

PART C: ENVIRONMENTAL AND SOCIAL BASELINE INFORMATION OF THE SUB PROJECT SITE BRIEF DESCRIPTION

Category of Baseline Information	Brief Description
GEOGRAPHICAL LOCATION * Name of the Area * Proposed location of the project (Include a site map of at least 1:10,000 scale / or coordinates from GPS)	
LAND RESOURCES * Topography and Geology of the area * Soils of the area * Main land uses and economic activities	
WATER RESOURCES * Surface water resources (e.g. rivers, lakes, etc.) quantity and quality	
BIOLOGICAL RESOURCES * Flora (include threatened/endangered/endemic species)	

* Fauna (include threatened/endangered/endemic species) * Sensitive habitats including protected areas e.g. national parks and forest reserves	
CLIMATE * Temperature * Rainfall	
SOCIAL * Number of people potentially impacted * Type and magnitude of impacts (i.e. impact on land, structures, crops, standard of living) * Socio-economic overview of persons impacted	

PART D: SCREENING CRITERIA FOR IMPACTS DURING SUBPROJECT IMPLEMENTATION, AREAS OF IMPACTS AND IMPACTS EVALUATION AND POTENTIAL MITIGATION MEASURES

	Areas of Impacts		Impacts Evaluation						Potential Mitigation Measures
			Extent or coverage (on site, within 3-5km or beyond 5km)			Significance (Low, Medium, High)			
	YES	NO	On Site	Within 3-5 km	Beyond 5 km	Low	Medium	High	
	Is this sub-project site/activity within and/or will it affect the following environmentally sensitive areas?								
1.1	National parks and game Reserve								
1.2	Wet-lands								
1.3	Productive traditional agricultural /grazing lands								
1.4	Areas with rare or endangered flora or fauna								
1.5	Areas with outstanding Scenery/tourist site								
1.6	Within steep slopes/mountains								
1.7	Dry tropical forest								
1,8	Along lakes, along beaches, riverine								
1.9	Near industrial activities								
1.10	Near human settlements								
1.11	Near cultural heritage sites								
1.12	Within prime ground water								

	Areas of Impacts	Impacts Evaluation		Potential Mitigation Measures
	recharge area - -			
1.13	Within prime surface run off			
1.14	Will the sub-project use international water sources?			
2.0	Screening Criteria for Impacts during implementation and Operation			
	Will the implementation and operation of the sub-project within the selected site generate the following externalities/costs/impacts?			
2.1	Deforestation			
2.2	Soil erosion and siltation			
2.3	Siltation of watercourses,			
2.4	Environmental degradation arising from mining of construction materials			
2.5	Damage of wildlife species and habitat			
2.6	Increased exposure to agro-chemical pollutants			
2.7	Hazardous wastes, Asbestos, PCB's, pollution			
2.8	Nuisance - smell or noise			
2.9	Reduced water quality			
2.10	Increase in costs of water treatment			
2.11	Soil contamination			
2.12	Loss of soil fertility			
2.13	Salinization or alkalinisation of soils			
2.14	Reduced flow and availability of water			
2.15	Long term depletion of water resource			
2.16	Incidence of flooding			
2.17	Changes in migration patterns of animals			
2.18	Introduce alien plants and Animals			
2.20	Increased incidence of plant and animal diseases			
	Will the implementation and operation of the sub-project activities within the selected site generate the following socio-economic costs/impacts?			
3.1	Loss of land/land acquisition for human settlement, farming, grazing			
3.2	Loss of assets, property, houses, agricultural produce			
3.3	Loss of livelihood			

	Areas of Impacts	Impacts Evaluation		Potential Mitigation Measures
3.4	Require a RAP or ARAP			
3.5	Loss of cultural sites, graveyards, monuments			
3.6	Disruption of social fabric			
3.7	Interference in marriages for local people by workers			
3.8	Potential spread of STIs and HIV and AIDS, due to migrant workers			
3.9	Increased incidence of communicable diseases			
3.10	Health hazards to workers and communities			
3.12	Conflicts over use of natural resources e.g. water, land, etc.			
3.13	Conflicts on land ownership			
3.14	Disruption of important pathways, roads			
3.15	Increased population influx			
3.17	Loss of income generating Capacity			

ANNEX 2: GENERIC ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

INTRODUCTION

The project aims at improving environmental management of contaminated soil/areas. The choice of remediation technique will be technology neutral and will be determined based on assessment of environmental health risks associated with each site. Once the site details are analyzed for level of contamination; remediation targets identified and design firmed up, an Environmental Management Plan will be prepared to supplement the designed mitigation measures. The monitoring of environmental quality will be part of the main project design to assess the performance of the intervention and will be integrated into the EMP.

EXECUTIVE SUMMARY

Briefly describe the proposed project, location, investment cost, alternatives considered, major impacts, and environmental management commitments objectives, relevant legislation, technology, project alternatives, main findings and lifespan.

TABLE OF CONTENTS

1.0 INTRODUCTION

- Give a brief project background, objectives.
- Summary description of the project including project rationale
- The developer's physical address and the contact person.
- Particulars of Shareholders and Directors
- Track Record (Previous Experience of Enterprise)
- Brief description of the Location
- %age of shareholding by each shareholder
- The developer's physical address and the contact person and details.
- Total Project Cost/Investment
- Proposed Project Implementation Date

2.0 LEGAL AND POLICY FRAMEWORK

2.1 Policy, legal and institutional framework relevant to the project

- Policy, legal and institutional framework relevant to the project
- Specific sections of the cited policy, legal and institutional framework relevant to the proposed project.
- Relevance of cited sections to the proposed development
- Compliance (how the development complies/will comply to the cited sections)

2.2 International agreements and Conventions

- International agreements and conventions relevant to the proposed project.
- Specific sections of the agreements and conventions relevant to the proposed project.
- Relevance of cited sections of the agreement or convention to the proposed development
- Compliance (how the development complies/will comply to the cited sections)

3.0 DESCRIPTION OF THE PROJECT

3.1 Location

- Describe the project location supported by a location map drawn to an appropriate scale with a legend, direction of the True North. The location map must be printed on at least “A3” paper size for it to be clear.
- Provide the spatial extent of the proposed project site(Province, City/Municipality/district, specific site)
- Provide land marks and their distances from the proposed site to help identify proposed project site
- Identify surrounding developments
- Provide coordinates of the proposed site where applicable

3.2 Nature of the Project

- Raw materials (including hazardous materials and their storage on site)
- Process and technology (including flow diagrams)
- Products and by-products
- Production capacity
- Schedule and life time of the project

3.3 Main activities

- Site preparation phase
- Construction phase
- Operation phase

4.0 PROJECT ALTERNATIVES

- i. Identification of alternatives such as but not limited to:
 - a) Project need
 - b) Site
 - c) Design
 - d) Technology
 - e) Process
 - f) Raw materials
 - g) Justification for the selected option(s)
- ii. Analysis of each of the identified alternatives
- iii. List of chosen alternatives in order of preference
- iv. Reasons for choosing the preferred alternatives and rejecting the other alternatives

5.0 DESCRIPTION OF THE BASELINE ENVIRONMENT

5.1 Ecological Resources

a. Fauna

- Terrestrial species (Include common names and respective scientific names)
- Aquatic species (Include common names and respective scientific names)
- Identification of rare or endangered species (Include common names and respective Scientific names)

b. Flora

- Terrestrial species (Include common names and respective scientific names)
- Aquatic species (Include common names and respective scientific names)
- Identification of rare or endangered species (Include common names and respective scientific names)

c. Birds

- Field survey of bird species (Include common names and respective scientific names)
- Identification of rare and endangered bird species

5.2 Geology and Hydrogeology

5.3 Drainage

5.4 Climate

5.5 Landscape and Topography

5.6 Land Use and Soils

5.7 Ground and Surface Water

5.8 Air quality and Noise

5.9 Social, Economic and Cultural Issues

5.10 Built Environment

6.0 ENVIRONMENTAL & SOCIAL IMPACTS

Identify and discuss

6.1 Positive Impacts

- 6.1.1 Socio-economic Environment
- 6.1.2 Physical Environment
- 6.1.3 Biological Environment

6.2 Negative Impacts

- 6.2.1 Socio-economic Environment
- 6.2.2 Physical Environment
- 6.2.3 Biological Environment

6.3 Methodology of Impact Evaluation

Evaluation of impacts for significance should combine:

- the frequency of occurrence of the impact
- the duration of the impact
- the severity of impact
- the spatial extent of the impact
- the sensitivity of the element being impacted.

7.0 ENVIRONMENTAL SOCIAL MANAGEMENT PLAN (State the Environmental Management Commitments for mitigating negative Environmental Impacts identified in Section 6.0 and measures for enhancing positive impacts.

7.1 Environmental Monitoring Plan (These should include environmental management cost estimates, responsible personnel and the frequency of monitoring)

Aspect	Impact	Mitigation/ Enhancement measure	Frequency of Monitoring	Time frame	Performance indicator	Responsible person	Cost

7.2 Budget

7.3 Implementation Timeline

8.0 DECLARATION OF AUTHENTICITY OF REPORT CONTENTS

9.0 BIBLIOGRAPHY

10.0 APPENDICES

- Maps and satellite images
- Figures (tables, charts, graphs, models, photographs);
- Certificate of Incorporation
- Investment License
- Title deeds or lease agreements
- Certificates of Incorporation
- Agreements
- Asset valuation reports
- Approval documents
- Any other relevant supporting documents or information that cannot be presented in the main report

ANNEX 3: CHANCE FIND PROCEDURES

Chance Find Procedure is a step by step procedure which outlines what needs to be done when projects come across archeological sites, historical sites, remains and objects, including graveyards and/when individual graves during excavation or construction. This procedure relates to OP/BP 4.11- Physical Cultural Resources – which addresses physical cultural resources which are defined as movable or immovable objects, sites, structures that have archeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings and may be above or below the ground.

If during civil works, sub project discover archeological sites, remains and objects, including those of cultural and religious significance and/or individual graves during excavation or construction, the implementers will carry out the following steps:

1. Stop the construction activities in the area of the chance find;
2. Delineate the discovered site or area;
3. Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged
4. The National Heritage and Conservation Commission (NHCC) will be notified should a chance find be cited and offer guidance on how such sensitive findings should be handled.
5. Responsible authorities would be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archeologists. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage; those include the aesthetic, historic, scientific or research, social and economic values;
6. Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities
7. Construction work could resume only after permission is given from the responsible local authorities or department responsible for culture or antiquities concerning safeguard of the heritage.

ANNEX 4: ENVIRONMENTAL AND SOCIAL GUIDELINES FOR CONSTRUCTION CONTRACTOR

The guidelines include provisions for proper management of construction sites, safe storage of construction materials and safe disposal of wastes

General Considerations

- The contractor shall follow the World Bank Group Environment, Health and Safety Guidelines which should become the basis for preparing the site-specific EHS Plan. For details please refer : www.ifc.org/EHSguidelines
- The contractor in all his activities ensure maximum protection of the environment and the socio-economic wellbeing of the people affected by the project, whether within or outside the physical boundaries of the project area.
- Before any construction works begin, the contractor shall ensure that the relevant environmental and land acquisition certificates of authorization for the works have been obtained from the relevant authorities
- In general, the contractor should become familiar with the environmental and social screening process and the Resettlement Policy Framework (RPF) for this project. The contractor shall work in cooperation and in coordination with the Project Management Team and/or any other authority appointed to perform or to ensure that the social and environmental work is performed according to the provisions of the safeguards documents
- The contractor shall pay close attention to health and safety requirements for workers who must wear protective clothing if required. The artisan should also ensure the health and safety of the community adjoining any construction areas.
- The contractor shall always keep on site and make available to Environmental Inspectors or any authorized persons, copies of the ESMPs, RAPs and ARAPs for the monitoring and evaluation of environmental and social impacts and the level or progress of their mitigation.
- The contractor shall ensure that construction materials such as sand, quarry stone, soils or any other construction materials are acquired from approved suppliers and that the production of these materials by the suppliers or the contractor does not violate the environmental regulations or procedures
- The movement and transportation of construction materials to and within the construction sites shall be done in a manner that generates minimum impacts on the environment and on the community, as required by the ESMP.
- Construction materials shall be stored in a manner to ensure that:
 - There is no obstruction of service roads, passages, driveways and footpaths;
 - Where it is unavoidable to obstruct any of the service paths, the contractor shall provide temporary or alternate by-passes without inconveniencing the flow of traffic or pedestrians;
 - There is no obstruction of drainage channels and natural water courses;
 - There is no contamination of surface water, ground water or the ground;

- There is no access by public or unauthorized persons, to materials and equipment storage areas;
- There is no access by staff, without appropriate protective clothing, to materials and equipment storage areas;
- Access by public or unauthorized persons, to hazardous, corrosive or poisonous substances including asbestos lagging, sludge, chemicals, solvents, oils or their receptacles such as boxes, drums, sacks and bags is prohibited;
- Access by staff, without the appropriate protective clothing, to hazardous, corrosive or poisonous substances including asbestos lagging, sludge, chemicals, solvents, oils or their receptacles such as boxes, drums, sacks and bags is prohibited.
- Construction waste includes but is not limited to combustion products, dust, metals, rubble, timber, water, wastewater and oil. Hence construction waste constitutes solid, liquid and gaseous waste and smoke.
- In performing his activities, the contractor shall use the best practical means for preventing emissions of noxious or offensive substances into the air, land and water. He shall make every effort to render any such emissions (if unavoidable) inoffensive and harmless to people and the environment. The means to be used for making the emissions harmless or for preventing the emissions shall be in accordance to the RAPs, or the ESMPs and with the approval of the relevant Local Authority or ZEMA.
- The contractor shall, in particular, comply with the regulations for disposal of construction/demolition wastes, waste water, combustion products, dust, metals, rubble and timber. Wastewater treatment and discharge will conform to the applicable regulations by the relevant guidelines.
- Asbestos wastes, PCBs and other hazardous wastes shall be treated and disposed of in conformity with the national regulations and World Bank Group standards where applicable, with the supervision of qualified personnel.
- The contractor shall protect the health and safety of workers by providing the necessary and approved protective clothing and by instituting procedures and practices that protect the workers from dangerous operations. The contractor shall be guided by and shall adhere to the relevant national Labor Regulations for the protection of workers. Appropriate information and awareness on HIV/AIDS shall be conducted at each construction site.

ANNEX 5: SAMPLE TORS

SAMPLE TERMS OF REFERENCE FOR ENVIRONMENTAL AND SOCIAL IMPACT STATEMENT (EIS)

GENERAL GUIDANCE ON PREPARATION OF TERMS OF REFERENCE

1. INTRODUCTION

- i. State what the document is all about and for what project the EIS is meant
- ii. State on whose behalf the Terms of Reference (TORs) are being prepared
- iii. State the purpose and objectives of the TORs
- iv. State what the document seeks to identify, what nature, scope and extent of information that will be collected and assessed in conducting the EIA for the project
- v. State study area (project Location).

1.1. PROJECT BACKGROUND

- i. Give a detailed overview of the company providing:
 - a. A corporate profile; and,
 - b. The name of the legal entity that will develop, manage and operate the Project and hold the operating approvals.
- ii. Describe the major components of the proposed project, the implementing agents, and a brief history of the project and its current status.

2. REGULATORY FRAMEWORK AND CORPORATE REQUIREMENTS

Summarise the applicable guidelines, procedural aspects, Acts, rules, regulations and policies to be followed in the preparation of EIA report for the proposed project as follows:

- i. National and International Regulations and Guidelines
- ii. Corporate Standards and Guidelines

3. PROJECT DESCRIPTION

- i. Outline a full description of the project using appropriate maps including a general layout
- ii. State the size of the area that will be covered by the proposed project.
- iii. Outline the key project components such as
 - a. Designs
 - b. Volume and grade of resource
 - c. Production rate
 - d. Infrastructure to be installed
- iv. State all the anticipated wastes from the project cycle

4. EIA SCOPE OF WORK

- i. Outline the spatial extent of the boundaries of the study and any adjacent or remote areas which should be considered with respect to the project.
- ii. Describe how the EIA work will be undertaken and the tasks to be performed.

5. EIA METHODOLOGY

- i. Describe how the baseline data will be gathered and explain how they will be used. The methodologies to be used for data collection should be briefly described. The study goals must be clearly defined
- ii. Wherever possible, propose predictive, quantitative models and standards that will be used to avoid vague and subjective predictions

6. EIA SCHEDULE

Propose a schedule that will be followed accordingly.

7. EIS REPORTING AND OUTPUTS

Outline the EIS structure that will be presented.

8. BASELINE INFORMATION OF THE PROJECT TO INCLUDE:

Propose categories of baseline information to be gathered and specialized studies to be conducted in the study area such as:

- i. Climate
- ii. Air quality
- iii. Soils
- iv. Geology
- v. Hydrology (ground and surface water quality inclusive)
- vi. Topography
- vii. Land use and land tenure
- viii. Noise and vibration
- ix. Built environment
- x. Fauna
- xi. Flora
- xii. Socio-economic environment (*Initial Social Assessment should among other factors identify the population, social services and amenities, vulnerability and direct consultation with people who may be directly affected by the project*).
- xiii. Archeology and Cultural set up

9. STAKEHOLDER CONSULTATION

Identify key issues from the scoping meetings that need to be incorporated in the study and extract and incorporate them into the TORs for the EIA study.

10. DETERMINATION OF POTENTIAL IMPACTS OF THE PROPOSED PROJECT

List potential environmental and social impacts that may arise as a result of project implementation. These impacts will be determined based on socio-economic, environment and health aspects of project activities during construction and implementation stages. The choice of remediation techniques and locational aspects of project will be an important criteria in determining the potential impacts of subproject activities.

11. ANALYSIS AND EVALUATION OF IMPACTS

Describe how the impacts will be analyzed and evaluated.

12. IDENTIFICATION OF PROJECT ALTERNATIVES

Outline project alternatives to be considered during EIA such as

- i. Project need
- ii. Site
- iii. Design
- iv. Technology
- v. Process
- vi. Raw materials
- vii. Others

13. PROPOSED EIA TEAM

- i. Provide a list of EIA specialists/experts, together with their key qualifications and affiliations
- ii. A description of proposed team staff should be presented including bio-data for all key personnel
- iii. State the role of each EIA team member
- iv. The CVs should reflect the team members' contact details and
- v. The CVs should be signed by respective team members.

14. DECLARATION OF AUTHENTICITY OF REPORT CONTENTS

Make a declaration of the authenticity of report contents

15. OTHER RELEVANT INFORMATION/APPENDICES

Provide a preliminary list of the supporting information that is expected to be used in the preparation of the EIA report. The list should include:

- vi. Scoping Report;
- vii. Maps;
- viii. Photographs;
- ix. Tables;
- x. Charts;
- xi. Graphs;
- xii. Signed list of meeting attendees;
- xiii. meetings minutes;
- xiv. company permits and certificates;

- xv. CVs of each member of the EIA team and any questionnaires to be used for preparing the report and
- xvi. Any other relevant documents.

ANNEX 6: DRAFT GRIEVANCE REDRESS MECHANISM

The Grievance redress mechanism will be set up at PIU level who will be responsible to maintain records of all complaints and their responses. A report of GRM performance will be consolidated as part of biannual M&E report, to be submitted to the MCTI. The GRM will follow that channels highlighted in the illustrations below.

	Focal Point Unit/Organizations	Focal Persons	Role and Responsibilities	
			<i>When a complaint is submitted</i>	<i>Recording complaints</i>
PIU	Project Implementation Unit (PIU) (Ministry of Commerce Trade and Industry)	<ul style="list-style-type: none"> ○ Project Manager -ATP (Ministry of Commerce Trade and Industry) ○ Director Planning and Information (MCTI) ○ M&E Officer ○ Independent Auditor 	<p>The PIU with the support of the Director Planning and Information (MCTI) (or an independent auditor) will try to address it.</p> <p>❖ The PIU will respond to all complaints within 10 business days.</p> <p>❖ If not resolved, the complaint will be reported to the PCU at the MOM.</p>	<ol style="list-style-type: none"> 1. Record the complaint submitted in the PIU grievance database. 2. Review monthly monitoring submitted by the district/provincial-level, and enter all complaints with the status will be recorded in the grievance database. 3. M&E officer will periodically review the grievance database and follow-up with focal persons to ensure all cases are addressed. 4. Every 6 months, PIU will include performance of GRM report as part of M&E report and submit to MCTI which will be shared with the Bank



CONTRACTORS AND CBE's/CBO's

<ul style="list-style-type: none"> ○ Contractors ○ CBE's/CBO's 	<ul style="list-style-type: none"> ○ Sub Project Managers ○ Site Manager ○ Community Leaders ○ Traditional Leader 	<p>The focal persons on site will try to address it at site level.</p> <ul style="list-style-type: none"> ❖ The focal person on site will respond to all complaints within 10 business days. ❖ If not resolved, the complaint will be escalated to the PIU. 	<ol style="list-style-type: none"> 1. Record the complaint submitted in a simple form. 2. Submit the record of complaints to the Project Manager
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ANNEX 7: CLASSIFICATION OF PROJECTS UNDER ZAMBIA EIA

The project aims at improving environmental management of contaminated soil/areas. The choice of remediation technique will be technology neutral and will be determined based on assessment of environmental health risks associated with each site. Once the site details are analyzed for level of contamination; remediation targets identified and design firmed up, an Environmental Management Plan will be prepared to supplement the designed mitigation measures. The monitoring of environmental quality will be part of the main project design to assess the performance of the intervention and will be integrated into the EMP.

The Environmental Management Act (2011) of the Laws of Zambia read together with Statutory Instrument No. 28 of 1997 provides for Environmental Impact Assessment regulations that classify projects into either the First Schedule or Second Schedule depending on the size, nature and anticipated environmental consequences of a project or sub-project. The Zambia EIA Regulations provide lists of projects or sub-projects proto-types which fall under the two categories

First Schedule: These are projects or sub-projects with minimal negative impacts on the environment and may require preparation of project briefs to determine the safeguards category. Examples relevant on the ATP will include:

- a) Land consolidation schemes.
- b) Brick and earthen manufacture.
- c) Bulk grain processing plants.
- d) Chemical processing and manufacturing.

Others are;

- a) Projects located in or near environmental sensitive areas such as:-
 - i. indigenous forests;
 - ii. wetlands;
 - iii. zones of high biological diversity;
 - iv. areas supporting populations of rare and endangered species;
 - v. zones prone to erosion or desertification;
 - vi. areas of historical and archaeological interest;
 - vii. areas of cultural or religious significance;
 - viii. areas used extensively for recreation and aesthetic reasons;
 - ix. areas prone to flooding and natural hazards;
 - x. water catchments containing major sources for public, industrial or agricultural uses; and
 - xi. Areas of human settlements (particularly those with schools and hospitals).

Second Schedule: These are projects that require an extensive evaluation of activities likely to have significant negative impacts on the environment and require undertaking a detailed Environmental Impact Assessment. Examples on the ATP broadly include:

- a) Agriculture
- b) Processing and Manufacturing Industry

ANNEX 8: LIST OF STAKEHOLDERS CONSULTED DURING THE PREPARATION OF THE ATP

Table 13: Individuals and Organizations Consulted During Preparation of ATP

S/N.	Name	Institution	Position
People met during Mission 18-29 January 2016			
1.	Honorable Margaret Mwanakatwe	Ministry of Commerce, Trade and Industry	Minister of Commerce, Trade and Industry
2.	Dr. Roland Msiska	Cabinet office	Secretary to Cabinet
3.	Kayula Siame	Ministry of Commerce, Trade and Industry	Permanent Secretary
4.	Dr. Simon Miti	Ministry of National Planning	Permanent Secretary
5.	Dr. Auxilia Ponga	Ministry of National Planning	Permanent Secretary
6.	Mateyo Kaluba	Ministry of Commerce, Trade and Industry	Director Planning and Information
7.	Christine Yambayamba	Ministry of Livestock Development and Fisheries	Deputy Director
8.	Anna Songolo	Ministry of Livestock Development and Fisheries	Deputy Director
9.	Swithen Kabilika	Ministry of Livestock Development and Fisheries	Deputy Director
10.	Boniface Kunda	Ministry of Commerce, Trade and Industry	Chief Economist Director for Industry
11.	Mwila Daka	Ministry of Commerce, Trade and Industry	Acting Chief Planner
12.	Lillian Chomba	Ministry of Agriculture	Chief Planner
13.	Kaunda Kapepula	Ministry of Agriculture	Principal economist –Market Support
14.	Daniel Chonde	Ministry of Livestock Development and Fisheries	
15.	Ellison Msimuko	Ministry of Livestock Development and Fisheries	
16.	Andela Kangwa	Ministry of Livestock Development and Fisheries	
17.	Chambuleni Simwinga	Zambia National farmers Union (Poultry Association of Zambia)	Executive Director
18.	Jeremiah Kasaro	Zambia National farmers Union (Poultry Association of Zambia)	Member
19.	Dominic Chanda	Zambia National farmers Union (Poultry Association of Zambia)	Member
20.	Hamusimbi Coillard	Zambia National farmers Union (Poultry Association of Zambia)	Head, Member Services
21.	Mukuli Chikuba	Ministry of National Planning	Director
22.	Mushuma Mulenga	Cabinet Office, Private Sector Development, Industrialization and Job Creation Unit	
23.	Eric Stubbs	Cargill Limited	Grain Trading Manager
24.	Sanjay Kumar	Capital Fisheries Limited	Financial Controller
25.	Bryan McCoy	Yalelo	Chief Executive officer
26.	David Bosse	National Milling Corporation	Managing Director
27.	Zan Baosen	Zambia-China Economic and Trade Corporation Zone	General Manager
28.	Rosetta Mwape	Zambia Association for Manufacturers	President

29.	Joseph Weltin	Majoru Limited	Managing Director
30.	Colin Lindsey	Ross Breeders Limited	Managing Director
31.	Dr. Sue Ellis	SNV	Country Director
32.	Siohban Franklin	AgDevCo	Country Director
33.	Bayo Akindeinde	Private Enterprise Programme- Zambia	Team Leader
34.	Rob Munro	MUSIKA	Director, Strategy
35.	Felix Lupindula	Zambeef	Chairman
36.	Cecil Hakaamba	MCC Magoye	Milk Buyer
37.	Ian Robinson	Kushiya Farms	Manager
List of Persons met during Mission 18 April-6 May, 2016			
1	Ms. Kayula Siame	Ministry of Commerce, Trade and Industry	Permanent Secretary
2	Mr. Mateyo Kaluba	Ministry of Commerce, Trade and Industry	Director Planning
3	Mr. John Anthony Mulongoti	Ministry of Commerce, Trade and Industry	Director, Domestic Trade & Commerce
4	Ms. Mwila Daka	Ministry of Commerce, Trade and Industry	Chief Planner
5	Mr. J. J. Mulenga	Ministry of Finance	Advisor
6	Mr. Remmy Kampamba	Ministry of Finance	Chief Planner
7	Mr. Yona Sinkala	Ministry of Livestock & Fisheries	Director, Veterinary Services
8	Mr. Patrick Ngalande	Ministry of Livestock & Fisheries	Director, Fisheries
9	Dr. Benson Mwenya	Ministry of Livestock & Fisheries	Director, Animal Health Services
10	Dr. Christine Yama- Yamba	Ministry of Livestock & Fisheries	Deputy Director, Livestock Development
11	Mr. Young Vibeti	Ministry of Livestock & Fisheries	Principal Economist
12	Mr. Harris Phiri	Ministry of Livestock & Fisheries	Capture Fisheries
13	Mr. John Mwango	Ministry of Livestock & Fisheries	Aquaculture Development
14	Ms. Kezia Katyamba	Ministry of Agriculture	Director, Agribusiness & Marketing
15	Mr. Grey Mwale	Ministry of Agriculture	Principal Economist - Agribusiness
16	Dr. Kajarayekha Kenneth Msiska	Ministry of Agriculture	Plant Quarantine and Phytosanitary Specialist
17	Mr. Stephen Mbewe	Ministry of Transport	Director, Planning & Monitoring
18	Chilufya Sampa	Competition and Consumer Protection Commission	Executive Director
19	Luyamba Mpamba	Competition and Consumer Protection Commission	Director, Merger and Monopolies
20	Naomi Fulaza	Competition and Consumer Protection Commission	Director, Cartels and Restrictive Business Practices
21	Mr. Maybin Nsupila	Zambia Association of Manufacturers	CEO
22	Mr. Rob Munro	MUSIKA	

23	Mr. Bayo Akindeinde	PEP-Zambia	Team Leader
24	Ms. Siobhan Franklin	AgDevCo	Country Director
25	Mr. Steffen Tjerrild	Kukula Capital	
26	Mr. Jacob Ulrich	Techno Serve	Chief Executive Officer
27	Mr. Franz Schepping	Zambia Breweries	Technical and Supply Chain Director
28	Mr. Luke Mbewe	Zambia Export Growers Association	CEO
29	Mr. Anthony Baker	Buya Bamba Ltd	CEO
30	Mr. Watze Elsinga.	Enviro Flor Ltd	CEO
31	Mr. Baxter	Fresh Mark Ltd	CEO
32	Mr. Everisto Hanjalika	Fresh mark Ltd	Buyer
33	Mr. Godfrey Handabile	Fresh mark	Trading Manager
34	Mr. Wayne Manton	Rose bloom Zambia	CEO
35	Mr. Yusuf Koya	Zambeef	Executive Director
36	Mr. Edmund M. Sunkutu	York Farms	Production Manager
37	Mr. Ephraim Mwefweni	ZANACO Bank	Head of Agribusiness
38	Mr. Chayo Mwenechanya	FNB Bank	Head Agribusiness
40	Mr. Coillard Hamusimbi	ZNFU	Head- Outreach
41	Mr. Dominic Chanda	Poultry Association of Zambia	Executive Manager
42	Mr. Jeremiah Kasalo	Dairy Association of Zambia	Executive Manager
43	Mr. Argent Chulu	ACTESA	
44	Dr. John Mukuka	ACTESA	
45	Mrs. Takabarasha	ACTESA	
46	Ms. Sandra Uwera	COMESA Business Council	CEO
47	Ms. Thelma Kilale Masuku	BDS & Membership ZCSMBA	
48	Ms. Emil Van Wyk	ASNAP/ AGRISMART	Country Director
49	Muunga Mapenzi	ASNAP/ AGRISMART	Manager
50	Jacob Ulrich	TECHNOSERVE	Country Director
51	Vyonsi Manda	Zambia Railways Limited	Manager
52	Charles Siyamutwa	Charles Siyamutwa Legal Practitioners	Managing Partner
53	Sydney Chisenga	Corpus Legal Practitioners	Partner
54	Brenda Mutale	AB & David Legal Practitioners	Partner
55	Victoria Dean	Victoria Dean Advocates	Managing Partner
56	Mweshi Banda Mutuna	Mweshi Banda & Associates	Managing Partner
57	Abigail Chimuka	Musa Dudhia & Co Legal Practitioners	Partner
58	Yotam Mkandawire	Grain Traders Association of Zambia	
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1	Chimfwembe Lewis	ZAM	Policy Analyst
2	Mr. John Anthony Mulongoti	MCTI	Director, Domestic Trade
3	Zungaye Phiri	MCTI	Economist
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5	Clare Nkweto Simmonds	PEP-Z	Deputy Team Leader
6	Henry Sichembe	WBG	Program Coordinator, Jobs
7	Alex Mwanakasale	WBG	Sr. Agriculture Specialist
8	Lance Simwanza	Kudu Consulting	S. Advisor Agriculture

9	Ellen Olafsen	WBG	Program Coordinator
10	Anayawa Mutemwa	MOA	Deputy Director
11	Justus Phiri	MCTI	Sr Economist
12	Precious Muzhiwo	ZAMACE	Compliance Officer
13	Tugba Gurcanlar	WB	
14	Mukula Makasa	ZDA	Director
15	Grey Mwale	MOA	Principle Economist
16	Mwila Daka	MCTI	A/Chief Planner
17	Remmy Kantumoya	FNB	Agribusiness Specialist
18	Mike Chivumo	MCTI	Planner
19	Sarah Mutale	MCTI	Economist
20	John Banda	ZNFU	M&E Manager
21	Choongo Chibawe	ZBIDF	Agriculture Specialist
22	Leonard Mwanza	BAZ	CEO
23	Ndawambi Daka	MCTI	Chief Coop Officer
24	Joe Syafunko	FNB	Agribusiness Manager
25	Brian Mtonya	WBG	Sr. PSD Specialist
26	Steven Giddings	WBG	Consultant
27	Leon Lourens	WBG	Consultant

ANNEX 9: PEST MANAGEMENT PLAN

PEST MANAGEMENT PLAN – ZAMBIA AGRIBUSINESS TRADE PROJECT

1.0 Project Description and Background

The Agribusiness and Trade Project (ATP) is a national project that aims to support all relevant actors of the economy across the country. The Project will be comprised of two components that will focus on fostering Market Linkages in Agribusiness and Strengthening the Regulatory and Institutional Framework for Agribusiness and Trade. There will further be a component that will be a supporting pillar on Project Management and Monitoring and Evaluation. Since the ATP may support investment activities that will require the procurement of farming inputs such as fertilizers, pesticides and fungicides to support the agro – sector, the Bank policy on Pest Management is triggered requiring that a Pest Management Plan (PMP) be developed. The project will however, focus on fostering market linkages in the agro sector and the construction of last mile infrastructure (small infrastructure works to build or upgrade markets points and associated structures) and will not be directly involved in farming activities. In order to achieve the bank policy objectives; the PMP will not be a stand-alone document but has been added as appendix 9 of the ESMF and will be incorporated in the ESMP's in order to address pest management issues relevant to the project and establish a screening mechanism for before procurement on the common agro products across Zambia.

1.1 Purpose of Pest Management Plan

The Purpose of the PMP is to provide guidance on the management of pesticides, registration and screening that is available in Zambia. The PMP will contribute to improved pest management, personal safety and environmental sustainability. A preferred solution is to use Integrated Pest Management (IPM) techniques and encourage their use in the whole of the sector concerned. Under Pest Management OP4.09, the Bank uses various means to assess pest management in the country and support IPM and the safe use of agricultural pesticides. In Bank-financed agriculture operations, pest populations are normally controlled through IPM approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest. The Bank may finance investments that procure or purchase of pesticides when their use is justified under an IPM approach.

1.2 Principles and Objectives of the PMP

Since the Bank Policy 4.09 on Pest Management has been triggered, this requires that a Pest Management Plan to provide guidance for the screening of pesticides, fertilizers, and other chemicals and their safe handling and disposal. The specific objectives of the PMP are to:

- 1) Promote ecologically based Integrated Pest management (IPM) and reduce reliance on synthetic pesticides;
- 2) Reduce health and environmental risks.

1.3 Screening Mechanism for Pesticides

The Bank policy on Pest Management in Zambia is complimented by ZEMA, who are the competent authority responsible for; the screening of approved and banned pesticides, registration guidance on storage

and disposal of pesticides. Their mandate is supported by the Environmental Management Act (EMA), 2011 and Environmental Management (Pesticides) Regulations of 2013. Furthermore, Zambia is a signatory to international bodies such as the Rotterdam Convention. In accordance with OP 4.09, the following criteria will apply to the selection and use of pesticides for the project:

- They must have negligible adverse human health effects;
- They must be shown to be effective against the target species;
- They must have minimal effect on non-target species and the natural environment. The methods, timing, and frequency of pesticide application are aimed to minimize damage to natural enemies. Pesticides used in public health programs must be demonstrated to be safe for inhabitants and domestic animals in the treated areas, as well as for personnel applying them;
- Their use must take into account the need to prevent the development of resistance in pests.

Any pesticides used in connection with the project will be manufactured, packaged, labelled, handled, stored, disposed of, and applied according to standards acceptable to the Bank. The Bank does not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II, if (a) the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.

The project mechanism to ensure only pesticides that are legally authorised and meet the above criteria will be supported or procured are shown in figure 1.

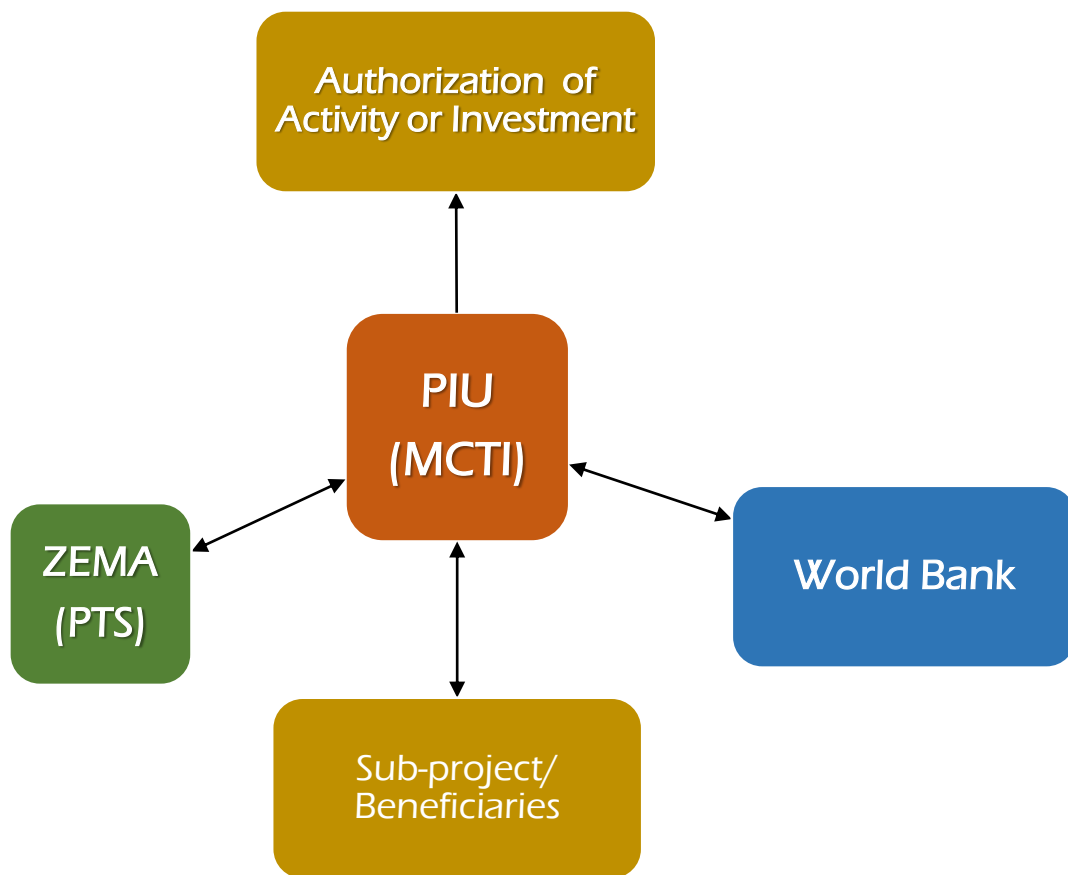


Figure 1: Screening Mechanism for proposals and activities

The screening mechanism will be operationalized by the PIU as follows for all activities and investments: During the implementation phase of the project the screening will be incorporated as part of the assessment process of subproject activities and beneficiaries. Once the PIU receives a proposal from beneficiaries and sub-projects, screening will be undertaken and response provided, should the activity not involve the use of pesticides. Once it has been established that pesticides are directly or indirectly going to be used or procured on an activity or investment. The PIU will engage the Pest and Toxic Substance (PTS) unit at ZEMA and the Bank where applicable to establish if the pesticide is authorised according to the bank and national legal criteria. All pesticide suppliers to sub/projects or beneficiaries are required to hold a valid license with ZEMA. The PTS unit provides guidance on licensing requirements and best practices for storage and disposal of chemicals. Item 1.4 and 1.5 provides a ZEMA application form for Pesticides and Toxic Substances and a generic PMP checklist that will be adopted on the project for field assessments. A PMP is required to be prepared by a qualified pest management specialist and submitted to the PIU by every sub-project/beneficiary where pesticides will be used. The PMP will: consider IPM approaches; include appropriate training, storage, handling and disposal methods for any pesticide application; and will include mechanisms to monitor pesticide effects.

1.4 Application Form – Pesticides and Toxic Substances

FIRST SCHEDULE

Form VIII
(Regulation 31(1))



THE ZAMBIA ENVIRONMENTAL MANAGEMENT AGENCY

The Environmental Management Act, 2011
(Act No. 12 of 2011)

The Environmental Management (Licensing) Regulations, Statutory Instrument No.112 of 2013

APPLICATION FOR A PESTICIDE AND TOXIC SUBSTANCE LICENCE			
Please complete in block letters		Shaded fields for official use only	Licence Code
		Date and Time	
<i>Information Required</i>		<i>Information Provided</i>	
1.	Type of Activity	Manufacturing Importation Transportation Storage Exportation Blending Formulating Re-formulating Processing Re-processing Sale Distribution Packaging Re-packaging Changing composition Advertising Pest Control Fumigation	√
	Other(s)		
2.	Name(s) of applicant(s)		
3.	Type of facility		
4.	Certificate of incorporation no. (if applicable)		
5.	Notification address		
	(a) Telephone No.		

	(b) Fax No. (c) Email address		
6.	Name and title of contact person authorised to represent applicant (a) Telephone No. (b) Fax: (c) E-mail		
7.	Name of local agent (if different from registration holder) (a) Telephone No. (b) Fax: (c) E-mail		
8.1	Product to be manufactured, blended, formulated, re-formulated, processed, reprocessed or changed in composition	(a) (b) (c) (d) (e) (f) (g) (h) (i)	
8.2	Facilities to be licensed	(a) (b) (c) (d) (e) (f) (g)	
9.	Indicate reasons for import/export		
10.	Appendices (attach the following forms where applicable)		
	Appendix 1	Decision Letter	
	Appendix 2	Returns	
	Appendix 3	Efficacy report	
	Appendix 4	Name and qualifications of the person responsible for pesticide or toxic substance management, compliance with the Act and the conditions of the licence;	
	Appendix 5	Chemical dossier	
	Appendix 6	Details of field trials (where applicable)	
	Request for confidentiality of information (tick) Yes: No: Reasons:		
	PRODUCT IDENTIFICATION		
1.	Product Registration Number:		
2.	Product status	(a) Trial Product	
		(b) Non-Trial Product	
3.	Type of Pesticide (insecticide, herbicide, fungicide, etc) or toxic		

	substances (e.g. cyanide, benzene)		
4.	(a) Trade Name:		
	(b) Trade mark:		
	(c) Trade mark holder:		
	(d) Is the product registered in the country of:		
	(i) Origin: Yes No		
	If No, specify		
	(ii) Manufacture: Yes No If No, specify		
(i) Formulation: Yes No			
If No, specify			
(ii) Name and address of formulation if different from above			
(e) Registration in SADC countries			
(f) Registration in other countries			
5.	Full chemical name of each ingredient		
6.	Common name of each active ingredient		
7.	The empirical and structural formula for each active ingredient		
8.	Formulation (type of formulation: wettable powder, emulsifiable concentrate, e.t.c)		
9.	(a) Concentration of active agent in technical material		
	(b) Percentage of purity on a mass-by-mass or mass by volume basis (specify) of each active ingredient and other ingredients (including inert matter) in the pesticide/toxic substance stating which or percentage applies to each ingredient:		
10.	Physical and chemical properties of each ingredient with specific reference to type of formulation:		
	10.1 Appearance:		
	10.2 Density (liquids only):		
	10.3 Flammability		
	(i) Liquids flash point:		
	(ii) Solids – statement to be made as to whether product is flammable:		
	10.4 Wettability (for dispersible powders):		
	10.5 Suspendibility (for emulsified suspension concentrates):		
	10.6 Emulsion stability (for emulsifiable concentrates):		
10.7 Corrosiveness			
10.8 Known incompatibilities with			

	other products (specify):			
11.	Size of containers in which the pesticide or toxic substance is to be sold and the net weight or volume:			
12.	Nature of containers in which the pesticide or toxic substance is to be sold:			
13.	Stability of formulation:			
	(a) On storage (at temperature of 25°C ± 3°C):			
	(b) On dilution:			
	(c) Shelf life in general:			
TOXICOLOGY				
Toxicology (active ingredient)				
Rat	Acute Oral (LD ₅₀ mg/kg)	Acute Dermal (LD ₅₀ g/kg)	Inhalation LC ₅₀ (mg/4hour)	Intra-peritoneal injection for infectivity (LD ₅₀ g/kg)
Experimental				
Calculated				
Hypersensitivity/allergies in humans				
Approved <input type="checkbox"/>		or Rejected <input type="checkbox"/>		(√)
Toxicology (formulated product)				
	Acute Oral (LD ₅₀ mg/kg)	Acute Dermal (LD ₅₀ g/kg)	Inhalation LC ₅₀ (mg/4hour)	
Rat	Experimental			
	Calculated			
Rabbit	Eye irritation		Skin irritation	
None				
Mild				
Moderate				
Severe				
Skin sensitization in guinea pig: (tick)			None	Mild
			Moderate	Severe
WHO classification (tick):			Ia	Ib
GHS Classification (e.g. Class, Division or Type)			II	III
Summary of other mammalian toxicological studies: eg. Livestock, wildlife, poultry, pets				Others
ECOTOXICOLOGY				
			YES/NO	
Toxicity to bees:				
Toxicity to fish and other aquatic organisms:				
Toxicity to birds:				
Toxicity to earth worms or other soil invertebrates, and soil micro-organisms:				
Toxicity to other non-target organisms:				
Persistence in the environment:				

	Available toxicological data relating to other ingredients in formulation (non-active additives in formulation):	
	Other effects: Specify	
	PACKAGING	
	Type of packaging material/container:	
	Pack size(s)	
	Method of disposal of empty container(s)	
	OTHER SPECIFIC REQUIREMENTS	
	Directions for safe disposal of expired pesticide or toxic substance	
	Measures to minimise operator exposure	
	Sanitary and phytosanitary measures	
	Has the product been cleared by the phytosanitary authorities? (tick):	Yes (provide evidence) No
	(a) In the country of origin	<input type="checkbox"/> <input type="checkbox"/>
	(b) The recipient country	<input type="checkbox"/> <input type="checkbox"/>
		If No, give reasons
14.	Phytotoxicity:	
15.	Safety precautions to be observed in handling, use and storage:	
16.	Hazard to environment (e.g wildlife, aquatic etc.):	
17.	Residue data:	
18.	Proposed use:	
19.	(a) Directions for use:	
	(b) If pesticide state the method, dosage rates and frequency of application	
20.	(a) Biological effectiveness and benefit in use:	
	(b) Mode of action	

DECLARATION

I certify that these particulars are to the best of my knowledge, true and correct. I acknowledge that any false or misleading statement made knowingly may lead to cancellation of my licence under applicable law.

.....
Date

.....
Signature of applicant and official stamp

FOR OFFICIAL USE ONLY

Received by:
Officer (Name and Signature) Date

Amount Received: Receipt No.:

OFFICIAL
STAMP

1.5 Integrated Pest Management Plan Checklist

Pest Management Plan Checklist		
District	Date Plan Submitted	Farming Season/Year:
Producer/Owner [Name, Address, Phone]	Farm # Village #	Size of Field (Ha or Arces):
Technical Service Provider		Conservation staff planner [Name, Field Office]

PMP Components	Y	N	Comments
General Information			
1) Photos & maps indicate field boundaries and field ID numbers.			
2) Soil map is included, with field boundaries shown.			
Environmental Assessment			
1) Environmentally sensitive areas are identified and have been discussed with producer.			
2) Plan identifies potential for pest control products to degrade surface or ground water, and outlines steps to reduce potential.			
3) Models used are described and results shown.			
4) Risk of exposure of non-target species, both on and off-site, has been assessed and reduced.			
5) Appropriate National and local regulations are followed.			
6) Farm workers and others using or exposed to pesticides are adequately protected. (PPE)			
Pest Assessment & Planned Treatments			
1) Pre-season IPM field history prepared. <i>[optional]</i>			
2) Previous, current and planned crops, crop rotations and tillage systems are indicated.			
3) Crop scouting completed, at a minimum, during planting/emergence, early-, mid-, and late- season development, and post-harvest evaluation.			

PMP Components	Y	N	Comments
4) Pests and beneficial organisms identified.			
5) Scouting records completed and included. [<i>maps & reports</i>]			
6) Scouting completed by certified Pest Management Specialist.			
7) Pesticide applications based on predicted or estimated loss and risk.			
8) Planned control methods are identified.			
9) Pesticide labels are followed for all applications.			
Management Assessment			
Mitigation Techniques, such as IPM and conservation practices, have been identified and are being implemented to address environmentally sensitive areas.			
Additional Items			
1) Record keeping and field numbers, or cross-references other field identifiers as needed.			

This Plan was developed by a certified pest management specialist and meets minimum standards and specifications.

Certified Pest

Management Specialist _____ **Date** _____

Signature

Producer/Operator _____ **Date** _____

Signature

2.0 Pesticide Use

2.1 General Considerations

A variety of pesticides are available on the market, however, some pesticides are not supposed to be procured or used because they are either classified Ia (*Extremely hazardous*) and Ib (*Highly hazardous*), phased out or restricted on the WHO listing. Since project activities, potential investments and beneficiaries have not yet been defined, the exact pesticides suitable for the project are yet to be defined. The table below (table 1) gives how the various institutions and agricultural project beneficiaries use a variety of pesticides as reflected below. The catalogue below details examples on the range of common crops grown in Zambia and the corresponding pesticide/agrochemical used as these crops are integral to the farming systems and pest management regime in the country. The catalogue also includes the hazard classification by World Health Organization (WHO).

Table 14: Pesticides recommended and used in Agricultural Projects and by different Institutions ^{5 6 7 8 9 10}

Insecticide								
Group #	Chemical Group	Item #	Insecticide Name	Trade Name	WHO Classification	Crops	Main insects Controlled	Official Use status
1	Avermectin	1	Abamectin	Dynamec	IV	Tomato, Cotton	Red Spider Mite,	
2	Carbamate	2	Carbaryl,	Carbaryl, Sevin Carbax,	II	Tomato, Rice, Pearl Millet, Soybean	Tomato moth, Green Stink Bug, Spotted stem borer, African Pink Stem Borer, Epilachna beetle, Bollworm, Spotted stem borer, Cutworm, Epilachna beetle, Armoured Cricket	
		3	Carbofuran	Furadan	Ib, II	Cowpeas, Carrots	Black Beetle, sorghum Stem Fly, Sweet Potato weevils, nematodes	Banned or restricted in other countries
		4	Ethiophencarb	Ethiophencarb	II	Cabbage	Aphids	
		5	Methomyl,	Methomex 90SP	Ib	Pearl Millet, sorghum,	Bollworm	
		6	Pirimicarb	Primor	II	Cotton, Cabbage, Rape, Okra, Pumpkin	Sucking, Aphids, Turnip Mosaic Virus,	

⁵ Crop Protection Handbook 2009 MEISTER PRO

⁶ THE WHO RECOMMENDED CLASSIFICATION OF PESTICIDES BY HAZARD *and* GUIDELINES TO CLASSIFICATION 2009

⁷ Major crop Diseases Manual of Zambia

⁸ Zambia Seed Technology Handbook

⁹ Agricultural Field insect Pest of Zambia and Their Management

¹⁰ Improved Vegetable production Practices for Smallholder Farmer in Zambia

Insecticide									
Group #	Chemical Group	Item #	Insecticide Name	Trade Name	WHO Classification	Crops		Main insects Controlled	Official Use status
3	Cyclodiene organochlorine	7	Endosulphan	Endosulfan, Thiodan, Thiokill	II	Cotton, Rice, Millet, Peas, Soybean, Maize		Bollworms, Sucking, Spotted stem borer, African Pink Stem Borer, Bollworm, Spotted stem borer, Pod moth, Epilachna beetle, Cutworm,	Use should be discouraged because it has human and environmental health hazards. Already banned in 56 countries because of its high toxicity and environmental persistent, Endosulfan has been Nominated by the EU for a global ban under the Stockholm Convent.
		8	Lindane	Gamma BHC	II	Soybeans		Aphids	
4	Neonicotinoid	9	Acetamiprid	Spear, Acetam	II	Cotton, Paprika		Sucking	
		10	Imidacloprid	Confidor imidagold	II	Hot Pepper, Maize		White fly Termites	
		11	Thiamethoxam	Renova	IV	Coffee		Antestia bug	
5	Organophosphate	12		Acephate	Orthene	III	Irish Potatoes, Tobacco	Cutworm, Budworm, Aphids,	
		13		azamethiphos			Tilapia fish	parasites	
		14		Chlorpyrifos-methyl	Chlorban	III	Soybean	Epilachna beetle	
		15		Chlorpyrifos,	Dursban, Chlorpyrifos,	II	Cabbage,	Whitefly, Black beetles, Cutworm, Brown Leaf Beetle, Termites	

Insecticide									
Group #	Chemical Group	Item #	Insecticide Name	Trade Name	WHO Classification	Crops		Main insects Controlled	Official Use status
							Tomato , Rice, Soybean , Cowpeas, Irish Potato, mushroom		
		16	Demeton- S-Methyl		Metasystox	Ib	Rice	Aphids	Believed to be obsolete or discontinued for use
		17	Diazonon		Diazinon	II	Cowpeas	Coreid Bug	
		18	Dichlorvos,		Vapona 50EC	Ib	Tomato , tilapia fish	Tomato moth, parasites	Banned or restricted in other countries
		19	Dicofol,		Dicofol	III	Tomato , mushroom	Red Spider Mite, mites	
		20	Dimethoate		Rogor, Nugor	II	Cotton , Soybean	Sucking, Aphids	
		21	Fenitrothion		Shumba	II	Cowpeas	Coreid Bug	
		22	Fenthion		Lebaycid 50EC	II	Cabbage, Pumpkins, Cowpeas	Leaf Minor, Melon Fly, Bean Fly	Believed to be obsolete or discontinued for use

Insecticide									
Group #	Chemical Group	Item #	Insecticide Name	Trade Name	WHO Classification	Crops		Main insects Controlled	Official Use status
		23		Quinalpos	kinalux	II	Cowpeas	Bean Fly	
		24		Malathion	Malathion	III	Tomato Soybean	Tomato moth, Epilachna beetle	
		25		Mercaptothion, Malathion		III	Soybean, mushroom,	Aphids, <i>Phorid fly</i> (<i>Megaselia</i>) <i>Sciarid fly</i> (<i>Lycoriella</i> , mites	
		26		Monocrotophos	Phoskil, Monocrotopo, Monocron, Azodrin	Ib	Cotton, Cabbage, Tomato, Rice, Soybean	Sucking, White Fly, Cabbage flea Beetle, Spotted stem borer, African Pink Stem Borer, Epilachna beetle, Spotted stem borer, Groundnut Caterpillar leaf minor	Banned or restricted in other countries. Possible alternatives are Malathion, Chlorophypos, Dimethoate, Fenitrothion, Diazinon Azamethiphos;
		27		methamidophos	Metamidofos Monitor	Ib	Paprika	Aphids	Banned or restricted in other countries
		28		Phorate	Umet	Ia	Groundnut	Groundnut Thrips	Banned or restricted in other countries
		29		Profenofos	Curacron	II	Cotton	Sucking	
		30		Terbufos	Hunter	Ia	Groundnut	Groundnut Thrips	Banned or restricted in other countries
		31		Triazophos	Hostathion	Ib	Cotton	Sucking	
		32		Trichlorphon	Dipterex, Granules	II	Soybean Coffee, Tilapia fish	Cutworm , Antestia bug, parasites of fish	

Insecticide									
Group #	Chemical Group	Item #	Insecticide Name	Trade Name	WHO Classification	Crops		Main insects Controlled	Official Use status
6	Organotin	33		Cyhexatin	cyhexatin	II	Tomato ,	Tomato Russet mites	
7	Organosulfite	34		Propargite,	Propargite 30 WP	III	Tomato	Red Spider Mite	
8	Pyrethroid	35		Alpha cypermethrin	Fastac	II	Cotton, Cabbage, Rape, Tomato , Onion, Okra, Hot Pepper, Pumpkins, Pearl Millet, Soybean , Cowpeas, Cattle	Bollworms, Diamond back moth, Aphids, Bugrada bugs, Thrips, Red Cotton Bugs, White fly, Leaf Eating Beetles, Bollworm, Armoured Cricket , Pod moth, Tsetse fly	
		36		Cypermethrin	Cyrux, Ripcord,	II	Cotton, Cabbage, Rape, Tomato , Rice, Soybean, Cowpe	Bollworms, Diamond back moth, white fly, Tomato Moth, Spotted stem borer, African Pink Stem Borer, Bollworm, Spotted stem borer, Brown Leaf Beetle, Sweet Potato weevils, Coreid Bug , termites	

Insecticide									
Group #	Chemical Group	Item #	Insecticide Name	Trade Name	WHO Classification	Crops		Main insects Controlled	Official Use status
							as, mushroom		
		37	Deltamethrin	Decis, Decitab	II		Cotton, Cabbage, Tomato, Rice, Pearl Millet, cattle	Bollworms, White fly, Bollworm, Spotted stem borer, tsetse fly	
		38	Fenvalerate	Fenkil	II		Cotton, mushroom	Bollworms, flies. <i>Phorid fly</i> (<i>Megaselia</i>) <i>Sciariid fly</i> (<i>Lycoriellal</i> termites)	
		39	Permethrin,	Actellic, Insect Killer,	II		Rice, Cowpeas, mushroom	Black Beetle, Sweet Potato weevils, termites	
		40	Tralomethrin,	Scout	II		Pearl Millet	Bollworm	
		41	Apistan				Bees	mites	
		42	Amitraz				Bees	mites	
		43	Bayvarol,				Bees	mites	
		44	Lambda-Cyhalothrin	Karate, Kafu	II		Cotton, Cabbage, Rape, Tomato, Pumpki	Bollworms, Diamond back moth, Harlequin bugs, Aphids, Bugrada bugs, Leaf Eating beetles	

Insecticide								
Group #	Chemical Group	Item #	Insecticide Name	Trade Name	WHO Classification	Crops	Main insects Controlled	Official Use status
						ns, paprika		
9	Tetranortriterp enoid/Insect growth regulator	45		Azadractin	neem extract	IV	Cabbage, Rape, poultry	Diamond back moth , Aphids,, mites, ticks lice

Herbicides								
Group #	Chemical Group	Item #	Chemical Name	Trade Name	WHO Classification	Crops	Main Weeds Controlled	Official Use status
1	Aryloxyphenoxy propionates	1	Fluazifop-p	Fulsilade Supper	III	Cotton	Butyl grass	
		2	Propaquizafop	Agil-100EC	Unlikely to present acute hazard in normal use	Cotton	Annual/Perenial (A/P)	
2	Benzoic acid	3	Chlorthal or D.C.P.A	Dathal 75% w.p.	Unlikely to present acute hazard in normal use	Many Vegetables and Lucerne	Many germinating grasses and some broadleaf weeds	
3	Bipyridylum	4	Paraquat	Gramoxone (200g/l)	II	Potatoes, Cotton	All Types	Among the dirty dozen. Currently under intensive controversial discussion due to its toxicity to animals and its serious and irreversible effect if absorbed
4	Chloroacetamide	5	Acetochlor	Acetochlor 900	III	Cotton	Annual Grasses	
		6	Alachlor	Lasso 480g/l	III	Maize, Soya, Groundnuts	Most annual grasses and some broad leaves	
		7	Metolachlor	Dual magnum	III	Cotton	Annual broadleaf	

Herbicides								
Group #	Chemical Group	Item #	Chemical Name	Trade Name	WHO Classification	Crops	Main Weeds Controlled	Official Use status
5	Chloro-carbonic acid	8	Dalapon	Gramevin 85% w.p	Unlikely to present acute hazard in normal use	Tree crops, Lucerne	Most annual and perennial grasses	
				Dalapon 80% w.p.				
6	Dinitroaniline	9	Trifluralin	Treflan E.C (478g/l)	Unlikely to present acute hazard in normal use.	Cotton, Groundnuts, Soybeans, Sunflower, Some vegetables	Most annual grasses and some broadleaf weeds	
		10	Pendimethalin	Prowl	III	Cotton	Annual Grasses	
7	Glycines	11	Glyphosate	Glyphosate360 Cycat	Unlikely to present acute hazard in normal use	Cotton	All Types	
8	Oxyacetamide	12	Flufenacet	Tiara	III	Cotton	Annual Grasses	
9	Phenoxy-carboxylic acid	13	2, 4-D	Weedkiller D (70% 2, 4-D ester),	III	Maize, Wheat , Sorghum	Most Broadleaf weeds	Highly suspected to be an endocrine disruptor
				Weedkiller D (48% 2, 4-D ester), 2, 4-D Amine (72%),				
				Shellamine (72% 2, 4-D Omine)				
10	Thiocarbamate	14	Butylate	Suttan 720 g/l	Unlikely to present acute hazard in normal use	Maize	Most grasses and some broadleaf weeds. At least partial control nutsedge	

Herbicides								
Group #	Chemical Group	Item #	Chemical Name	Trade Name	WHO Classification	Crops	Main Weeds Controlled	Official Use status
		15	E.P.T.C	Eptam 6E (720g/l)	II	Potatoes, and some vegetables	Germinating grass and broadleaf weeds. Some control of nutsedge	
11	Triazine	16	Atrazine	Atrazine 80% w.p. Gesaprim 80% w.p.	Unlikely to present acute hazard in normal use	Maize, Sorghum	Most germinating broadleaf and grass weeds	
				Gesaprim 50% w.p.				
				19Gesaprim 10% granules				
		17	Atrazine + Cymazine	Brazine , Maize Weed Killer	II	Maize	Most germinating broadleaf and grass weeds	
		18	Ametryn	Ametryn 500SC	III	Cotton	Annual Grasses	
		19	Cyanazine	Bladex 50% W.P.	II	Maize	Most germinating broad leaf and grass weeds	
		20	Prometryne	Gesagard 80% w.p.	Unlikely to present acute hazard in normal use	Cotton, Groundnuts	Most broadleaf weeds and some grasses	
		21	Simazine	Simazine 80% w.p.	Unlikely to present acute hazard in normal use	Maize, Tree crops	Many broadleaf weeds and many annual grasses	
				Gesatop 50% w.p				
22	Terbutryne	Igram 50%f.w.	Unlikely to present acute hazard in normal use	sorghum	Most annual grasses and some broadleaf weeds			

Herbicides								
Group #	Chemical Group	Item #	Chemical Name	Trade Name	WHO Classification	Crops	Main Weeds Controlled	Official Use status
12	Urea	24	Diuron	Diuron 80% w.p.	Unlikely to present acute hazard in normal use	Tree crops, Cotton	Most annual broadleaf weeds and grasses	
		25	Fluometuron	Cotoran 80% w.p.	Unlikely to present acute hazard in normal use	Cotton	Most annual broadleaf weeds and many annual grasses	
				Cotoguard				
				Cottonex				
26	Linuron	Afalon 50%	Unlikely to present acute hazard in normal use	Potatoes, Onions	Most annual broadleaf weeds and some grasses			
Fungicides								
Group #	Chemical Group	Item #	Fungicide Name	Trade Name	WHO Classification	Crops	Main insects Controlled	Official Use status
1	2,6-dinitroaniline	1	Flumetralin	Prime	Unlikely to present acute hazard in normal use	Tomato	Late blight	
2	Acylalanine	2	Metalaxyl	Ridomil	III	Cabbage	Downy Mildew	
3	Alkylenebis(dithiocarbamate)	3	Mancozeb,	Dithane M-45,	III	Tomato, Pumpkin, Carrot, Cabbage, Onion	Late blight, Anthracnose, Carrot leaf bright, Black rot, Purple Blotch, Mildews, Anthracnose	Evaluated by EPA as being carcinogenic
4	Azole	4	Difenoconazole,	Score250EC	III	Tomato	Late blight	

Herbicides								
Group #	Chemical Group	Item #	Chemical Name	Trade Name	WHO Classification	Crops	Main Weeds Controlled	Official Use status
		5	Hexaconazole	Anvil	III	Okra, Pumpkins	Powdery Mildew	
		6	Tebuconazole	Folicur	II, III	Soyabeans	Soybean Rust	
5	Benzimidazole	7	Benomyl	Benlate	III	Tomato, Onion, Okra, Carrot, Mango, paprika	Tomato powdery mildew, Late blight, Purple Blotch, Powdery Mildew, Carrot leaf bright, Mango Anthracnose	
6	Benzimidazole	8	Carbendazim	Arrest, Assure, Carbendazim	III	Jatropha	Jatropha wilt	
7	Dicarboximide	9	Iprodione	Roval Flo	III	Citrus	Leaf Spot of Rough Lemon	
8	Dimethyldithiocarbamate	10	Thiram	Thiram 80 WP	III	Cabbage	Black rot	
9	Inorganic	11	Copper Hydroxide	Funaguran OH	II	Cabbage, Tomato, Bananas, Mango, Coffee, Citrus, Paprika	Downy Mildew, Leaf Spot and Head browning of Cabbage, Late Blight, Bacterial Spot on foliage and Tomato fruit, Sigatoka Disease of banana, Bacterial Black Spot of Mango, Coffee Berry Disease, Coffee leaf rust disease, Cercospora leaf and fruit spot of citrus, Orange Scab	
10	Inorganic	12	Copper Ox chloride	Copper Ox chloride	II			
11	Methoxyacrylate	13	Azoxystrobin	Ortiva	III	Soybeans	Soybean Rust	

Herbicides								
Group #	Chemical Group	Item #	Chemical Name	Trade Name	WHO Classification	Crops	Main Weeds Controlled	Official Use status
12	N-trihalomethylthio	14	Captan	Captan	Unlikely to present acute hazard in normal use	Mango, seed treat for beans , Maize	Mango Anthracnose,	
13	Triazine	15	Anilazine	Anilazine	II	Tobacco	Alternalia	
14	Chloronitrile	16	Chlorothalonil	Bravo 500, Encor Daconil	III	Cabbage, Rape Tomato, Onion, Okra, Carrot	Downy Mildew, Leaf Spot and Head browning of Cabbage , Late Blight, Purple Blotch, Powdery Mildew, Carrot leaf bright,	
15	Sulphur	17	Sulphur	Dusting Sulphur	Unlikely to present acute hazard in normal use	Tomato	Tomato powdery mildew	
16	Triazole	18	Triadimenol	Baytan	III	Coffee	Coffee Leaf Rust	
17	Triphenyltin	19	Triphenyltin Acetate	Brestan,	II	Soybeans	Red leaf blotch	

Table 15: Pesticides Phased out, Banned, or Restricted

BANNED , RESTRICTED OR NO LONGER IN USE PESTICIDES THAT ARE STILL IN RECOMMENDATION IN ZAMBIA									
	Chemical Group	INSECTICIDES							
Group #		Item #	Insecticide Name	Trade Name	Oral LD ₅₀ mg /kg	WHO Classification	Crops	Main insects Controlled	Official Use status
1	Carbamate	1	Carbofuran	Furadan	14.4	Ib, II	Sorghum, Cowpeas, Carrots	Black Beetle, sorghum Stem Fly, Sweet Potato weevils, nematodes	Banned or restricted in other countries
2	Carbamate	2	Methomyl,	Methomex 90SP	17	Ib	Sorghum,	Bollworm	Banned or restricted in other countries
3	Organophosphate	3	Dichlorvos,	Vapona 50EC	56 -108	Ib	Tomato	Tomato moth,	Banned or restricted in other countries
		4	Methamidophos	Metamidofos Monitor	30	Ib	Paprika	Aphids	Banned or restricted in other countries
		5	Monocrotophos	Phoskil, Monocrotopos, Monocron, Azodrin	14	Ib	Cotton, Cabbage, Tomato, Rice, Soybean	Sucking, White Fly, Cabbage flea Beetle, Spotted stem borer, African Pink Stem Borer, Epilachna beetle, Spotted stem borer, Groundnut Caterpillar leaf minor	Banned or restricted in other countries. Possible alternatives are Malathion, Chlorophypos, Dimethoate, Fenitrothion, Diazinon Azamethiphos;
		5	Phorate	Umet	2-4	Ia	Groundnut	Groundnut Thrips	Banned or restricted in other countries

BANNED , RESTRICTED OR NO LONGER IN USE PESTICIDES THAT ARE STILL IN RECOMMENDATION IN ZAMBIA

Chemical Group		INSECTICIDES							
Group #		Item #	Insecticide Name	Trade Name	Oral LD ₅₀ mg /kg	WHO Classification	Crops	Main insects Controlled	Official Use status
		6	Terbufos	Hunter	1.6	Ia	Groundnut	Groundnut Thrips	Banned or restricted in other countries
		7	Triazophos	Hostathion	82	Ib	Cotton	Sucking	Banned in Zambia
		8	Demeton- S- Methyl	Metasystox	30	Ib	Rice	Aphids	Believed to be obsolete or discontinued for use

BANNED , RESTRICTED OR NO LONGER IN USE PESTICIDES THAT ARE STILL IN RECOMMENDATION IN ZAMBIA

HERBICIDES								
	Chemical Group	Chemical Name	Trade Name	Oral LD ₅₀ mg /kg	WHO Classification	Crops	Main Weeds Controlled	
1	Bipyridylium	Paraquat	Gramoxone (200g/l)	150	II	Potatoes, Cotton	All Types	Among the dirty dozen. Currently under intensive controversial discussion due to its toxicity to animals and its serious and irreversible effect if absorbed

BANNED , RESTRICTED OR NO LONGER IN USE PESTICIDES THAT ARE STILL IN RECOMMENDATION IN ZAMBIA

2	dinitroaniline	Nitralin	Plaza in 75% w.p.	2000+	III	Cotton, Groundnuts, Soya	Most annual grasses and some broadleaf weeds	Believed to be obsolete or discontinued for use as pesticide
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