NATIONAL FOOD RESERVE AGENCY (NFRA)

Chang'ombe, Plot No. 35, Mbozi road,

P. O. Box 5384, D' Salaam, Tanzania

Tel.+255 (0)22 2862134

Fax. +255 (0) 22 2864069

Email: info@ nfra.go.tz

ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED EXPANSION OF GRAIN STORAGE FACILITIES,

SITE LOCATION: PLOTS NO. 1,2,3,4,5,6,7 & 8, BLOCK 'C', **MPANDA MTAA IN MPANDA HOTEL WARD, MPANDA MUNICIPALITY, KATAVI REGION**

CONSULTANT:

ASSESS CONSULTING LTD

3rd Floor, Togo tower, K'ndoni Rd

P.O Box 14466,D'Salaam, Tanzania

Tel: +255 22 2666978, Cell. +255 787 6914 38

Email: info@ assessconsult.com

2nd November 2017

EXECUTIVE SUMMARY

Project Title: PROPOSED EXPANSION OF GRAIN STORAGE FACILITIES

Project Location: PLOTS NO. 1,2,3,4,5,6,7 & 8, BLOCK 'C', MPANDA MTAA, MPANDA HOTEL WARD, MPANDA MUNICIPALITY, KATAVI REGION

Proponent:

NATIONAL FOOD RESERVE AGENCY (NFRA)
Chang'ombe, Plot No. 35, Mbozi road,
P. O. Box 5384, D' Salaam, Tanzania
Tel.+255 (0)22 2862134
Fax. +255 (0) 22 2864069
Email: info@nfra.go.tz
Contact Person: **Chief Executive Officer, NFRA**

EIA Consultant:

ASSESS CONSULTING LTD
3rd Floor, Togo tower, K'ndoni Rd
P.O Box 14466, Dar Es Salaam, Tanzania
Tel: +255 22 266 6978
Cell. +255 787 691 438
Email: info@assessconsult.co.tz
Contact Persons: Ojung Longdare

INTRODUCTION

The National Food Reserve Agency (NFRA) is the government Agency under the Ministry of Agriculture, Livestock and Fisheries (MALF). It was established in 2008 by Act No. 30 of 1997. The National Food Reserve Agency (NFRA) has its headquarters located at Chang'ombe área, Plot No. 35 along Mbozi road in Dar es Salaam city; Tanzania.

The NFRA had been established for the purpose of guaranteeing national food security in times of food shortage. The Agency is mandated to carry out three main functions. These functions are as follows; -

- Procuring, reserving and releasing of food stocks to address disasters
- Recycling and releasing food stocks in the market in order to stabilize food supply, and
- Marketing food commodities and generating revenue.

The government of United Republic of Tanzania has received a Polish credit (tie-up soft loan) toward the cost of Storage Capacity Expansion Project (SCEP). This project, is being implemented by the NFRA. The project has four components amongst which is the construction of modern silos and other structures in eight sites across Tanzania.

Currently, environmental legislations (section 81 of EMA, 2004 and section11 of the EIA and Audit, 2005) require that, all proposed development initiatives, which in one way or another may significantly affect the environment should be subjected to the Environmental Impact Assessment (EIA) study. It is from this context, NFRA contracted Assess consulting Co. Ltd to carry out the EIA study, aiming at identifying / investigating and foreseeing the future negative impacts emanating from the proposed project, as well as providing mitigation measures and management plans of those impacts. The study was carried out between January 2017 and May 2017. Besides legal requirements, TOR of this assignment generally requires to develop EIA study by following all relevant procedures including undertaking the scoping exercise.

This work examined potential impacts of the project on its immediate and nearby surroundings in respect to all the phases of its construction, completion and occupation. Likewise, aspects related to physical, ecological, socio-cultural, health and safety conditions at the site and areas of its influences were also examined by this study. The study applied combination of scientific and qualitative procedures that are currently dominated EIA studies and relevant legislative framework governing the construction and it made references to previous EIA reports of similar assignments. Therefore, this report presents results/outcomes of the EIA study of the proposed project.

RATIONALE OF THE PROJECT

Katavi region is one of the regions in Tanzania which produce sufficient amount of maize per year. In this regard, due to its significance the NFRA chose Mpanda to be one of the centers for collection and storage of grain in Tanzania. Climate change and climate variability in the country affect food security in Tanzania hence the need to have sufficient amount of food stocks to be used during drought and other emergencies. The development of proposed expansion of grain storage facilities will help to meet the demand of food stock during emergencies. The proposed project is in line with KILIMO KWANZA resolve, National Strategy for Growth and Reduction of Poverty (MKUKUTA) II, Big Results Now (BRN) and Southern Agriculture Growth Corridor of Tanzania (SAGCOT).

Objective of the project

The overall objective of expansion of grain storage facilities is to ensure food security in times of food shortage. There are three conditions to attain the Nation's food security situation.

1. Adequacy i.e. supplies from domestic production stocks and imports are sufficient to meet the nation's needs;

2. Availability i.e. stability of supply both spatial and temporal throughout the year; and

3. Economic access i.e. the population's sufficient purchasing power to access to its food needs.

PROJECT LOCATION AND DESCRIPTION

The proposed site for the expansion of grain storage facilities is located on plots No. 1,2,3,4,5,6,7 & 8, Block 'C', at Mpanda mtaa, Mpanda Hotel ward, Mpanda municipality in Katavi region.

Currently, existing structures at the site include two warehouses with the storage capacity of 3000MT and 2000MT respectively, 1 administration building, 1 security house and 1 weighbridge office. The site for which the project is intended to be established is mainly covered by short grasses and dominated by exotic *Senna siamea* trees. There is no existence of any tree species of higher ecological concern that were found on the site. The plot covers an area of 10,129.6 square meters (2.5 acres) in size.

The proposed silos complex and warehouse will be modern structure to be built on a generally flat terrain. The proposed structures at Mpanda site include: a silos complex comprising of 6 silo bins, administration block, canteen building, warehouse with capacity to store 5,000 MT, laboratory, weighbridge and agrochemical store room.

Specifically, the following additional equipment and machinery will be placed on the site: 2 moisture meters, one hundred (100) tones weighbridge, 2 digital scales, 20 manual sieve, 1 electrical sieve, 2 elevators, 5 electrical sewing, 1 forklift, 1 tractor and 1 trailer.

The proposed silos complex will comprise of various components from grain intake to grain storage. These components include intake unit, bins, cleaning and drying unit, bulk conveyance unit (Conveyors and elevators), bulk storage unit (prefabricated grain storage and bagging bin), aeration system, and instruments.

However, main components designed for the proposed silos complex are 6 flat bottom cylindrical bins of galvanized steel for maize storage. Silo bins considered in the proposed design is of 3,350 Metric Ton storage capacity, with material handling rate of 60 Tones per hour for loading of silos. Given the available space designed silos complex it will have storage bins of diameter ø= 17 m, height to eve = 18.8 m, and overall Height = 23.9m. Besides, it is designed that a single warehouses of size length L=60m and width W= 30m with capacity of 5000MT will be fitted in a place where the old warehouse exists.

The cost of developing the project is estimated to be Tanzania Shillings 11 Billion.

POLICY, ADMINISTRATIVE AND LEGAL FRAMEWORK

In carrying out Environmental Impact Assessment for the proposed development, various Policies and Acts relevant to this assignment were reviewed, namely; National Environmental Policy (1997); National Agriculture Policy (2013), The Tanzania Foods, Drugs and Cosmetics Act (2003), Environment Management Act (2004); Environment Impacts Assessment and Audit Regulation (2005), National Water Policy (2002), The National Energy Policy, (2003), The National Policy on HIV / AIDS (2001), The National Employment Policy (URT, 1997b), The National Investment Promotion Policy (1996), The Water Resources Management Act, , The Engineers Registration Act No. 15 of 1997, The Contractors Registration (1997), The Occupational Health and Safety Act (2003), Land Act (1999), The National Land Policy (1995), Land Use Planning Act No. 8 of 2007.

RESULT OF STAKEHOLDER CONSULTATION

Public consultation is useful for gathering environmental data, understanding likely impacts, determining community and individual preferences, selecting project alternatives and designing viable and sustainable mitigation and compensation plans.

During public consultation, major issues which were identified include: -

Odor resulting from the use of pesticides and fumigation, improvement of existing narrow gravel road, food security and food availability, market assurance to maize farmers and sellers, increased maize productivity and storage from local level to national level, waste generation, noise and air pollution, soil and water pollution, cases of accidents, job creation, increased taxes for both local and central government, economic growth and business expansion.

Health hazards due to pesticides use and fumigation

Stakeholders had opinion that the proposed project will cause threat to the health of NFRA workers as well as surrounding dwellers due to spraying of pesticides and fumigation of grain as an important protection technique. It was recommended that the warehouses should be well confined in order to ensure the surrounding communities are not affected by the pesticides applied during storage.

Poor existing narrow gravel road

Most of the stakeholders explained that the existing road to NFRA is very narrow and not well made. Vehicles delivering or loading grain are always big trucks and semi-trailers hence they cause traffic congestion due to the fact that the existing road is very narrow. During peak seasons there a many vehicles delivering maize thus causing traffic congestion at the area. Furthermore, the project is surrounded by maize and rice

milling factories which attract a big number of vehicles at the area thus causing traffic congestion.

Enhanced income, employment opportunities and local business

In all meetings held, it was expressed by majority of the stakeholders that they will fully accept the project. At street level, acceptance could mainly be due to the fact that most people are optimistic that the proposed project will be beneficial in their area which will result into levy contribution. Another reason could be because some youths are expecting to be employed.

DESCRIPTION OF THE MAJOR SIGNIFICANCE IMPACTS

The proposed project will generate a wide range of environmental and social impacts from site preparation stages, construction phase to operation phases. The impacts are of both positive and negative in nature. Most adverse impacts will be of a temporal nature during construction phase and can be managed to acceptable levels by the implementation of the recommended mitigation measures. Ways of enhancing positive impacts have also been suggested. Significant impacts are as shown below: -

Positive Impacts

- Ensured food security
- Increased food production
- Increased awareness on food production and storage from local level to the national level
- Ensures stable market for grain farmers
- Employment opportunities / job creation
- Income generating opportunities such as grain farmers and food vendors
- Economic improvement / improved local economy mainly through taxes
- Increased revenue to the government

Negative impacts

- Odor from pesticides and fumigation
- Traffic congestion
- Potential negative impact on air quality/ Air pollution
- Workforce related impacts and related issues

- Increased prevalence of HIV/AIDS and sexual diseases
- Occupational health and safety related hazards
- Potential impact on waste management due to anticipated increased waste generation
- Accidents due to construction activities such as moving, lifting, pulling, knocking and cutting of materials
- Fire break out risks
- Change of the area outlook

ALTERNATIVE CONSIDERED

In EIA process, consideration of project alternatives is critical for ensuring that the proponent and decision-makers have a wider base from which they can choose the most appropriate option. In this EIA study, the following alternatives were considered and examined

Alternative site

The project proponent had only one site for the proposed expansion of grain storage facilities project hence there was no assessment of an alternative site.

Alternative water source

The site is connected with water from Mpanda Water Supply Authority. Water from drilled borehole at project site will be used as an alternative source of water for the time when there is a shortage from the main source. Also rain water harvesting will be an alternative water source but it is available for rain season only.

Alternative power/energy

NFRA Mpanda site is connected with power from TANESCO. However, diesel generator shall be used as an alternative source of power during power outage. However, high running cost is considered to be a hindrance to this alternative.

Alternative wastewater management method

For wastewater management at NFRA Mpanda site, four alternative methods were considered namely; Waste Stabilization Ponds, Oxidation Ponds, Constructed Wetlands and Septic tank with soakaway pits. For a method to be applicable for wastewater management consideration of the following is made; space available, kind of technology used for each method, capital for constructing and operating it, efficiency, maintenance required, side effect to the community around the site and amount of wastewater to be managed.

For the proposed project, Septic tank with soakaway system was adopted for wastewater management due to the simplicity to construct and high efficiency to control flies and smell. Also the space available and amount of wastewater to be generated gives a chance for a septic tank with soakaway to be the best for sewage management

No Project Alternative (Zero Alternatives)

The no project alternative entails retaining the current status quo without constructing the facility in the proposed site. Adopting this option would mean avoiding the negative effects associated with the establishment of the project and missing all the positive benefits such as food security, better food storage from local level, market assurance to maize farmers and employment opportunities. This option has not been selected.

MITIGATION MEASURES AND ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Environmental Impact Assessment is generally designed for systematic determination of environmental consequences that can arise from a proposed project. The EIA identifies potential adverse environmental impacts and proposed mitigation measures to minimize or prevent any adverse impacts. The environmental options to minimize or prevent the identified adverse impacts have been suggested in this report are contained in the EMP in the main report. Many of them are based on good engineering practice. On the other hand, the EMP describes the implementation schedule of the proposed mitigation measures as well as planning for long-term monitoring activities. It defines roles and responsibility of different actors of the plan. An EMP has been prepared and covers all the phases of the project life. Prior to mobilization, the contractors should also prepare their own environmental management plans, including a schedule of works, for review by the Environmental Officer and the Supervising Engineer.

ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN

This plan describes the mitigation monitoring, responsible agents, monitoring parameters, costs and frequency of their execution. The plan is proposed as one measure to help rectify the significant impacts as a result of the project undertaking. This is therefore a working document, which can be updated whenever new information is received or site conditions change. Therefore, the environmental and social monitoring plans (ESMP) for this project will be operationalized at a number of levels of the project phases. It is based upon the anticipated impacts, required mitigation

measures and degree of follow-up (monitoring) required. It is also advisable that, collaboration with different stakeholders at all levels in some aspects of the project is very important. However, the main responsibilities lie in the hand of the project proponent and the contractor.

ENVIRONMENTAL COST BENEFIT ANALYSIS (ECBA)

The ECBA compared the magnitude of both negative and positive impacts of the proposed project to the environment. However, it was difficult to calculate and give monetary value to the negative impacts. Conversely, the new project is anticipated to ensure food security to the country, to stimulate food stock production as well as modern storage of grain, to generate employment, revenues and other financial and social benefits. The monetary value from the operations is far exceeding its operating expenses, taxes, maintenance, among others. In short, the project is expected to be beneficial to the community and will afford to operate in an environmental friendly manner.

DECOMMISSIONING

Decommissioning is not anticipated in the near future before 50 years. In the event that the proposed project will be decommissioned, the primary activity is expected to be the removal of the infrastructure associated with the project and rehabilitation of the site. The main negative impacts during the decommissioning phase are the loss of the infrastructure associated with the proposed building hence change in aesthetic of the area.

DEMOBILIZATION

Upon completion of the construction work, the contractor shall remove all of their tools, materials and other articles from the construction area. Some of the impacts that will arise from demobilization include:

- Termination of temporary jobs, Noise pollution

CONCLUSION

The project has enormous socio-economic benefit to both Mpanda and the Nation at large. The perceived positive impact of this project in terms of socioeconomic development and poverty reduction is far greater to what would be seen as negative impact. Mitigation measures have been proposed to curb all negative impacts and incorporated in the project design and others will be covered and contained during the construction and operation phases of the proposed project.

DECLARATION

We, hereby certify that the particulars given in this report are correct and true to the best of our knowledge

SN	Name of Consultant	Qualification	Profession	Signature
1	Mr Ojung Longdare	Registered Environmental Impact Assessment Expert	Environmental Engineer	
2	Mr Mgendi K Chota	Registered Environmental Impact Assessment Expert	Environmental Engineer	
3	Ms Rebecca Maingu	Registered EIA Expert	Geography and Environmental Studies	

ACKNOWLDEGEMENT

NFRA would like to acknowledge the following for their invaluable contribution to the success of this ESIA study:

- The National Environmental Management Council for reviewing project brief and the scoping report. This has enabled the consultant to address all pertinent issues that would have been forgotten.
- Assess Consulting Limited for undertaking the study.

Finally, all stakeholders as listed in Appendix iii are also acknowledged for their invaluable comments, information and data

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ABREVIATIONS AND ACRONYMS

ASL	Above Sea Level
DoE	Division of Environment
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMA	Environmental Management Act
ERB	Engineer Registration Board
ESMP	Environmental and Social Management Plan
GN	Government Notice
GPS	Global Positioning System
HIV/AIDS	Human Immune Deficiency Virus/ Acquired Immune Deficiency Syndrome
IUCN	International Union for Conservation of Nature
Km	Kilometre
kVA	Kilo-Volts Amps
M	Meters
M^2	Square Meters
MALF	Ministry of Agriculture Livestock and Fisheries
MT	Metric Tones
NEMC	National Environment Management Council
NEP	National Environment Policy
NFRA	National Food Reserve Agency

NGO	Non-Governmental Organization
No.	Number
OSHA	Occupational Safety and Health Authority
PVC	Polyvinyl chloride
SCEP	Storage Capacity Expansion Project
TANESCO	Tanzania Electric Supply Company
ToR	Terms of Reference
TTCL	Tanzania Telecommunication Company Ltd.
URT	United Republic of Tanzania
WEO	Ward Executive Officer

CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

The National Food Reserve Agency (NFRA) is the government Agency under the Ministry of Agriculture, Food Security and Cooperatives formerly the Ministry of Agriculture, Livestock and Fisheries (MALF). It was established in 2008 by Act No. 30 of 1997 of the united republic of Tanzania constitution. The National Food Reserve Agency (NFRA) has its headquarters located at Chang'ombe area Plot No. 35 Mbozi road in Dar es Salaam city; Tanzania.

The NFRA had been established for the purpose of guaranteeing national food security in times of food shortage. The Agency is mandated to carry out three main functions. These functions are as follows; -

- Procuring, reserving and releasing of food stocks to address disasters
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The government of United Republic of Tanzania has received a Polish credit (tie-up soft loan) toward the cost of Storage Capacity Expansion Project (SCEP). This project, is being implemented by the NFRA. The project has four components amongst which construction of modern silos and other structures in eight sites across Tanzania.

Based on the feasibillity study undertaken in 2015, NFRA intends to expand grain storage facilities including construction of a silos complex, administration block, canteen building, warehouse with capacity of holding 5,000MT, laboratory, weighbridge and agrochemicals store room. The site is located on Plots No. 1, 2, 3, 4, 5, 6, 7 & 8, Block 'C', at Mpanda Mtaa, Mpanda Hotel ward, Mpanda municipality in Katavi región. The cost of developing the project is estimated to be Tanzania Shillings 11 Billion.

1.2 PROJECT OBJECTIVE AND RATIONALE

1.2.1 Objective

The overall objective of expansion of grain storage facilities is to ensure there is food security in times of food shortage. Another functional objective of NFRA is to make sure supplies from domestic production stocks and imports are sufficient to meet the nation's needs, availability and stability of supply throughout the year and to ensure population's sufficient purchasing power to access food. Also the proposed project is in line with KILIMO KWANZA resolve, National Strategy for Growth and Reduction of Poverty (MKUKUTA) II, Big Result Now (BRN) and Southern Agriculture Growth Corridor of Tanzania (SAGCOT). Furthermore the Tanzania Agriculture and Food Security Investment Plan (TAFSIP) emphasizes on improvement of food security and maintenance of a strategic grain reserve.

1.2.2 Rationale

Katavi region is one of the regions in Tanzania which produce high amount of grain per year. In this regard, due to its significance the NFRA chose Mpanda to be one of the location for grain storage storage in Tanzania. Also Mpanda is near to other regions which produce grain in high amount so the project site is very vital for food availability and storage. Climate change and climate variability in the country may affect food security so there is need to have high amount of food stored to be used during drought and other emergencies. The expansion of of proposed grain storage will help to cater for the demand of food during emergencies.

1.3 OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT

NFRA undertook an Environmental Impact Assessment for its proposed expansion of grain storage facilities at Mpanda Hotel in order to comply with the law and ensure that the project will not cause significant negative environmental and socio-economic impacts.

The EIA has been conducted in accordance with the guidelines laid down by the Environment Management Act (EMA, 2004). Part IV of the EIA Regulations GN No. 349 of 2005 which provides the general objectives for carrying out the EIA, among others. The list includes the following:

- To ensure that environmental considerations are explicitly addressed and incorporated into the development of decision making process;
- To anticipate ,avoid and minimise or offset the adverse significant biophysical, social and relevant effects of the development proposal;
- To protect the productivity capacity of natural systems and ecological processes which maintain their functions;
- To promote development that is sustainable and optimise resources use and management opportunities.

The specific objectives of the EIA include:

(i) Establishment of baseline information on both natural and the built environment including socio-economic activities of the proposed project area;

(ii) Ensure that environmental legal requirements are met by NFRA prior and during implementation of the project;

(iii) To identify, predict and evaluate foreseeable environmental and socio-economic impacts, both beneficial and adverse, of the proposed investment;

(iv) Proposing effective measures to mitigate the negative impacts during the construction and operation of the entire project that aim at eliminating or minimizing the potential negative impacts and promote positive ones;

(v) Outlining an environmental and social management plan to manage the impacts; and

(vi) Preparing an environmental and social monitoring plan to keep track of the environmental performance of the project.

1.4 METHODOLOGY

The methodology employed in conducting the EIA study is in line with the Environment Impact Assessment and Audit Regulations, 2005, GN No.349 of 2005. The study was undertaken based on the checklists developed by the consultants complimented by past experience of similar EIA studies. Observations of the proposed project site and surrounding habitats were made. Also some literature, terms of reports and documents, were reviewed. The study adopted the following approach:

1.4.1 Communication with Stakeholders

1.4.1.1 Identification of stakeholders

The identification of stakeholders was done prior to the scoping exercise. However, further consultation was undertaken during the EIA particularly with those stakeholders who were left out during scoping study.

1.4.1.2 Involvement of stakeholders

The EIA study applied different participatory methods to involve all the concerned stakeholders. One on one interviews were held with every identified stakeholder. Every individual was given an opportunity to give his or her comments freely. Every detail of each stakeholder's comment was considered important and noted down.

1.4.1.3 Identification of stakeholders' concerns

Through interviews and discussions, stakeholders pointed out a number of issues and concerns. Relevant issues were noted and have been included in this EIA study report.

1.4.2 Data collection

1.4.2.1 Process of Identifying Information for EIA

In identifying information and data required for the impact assessment, a strategy for collecting the information before or during the impact assessment study is required to be put in place. Generally, baseline information on the bio-physical, socio-economic environment, institutional and legal conditions was collected from a variety of sources including Mpanda district profile, Mpanda Investment Profile, books and the Internet.

1.4.2.2 Field data / information collection

Field surveys were conducted by the consultant to obtain an overview of the existing situation at the site. Activities included:

- Appraisal of physical and environmental conditions of the project site and areas that might be impacted by the project i.e. soils, hydrology, flora and fauna;
- Appraisal of land use and assessment of other relevant socio-economic parameters;
- Review of literature: reports, policy, plans and legislation etc.;
- Review of available maps of the project area;
- Field data / information collection
    - Interviews with experts and other stakeholder groups;
    - Observations and other technical methods related to the sector in question

1.5 REPORT STRUCTURE

This report is organized in twelve chapters. Chapter one is on the introduction while chapter two entails the project background and its description. Chapter three is on the policy, administrative and legal framework within which the project will operate. Chapter four presents the baseline or existing conditions of the project site, surrounding areas and area of influence. Chapter five entails Stakeholders' consultation and public participation while chapter six deals with assessment of impacts and identification of alternatives. Chapter seven deals with mitigation measures while chapter eight present the environmental and social management plan. Environmental and social monitoring plan is presented in Chapter nine. Chapter ten is on resource evaluation or cost benefit analysis while chapter eleven is on decommissioning. The last chapter is twelve which gives the summary and conclusions of the report.

CHAPTER TWO: PROJECT BACKGROUND AND DESCRIPTION

2.1 PROJECT AREA

2.1.1 Location and Size

The proposed project site is located at Latitude 6.2^0 South of Equator and Longitude 31.04^0 East of Greenwich meridian. The site is about 1082 m above the mean sea level and is located within Mpanda municipal council and is about 1.5 km from Mpanda town center. The proposed expansion of grain storage facilities will be located on plots No. 1, 2, 3, 4, 5, 6, 7 & 8, Block 'C', at Mpanda Mtaa in Mpanda Hotel ward within Mpanda municipality in Katavi region. The site is located in the area planed for industrial activities. The total area of the site is 10,129.6 m^2 and the proposed area for construction of a silos complex is approximately 2090 m^2.

The GPS coordinates of the land at Mpanda *Mtaa* where the proposed silos complex and warehouse will be constructed are shown in Table 2.1

Table 2.1: Coordinates of the project site

Corner	Latitudes	Longitudes
A	S 06. 35640^0	E 031.05956^0
B	S 06. 35601^0	E 031. 05944^0
C	S 06. 35592^0	E 031. 06005^0
D	S 06. 35623^0	E 031. 06010^0
E	S 06. 35557^0	E 031. 06115^0
F	S 06. 35615^0	E 031. 06125^0

Source: Field data, January 2017

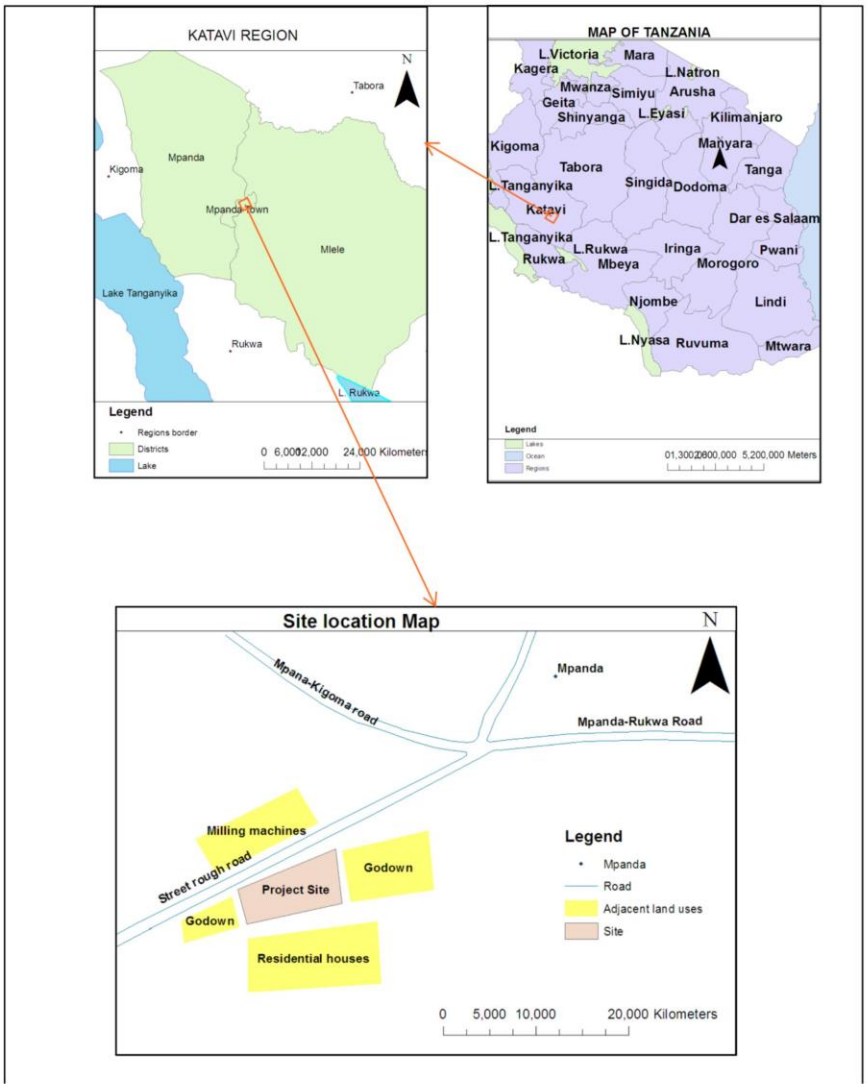

Figure 2.1: A Map showing site location
Source: Mapping division, 2013.

2.1.2 Site description

The site has been developed on one side and several structures exist on the ground. Currently existing structures include two warehouses with the storage capacity of 3000MT and 2000MT respectively, 1 administration building, 1 security house and 1 weighbridge office. The site for which the project is intended is mainly covered by short grasses and dominated by exotic *Senna siamea* trees. There is no existence of any tree species of higher ecological concern that were found in the site. The site is well fenced by chain link and there is an entrance gate. The site is not connected to sewerage system, so Septic tank and soak away pit is used for onsite management of wastewater. No well-developed storm water channel and the site is connected with water from Mpanda water supply authority. Electricity from TANESCO is available at site. The plot covers an area of 10,129.6 square meters (2.5 acres) in size.

Figure 2.2: Vegetation cover at the project site
Source: Field data, January 2017

2.1.3 Accessibility

The project site is accessible via Sumbawanga – Mpanda - Kigoma road and turning left following a narrow rough road i.e. NFRA road. A narrow road leading to NFRA Mpanda site is approximately 0.5 km from the junction of Sumbawanga - Mpanda road and Mpanda - Kigoma road. Also the project site is accessible through a railway line which is connected to NFRA site.

2.1.4 Existing Structures

Currently, existing structures are two warehouses with the storage capacity of 3000MT and 2000MT respectively 1 administration building, 1 security house and 1 weighbridge office. These existing structures will not be demolished, will continue to be used for the storage of grain.

2.1.5 Overall Adjacent Developments

The project area is surrounded by paddy milling factories on the northern side at about 10m, and a warehouses on the eastern sides at about 5m. The southern side is mainly bounded to a railway line at 5m away and residential settlements at about 100m. According to the municipality planning department, the proposed plot is located within the industrial and commercial zone.

2.1.6 Project Scope and Activities

Project Scope

The proposed silos complex and warehouse will be modern structure to be built on a generally flat terrain. The proposed structures at Mpanda site include: a silos complex comprising of 6 silo bins, administration block, canteen building, warehouse with capacity to store 5,000 MT, laboratory, weighbridge and agrochemical store room.

Specifically, the following additional equipment and machinery will be placed on the site: 2 moisture meters, one hundred (100) tones weighbridge, 2 digital scales, 20 manual sieve, 1 electrical sieve, 2 elevators, 5 electrical sewing, 1 forklift, 1 tractor and 1 trailer.

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complex it will have storage bins of diameter ø= 17 m, height to eve = 18.8 m, and overall Height = 23.9m. Besides, it is designed that a single warehouses of size length L=60m and width W= 30m with capacity of 5000MT will be fitted in a place where the old warehouse exists. The cost for developing the project is estimated to be Tanzania Shillings 11 Billion.

2.1.7 Impact area of the project

The impact area may be categorized into the core impact area, the immediate impact area and the area of influence.

2.1.7.1 Core Impact Area

The core impact area refers to the area immediately and directly affected by the actions to be undertaken during the project implementation. For the proposed project, it covers approximately 10,129.6 square meters (2.5 acres) in size.

2.1.7.2 Immediate Impact Area

The immediate impact area is the environment immediate surrounding the project site. These areas will be directly affected by the project development for example dust and noise pollutions. Such areas include the rest of the area and Mpanda Hotel ward.

2.1.7.3 Area of Influence

The area of influence refers to the greater area that is not subjected to directly contact with the development but may be indirectly affected by, for example traffic movement, sources of construction materials and labour.

2.2 COMPOSITION OF THE PROJECT

2.2.1 Project Components

The expansion of grain storage facilities project will involve the construction of various project components as described in section 2.1.6 above.

2.2.2 Utilities

2.2.2.1 Water and Waste Water Management

Water Supply

Currently, there is water supplied to the site from Mpanda Water Supply Authority. However, the proponent plans to drill boreholes for underground water extraction to be

used at the site in case of water shortage from Mpanda Water Supply Authority, also rain water harvesting facilities will be installed to supplement water requirement.

Sewerage system
Based on the explanation from Municipal Environmental Officer, the entire municipality of Mpanda has no central sewerage system. Therefore, on-site sanitation mechanisms including modern latrines and septic tanks systems are currently used in the site. The septic tank system will be used as a means for wastewater collection and treatment at the proposed project site and once they becomes full cesspit emptier trucks will be employed to empty them and transport the sewage to oxidation ponds located about 7 km away from NFRA site.

2.2.2.2 Power

Electricity will be provided from TANESCO which is currently the main supplier on the site. There will be one standby generator that will serve as a backup source during power interruptions. The average electricity consumption in NFRA facilities under full operating condition is expected to be 100kWh per day. Low utilization of energy is encouraged at NFRA by switching off unused machines and lights.

There is a standby diesel generator with the following specifications:

- Prime power rating: 250 kVA
- Model: YANMAR TF 120M
- RPM/Frequency 3000/50HZ
- Fuel Consumption is diesel at 5 Ltr/hr at full load
- Noise Limit 75dBA Log. Average at 1 meter distance.
- Weight 51kg

2.2.2.3 Solid waste management

The silos complex development project will generate about 50kg of solid waste per week which include empty pesticide containers, maize husks, packaging materials, papers, sacks, papers and newspapers, cardboard boxes, plastics, bottles, glass and metal cans and other unwanted materials. Domestic waste includes food waste and peelings. All wastes will be collected, sorted and separated at source by licensed recyclers who are authorized to handle hazardous waste. NFRA will establish a proper solid waste management system that entails collection, transportation and disposal at a designated disposal site. Each type of waste shall be kept at a collection point before being taken for disposal by the authorized private waste collector who will be assigned by the proponent to dispose the waste at the designated solid waste dumping site which is located at Isukumilo area approximately 4 km away from the project site. There will be

a designated waste chamber within the project area where workers will dispose wastes ready for transportation to Isukumilo disposal site.

For the empty pesticides containers which is categorized as hazardous waste they will be stored and relevant authorities contacted for guidance on proper disposal methods.

2.2.2.4 Labor Force

Employment opportunity that will be provided directly by the project is of a medium term to long term. During the construction phase the number of construction workers will be decided by the contractor. During operation phase only 6 people will be employed permanently by the government and more than 200 people will be recruited as temporary workers. However, the project will provide opportunities for employment indirectly via operating entities in the project site. Envisaged employment opportunities will include drivers delivering and loading grain, workers in cleaning the project premises, security personnel and maintenance staff.

2.3 GENERAL PROJECT ACTIVITIES

Activities during Site selection, Design, Construction, Operation and Decommissioning Phases

The expansion of grain storage facilities at NFRA in Mpanda site will involve various activities which may be grouped into five main phases i.e. site design/project design phase, construction phase, operation/maintenance phase and the decommissioning phase. The life span of the project is about 50 years and 3 years from the time the construction commences to completion.

2.3.1Site Selection Phase

The site for the proposed project has already been selected. The site on which the proposed silos complex shall sit is legally owned by NFRA. The total project area is 10129.6m^2. However, the area earmarked for silos and warehouse is 0.5 Ha (5,000 m^2). There are already existing several structures at site.

2.3.2 Design Phase

This phase constitutes the designing of silos bins, warehouses, support infrastructure and services for the proposed project. In carrying out the design work relevant topographical maps will be used. All designs will be done by qualified architects and engineers. During project design phase only paper works are involved including:

- Evaluation of project concepts and alternative selection,

- Design of all project components,
- Carrying out EIA of the project,
- Tendering for construction works,

For the proposed project, there is no area designated for trucks parking but an area for trucks to offload grain and for load grain. The proposed project will serve two trucks at once such as one for offloading and another one for loading and the maximum time will be 30 minutes per round of 2 trucks.

Management issues and responsibilities

NFRA will contract private construction company to construct all project facilities. Management of construction contracts will be done by NFRA. The contactor will be responsible for sourcing of the construction materials, labour recruitment and the actual construction work. During the operation phase, management of the project facilities will be the responsibility of NFRA.

The design of project and its supporting component considered the following;

2.3.2.1 **Topographical of the area**

The project existing site has upland landform about 100% with dominant gradient of less than 5.6% sloping to the northern side. There are short grasses in undeveloped parts within the project premises and planted trees along project boundaries. There are no any endangered trees species found within or near project premises (NFRA feasibility study 2016).

2.3.2.2 Existing facilities

Within the project proposed site there are existing structure which support the existing activities of Grain storage, the structures include; two warehouses with the storage capacity of 3000MT and 2000MT respectively, 1 administration building, 1 security house and 1 weighbridge office, TANESCO infrastructure, septic tank with soak away pit, storm water channel and toilet for workers. Also water infrastructures are at site and the site is connected with water from MUWASA. Walkway within project site is not paved and existing storm water channel need improvement.

2.3.2.3 Geographical survey

Topographical survey has revealed that the amount of land available will be sufficient for proposed construction of silos with associated structures for expansion of grain storage capacity.

2.3.2.4 Technological aspect

Proposed silos to be constructed for expansion of grain storage capacity will be of medium scale for grain storage. The structure will be constructed vertically upward for

total height of 23.9m and it will be of corrugated iron sheet, black sheet, sand, cement, timber or round pipe, aggregate and steel bar. The proposed silos will use electricity to run storage activities including drying and mixing to support air aeration to reduce moisture inside the bin. The main technology to be employed will be rotation technology. The proposed structure will be constructed in a way that side heat loose will not occur.

2.3.2.5 Project components

The proposed project will comprise various components to be used from grain intake to grain storage which include; intake unit, bin, cleaning and drying unit, bulk conveyance unit (conveyor and elevators), bulk storage unit (grain storage, bagging bin and aeration system). Other components will includes new chemical storage room, new administration house, new weighbridge with office, new toilets for workers and others.

2.3.3 Mobilization Phase

Mobilization is the pre- construction phase which will involve mobilization of man power, construction equipment and plant, purchase and transportation of construction materials from licensed suppliers to the site and the establishment of worker's camp. It is anticipated that at this stage, wastes (solid, liquid and gaseous) will be generated from the construction activities. To ensure that all project activities are carried out within the boundaries of the project sites without disturbing or obstructing the neighboring facilities, the project contractor will fence off(hoarding) the entire site perimeter with corrugated iron sheets.

2.3.3.1 Types and Sourcing of construction materials

Building materials to be used for construction include cement and mortar, sand, aggregates, stones, timber, floor and wall tiles and reinforcement bars. Corrugates iron sheets will be used as roofing materials. With the exception of the silos bin which will be made of galvanized steel plates, the walls of other buildings will be plastered on both sides with a smooth finish on the inside and an external cement/sand render. Most of these building materials will be sourced from Mpanda municipality and neighboring districts. Trucks carrying sand and aggregates will be covered during transported so as to avoid dust emissions. All construction materials will be transported by using trucks and large machines will be transported by using cargo train to NFRA Mpanda site

Table 2.2: List of construction materials

Type of materials	Quantity	Potential Source
Aggregates	1800 tones	Locally available
Fill-in materials *(kifusi)*	2,500 tones	Locally available

Sand	700 tones	Locally available
Water	200m^3 per month	DUWASA
Cement	100 tones	Mbeya
Reinforcement(iron bars)	250 tones	Mbeya
Galvanized steel	100 tones	Dar es Salaam

Source: Feasibility study report, 2015

2.3.4 Construction Phase

The major construction activities will include excavation of foundation, concrete work, vertical construction, structural work, installation of electrical and water conduits, finishing work, painting and other minor associated civil works. Main activities of the proposed project during construction will include but not limited to the following:

i. Earthworks: This entails excavation of soil/earth to required foundation level, hauling away excavated materials and depositing them at the designated site for disposal, dewatering of excavated area, protection of excavated sites from falling, backfilling with the excavated material around the foundations and walls, hard-core filling;
ii. Concrete works: Steel reinforcement, cutting, bending and fixing, concrete mixing, transportation, vibrating, curing, masonry walling and plastering;
iii. Roofing of the main structure
iv. Metal and steel works for the entire structure;
v. Electrical installation works: laying of PVC conduits in structural members, electrical wiring and other related works; and
vi. Plumbing and drainage works: installation of drain pipes, water distribution pipes, water tanks and general plumbing.

Contractor's demobilization phase

The demobilization phase will involve clearing the site activities in terms of tiding up of site facilities and demobilization of all construction equipment. Disposal of any remaining unwanted material will also be carried out during demobilization. During this phase various generated solid wastes will be recycled and disposed. It is expected that about 10kg per day of solid waste will be generated during this phase.

2.3.5 Operation Phase

It is in this phase where the facilities will be put into their intended use. It is at this stage that all systems and facilities will be actually used by a relevant authority. The main activities will involve receiving of grain and then storing them in silos complex after passing all necessary clearance stages at the complex. The identification of solid wastes likely to include empty pesticide containers, maize husks, papers and other unwanted materials will be done. These shall be collected, sorted and separated at source. Each type of waste shall be kept at a collection point before being taken for disposal by the authorized private waste collector who will be assigned by the proponent.

Expected liquid wastes at the site will be mainly from sanitary facilities and from the food preparation area (canteen and kitchen). This waste will be directed to the designated on-site sewage management system which involves septic tanks and soak away pits. The sewage and solid waste to be generated during this phase will likely hit the highest point. Hence management of both liquid and solid wastes will be effectively implemented in order to avoid pollution, and other environmental and health associated risks.

2.3.5.1 Storage Problems;

If grain has been dried correctly for the intended storage period, problems with grain condition may be avoided. Usually problems associated with grain storage result from:

- Improper grain cooling.
- Inadequate observation of the stored grain.
- Poor initial grain quality.
- Improper insect control.

Each of these problems can be minimized with good management. The maximum moisture content for grain storage is 13%.

2.3.5.2 Grain Temperature and Moisture Migration

Improper control of temperature causes moisture to move or migrate from one part of the grain mass to another, where the moisture can accumulate and cause grain spoilage problems. Although moisture migration problems can occur any time grain temperatures vary considerably in different parts of the bin, the most critical time occurs when warm grain is stored into cold winter temperatures. Grain is typically put into storage when the grain temperature is 50-80 F, and perhaps higher. As the air increases in temperature, its moisture-holding capacity increases and it begins to absorb small amounts of moisture and this cause moisture contents to increase.

2.5.5.3 Management of Stored Grain

In this case care should be taken from grain receiving time up to releasing time, whereby qualified personnel he/she will be responsible for management. During the critical fall daily monitoring will be considered and weekly monitoring will be considered when outside air temperatures are changing rapidly.

2.5.5.4 Temperature Sensing

Installing temperature sensing units in large grain storages will be considered, whereby the center cable will be mounted to one side of the center of the bin to reduce the drag on the cable when unloading grain. The bin manufacturer will provide engineering advice to be sure for the cables, supports and roof if can withstand the drag from grain filling and unloading.

Temperature sensors accurately trace the progress of aeration cooling or heating cycles. They help to identify hot spots within the grain mass. They also indicate overall heating and approximate average grain temperature.

2.5.5.6 Insect Control in Stored Grain

Insect infestations in storage can come from grain residues in combines, handling equipment, and old grain left in storage. Correctly drying, aerating and managing stored grain minimizes the risks of insect infestation and damage. Insect activity goes with moisture accumulation and grain heating. Whenever grain will be held during the warm part of the year, practice regular preventive treatment. Where infestations are more often found with poor quality grain, or where there is an occasional slip in overall management, emphasize monitoring and control by look for insect activity during every storage visit. The following shall be considered as a pre-harvest checklist;

- Clean all debris from harvesting. Handling and drying equipment (trucks, augers, elevators).
- Sweep old grain particles and dust from inside the bin. If possible, remove debris under perforated floors and dispose of the sweepings by burning, burying, etc. or saturate this debris with malathion, Actellic or Reldan.
- Repair bin if any signs of water leakage is found (spoiled grain on the floor holes in the roof, etc.).
- Apply *malathion*, *Actellic* or *Reldan* to all surfaces of clean, empty silos.
- Remove piles of boards, spilled grain from around the silos that attract rodents. If there is no chance of runoff to adjacent fields, gardens, etc., spray a 2 band of soil sterilant around the foundation so vegetation will not grow.
- Do not put new grain on top of old grain. Just a few insects in the old grain can contaminate the entire silo.

2.3.5.7 Management and supervision

The management and supervision of the project will be done by the project proponent (NFRA) via project manager that will be responsible for managing project and its surroundings. This will ensure smooth running of the project and adherence to the environmental standards.

2.3.5.8 Monitoring and maintenance

Monitoring and maintenance of the project facilities will be done by the project proponent through the centre manager to ensure that the project runs smoothly. The project proponent will allocate funds as part of the project cost for maintenance and repair of project facilities.

2.3.6 Decommissioning Phase

Decommissioning is a general term for a formal process to remove something from active status. It brings to closure, or terminates the operations of business of a specific facility or building. The owner or licensee normally decides when the facility is to permanently cease operations. The following shall be done before and during decommissioning

i. The management shall come up with a decommissioning plan that addresses:

- Facility description and history
- Decommissioning scope and objectives
- Characterization data summary
- Specific decommissioning methods
- Health and safety plans
- Risk assessment (if applicable)
- Site release criteria
- Waste generation estimates and waste disposal procedures.

ii. When a decommissioning plan is developed, it will be based on

- The need to adequately protect the public and addressing occupational safety and health issues
- The prevention of potential environmental and social impacts
- The requirements for compliance with statutory and contractual obligations

- The effective project management, including selection among viable alternatives based on risk, cost and desired facility end state.
- The human capital management if it is consistent with future site utilization plans

iii. Show that a proposed decommissioning project plan can be conducted safely.

iv. Show that at completion of the facility will comply with regulatory requirements

v. Prepare formal documentation of the decommissioning of the facility

vi. Adhere to the occupational health and safety regulations while conducting the decommissioning

vii. Evaluate potential for re-use and recovery of material and equipment

viii. Consider waste minimization and appropriate disposal

The life span of this project is at least 50 years. By having this consideration in mind, the proponent will adequately invest into the construction and furnishing processes by ensuring the use of appropriate technology and materials which are of high quality and durable in order to increase the proposed project life span. The decommissioning may therefore take much longer. Decommission activities might take around 20 million shillings including cost of solid waste disposal as well as site rehabilitation activities.

CHAPTER THREE: POLICY, ADMINISTRATIVE AND LEGAL FRAMEWORK

3.1 INTRODUCTION

There are a number of policies and legislations setting out legal and regulatory requirements and which are relevant to the proposed silos complex and grain storage warehousing project. There are also national standards governing environmental management and protection, health and safety. The proponent shall ensure compliance with the following identified policies, national plans/strategies legislations and standards.

3.2 NEED FOR ENVIRONMENTAL IMPACT ASSESSMENT

Environmental Impact Assessment is one of the planning tools which are used to facilitate and promote sustainable development by integrating environmental consideration in the decision making process and ensuring that unnecessary damage to the environment is avoided and optimises resources use and management opportunities. Due to the importance of EIA, most sector policies and legislation have incorporated the requirement for undertaking EIA prior to the implementation of development projects.

The following main laws, regulations and policies have dominated and guided this EIA process:

3.3 RELEVANCE POLICIES

The following are relevant sectoral and cross–sectoral policies which provide directives on how projects should be implemented in relation to concerned environmental and socio-economic settings. The project proponent will consult these policies in the course of designing and implementing the proposed project activities.

3.3.1 The National Environmental Policy (1997)

Chapter 4, Paragraph 64 of the NEP states that "*It is in the context of an EIA regime that policy guidance on choices to maximise long-term benefits of development and environmental objectives can be revealed and decided upon. EIA as a planning tool shall be used to integrate environmental considerations in the decision making process in order to ensure unnecessary damage to the environment is avoided".* The policy also advocates public consultation in carrying out EIA. Specifically paragraph 66 states that "One of the cornerstones of the EIA process will be the institution of public consultations and public hearing in the EIA procedures".

The policy recognises the importance of promoting use of environmentally sound technologies that protect environment based on careful assessment of the carrying capacity of the environment. By carrying out this EIA, NFRA has complied with the policy.

3.3.2 The National Agricultural Policy (URT, 2013)

One of the objectives of National Agricultural Policy is to ensure that there is food security at the country all the time. In section 3.12.1 of the policy states that, food security and nutrition is one of the overriding agenda in the country with emphasis on meeting NSGRP, EAC Food Security Action Plan and MDGs targets. NFRA abides the policy by storing, purchasing and handling higher amount of food to be used during the time of food shortage in the country.

3.3.3The Land Policy (1997)

The National Land Policy advocates the protection of land resources from degradation for sustainable development. Among other things the policy requires that project development shall take due consideration the land capability, ensures proper management of the land to prevent erosion, contamination and other forms of degradation. EIA for this project is intended to identify if there is potential for the adverse impact and to propose means for mitigating them.

3.3.4 The National Investment Promotion Policy (1996)

The National Investment Promotion Policy encourages protection of environment in line with the countries socio-economic policies. Under the policy, investors are required to undertake activities in a manner that best contributes to consumer and environmental protection. The investors are also encouraged to use local raw materials/components where possible. This EIA is undertaken to ensure that NFRA will abide by the relevant provisions of the policy to ensure compliance with the development.

3.3.5 The National Employment Policy (1997)

The major aim of this policy is to promote employment, mainly for Tanzania citizens. Relevant sections of this policy are (i) 10, which lays down strategies for promoting employment and section 10.1 is particularly focusing on industry and trade sectors (ii) 10.6 which deals with employment of special groups i.e. women, youth, persons with disabilities and (iii) 10.8 which deals with the tendencies of private industries to employ

expatriates even where there are equally competent nationals. NFRA shall abide by this policy.

3.3.6 National Policy on HIV/AIDS (2001)

This policy provides a framework for leadership and coordination of the National multi sectoral response to the HIV/AIDS epidemic. One of the major objectives of the policy is to strengthen the role of all sectors, public, private, NGOs, faith groups, CBOs and other specific groups to ensure that all stakeholders are actively involved in HIV/AIDS work and to provide a framework for coordination and collaboration. The policy recognizes that HIV infection shall not be grounds for discrimination in relation to education, employment, health and any other social services. Pre-employment HIV screening shall not be required. For persons already employed, HIV/AIDS screening, whether direct or indirect, shall not be required. HIV infection alone does not limit fitness to work or provide grounds for termination. HIV/AIDS patients shall be entitled to the social welfare benefits like other patients among the employees. HIV/AIDS information and education targeting the behaviour and attitudes of employees and employers alike shall be part of HIV/AIDS intervention in the workplace. NFRA shall adhere to the policy.

3.3.7The National Water Policy (URT, 2002)

The National Water Policy recognises that there is a growing scarcity, misuse and wastage of water resources in many places of Tanzania, which may become a serious threat to sustainable availability of the resource. The National Water Policy advocates that industrial performance depends, among other factors, on reliable water supply. However, the growth in the industrial sector have significant impact on water supply, and also in terms of potential pollution and degradation of water resources due to industrial solid wastes and effluents if not properly disposed of, but are allowed into water bodies without adequate treatment.

The National water policy requires all water users to avoid contaminating water sources. The policy also supports the application of the “polluter pays principle” and has a specific objective to “have in place water management system which protects the environment, ecological system and biodiversity”. NFRA shall abide the policy.

3.3.8 The Energy Policy of Tanzania (URT, 2003)

This policy outlines measures to adopt clean technology and minimize pollution in developing Tanzania’s energy sector. It focuses on utilization of various energy resources among others include water, gas, coal, petroleum and wind in a sustainable and environmentally friendly manner. The policy states that energy is a prerequisite for

the proper functioning of nearly all sub-sectors of the economy. It is an essential service whose availability and quality can determine the success or failure of development endeavours.

The policy objectives are to ensure availability of reliable and affordable energy supplies and their use in a rational and sustainable manner.

3.3.9 The National Health Policy (URT, 2003)

The overall objective of the National Health Policy is to improve the health and well-being of all Tanzanians with a focus on those most at risk. One of the main objective of this policy is to ensure that health services are available and accessible to all people wherever they are in the country, whether in urban and rural areas. The policy encourages safe basic hygienic practices in workplaces, promote sound use of water, promotes construction of latrines and their use, encourage maintenance of clean environment; working environment which are conducive to satisfactory work performance. The policy puts more emphasis on workers protection against all health hazards which occur in development projects. NFRA shall abide the policy.

3.3.10 Tanzania Development Vision (2025)

The National Vision 2025 foresees the alleviation of widespread poverty through improved socio-economic opportunities, good governance, transparency and improved public sector performance. These objectives not only deal with economic issues, but also include social challenges such as education, health, the environment and increasing involvement of the people in working for their own development. The thrust of these objectives is to attain a sustainable development of the people. NFRA will contribute towards realisation of the Vision's objectives.

3.3.11 The National Poverty Eradication Strategy (2000)

The strategy is viewed as an instrument for channelling national efforts towards broadly agreed objectives and specific inputs and outputs. The poverty reduction strategy is to large extent, an integral part of ongoing macro-economic and structural reforms. Among the areas of the concentration, the following are relevant to this study:

- Achieving the target of accelerated growth will require significant efforts to enhance increase investment in both human and physical capital.
- Further improvements in policy environment and market friendly Institutional framework are key to scaling up growth and reducing poverty to a significant extent. However, the key to significant poverty reduction in Tanzania is accelerated growth.

3.3.12 Agricultural sector development programme II

One of the challenges and constraints to the implementation of ASDP-II is huge post-harvest losses (25–35%, varying by crop and region) due to inadequate of agro processing expertise, facilities, storage and access to markets. The grain storage expansion project will to a great extent address the challenge of lack of storage of crops in the country thus reducing the loss of harvests.

3.3.13 Climate-Smart Agriculture in Tanzania

The climate-smart agriculture (CSA) concept reflects an ambition to further integrate agricultural development and climate responsiveness. CSA aims to achieve food security and broader development goals under a changing climate and increasing food demand. CSA initiatives sustainably increase productivity, enhance resilience, and minimize greenhouse gas (GHGs) emissions. For the Tanzanian context, CSA is agriculture that sustainably increases productivity and income, ability to adopt and build community resilience to climate change and enhances food and nutrition security. This concepts links with ASDP II in terms of objectives to ensure food security by enhancing resilience of small holder farmers against climate change impacts. Both programs aim at ensuring food security. The grain storage expansion project aims at ensuring food stock availability even during drought seasons.

3.4 LEGAL FRAMEWORK

3.4.1 The Environmental Management Act No. 20 of 2004

This is the most important Act that will guide activities and decisions of the proposed expansion of grain storage facilities project. The Environmental Management Act (2004) introduces a concept of right of Tanzanians to clean, safe and healthy environment and right of Tanzanians to access various segment of environment for recreational, educational, health, spiritual, cultural and economic purposes (Article 4 (1) and (2)). The Act imposes an obligation on proponents to conduct an EIA prior to the commencement of the project to determine whether the project may/or is likely to have, or will have a significant impact on the environment. Article 81 makes EIA mandatory to all projects that fall under the EIA mandatory list (Schedule 3) into which this project falls. Of particular importance is section 57 of Environmental Management Act which stipulates that human activities be undertaken 60 meters away from the water body. The Act also requires that project proponents undertake regular environmental audits of their facility. Taking this EIA study, NFRA abide the law.

3.4.2The Environmental Impact Assessment and Audit Regulations G.N. No. 349 of 2005

First schedule of this regulation lists expansion of grain storage facilities project requiring a mandatory EIA. Since such project is likely to have significant adverse environmental impacts, a depth study is required to determine the scale, extent and significance of the impacts and to identify appropriate mitigation measures. Furthermore, the regulation specifically provide for procedures and guidelines for carrying out EIA in Tanzania. This EIA review has been carried out in accordance with these regulations.

3.4.3 Environmental (Registration of Environmental Experts) Regulations (2005)

The objectives of the regulations are to establish a system for registration of environmental experts; provide for a system of nurturing competence, knowledge, professional conduct, consistency, integrity and ethics in the carrying out of environmental impact studies and environmental audits; ensure that the conduct of environmental impact assessments or environmental audits is carried out in an independent, professional, objective and impartial manner; and provide for a code of conduct, discipline and control of environmental experts. The NEMC maintain a registry of EA and EIA experts. These regulations also set code of practice of the experts for which the Environmental experts for this project subscribe.

3.4.4 Environmental Management (Solid and Hazardous Waste Management) Regulations 2009

This Act has been made to control a facility or premises which generates waste to minimize the waste generated by adopting the following cleaner production principles:-

(a) Improvement of production process through conserving raw materials and energy by:

(i) Eliminating the use of toxic raw materials within such times as may be prescribed by the Minister; and

(ii) Reducing toxic emissions and wastes to a level prescribed in the applicable national environmental quality standards.

(b) Monitoring the product cycle from beginning to end by-

(i) Identifying and eliminating potential negative impacts of the product; and

(ii) Enabling the recovery and re-use of the product where possible; and

(iii) Reclamation and recycling.

The Act also requires any person intending to operate a hazardous waste treatment plant or disposal site or facility to apply to the Director of Environment for a license. Project proponent shall comply with this regulation by ensuring proper environmental management especially proper solid waste management.

3.4.5 The Tanzania Foods, Drugs and Cosmetics Act, 2003

This is the Act that established the Tanzania Food and Drugs Authority or by the acronym "TFDA". Among its key functions is to regulate all matters relating to quality and safety of food, drugs, herbal drugs, medical services, poisons and cosmetics. In this regard, operations of the grain storage project are regulated by TFDA. To comply with the Tanzania Foods, Drugs and Cosmetics Act, Silos complex and grain storage project, NFRA will contact TFDA for registration of silos for grain storage and request for certificate of compliance.

3.4.6 The National Land Act No 4 of 1999 and its Amendment of 2004

The Land Act of 1999 outline among other things, the administration of land, the role of local government in land administration, land allocation and occupancy. The Land Act contains provisions of critical environmental importance. This Act translates the "fundamental principles of land policy" into the body of the law. One of these fundamental principles is "to ensure that land is used productively and that any such use complies with the principles of sustainable development". This means the project proponent will have to return the land to its useful state on decommissioning of the project. As a first step, the project proponent agreed to conduct the EIA to guide project operations.

3.4.7 The Urban Planning Act No. 8 of 2007

The Act provides for control of urban and sub rural development while implementing a project for land development. Important aspects include the designation and allocation of adequate land for solid waste disposal in any urban and sub rural areas. The law empowers local authorities to enforce such storage project and punishments as

stipulated in the Act. The law further empowers neighbours and any individual to take to court anyone who injuriously affects others due to his/her unhygienic activities. NFRA will observe good solid waste and wastewater disposal practice as required by the Act.

3.4.8 Occupational Health and Safety Authority Act, 2003

This Act deals with the protection of human health from occupational hazards. It specifically requires the employer to ensure the safety of workers by providing safety gears at the work place. Relevant sections of the ordinance to the project activities include Part IV which deals with general health provision, such as provision of regular medical examination of employees; Safe means of access and safe working place, prevention of fire etc.; and Part V on health and welfare provisions, which includes provision of supply of clean and safe water to workers, sanitary convenience, washing facilities and First Aid facility. Section 50 deals with fire prevention issues.

Section 15 gives powers to the registrar of factories and workplace to enter any workplace to perform his/her duties as provided by the Act. Section 16 requires that projects be registered with the registrar of factories and workplaces before commencing operations. NFRA shall observe the provision of this Act during all stages of the project development and operation.

3.4.9 Water Resource Management Act, 2009

This is a new legislation that has repealed the Water Utilization (Control and Regulation) Act (1974). The Act provides for institutional and legal framework for sustainable management and development of water resources; outlines principles for water resources management; for prevention and control of water pollution; and provides for participation of stakeholders and general public in implementation of the National Water Policy. Its main objective is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that among others meets the basic human needs of present and future generations, prevents and controls pollution of water resources and protects biological diversity especially the aquatic ecosystems.

According to section 39 (1) of this act, owner or occupier of land on which any activity or process is or was performed or undertaken, or any other situation exists which causes or has caused or is likely to cause pollution of a water source, shall take all reasonable measures to prevent any such pollution from occurring, continuing or recurring. It is stated under section 39 (2) that a Basin Water Board may direct any person who fails to take the measures required under subsection (1) to; -

(a) Commence taking measures before a given date;

(b) Diligently continue with those measures; and

(c) Complete the measures before a given date.

Section 40 (1) states that where a person fails to comply or comply inadequately with a directive given under Section 39 (2), the Basin Water Board may take measures as it considers necessary to remedy the situation. Section 40 (2) provide more that the responsible person, any other person involved in the incident or any person with knowledge of the incident must, as soon as is practicable after obtaining knowledge of the incident, report the incident to the Basin Water Board or any public officer and the a responsible person shall: -

(a) Take all reasonable measures to contain and minimize the effects of the incident;

(b) Undertake clean-up procedures; and

(c) Take such measures as the Basin Water Board may verbally or in writing direct, and any verbal directions shall be confirmed in writing within fourteen days to have effect under this subsection.

NFRA will strive to comply with the provisions of the Water Resource Management Act of 2009.

3.4.10 National Land Use Planning Act of 2007

The Act re-established the National Land Use Planning Commission, which is the principal advisory organ of the Government on all matters, related to land use. The Commission has the function of formulating policy on land use planning, co-ordinating the activities of all bodies concerned with land use planning matters, and evaluating existing and proposed policies and activities of the government directed to the safeguarding of land against its wrongful, wasteful or premature use or development and, on that basis, recommend policies and programmes which will achieve more effective protection and enhancement of the land quality and encourage better land use planning.

Other functions include recommending measures to ensure government policies are compiled including those for the development and conservation of land. This is also an important environmental provision, which introduces the requirements for environmental impact assessment at least in respect of land use matters. NFRA shall abide the Act.

3.4.11 Workers Compensation Act, 2008 - (Act No. 20/08)

An Act to provide for compensation to employees for disablement of death caused by or resulting from injuries or diseases sustained or contracted in the course of employment; to establish the fund for administration and regulation of workers' compensation and to provide for related matter. It applies to both workers in the private and public sector. For one to be compensated, the injury must either cause permanent incapacity or make the worker unable to earn full wages for at least three consecutive days. The employer is obliged to pay compensation irrespective of the cause of accident. It does not matter whether the incapacity or death was due to recklessness of the worker. Where injury occurs, an employee is entitled to recover medical expenses and lost wages resulting from the disability, be it temporary or permanent. The law allows for compensation to dependants or personal representatives where the worker is dead. NFRA will respect the provisions of the Workers' Compensation Act.

3.4.12 Employment and Labor Relations Act, 2004 (Act No.6/04)

This Act guarantees fundamental labour rights and establishes basic employment standards. The Act provides broad protection against discrimination. Specifically, the Act mandates that employers "promote equal opportunity in employment and strive to eliminate discrimination in any employment policy or practice." It prohibits direct or indirect discrimination by employers, trade unions and employers' associations on a number of grounds, including gender, pregnancy, marital status or family responsibility, disability, HIV/AIDS and age. Harassment of an employee on any of these grounds is equally prohibited. The Act also requires employers to take "positive steps" to guarantee women and men the right to a safe and healthy environment. Since NFRA will offer employment, therefore shall observe these and other relevant provisions in this Act.

3.4.13 HIV and AIDS (Prevention and Control) Act of 2008

The law provides for public education and programmes on HIV and AIDS. Section 8(1) of the law states that "The Ministry (Health), health practitioners, workers in the public and private sectors and NGOs shall for the purpose of providing HIV and AIDS education to the public, disseminate information regarding HIV and AIDS to the public". Furthermore, Section 9 states that "Every employer in consultation with the Ministry (Health) shall establish and coordinate a workplace programme on HIV and AIDS for employees under his control and such programmes shall include provision of gender responsive HIV and AIDS education." This project abides to HIV/AIDS Act in the fight against the disease by providing awareness trainings.

3.4.14 Public Health Act, 2009

This Act provide for the promotion, preservation and maintenance of public health with a view to ensuring the provisions of comprehensive, functional and sustainable public health services to the general public and to provide for other related matters. The Act sets out duties of the Minister responsible for health in facilitating the effective provisions of public health services in the country. The Act also spells out the duties and functions of the Local Government Authorities in the promotion, implementation and powers to enforce public health standards within their jurisdictions. It further empowers the Local Government Authorities to make by-laws for the smooth operation of public health services.

Part IV of the Act is more relevant to NFRA grain storage facilities project as it related to sanitation, housing and hygiene. The part makes provisions for matters relating to nuisance, housing and human settlement, waste management, sewerage and drainage. The Act prohibits direct discharges of waste water to public drainages. It is an offence to emptied or to pass into any sewer or into any drain any matter likely to injure the sewer or drain, or to interfere with the free flow of its contents, or to effect prejudicially the treatment and disposal of its contents. Part VII of the Act contains provisions relating to powers of the minister to make regulations relating to notification of infectious diseases and communicable diseases, prevention and control of infectious diseases, control of mosquitoes and vaccinations. It also provides for general penalty where specific penalty has not been specified. NFRA will ensure compliance to the above provisions.

3.4.15 Local Government (District Authorities) Act Cap 287 of 1982

This act provides for a detailed responsibility for the District Councils on administration of day-to-day activities within its area of jurisdiction. Since the project area is within the jurisdiction of the Mpanda municipal council, the provisions under this act have to be followed or adhered and therefore NFRA shall liaise with the municipality council in implementing the proposed project.

3.4.16 The Fire and Rescue Force Act, R.E 2007

The act empowers the commissioner general of the force or his agent to enter premises to ascertain any contravention of provisions of the Act and obtain information required for firefighting purposes. A court may issue an order for a closure or prohibit the use of any premises for human habitation or storage in case there is failure to comply with fire prevention regulations. NFRA shall abide by the relevant provisions of the Act to ensure safety and security of its work force and the general public.

3.4.17 The Contractors Registration Act No. 17 0f 1997

The Act establishes the Contractors Registration Board (CRB). CRB has a mandate to register contractors, regulate the conduct of the contractors and for related matters. Among other things CRB is required to take legal action against unregistered contractors who undertake construction; installation, erection or alteration works; ensure that all construction sites are hoarded; and labour laws, occupational health and safety regulations in the construction industry are adhered to. On executing its construction activities. NFRA shall therefore appoint a registered contractor and make sure that the provisions of the Act are adhered to.

3.4.18 The Engineers Registration Act No. 15 of 1997

This Act establishes an Engineering Registration Board (ERB) which regulates the conduct of engineers, to provide for their registration and for related matters. The Act provides restriction that no person other than a registered engineer shall engage in professional engineering work or services which includes professional service consultation, planning, designing or responsible supervision of construction or operation in connection with any public or privately owned public utilities, buildings, machines, equipment, processes, works or projects where public interest and welfare, or the safeguarding of life, public health or property is concerned or involved, and that requires application of engineering principles and data. Furthermore, the Act stipulates that no person shall employ or continue to employ - any engineer who is not a registered as a professional engineer. NFRA shall engage registered engineers so as to observe the provisions of the Act when executing its activities.

3.4.19 The Water Utilization and Sanitation Act (WUSA), 2009

The Water Utilization and Sanitation Act, (No 12), 2009, is the principal legislation aiming to promote and ensure the right of every person in Tanzania to have access to efficient, effective and sustainable water supply and sanitation services for all purposes by taking into account the following principles;

a) Creation and enabling environment and appropriate incentive delivery of reliable, sustainable and affordable water supply and sanitation services;

b) Delegation of management functions of water supply and sanitation to the lowest appropriate levels taking into account the local government administrative systems;

c) Ensuring that water sanitation authorities are financially and administrative autonomous and sustainable;

d) Transferring ownership of water supply schemes in rural areas the respectively communities and enabling all the beneficiaries and stakeholders to

participate in respectively in the management of community water supply schemes;

e) Enabling mechanism to ensure that the communities meet the cost of operation and maintenance of their water supply systems and contribute to the cost thereof;

f) Promotion of public sector and private sectors partnership in provision of water supply and sanitation service;

g) Establishment and enforcement of standard of service in water supply and sanitation service;

h) Regulation of suppliers of water supply and sanitation services.

i) Protection and conservation of water resources and development and promotion of public health and sanitation; and

j) Protection of the interests of customers.

The relevancy of this legislation to this project is the obligation of the project proponent to ensure protection and conservation of water sources through avoiding discharge of wastes to water sources or water bodies.

3.4.20 The Local Government (Urban Authorities) Act, Cap 288 R.E 2002

This Act establishes urban authorities for the purposes of local government, to provide for the functions of those authorities and for other matters connected with or incidental to those authorities. Section 55 of the Act enumerates basic functions of the urban authorities. The functions that are relevant to APL

to provide for the prevention and abatement of public nuisances or of nuisances, which may be injurious to the public health or to the good order of the area of the authority;

to regulate any trade or business, which may be noxious, injurious to the public health or a source of public danger, or which otherwise it is in the public interest expedient to regulate, and to provide for the issue of licenses or permits to facilitate the regulation of any such trade or business, and for the imposition of fees in respect of such licenses

Section 59 lists the powers of the Urban Authorities. The following powers are considered

relevant to proposed activities:

to undertake the abatement of fire and the prevention of the spread thereof and for such purposes to enter any premises;

to provide for the imposition and fixing of charges to be paid in respect of services rendered by the authority.

Section 80 of the Act empowers the urban authorities to set by-laws.

NFRA Mpanda complies with these and other relevant provisions in this Act by ensuring that neither pollution nor nuisance happens within premises or near it. Also, NFRA will pay all levies as provided for in relevant by-laws.

3.4.21The Urban Planning Act No. 8 of 2007

The Act provides for control of urban and sub rural development while implementing a project for land development. Important aspects include the designation and allocation of adequate land for solid waste disposal in any urban and sub rural areas. The law empowers local authorities to enforce such schemes and punishments as stipulated in the Act. The law further empowers neighbours and any individual to take to court anyone who injuriously affects others due to his/her unhygienic activities. The project proponent will observe good solid and liquid waste disposal practice as required by the Act.

3.4.22The National Land Act No. 4 of 1999

The Land Act of 1999 outline among other things, the administration of land, the role of local government in land administration, land allocation and occupancy. The Land Act contains provisions of critical environmental importance. This Act translates the “fundamental principles of land policy” into the body of the law. One of these fundamental principles is “to ensure that land is used productively and that any such use complies with the principles of sustainable development”. This means the project proponent will have to return the land to its useful state on decommissioning of the project. As a first step, the project proponent agreed to conduct the EIA to guide project operations. The land will be utilized without

pollution if the proponent will follow EIA recommendations.

3.4.23 Industrial and Consumer Chemicals (Management Control) Act, 2003

The Industrial and Consumer Chemicals Act provides for proper management and control of industrial and consumer chemicals in Mainland Tanzania. It requires that any person dealing in industrial chemicals has to register with the Industrial and Consumer Chemicals Management and Control Board. The Third Schedule of the Act provides a long list of chemicals that must be registered. In case the developer imports chemicals for its activities compliance with requirement of this law during the importation, storage, use and disposal of those chemicals is of paramount importance.

NFRA Mpanda uses chemicals that are already registered in Tanzania. Further, the organization does not import any chemical but rather acquire them from large importers available in the country. Should there arise a need to import chemicals from outside the country, the company shall register with the Government Chemist and Labouratory Agency as required by the law.

3.4.24 Plant Protection Act, 1997

The Act has the task to issue rules for the protection of animals, plants or micro-organisms and natural environment against dangers arising from the use of plant protection substances or in view of plant protection substances usefulness in combatting harmful organisms. Furthermore the Act concern on the protection of human and animal health or for averting dangers, particularly where the natural environment is concerned by regulating, prohibit, limit or make subject to the obtaining of a prescribing permit or to notification requirements to import protection substances. This Act is relevant to the project since the project will use protection substances to the stored grains. The proponent should use approved protection substances and when there will be need of importing, there should be the importation permit from the authority.

3.4.25 Environmental Management Quality Standards (Control of Noise and Vibration) Regulations, 2011.

The Regulation has explained on the responsibility of the owner of machinery or the owner of occupier of a facility or premises to use the best practicable means to ensure that the emission of noise from that machinery, facility or premises does not exceeds

the permissible noise levels as specified in the Schedule 1. Also the Act require that the owner to install at the premises, sound level meters for the measurement and monitoring of sound from the industry, facility or establishment to ensure that the noise emitted does not exceed the permissible noise levels. NFRA Mpanda shall adhere to this regulation for the betterment of health of workers and avoiding noise pollution to the facility.

3.4.26 Environmental Management (Solid Waste Management) Regulations 2009

These regulations have been made to control a facility or premises to minimize the waste generated by adopting the following cleaner production principles: -
(a) Improvement of production process through conserving raw materials and energy by:
(i) Eliminating the use of toxic raw materials within such times as may be prescribed by the Minister; and
(ii) Reducing toxic emissions and wastes to a level prescribed in the applicable national environmental quality standards.
(b) Monitoring the product cycle from beginning to end by-
(i) Identifying and eliminating potential negative impacts of the product; and
(ii) Enabling the recovery and re-use of the product where possible; and
(iii) Reclamation and recycling.

3.5 ADMINISTRATIVE FRAMEWORK

According to the EMA of 2004 the institutional set-up for environmental management from national level to village level includes:

a. Minister Responsible for Environment;
b. Director of Environment (DOE);
c. National Environment Management Council (NEMC);
d. Sector Ministries;
e. Local Government Authorities (Municipality and District, Ward and Village).

The Department of Environment and NEMC are the main regulatory bodies for environmental management in Tanzania. However, other sector ministries and agencies, play an important role in implementing environmental policy objectives. The

environmental management functions of each institution are outlined in the Environmental Management Act.

3.5.1 Project Proponent

The overall project environmental management will be on the hands of the project proponent (NFRA) and the contractor who in collaboration with other stakeholders such as NEMC, Regional secretariats, Municipal Council, Local Government Authorities will ensure the implementation of Environmental and Social Management and Monitoring Plan.

3.5.2 Minister Responsible for Environment

This minister has the overall responsibility for environmental matters, including policy articulation for promotion, protection and sustainable management of the environment in the country. Other duties include issuing policy guidelines to sector ministries, government departments, NEMC, and any other public or private institution. The minister will issue an Environmental Impact Assessment Certificate following the recommendation from NEMC and upon satisfaction that the project will not be an environmental disaster and that the project proponent has prepared measures to address any adverse impacts to the environment and to the society.

3.5.3 Director of Environment

The DoE heads the Office of the Division (Directorate) of Environment under the Office of the Vice President and is responsible for coordination, monitoring and assessment of various environmental activities. DoE gives early warning on impending environmental emergencies. The Director is responsible for advising the government on policy and legislative matters and international agreements and conventions. Pertaining to this project DoE will receive and review recommendations from NEMC and advise the Minister to issue an Environmental Certificate.

3.5.4 National Environment Management Council

The council is responsible for enforcement, compliance, review and monitoring of Environmental Impact Assessment (EIA). It prepares and submits bi-annual reports on the implementation of the provisions set out in the Environment Management Act. The National Environment Management Council in collaboration with Technical Advisory Committee will review the Environmental Impact Statement and recommend to the Minister Responsible for Environment to issue an EIA Certificate to project proponent upon fulfilling all the requirements.

3.5.5 Sector Ministries

The Environment Section in each the sector Ministries is responsible for ensuring compliance with the requirements of the Environment Management Act. The sections are also responsible for liaising with the Director of Environment and NEMC. The Sector Environment Coordinator, who is appointed from within the Sector Ministry, heads the Sector Environment Section. The Coordinator is responsible for:

- Coordination of all activities and performance of the functions relating to environment;
- Prevention and control of any activity likely to cause or bring out environmental degradation; and
- Reporting on the implementation and enforcement of environmental provisions of laws falling under the jurisdiction of the sector

For this project, the sector ministry is Ministry of Agriculture, Livestock and Fisheries, Ministry of Lands, Housing and Human Settlements Development and TFDA.

3.5.6 Local Government Authorities

Local Government Environmental Management Officers are appointed by each City, Municipal, District and Town Council. Their responsibilities, among others, include:

- Ensuring enforcement of the Environmental Management Act;
- Advising the Environment Management Committee;
- Promoting environmental awareness;
- Gathering and managing information on the environment and the utilisation of natural resources;
- Preparing periodic reports on the state of the environment;
- Reviewing by-laws on environmental management and on sector specific activities related to environment; and
- Reporting to the Director of Environment and the Director General on the implementation of the EMA.

Important institutions to the proposed project are as summarized on table 3.1.

Table 3.1: Key Institutions that will be involved in implementation of ESMP

Level	Stakeholders Group	Roles and Responsibility
National level	Vice President's Office - Division of Environment	• Coordinate various environment management activities in Tanzania • Advise the Government on legislative and other measures for the management of the environment • Advise the Government on international environmental agreements • Monitor and assess activities, being carried out by relevant agencies in order to ensure that the environment is not degraded • Prepare and issue a report on the state of the environment in Tanzania; • Coordinate the implementation of the National Environmental Policy
	NEMC	• Carry on environmental audit and environmental monitoring • Carry out surveys which will assist in the proper management and conservation of the environment • Undertake and co-ordinate research, investigation and surveys in conservation and management • Review and recommend for approval of environment impact statements • Enforce and ensure compliance of the national environmental quality standards • Initiate and evolve procedures and safeguards for the prevention of accidents which may cause environmental degradation and evolve remedial measures where accidents occur;

Level	Stakeholders Group	Roles and Responsibility
		• Undertake in co-operation with relevant key stakeholders' environmental education and public awareness; • Render advice and technical support, where possible to different stakeholders
	Ministry of Lands and Human Settlements Development	▪ Enforcement of laws and regulations on Land sector ▪ Land use planning
	Ministry of Agriculture, Livestock and Fisheries	▪ Parent ministry to proponent
	NFRA	▪ Project monitoring, support and services ▪ Ownership of land and infrastructure of the proposed project ▪ EIA study ▪ Project implementation ▪ Project monitoring and internal auditing.
Regional Authorities/ District/ Local level	Mpanda Municipal Council Executive Director Office Functional departments- Planning, Water, Health, Community Development, Environmental Committees etc. Ward	▪ Issuance of building permits ▪ Oversee development to be undertaken as per regulations ▪ Current land uses, neighbouring activities and developments ▪ Official Public notices ▪ Day-to-day environmental management and monitoring

CHAPTER FOUR: BASELINE CONDITIONS

4.1 LOCATION AND ADMINISTRATIVE BOUNDARIES

Mpanda was among the three councils of Katavi region. It was promoted to the level of municipality in July, 2007 and established as Mpanda municipal council on 1st July 2007, by that time it was in Rukwa region (Portal, 2016). It is located at the center of the regional capital of Katavi. Mpanda municipal council lies between latitudes 5^{o} 15' to 7^{o} 3' South of the equator and Longitude 30^{o} 31' to 33^{o} 00' East of Greenwich. It also lies between 1040m and 1100m ASL. The topography of the project site is relatively flat with short grasses. GPS coordinates on the proposed project site of the Mpanda Hotel area was indicated in table 2.1 above chapters.

4.2 PHYSICAL CHARACTERISTICS

4.2.1 Climate

The climate in Tanzania varies from tropical along the coasts to temperature in highland. Katavi region as is close to Lake Tanganyika and Rukwa, the climatic condition is of a single modal. Where a region receives rainfall ranging from 1000-1300mm per annum, with mean average of 1139mm per year. The average temperature is 23^{0}C with a maximum temperature of 32^{0}C in October and minimum temperature of 13^{0}C in July (URT 2013)

4.2.2 Hydrology

Surface water is available in the rainy season from around January to May, but water supply for villages in Mpanda becomes critical during the dry season when surface water sources dries up. Apart from shallow wells and seasonal springs, there is a little potable water available during the dry season. Compounding the problem is the uncertainty of finding good quality groundwater. Yields from boreholes tend to be low to moderate (ranging from 800 to 8000 liters/hr) and some have elevated salinity. The district has many boreholes due in part to favorable hydrogeology that allows a higher borehole success rate. Borehole depths generally range between 60 to 70 m (Gurrieri, Young, & Sassor, 2009). The practice of extending the gravel pack to within a few meters of the surface may be contributing to the salinity problem. Migration of salts and possible microbial contamination into the shallow annular space can be eliminated by grouting from the surface down to just above the first screen zone. This should prevent the salinity from the *playa* deposits from contaminating the well water.

4.2.3 Soils.

There are different soils types in line with agro-climatic zone. The Katumba plain has sandy loam soils with moderate good drainage. Mwese highlands contain sandy clay

loam soils with good drainage. Main soil order is ultisol (Hilly). Karema depression has sandy clay loam (Ferrisols). Lake Rukwa valley has sandy loam with moderate good drainage. Lake Tanganyika valley has sandy loam soils with good drainage (Main soil Vertisol). The area within which the proposed office will be constructed consists of clay loam soils.

4.2.4 Air Quality

Table 4.1: Results of ambient gases and particulate matter at the site

Points	**Ambient Gases**							**Particulate matter**
	O_2	CO_2	CO	NO	NO_X	SO_2	H_2S	PM_{10}
	%	%	mg/m^3	mg/m^3	mg/m^3	mg/m^3	%	Mg/m^3
06deg. 19Min. 22.2. Sec, 31deg. 25Min. 42 Sec	22.5	0.23	5.00	0.00	0.00	0.00	0.00	0.25
06deg. 19Min. 32.7. Sec, 31deg. 25Min. 39 Sec	22.5	0.24	5.00	0.00	0.00	0.00	0.00	0.26
TBS LIMIT	**15**	**-**	**10**	**0.12**	**0.12**	**0.50**	**-**	**10**
WHO	**15**	**-**	**30**	**0.2**	**0.2**	**0.50**	**-**	**-**

Source: Field data, 20 January 2017

4.2.5 NOISE LEVEL

Noise measurement taken at the site during the day show that average noise level was 50dB.

4.3 BIOLOGICAL CHARACTERISTICS

4.3.1 Flora and Fauna

The intended area for the project is characterized with short perennial grasses and some Senna siamea tree species along the site boundaries. There was no fauna of high conservation/ ecological concern that were observed in the project site during the survey. It was similarly observed that there were no avian, amphibians and reptiles' species recorded during the study that are included on the IUCN Red list of threatened species.

4.3.2 Unique and Endangered species

There were neither unique nor endangered species of conservation/ ecological concern that were observed in the project area during site observation.

4.4 SOCIO-ECONOMIC CHARACTERISTICS

4.4.1 Demographic profile

According to the population and housing census of 2012, Mpanda Municipal Council has 9 wards with total population of 102,900, with annual population increase rate of 3.6%, where by males were 50,437, females were 52,463 and 21,474 being households. Mpanda hotel Ward has a total population of 11,527 whereby 5,751 are males and 5,776 are females.

Table 4.2: Population size of Katavi Region according to 2012 housing census.

SNo.	District/Council	Population (Number)			Average Household Size	Sex Ratio
		Total	Male	Female		
	Total	**564,604**	**279,682**	**284,922**	**5.5**	**98**
1	Mpanda Municipal	102,900	50,437	52,463	4.8	96
2	Mpanda District Council	179,136	89,265	89,871	5.7	99
3	Mlele District	282,568	139,980	142,588	5.8	98

Source: Population and Housing Census, 2012

4.4.2 Cultural Heritage, Aspirations and Traditions

Residents in the project area are largely of mixed ethnic groups, which show a growing urban feature of the area. The indigenous people of the Mpanda Municipal Council are mainly of Bantu origin. Mpanda Municipal is characterized by the dominant tribe like Bende and other migrant tribes such as Fipa from Sumbawanga, Nyamwezi from Tabora and Sukuma from Shinyanga; others are Pimbwe, Gongwe and Konongo tribes (Source: Field study, January 2017).

4.4.3 Land Use

Mpanda Municipal Council is situated within the central part of Mpanda District, which consists of residential houses, small scale industries, a market, few institutions, government offices, restaurants, shops, a fuel filling station, a bank, 10 primary schools, restaurants, and few recreational facilities. Being one of the main economic activities, agriculture is practiced in the urban periphery. Regarding the land use in the district, it includes individual land, village land/general land, beekeeping zone, wildlife management area, game controlled area, national park and game reserve. In terms of agro-economic zones**,** Mpanda district has been classified into five agro-economic zones, namely; Katumba plain, Mwese Highlands, Karema Depression, Lake Rukwa and Lake Tanganyika valleys. These vary in terms of locality, altitude, climate, soil and the main economic activities respectively (Francis).

It also covers an area of 200.4 sq. It is found within Katumba plateau, which is among the 5 of the Agro Economic Zones of Mpanda District (Portal, 2016).

4.4.4 Land Rights and Tenure

Land in urban centers is governed under the land Act of 1999 and most of it has been surveyed and people are provided with title deeds. Land holdings of individuals are in conformity with the law. The land officers are required to monitor all developments on plots so that they are according to the plans and building permits. A change of land use requires application of the proposed change of use to local authorities and later on to be registered at the Ministry of Lands, Housing and Human Settlements.

4.4.5 Economic Activities

4.4.5.1 Agriculture

It is estimated that about 90 percent of the population in Lake Tanganyika Zone (74,121 people) depends on agriculture and livestock keeping for their livelihood. While 10 percent of the population (8,236 people) depends on mining, small scale industries and

petty business. Maize is the most important food crop, other crops are paddy and beans. Cash crops are Tobacco, Sunflower, Groundnuts, Coffee, Palm oil and Simsim; and the surplus of food crops are mainly maize and paddy (URT).

The Table 4.2 illustrates production and value of subsistence and cash crops for 2012/2013.

Table 4.3: Production of Crops in Mpanda Municipal council for 2012/13

Product Type	**Product name**	**Amount Produced 2012/13 (Tons)**	**Value. Tshs/kg**
Subsistence Crops	Maize	17,358.05	250
	Cassava	1,410.08	350
	Beans	204.17	2,000
Cash Crops	Groundnut	19257	2,000
	Rice(Paddy)	84,284.80	350
	Sweet potatoes	328,872	520
	TOTAL	**451,386.10**	

Source: Mpanda Investment Profile 2013.

4.4.5.2 Animal Husbandry/Dairying in Mpanda

Livestock rearing is common in Mpanda Municipal Council, yet the potential for livestock agriculture in the council is not fully exploited. The common livestock are cattle, goats, sheep, piggery and poultry farming. In the council there are 7,295 cattle of which 6,783 are indigenous cattle and 512 are exotic cattle as per the year 2012/13 animal census report.

Mpanda Municipal has 1550 dairy cattle which produce 935,033 litres of milk per year. The Council has an area of 63.93 ha located for light industries. Therefore, the council invites potential investors to invest in processing industries of animal products (URT).

4.4.5.3 Forest

It is estimated that natural forest occupies a total area of 219 hectors of the natural forest reserve. Natural forests are categorized into two major types' namely mountain forests and Miombo woodland. Miombo woodlands are found at Kamakuka, Mwamkulu and Mbugani village and Mountain forests are found at Shanwe and Ilembo ward.

Forest sector in the Council is underdeveloped as 80% of its forests are natural, particularly the scattered miombo woodlands and the remaining portion is man-made woodlots. The Council has established a tree nursery comprising different kinds of trees which stimulate the private sector, NGOs, CBOs Institutions and individuals to engage in commercial forestry

4.4.5.4 Bee keeping

The availability of varieties of bees in Mpanda Council increases the potential of the region for beekeeping. Beekeeping is one of the good sources of livelihood for the people in the Council, yet the emerging opportunity is not well exploited. Efforts have been undertaken by the Council to rise the community awareness on the importance of beekeeping as a sustainable income generating activity. The potential areas of beekeeping are Shanwe, Misunkumilo, Ilembo and Kakese wards, specifically in Kamakuka, Kawanzige, Mbugani and Mwamkulu villages. It is estimated that approximately 225 traditional beehives are present in the area. Strategies have been devised to increase the number of beekeepers and the use of modern beekeeping technologies

4.4.5.5 Minerals and related Industry

Due to its geological framework, Mpanda Municipal is endowed with abundant mineral deposits of different kinds including gold, metals, Green tourmaline, gemstones, copper, diamonds, red lead, Nickel and Galena. Some mining activities are being undertaken by local miners in areas of, Misunkumilo especially in areas near Milala, Kampuni and some parts of Kakese ward.

4.4.6 Economic Infrastructure

4.4.6.1 Road Networks

To a large extent there is still lack of efficient transportation system in the area given the high demand for infrastructure services particularly linkage of the urban to production areas in the rural. There is ongoing initiatives to upgrade a number of existing roads to tarmac level, in order to link Mpanda Municipal with other neighbouring districts and regions for instance, Tunduma via Sumbawanga to Mpanda roads (560 km) whereby Tunduma-Sumbawanga road is a tarmac road while Sumbawanga-Mpanda road is underconstruction. Tabora via Ipole to Mpanda (360km), Kigoma via Uvinza to Mpanda (290 km). Roads in Mpanda Municipal Council cover 251.5 km of which 12.5 km is tarmac roads

4.4.6.2 Railway

A railway line 210 km long provides a thrice weekly passengers and goods transport services from Mpanda to Kaliua in Tabora region. After strengthening of the line during the last few years, the railway service is now more reliable but in most cases does not meet the demand of users. None availability of sufficient wagons at critical periods when cattle and agricultural produce need to be transported to the markets has been experienced

4.4.6.3 Air Transport

There is one airport in Mpanda Municipality. No commercial planes are serving in the area. The Mpanda Municipal Council has surveyed and located 85.44 ha for an airport and related infrastructure as per the Mpanda district master plan. Currently, the Tanzania Airport Authority (TAA) is constructing 2 km of the runway at tarmac level so as to improve airway transportation services (URT).

4.4.6.4 Communication Networks

Given its economic significance, Mpanda Municipal Council and all its suburbs are endowed with good communication infrastructure. Many communication companies have opened offices and facilities in Mpanda Municipality. These include; TTCL, VODACOM, AIRTEL, tiGo and ZANTEL. Other services available at the project site are Television and radio. There is an accessibility of getting information through print media in Mpanda Municipality whereby both national wide newspapers and local newspaper can be obtained and there is even a local newspaper namely Mpanda Leo produced in the Mpanda District Council (URT)

4.4.6.5 Energy

Electricity, charcoal, wood and kerosene are the main sources of energy for domestic use in the municipality. Numerous individuals in villages and sub-villages sell charcoal and firewood for income generation. Charcoal is obtained from both planted and indigenous trees

4.4.7 Social Service infrastructure

4.4.7.1 Water Supply

Among the 102,900 inhabitants of Mpanda Urban only 65,230 (63.4%) access to clean and safe water within the walking distance of not more than 200m from the water point. Thus service level is still at an unsatisfactory level (Katavi, 2013).

4.4.7.2 Waste Management

The central sewerage system is non-existent in the Mpanda district at the moment. This being the case, on site wastewater treatment system particularly septic tanks and soak

away pit will be used on the project site. People in Mpanda use all types of toilets include improved pit latrine and others. Septic tanks and soak away pits are commonly used as waste water management systems.

4.4.7.3 Education and training

Mpanda Municipal Council like other councils in the country has the major role of providing education including primary and post primary level schooling. Currently, the Council has 22 pre-primary schools and 24 primary schools. All 24 primary schools have a total number of 19,445 pupils. Among these 9,704 are boys and 9,741 are girls. These schools are served by 404 teachers. The Council has 176 permanent classrooms, 25 teacher's house out 404 and 341 pit latrines out of 866.

The Council has 11 secondary schools whereby 3 are owned by the Private Sector (Roman Catholic Mission 1, NGO 1 and Muslim 1) and the rest 8 belong to the government. All 8 Government schools have a total number of 3,803 students. Among these 1,863 are boys and 1,940 are girls. There is 1 Vocational Training Centre (VETA) and 1 Centre of Open University of Tanzania (URT).

4.4.7.4 Public Health Status

The health sector in the council is still underdeveloped and it is characterized by high rates of morbidity and mortality due to inadequate resources. The Table 5.5 shows the number and ownership of health facilities in the Council per ward. There are four wards which includes the Mpanda hotel ward where this project will be implemented with not a single health facility. The only hospital is in Kawajense ward and Kashaulili ward is the most endowed with 4 dispensaries and 2 health centres. The remaining wards either have one dispensary or one health centre (URT).

Table 4.4: Number and ownership of Healthy Facility

Ward		Dispensary			Health Centre				Hospitals		
	Public	Private	FBO	Total	Public	Private	FBO	Total	Public	Private	Total
Kashaulili	0	3	1	4	1	0	1	2	0	0	0
Shanwe	0	0	O	0	0	0	0	0	0	0	0
Ilembo	0	0	0	0	1	0	0	1	0	0	0
Kawajense	0	0	0	0	0	0	0	0	1	0	1
Misunkumilo	0	0	0	0	0	0	0	0	0	0	0
Mpanda Hotel	0	0	0	0	0	0	0	0	0	0	0
Makanyagio	0	1	0	1	0	0	0	0	0	0	0
Nsemulwa	0	0	0	0	0	0	0	0	0	0	0
Kakese	1	0	0	1	0	0	0	0	0	0	0
Total		**4**	**1**	**6**	**1**	**0**	**0**	**3**	**1**	**0**	**1**

Source: Mpanda Investment Profile 20

CHAPTER FIVE: STAKEHOLDERS CONSULTATION AND PUBLIC PARTICIPATION

5.1 INTRODUCTION

Information and data for compilation of this report have been collected from mainly four sources namely: a review of available documents on the project, visits to the proposed project site, meetings with the proponent's technical staff and through consultation with other stakeholders including leaders of the surrounding communities.

Stakeholders' consultations were carried out as part of the environmental impact assessment process of the proposed expansion of grain storage facilities project. The purpose of consultation was to identify and respond to project issues of concern to stakeholders and address the same accordingly.

5.2 STAKEHOLDERS CONSULTED

Stakeholders include all individuals, groups or organizations that might be affected or might affect the project (positively or negatively) in one way or the other. A Public Consultation process has been planned during the development of the Environmental Impact Assessment study for the construction of silos complex and grain storage warehouse project. This process allowed creation of a channel of communication for consultation from the local and national level. National and local authorities including leaders in the area of influence of the project have been involved in the process. The consultation process was done in January 2017.

The list of interviewed stakeholders at all levels is summarized in the table 5.1 below.

Table 5.1: List of Consulted Stakeholders and their institutions

Level of consultation	**Institution**	**Names of Individuals**
	Ministry of Agriculture, Livestock and Fisheries	Mr. Elimpaa Kiranga, Ag. Permanent Secretary
National Level	Tanzania Food and Drug Authority (TFDA)	Ms. Grace Kapande Ag. Zonal manager
	Occupational Health and Safety Authority (OSHA)	Mr Renatus A. Qalgal-Industrial Hygiene inspector Mr. George Chali-Zonal Manager
Regional Level	Regional Administrative Secretariat	Mr. Raphael Muhugo, Regional Commissioner

Level of consultation	Institution	Names of Individuals
(Katavi region)	Regional Administrative Secretariat	Mr. Paul Chagonja, Regional Administrative Secretary
	Regional Administrative Secretariat	Mr. Faridu Abdalah- Regional Agriculture Officer
	Fire and Rescue Force	Mr. Nestory Kisenya Kanogo, Fire and Rescue Inspector
Municipal Level	Mpanda municipal Council	Mr. Mkelle Khamisi, Municipal Human Resource Officer
		Mr. Said Mandua, Municipal Environment Management Officer
		Mr. Abel Christopher Kibind i- Municipal Land and Urban Planning
		Mr. Charles Ngonyani, Municipal Agriculture Officer
Local Level	Mpanda Hotel Ward	Mr. Revocatus Ngomeni- Ward Executive Officer (WEO). Ms. Grace Kunchela-Health Officer Mr. Amri Alla- Community development
	Mpanda Mtaa	Mr. Alex Msabaha- Mtaa Executive Officer (MEO) Mr. Emmanuel Mugina-Member
	Neighbors at community level	Mr. Laben John and Mr. Emmanuel Hussen

5.3 STAKEHOLDERS' COMMENTS

The EIA study has identified main issues as raised by different stakeholders. Based on their comments, an issue analysis was carried out and categorized accordingly by sector as shown in Table 5.2 below:

Table 5.2: Details of stakeholders' comments as recorded during one to one

Level	Institution/ Group	Views and Concerns of stakeholders
National Level	Tanzania Food and Drug Authority	The consultant met with **Ms Grace Kapande-** , who is acting zonal manager at north-southern zone and she pointed out that the proposed project will be good if the following should be considered and adhered, these are such as;

Level	Institution/ Group	Views and Concerns of stakeholders
	(TFDA)	• The grain storage procedures should be those which enable the grain to remain in a recommended quality for the whole time. • the proponent should register the silos complex with TFDA to get the certificate for food storage at the facility • The grain quality monitoring should be done and the result should be certified by TFDA • All chemicals used in supporting the grain storage should be known and certified by authorities responsible • In case when grain is tested and found to fall short of the required standards for human consumption the proponent should take action on how to destroy such grains in order not to harm any human health.
	TPRI	The consultant had discussion with Mr Samwel MMari of TPRI which is an government institution under the Ministry of Agriculture. Mt Mmari had the following comments regarding the proposed grain expansion project: i. It is advised that, the the one who will do fumigation to cereals in the godowns should be a well trained person with knowledge in pesticides. ii. Appropriate protective gears should be provided to the fumigator. iii. Before the cereals are stored in the godowns, the facility has to be sprayed in and outside to keep away pests and animals. The recommended fumigants for domestic compound control are; Nuvan 500EC, Carate 5EC, Dursban 4E Icon 10WP. If there is shrub or a bush nearby Rogol 40 can be sprayed but not highly recommended. However it controls and keep away snakes, lizards, scorpions, alligators etc. iv. The recommended fumigants are; Baluphos 56% (Aluminum Phosphide), Degesch Plate (Magnessium Phosphide), Detia EX-B (Alluminium phoshide), Phostoxin tablets (Alluminium phoshide), Quickphos (Alluminium phoshide), Fumitoxin tablets (Alluminium phoshide). It should be noted that fumigation should be done at the recommended standards as per instructions, the cereal stakes have to be well covered. v. As regards handling of the empty containers and expired products, NFRA should consult TPRI who will collect the containers and chemicals at their site and send to the incinerator at Wazo Hill owned by Twiga Cement.

Level	Institution/ Group	Views and Concerns of stakeholders
	Occupational Health and Safety Authority (OSHA)	The consultant met with **Mr Renatus A. Qalgal** who is Industrial Hygiene inspector and **Mr. George Chali** who is Zonal Manager at north-southern zone. They both agreed that they have no objection on the establishment of the proposed project since it will improve the status of the area in Mpanda municipality and it will increase employment opportunity to the community around the project. However, they said that the proponent should submit all the proposed drawings to OSHA for verification of the provided facilities before the commencement of construction activities, They further explained that due to different kinds of construction materials which will be used, there will be potential for health problems to workers They added that, the construction of proposed project is associated with hazardous working environment therefore if there is no precaution action that will be taken many construction workers may be affected and; Finally they concluded that, the proponent should be responsible for the availability and operation of services such as water, toilets and electricity during all phases.
Regional Level	Katavi region	At regional level the consultant met with **Mr. Raphael Muhugo** who is the Region Commissioner, **Mr. Paul Chagonja** who is Region Administrative Secretary and **Mr. Faridu Abdalah** who is the regional Agriculture Officer. All accepted the project as it will facilitate availability of food during the demand season, also people will be employed during the peak operation and the presence of the market for farmers to sell their grains. They commented the following that they should be looked at for best results: • there should be management of air pollution during construction and operation phase • There should be improvement of infrastructure like leading road to manage truck congestion issue at the site • There should be management of bad smell associated with the application of pesticides during the grain storage • The proponent should consider an alternative source of energy for best operation • NFRA should cooperate with regional officers for supporting local farmers on the best agriculture practices.
	Fire and Rescue Force at	The consultant met with the Katavi Fire and Rescue Inspector **Mr. Nestori Kisenya Kanogo** who had the following comments; • The proponent should submit the proposed structure

Level	Institution/ Group	Views and Concerns of stakeholders
	Katavi region	layout plan to the fire office for inspection and for approval of the location of the firefighting equipment, • All equipment installed for firefighting should be certified by the fire officer • Induction training should be provided to workers on how to respond in case of a fire emergency • After installation of fire equipment, the proponent should inform the fire officers to verify the performance of the fire protection equipment and be awarded the fire certificate.
Municipal Level	Mpanda Municipal Council.	At municipal level, the consultant met with **Mr. Mkelle Khamisi** who is a Municipal Human Resource Officer, **Mr. Said Mandua** who is a Municipal Environment Management Officer, **Mr. Abel Christopher Kibindi -** who is an Acting Municipal Land and Urban Planner and **Mr. Charles Ngonyani** who is the Municipal Agriculture Officer. They all accepted the proposed project in the area due to many benefits which will be obtained after the implementation of the project, but they had the following concerns regarding the project development: - • During the construction and the operation phases noise pollution is expected so the proponent should be responsible for that impact, • Air pollution is expected during loading of construction materials and demolition of the existing structures so the proponent should look on ways to mitigate this impact, • All building material should be sourced from the approved burrow pits, • Basic human needs should be in place at the site for the whole project life • Health and Safety to workers should be given first priority. • Employment of people under the age of 18 is strictly prohibited. • Education on HIV/AIDS to workers should be considered.
Local Authorities Level	Mpanda Hotel Ward	The consultant held consultation with Ward Executive Officer at Mpanda hotel ward**, Mr. Revocatus Ngomeni**, Mpanda hotel ward health officer **Ms. Grace Kunchela** and the Community development officer **Mr. Amri Alla**. They all welcomed the project to the area due to many positive impacts which will result from the project operation, also they recommend the following to be considered for best implementation: - • Proposed project will pull many people into a single area, therefore efforts should be taken by all government institution in order to ensure that hygienic procedures are followed.

Level	Institution/ Group	Views and Concerns of stakeholders
		• Proponent should ensure that basic human needs such as good drinking water and enough number of toilets should be available according to the number of people which are expected during the peak operation, • All environmental rules should be observed • Safety for workers should be considered effectively • Impacts from applied chemicals for grain storage should be considered • the possibility of traffic jam during peak operation
	Mpanda hotel Mtaa	The consultant held discussion with **Mr. Alex Msabaha**, who is the Mtaa Executive Officer (MEO) and other community members as appended in Appendix 4. All stakeholders accepted the proposed project in the area, but they recommended the following to the proponent; • In case of employment opportunities the project proponent should give first priority to local people near the proposed project, • Improvement of feeder road should be considered for trucks to reach project site easily, • All roads within the project site should be improved. • Application of chemicals for grain storage should be checked so as to stop bad smell to community

5.4 RESPONSE TO STAKEHOLDER'S CONCERNS

During stakeholders' consultation many issues were raised by different stakeholders according to his or her position. The main issues and concerns raised will be mitigated as shown in table 5.3 below;

Table 5.3: Shows response of stakeholder concerns.

CONCERNS/ISSUES	RESPONSE OF EIA TO CONCERNS
Improvement of existing road	NFRA and local government should seek a way of solving this problem before the peak season starts
Air pollution and health risks may be caused by spraying of pesticides and fumigation.	• All areas used for pesticides and fumigations should be well confined • Avoid using too much of chemical pesticides and fumigants and find other natural protective methods • All workers spraying chemical pesticides should use protective gear effectively • The process of chemical spraying should be done

	during cooler hours of the day with no strong wind
Food spoilage and food loose	Modern food preservation technologies should be introduced from local to national level
Pollution due to poor disposal of solid waste	• Proper solid waste management systems from the site to the designated dumpsite should be arranged and implemented • Induction training on solid waste separation and sorting at source will be conducted by NFRA which will help in recycling other waste material hence reducing the amount of generated waste. Provision of solid waste storage facilities will be the responsibility of NFRA for better practice solid waste separation at the source for all area expected to generate solid waste
Pollution due to poor management of liquid waste	• Empting of septic tanks before they overflow Waste water should be discharged to the designated area
Occupational health hazard and safety risks to project workers	• Provision of PPEs • Periodic medical checkup of all workers • Observation of acceptable working hours • Presence of first aid facilities and trained first aider to respond in case of emergency • Induction training for all new employee will be given first priority • Emergency preparedness plan will be prepared and adhered to it • Proponent should have health and safety policy and implement it in order to reduce injury/ or accidents at work place. All works shall be planned and conducted in accordance with relevant OSHA guidelines.
Noise pollution during construction and operation phase	• During construction phase, the contractor will provide a notice of the intent to all people within the affected area so as to be aware of what will be done at the project site and take precaution measures for that kind of noise, • All activities expected to generate high noise should be done on day time only (07:00 am to 10:00 pm) Staffs will be provided with noise protective gear and forced to use it

Air pollution during construction and operation phase	• All trucks during construction and operation phase shall be non-smoke emitter • All roads within the project premises will be paved • Proponent will employ water spraying method to all unpaved area during • All trucks carrying construction material shall be covered in order to avoid material falling from trucks • Application of personal protective gears shall be insisted to all to all people who enter the project area.
Loosing of properties and lives due to fire eruption	• Staffs will be trained on how to respond in case of fire emergency • Water hydrant shall be in place • All equipment used for firefighting shall be certified and tested by the fire expert
Possibility of traffic jam during peak operation	• Construction of Truck parking area which will be a source of taxes to Mpanda municipal council (The area is already provided at Minsukumilo which is about 2 km to NFRA site, according to HR of Mpanda Municipal council) • Improvement of parking area within the project site where two or three Trucks will be loaded together and all roads within project area will be paved • Induction training should be insisted to all drivers who are coming to NFRA for grain supply to sddress poor parking tendency • All drivers should have a valid driving license • Adherence of traffic signs will be insisted to all drivers within the project area
Degradation at a point of source of construction material	• The contractor shall source all construction material from a recognized borrow pits within Mpanda municipal council
Spreading of HIV/AIDS	• Proponent shall provide education to his staff on the danger of this disease and their mode of transfer • Also voluntary counseling and testing shall be given high priority by the project proponent

5.5 ADDRESSING STAKEHOLDERS' CONCERNS

The EIA report identified main concerns and issues raised by different stakeholders so that they may be addressed. Table 5.5 shows a summary on how the issues will be addressed.

Table 5.4: EIA Recommendations for addressing Issues raised by Stakeholders

CONCERN/ISSUES	EIA RECOMMENDATIONS	SECTION
Traffic congestion due to poor existing road	• Widening and improving existing earth road to tarmac road	7.4.2
Air pollution and health risks may be caused by spraying of chemical pesticides and fumigation.	• All areas used for pesticides and fumigations should be well confined • Avoid using too much of chemical pesticides and fumigants and consider other natural protective method	7.4.1
Pollution due to poor disposal of solid waste	• Having in place proper solid waste management system	Section 7.6.6
Pollution due to poor management of liquid waste	• Proper design of the waste water management system • Regular maintenance of the waste water management system	7.4.9
Occupational health hazard and safety risks to project workers	• Provide appropriate protective gears • Ensuring that workers use the protective gears properly.	Section 7.3.5

CHAPTER SIX: ANALYSIS OF IMPACTS AND IDENTIFICATION OF ALTERNATIVES

6.1 INTRODUCTION

This chapter seeks to identify and analyze environmental and social impacts that may result from the proposed project. Identification of the impacts is based on the following: -

I. Issues of concerns raised by various stakeholders at consultation or interview meetings
II. Expert observations or experiences and judgment

The identified impacts are categorized in project phases namely: - mobilization construction, operation as well as decommissioning phase.

6.2 IMPACT IDENTIFICATION DURING MOBILIZATION PHASE

6.2.1 Loss of vegetation from clearances to give space for construction of silos complex

Presently the proposed site has few grass patches and few trees. During mobilization and project construction phase only three trees will be cleared to make the area clear for the proposed project implementation.

6.2.2 Air pollution resulting from construction activities

For Mpanda NFRA project site one warehouse will be demolished to give space for the construction of new warehouse with storage capacity of 2000MT. During the demolition activities air pollution especially from dust emission is expected to occur.

6.2.3 Noise pollution during mobilization phase

For the whole process of preparing the site to give space for the construction of new structures, noise will be produced by equipment in removing the existing warehouse and chainsaw machine for vegetation clearance.

6.3 IMPACT IDENTIFICATION DURING CONSTRUCTION PHASE

6.3.1 Benefit to local producers and suppliers of construction materials

Construction of a silos complex and associated facilities has been considered and will consider the use of local contractors as well as local building materials which are available in the country. This will contribute to the boosting of income among local suppliers of materials, laborers and the economy of the country at large.

6.3.2 Noise pollution due to the movement of construction equipment

Movement of trucks loaded with construction materials such as sand and aggregates, cement, steel and roofing sheets etc. will generate noise. Furthermore,

anthropogenic noise which is associated with constant human activities in the area is expected. The noise level measured at the site was on average 50dB during the site visit. Therefore, it is expected that according to the given size of the proposed project, the average noise level will be way above normal during the construction phase.

6.3.3 Air pollution due to smoke from the earth moving equipment

Movement of heavy earth moving equipment may emit smoke from exhaust pipe at the site that may affect ambient air quality in the area.

6.3.4 Income, skills and knowledge increase to local laborers

Labor force comprised of skilled and unskilled labors will be needed to construct the silos complex and warehouse. It is anticipated that all unskilled laborers will be recruited locally. Recruitment of skilled labor will vary; some will be from the local area but most will be procured by the contractor's choice. Employment opportunities during construction work will increase the income, skills and knowledge to local labor force. Mostly men will benefit in this respect. Food vendors who are mostly women will benefit through supplying of food to the laborers.

6.3.5 Degradation due to Disposal of excess soil/spoil materials

Construction waste will be generated from excavation works of construction of foundation, trenches and drainage system as well as borrowing and quarrying for construction materials.

6.3.6 Degradation at Points of Sourcing of Construction Materials

It is envisaged that construction materials e.g. concretizing materials (cement, bricks etc.), stones, and sand for the permanent structures will be sourced locally at borrow pits and quarry sites found at Mpanda Municipal Council. However, exploitation of local resources would be a matter of cumulative effect because they will only be contributing to a problem of over exploitation of materials at the existing points of sourcing of such materials.

6.3.7 Occupational health and safety hazards to construction workers

During construction, workers will be subjected to situations that could be detrimental to their health and safety. A few examples include:

- Injuries caused by handling of construction equipment, spills and leakage of materials.
- Emissions of dust from clearing and excavation works and fumes from vehicles and other machinery
- Noise from construction equipment

6.3.8 Spreading of HIV/AIDS and other STIs

Construction activities of project facilities in the area will add to the already existing influx of people from various places in search for jobs and other opportunities that come from construction activities. The project may facilitate interaction of people with different sex which may lead to sexual relationships and eventually on spreading of HIV and other Sexually Transmitted Infections.

6.3.9 Interruption of traffic flow and resulting traffic congestion

During the construction phase, trucks loaded with construction materials will be moving from various parts of the ward to the project site. Movement of trucks in and out of the site may lead to roads congestion especially those leading in and out of the project area.

6.3.10 Degradation due to Soil Erosion

Trenching for foundations during construction may cause significant soil erosion if land-clearing and backfilling are not strictly done properly. It is anticipated that no major soil loss will occur as a result of the removal of top soil during construction since activities will be taken on a more or less flat terrain.

6.3.11 Pollution due to oil spills from vehicles and generators

In the course of construction there may be cases of leakage of oils from vehicles and generators used on site. When this occurs environmental degradation is likely to happen.

6.4 IMPACTS DURING OPERATION PHASE

During operation of the silos complex and grain storage project it is anticipated that there will be both negative and positive environmental, social and economic impacts.

6.4.1 Health hazards due to spraying of chemical pesticides and fumigation

Spraying of chemical pesticides and fumigation to silos and warehouses might cause threat to the health of workers as well as the surrounding communities. Health problems could be those associated with respiration including lung cancer, coughing and others which are dangerous to their health.

6.4.2 Soil Erosion due to Runoff Effects and Loosened Top Soil

Removal of soil cover will expose the remaining area to runoffs, which may in turn result in soil erosion. Inadequate backfilling and resurfacing may result into erosion which in turn may damage the built structures and may result in siltation of neighbouring water bodies.

6.4.3 Interruption of traffic flow and resulting traffic congestion

Traffic congestion on roads to the proposed project are likely to occur due to the great number of vehicles moving into or out of the area especially during peak days. Also the existing road to the warehouse is very narrow hence this might lead to traffic jam during peak seasons. On other hand, the project is surrounded by maize and rice mills therefore the existing road accommodates a number of vehicles hence high traffic congestion.

6.4.4 Bad odor and waste falling from the back of trucks during transportation

During project operation, generated solid waste will be transported to the designated disposal sites. During transportation, bad odour and waste falling from the back of trucks are likely to occur due to improper solid waste handling. This may result into nuisance to road users and people along the route.

6.4.5 Loss due to Fire break out

During the project operation there are possibilities of fire breakout and accidents. This may be caused by electric short or other misfortunes that may be caused by human activities. Fire accident may lead to loss of human lives and properties.

6.4.6 Enhanced income, employment opportunities and local business

It is anticipated that the proposed project will improve the availability of employment opportunities in Mpanda hotel ward and surrounding areas. This is the primary positive impact of the project, which is associated with a number of off shoot impacts that include the following:

i. Increased business activities in the area.
ii. Income and employment opportunities for a number of stakeholder groups.
iii. Increased revenue to the nation through taxes.

6.4.7 Spreading of HIV/AIDS and other STIs

Establishment of the project in the area will add to the already existing influx of people from various places in search for jobs and other opportunities that come with area development. The project may facilitate interaction of people with different sex which may lead to sexual relationships and eventually spreading of HIV and other Sexually Transmitted Infections.

6.4.8 Occupational health hazard to workers

During operation, workers will be subjected to situations like bad smell/fumes from chemical spraying for pest' control, noise pollution from trucks delivering/withdrawing grain, injuries during operation and dust emissions during cleaning process which will affect workers' health and safety.

6.5 IMPACTS DURING DECOMMISSIONING PHASE

The grain storage facilities might remain in operation for 50 years provided maintenance of the facility is given due attention. However, even if maintenance is done as it should, a time will come when the facility may be dilapidated and deemed unsuitable for the proposed operations and this is what is meant by the decommissioning phase. Decommissioning of the proposed project may also be set in anytime due to the financial challenges, high operating costs, decision of the proponent to change the line of activity etc. If this happens environment as well as socio-economic impacts may occur.

6.5.1 Loss of aesthetic value due to Abandonment of infrastructure

The proposed project is planned to run for a long time unless there happen unforeseeable events which may curtail the project life span of 50 years. The proponent may abandon the buildings and other project facilities that may permanently render the project site to be unattractive.

6.5.2 Degradation of environment from demolition waste and pollution

In closure of the project the proponent may decide to demolish the structures. Solid waste, dust and noise are expected from demolition works of the structures.

6.5.3 Loss of employment and business

If for whatever reason the project is closed down, the people employed by the project will lose their jobs. The business will also be affected during the project decommission. This will have significant impact to the people and their dependents.

6.6 ANALYSIS OF IMPACTS

Table 6.2 presents summary of analysis of identified environmental impacts, the analysis is based on the following criteria:

- Nature of impacts (positive/negative)
- Magnitude/significance i.e. depending on the severity
  - Major (if severe)
  - Minor (if not severe)
  - Wide scale (if it affects large areas)
  - Local scale (if it affects only a locality)

Sequence (i.e. depending on reach)

- Direct (if there is a direct impacts)
- Indirect (if there are indirect impacts)

Duration/time frame

- Long duration/time (if the impacts will persist for more than 5 years)
- Medium duration/time (if the impacts will persist for 1-5 years)
- Short duration (if the impacts will persist for a couple of months/weeks/days

Reversibility

- Reversible (if impacts can be mitigated)
- Irreversible (if impact cannot be mitigated)

Table 6.2 Methodology/criteria for impact analysis magnitude/significance

Criterion	**Description**	**Possible Results**		
		Term	**Description**	**Score**
Magnitude of the Impact	An indication of the severity of the impact, either positive or negative.	Very High	Extreme effect – where natural, cultural or social functions or processes permanently cease.	5
		High	Severe effect – where natural, cultural or social functions are altered to the extent that they temporarily cease.	4
		Moderate	Moderate effect – the affected environment is altered but natural, cultural or social functions continue, albeit in a modified way.	3
		Low	Minimal effect – affects the environment in such way that natural, cultural or social functions and processes are not affected.	2
		Very Low	Minimal or negligible effect	1
		Unknown	Magnitude of the impact unknown.	5
Scale of the Impact	An indication of geographical extent of the impact	National	Affects the resources of the country	5
		Regional	Affects the resources of the region	4
		District	Affects the resources of the district	3
		Local	Affects the project area and surrounding villages	2
		Site – specific	Localized, confined within the license area.	1
		Unknown	Extent of the impact unknown	5
Duration of	An indication	Permanent	Will remain permanently	5

Criterion	Description	Possible Results		
		Term	Description	Score
the Impact	of the duration or time over which the impact will be experienced.	Long term	Extends into the post- closure phase, but not permanently	4
		Medium term	During the operational life of the project	3
		Short term	Shorter than the operational life of the project	2
		Transient	Very short duration	1
		Unknown	Duration of the impact is unknown	5

Table 6.3 Methodology/criteria for analysis of probabilities

Criterion	Description	Possible Results			
		Term	Description		Score
			Discrete Event	Prolonged Exposure from a single activity or event	
Exposure to Impact	An indication of the frequency of the activity that may cause the impact, or the continuity of the exposure.	Very High	Daily or continuous	Exposure in perpetuity	5
		High	Weekly/once per week	Continuous exposure into closure or post-closure phases	4
		Moderate	Monthly/once per month	Continuous exposure during the construction and operations phases	3
		Low	Bi-annually	Continuous exposure throughout one phase	2
		Very low	Annually or less frequently	Prolonged exposure yet finishes before end of a phase	1
		Unknown	Frequently of activity unknown	Continuity of exposure unknown	5
Probability of the Occurrenc	An assessment of the	Highly likely	Very likely or certain to occur		5
		Likely	Likely to occur		4
		Possible	May possibly occur		3

e	degree of certainty associated with a potential impact	Unlikely	Unlikely to occur	2
		Highly Unlikely	Very unlikely to occur, or almost impossible	1
		Unknown	Probability of the occurrence unknown	5

Table 6.4 Methodology for analysis of impacts duration

Consequence	Magnitude + Scale + Duration	3-4	5-7	8-11	12-14	15
		Very Low	Low	Moderate	High	Very High
Likelihood	Exposure + Probability	2-3	4-5	6-7	8-9	10
		Very Low	Low	Moderate	High	Very High

Table 6.5 Summary of analysis of identified environmental impacts,

Phase	Key activities	Identified environmental. impacts	Analysis of environmental Impacts												
			Nature of impacts		Magnitude/significance				Sequence		Duration/term			reversibility	
			+ve	-ve	high	low	wide	local	direct	indirect	long	mid	short	reversible	irreversible
Construction	Increased Sexual interaction between workers and *street* communities.	Potential for spread of HIV/AIDS, STDs		X	X		X		X		X			X	
	Expansion of grain storage facilities project	Degradation at Points of Sourcing of Construction Materials		X		X		X	X		X			X	
	Disposal of unwanted materials from the construction activities	Degradation due to disposal of excess soil/spoil materials		X		X		X	X		X			X	
	Construction of the project	Income, skills and knowledge increase to local labors	X		X		X		X		X			X	

Phase	Key activities	Identified environmental. impacts	Analysis of environmental Impacts												
			Nature of impacts		Magnitude/significance				Sequence		Duration/term			reversibility	
			+ve	-ve	high	low	wide	local	direct	indirect	long	mid	short	reversible	irreversible
	Movement of Construction Machines and vehicles	Potential to air pollution		X	X			X	X				X	X	
	Local community selling construction materials	Benefit to Local Producers and Suppliers of Construction Materials	X		X		X		X			X		X	
	Movement of construction machine and vehicles and generator	Potential to degradation due to Oil spillage		X	X			X	X				X	X	
	Movement of trucks	Interruptions due to Traffic congestion		X		X		X	X				X	X	

Phase	Key activities	Identified environmental. impacts	Analysis of environmental Impacts												
			Nature of impacts		Magnitude/significance				Sequence		Duration/term			reversibility	
			+ve	-ve	high	low	wide	local	direct	indirect	long	mid	short	reversible	irreversible
Operation	Employ people and paying tax	Enhanced income, employment opportunities and local business	X		X		X		X		X			X	
	Storm water runoff	Soil Erosion due to Runoff Effects and loosened top Soil		X	X			X	X		X			X	
	Improper solid waste handling	Bad Odour and Waste Falling from the Back of Trucks during Transportation		X		X	X		X		X			X	
	Great number of vehicles moving into or out of the project area	Interruption of Traffic Flow and Resulting Traffic Congestion		X		X		X	X		X			X	
	Fire accident	Potential to loss due to fire outbreak		X	X			X	X				X		X

Phase	Key activities	Identified environmental. impacts	Analysis of environmental Impacts												
			Nature of impacts		Magnitude/significance				Sequence		Duration/term			reversibility	
			+ve	-ve	high	low	wide	local	direct	indirect	long	mid	short	reversible	irreversible
	Increased Sexual interaction between workers and *street* communities.	Potential for spread of HIV/AIDS and other STDs		X	X		X		X		X			X	
Decommission	Closure of project	Loss of employment		X	X			X	X		X			X	
	Abandonment of infrastructure and haphazard disposal of demolished waste	Loss of aesthetics value		X		X		X	X		X			X	
	Demolition of structures	Degradation due to Haphazard Disposal of Demolition Waste		X	X			X	X		X			X	

6.7 CONSIDERATION OF PROJECT ALTERNATIVES

The ADB EIA Guidelines, Annex 2 (1992) states that EIA should provide project "options" within the constraints of the aim and broad economic, technical and environmental factors.

6.7.1 Alternatives site

The project proponent had only one site for the proposed expansion of grain storage facilities project hence there was no assessment of an alternative site.

6.7.2 Alternative Power Supply

NFRA Mpanda site is connected with power from TANESCO. However, diesel generator shall be used as an alternative source of power during power outage. However, high running cost is considered to be a hindrance to this alternative.

6.7.3 Alternative Water Supply source

The proposed project site is connected with water from Mpanda Water Supply Authority network. Also there is one drilled onsite bore hole used as an alternative water source or supply.

Harvesting rain water from roof tops of project buildings has been considered as an alternative source of water supply but it has been found to be insufficient to serve as a sole source. Therefore, it has been proposed just to supplement piped water managed by Mpanda Water Supply Authority.

6.7.4 Choice of Sewage Management System

For wastewater management at Mpanda site, four alternative methods were considered namely as; Waste Stabilization Ponds, Oxidation Ponds, Constructed Wetlands and Septic tank with soak away pits. All these methods were considered important for wastewater management at the site before being discharged to the environment or next treatment process.

To adopt a method which will be applicable for wastewater management the following were considered: space available, kind of technology to use for each method, capital for constructing a method and operating it, efficiency of each method, maintenance required, side effect to the community around the site and the amount of wastewater to be managed.

For the project site, Septic tank with soak away system was adopted for wastewater management due to; the method is simple to construct, it has high efficiency to control flies and smell. Also a space available and the amount of wastewater to be generated gives a chance for a septic tank with soak away method to be best for waste water management.

6.7.5 Alternative Design and Technology

The NFRA has already design silos complex and warehouse for the grain storage. Therefore there is no any alternative facility proposed apart from these. Proposed facilities will be better and meeting needs of grain storage.

6.7.6 No-Project Alternative

This alternative is considered not feasible from the following facts:

a) Availability of food for the people in time of food shortage

b) It is against the Tanzania Development Vision 2025 to discourage developments of projects especially if there are no negative irreversible impacts associated to such project. This project will lead to developments of individuals and ensure food security.

Based on the above, it is considered that No-Project alternative is not a plausible alternative.

CHAPTER SEVEN: MITIGATION MEASURES

Chapter six has identified potential impacts and their significance. This chapter provides a summary of mitigation measures to those impacts which are considered to be of a moderate to high significance.

7.1 DESIGN PHASE

During the design phase no impacts were identified for the proposed project.

7.2 MOBILIZATION PHASE

7.2.1 Loss of Vegetation from clearance to accommodate the project structures

Presently the proposed site has few grass patches and few trees. During mobilization and project construction phase the vegetation on the project site will be cleared for the proposed project implementation.

Mitigation Measures

- Vegetation clearance will be limited to the area necessary for permanent works some grass and trees on the edge shall not be uprooted.

7.2.2 Noise pollution during site mobilization

To mitigate this impact during site mobilization phase, all works associated with high noise level shall be done on day time and the machine used for warehouse demolition will be serviced regularly, also noise protective gear shall be provided to workers

7.2.3 Dust emission during site mobilization

This impact will be mitigated by employing water spraying practice to all areas where dust emission will be more severe

7.3 CONSTRUCTION PHASE

7.3.1 Noise pollution due to movement of construction equipment

Equipment and engines that are not serviced regularly are more likely to cause much noise than regularly serviced ones. To mitigate the impact, during the construction phase the contractor and project owner shall ensure that proper maintenance of machines and vehicles is done to minimize the presence of noise and emissions from the engines. Furthermore, the construction during the night will be avoided to ensure quietness in the neighborhoods at night. Sensitization of the adjacent communities on likely vibrations and increased noise resulting from construction activities and where noise levels will be beyond 85dB(A), ear plugs shall be provided to all those working within the area with high noise levels.

7.3.2 Air pollution due to dust

The mitigation measures for this impacts includes;

- Water sprinkling to reduce the dust at the construction site
- Use of dust masks to operators and those working in the dusty areas
- Use of goggles for all operators
- Construction machines/equipment shall be well maintained to ensure an absolute fuel combustion. All vehicles involved in construction works shall be frequently checked and well serviced during the whole construction period so that the level of exhaust emissions is reduced
- Speed of vehicles hauling construction materials shall be reduced by construction of speed humps

7.3.3 degradation due to disposal of excess soil or spoil materials

To mitigate this impact, the contractor and the proponent shall:

- Resurface and level debris in the course of compaction and construction of the foundation for the structures,
- Ensure proper backfilling and resurfacing of the construction site. Light compaction will be necessary to stabilize the soil. Planting of grass on bare land to minimize soil erosion tendencies should be given a high priority.

7.3.4 Degradation at Points of Source of Construction Materials

To mitigate this impact, the following measures will be considered;

- The borrow sites are the ones used for sourcing all other construction materials for projects in Mpanda. Therefore, the project will only contribute to land scarring and will not be the sole project causing this problem.
- Since all the borrow areas are privately owned, the Project Proponent will be buying the construction materials and thus contributing towards restoration of the borrow sites
- Part of the charges for the purchase of construction materials shall be channeled back to the rehabilitation or reinstatement of the borrow areas.
- Contractor will buy the ready to use concrete from an authorized supplier

7.3.5 Occupational health and safety hazards of construction workers

The following are the mitigation measures:

- Use water sprinklers to suppress excessive dust during construction;
- Provide and enforce the use of appropriate protective gears such as boots, helmets, masks and gloves to workers
- Adhere to OSHA guidelines to avoid accidents at the work place
- Provide First Aid facilities and train some workforce on emergency response measures.

- Establish health and safety regulations, and formulating preventive measures for accidents and other human health and safety hazards.

7.3.6 Spreading of HIV/AIDS and other STDs

Mitigation measures

- Sensitization and health awareness campaigns for all parties involved in the project including service providers
- Construction workers to undergo health screening according to the National HIV/AIDs Policy
- The project will assist the nearby health facilities in sensitization for all those who are involved in the project

7.3.7 Pollution due to oil spills from vehicles and generators

In order to mitigate impacts due to oil spills, special maintenance workshops shall be designated away from the site where routine maintenance of vehicles and generators will be undertaken.

7.3.8 Interruption due to Traffic congestion

In order to mitigate congestion that may result from trucks carrying construction materials to the site, all materials shall be delivered during the night or during off peak hours of the day and traffic signs will be used to control the movement of trucks at the site. Also induction training will be provided to all drivers on safety driving and those who fail to observe safety sign will be fired from the site.

7.3.9 Soil Erosion Due to Run off Effects and Loosened Top Soil

Trenching for foundations during construction may cause significant soil erosion if land clearing and backfilling are not strictly done properly. It is anticipated that no major soil loss will occur as a result of the removal of top soil during construction since activities will be taken on a more or less flat terrain.

In order to mitigate soil erosion tendencies, the following shall be done:

- After construction the site shall be backfilled and resurfaced properly.
- Light compaction to stabilize the soil shall be done.
- Planting of trees and grass on bare land to minimize soil erosion tendencies.
- Construction of drainage system
- Harvesting rain water will minimize run off

7.4 OPERATION PHASE

7.4.1 Health Risks due to Spraying of Chemical Pesticides and Fumigation

To mitigate this impact spraying and fumigation shall be well confined in order to ensure the surrounding communities are not affected when chemical pesticides are applied and the pesticides will be applied on the day time when the wind speed is low. Also proponent shall find other alternative preventive measures which are not risky to the health of workers and community.

7.4.2 Interruption of traffic flow due to traffic Congestion during peak operation

To mitigate this impact the following will be considered;

- Construction of Truck parking area which will be a source of taxes to Mpanda municipal council (The area is already provided at Minsukumilo which is about 2 km to NFRA site
- Improvement of the parking area within project site where two or three Trucks will be loaded together and all road within project area will be paved
- Induction training shall be provided to all drivers who are coming at NFRA for grain delivering or withdrawn to reduce poor parking tendency
- All drivers shall be obliged to observe road signs and force will be used to all who fail to follow the road signs
- Application of road sign will be insisted to all drivers within project area

7.4.3 Bad odor and waste falling from the back of trucks during transportation

To mitigate this impact, transportation of solid waste will be done by a qualified waste collection companies which will be awarded the job in a competitive manner. Impacts of bad odour and waste falling from the back will be made less severe by ensuring that all waste trucks that are used to transport waste are covered trucks and not open tippers.

7.4.4. Loss of properties and lives due to fire break out

To mitigate this impact, the following are suggested mitigation measures

- Portable fire extinguishers and buckets filled with dry sand shall be put in all strategic areas.
- Firefighting system incorporating water hydrants shall be installed in the building including fire detection alarm system to help fight if there is any risk of fire break out.
- Fire assembly area shall be designated in the project area
- Smoke detectors will be installed
- Fire escape routes shall be designed

- Training shall be given to all staff on how to respond in case of fire emergency.

7.4.5 Spreading of HIV/AIDS and other STIs

Measures for mitigation of this impact include:

- Raising awareness of the dangers of the HIV/AIDS to workers, lessors and visitors,
- Support voluntary HIV counseling and testing.

7.4.6 Pollution due to mishandling of solid wastes

In order to mitigate this impact, the following are suggested mitigation measures:

- Ensuring proper design of systems for collection, sorting, transportation and disposal of solid wastes at designated dumping sites in Misunkumilo area
- Ensuring availability of sufficient waste bins at appropriate locations
- Induction training to staff on solid waste management shall be given and
- Solid waste recycling and re-use shall be given high priority in order to reduce amount of waste collected for disposal.

7.4.7 Pollution of surface water source due to mishandling of liquid Waste

In order to mitigate this impact, the following are suggested mitigation measures:

- Ensuring proper design of septic tanks and soak away system
- Ensuring routine maintenance of storm water drainage system
- Ensure septic tanks are emptied frequently to reduce overflow of liquid waste

7.5 DECOMMISSIONING PHASE

7.5.1 Loss of aesthetic value due to abandonment of structures

At decommissioning, NFRA may either demolish the structures or undertake major rehabilitation in an environmentally sound manner in order to restore the environment to its original appearance.

7.5.2 Contamination and impairment of the Environment from demolition waste

To mitigate the impact during demolition, the contractor and NFRA shall ensure that proper decommissioning procedures are followed.

7.5.3 Loss of Employment

The major impact that will result from the project decommissioning will be loss of jobs. In order to minimize the impacts that may result from this eventuality, the following measures will be taken:

- Prepare workers for forced retirement by providing skills for self-employment, and wise investment of the retirement benefits,
- Ensure that all employees are members of the Social Security schemes,
- Consider redeploying employees in other NFRA sites.

7.6 ENHANCEMENT MEASURES OF POSITIVE IMPACTS

7.6.1 Income, skills and knowledge to local laborers

In order to enhance this positive impact, the proponent shall take deliberate measures to ensure that human labour is employed as much as possible in carrying out normal activities during mobilization, construction and operation phases. This is meant to increase the number of people that would benefit through wages, skills and knowledge transferred during all phases of the project life cycle.

7.6.2 Enhanced income, employment opportunities and local business

To enhance this positive impact, NFRA shall make efforts to increase reasonably the prices of grain so as farmers may benefit from their crops. The proponent shall consider to pay workers handsomely so as to improve their livelihood. The proponent shall make deliberate effort to employ local people to work at the site. Outsourcing of services needed at the site shall be procured locally to benefit the local community around the project area.

CHAPTER EIGHT: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

This chapter describes the environmental and social management plan for the expansion of grain storage facilities project. The ESMP applies to, and will be implemented throughout all phases of the project i.e. construction, operation, closure (temporary or final), and post-closure.

NFRA shall be responsible for an overall implementation of the ESMP and will establish an organizational structure with clearly defined lines of authority, areas of responsibility and accountability. Assigned staff shall be responsible for a day to day follow ups (supervision and liaising with key stakeholders). The designated staff's primary responsibilities will be to ensure that all project activities comply with an applicable environmental regulations and that ESMP commitments are honoured. Also the proponent shall ensure that qualified expertise is provided in a coordinated manner.

The estimated costs for implementing the mitigation measures are just indicative. Appropriate bills of quantities shall clearly give the actual figures. The consultant used informed judgement to come up with these figures. The summary of the key issues of the silos complex project and its management are shown in Table 8.1 below (ESMP)

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Table 8.1: Environmental and Social Management Plan

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Annual Estimated Costs [Tsh]
SITE MOBILIZATION PHASE	Loss of Vegetation from clearance	• Clearance of trees will be replaced with other exotic trees and the like • Only a tree cleared shall be the one which will hind project to proceed	Replacement of trees achieved	Contractor	1,000,000
	Noise pollution	• All works including demolished activities shall be done on a day time • All machine used for demolishing shall be serviced well • Noise protective gear shall be provided to all workers	As per TZS 837 Parts 1, 2 and 3	NFRA	800,000
	Air pollution	• Water spray shall be used in the area where dust emission occurs • Personal protective equipment shall be provided to workers and • The site will be fenced by iron sheet to hind wind effects	As per TZS 837 Parts 1, 2 and 3	NFRA	1500,000
CONSTRUCTION PHASE	Depletion /degradation at points of source of construction materials	• Procure all building resources (sand, aggregates and stones for construction) from licensed suppliers and from authorized areas • Restoration of environment and • Procure ready to use concrete from authorized supplier	Restoration of borrow pits and quarry sites	Contractor	5,000,000
	Occupational health and safety of construction workers	• Use water sprinklers to suppress excessive dust during construction; • Provide and enforce the use of appropriate protective gears such as boots, helmets, masks and gloves to workers • Adhere to OSHA guidelines to avoid accidents at	OSHA regulations and OSHA Act of 2003	Contractor	3,000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Annual Estimated Costs [Tsh]
		the work place • Provide First Aid facilities and train some workforce (labourers) on the emergency response measures. • Establish health and safety regulations and formulating preventive measures for accidents and other human health and safety hazards.			
	Dust pollution from the movement of Construction Equipment	• Use of water sprinklers to suppress dust on unpaved roads • All trucks carrying construction material will be covered to prevent material evaporation • The site will be fenced with iron sheet to hinder the winds effect and Dust masks will be provided to workers	As per TZS 837 Parts 1, 2 and 3	Contractor	3,000,000
	Noise pollution from Movement of Construction Equipment	• Routine maintenance of equipment for optimal performance • Sensitization of the adjacent communities on likely increased noise resulting from construction activities • All works associated with high noise will be done on day time and • Noise protective gear shall be provided	As per TZS 837 Parts 1, 2 and 3	Contractor	3,000,000
	Potential of spread of HIV/AIDS to the construction crew	• Sensitize workers on dangers of HIV/AIDS • Collaborate with NGOs to ensure Voluntary Counselling and Testing programs are established	All workers sensitized on issues of HIV/AIDS	Contractor	5,000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Annual Estimated Costs [Tsh]
	Pollution due to oil spills from vehicles and generators	• Designating special workshops to service the vehicles and machines • Routine maintenance of machines	Zero oil/grease spilling	Contractor	1,000,000
	Soil erosion due to run off effects and loosened top soil	• Proper backfilling and resurfacing • Stabilize the soil by applying light compaction • Planting of trees and grass on bare land	All affected areas are resurfaced	Contractor	5,000,000
	interruptions due to Traffic congestion during transportation of construction materials	Transportation of materials has to be done during night hours or during off peak hours	Zero congestion due to trucks for materials transportation	Contractor	No cost
OPERATION PHASE	Pollution due to mishandling of solid Wastes	• Ensuring proper design of systems for collection, transportation and disposal of solid wastes • Ensuring availability of sufficient waste bin at appropriate locations • Design waste collection chamber for collecting waste before transported and disposed.	Zero pollution of environment Zero nuisance due to solid wastes	NFRA	2,000,000
	Health impacts due to application of chemical pesticides and fumigation	• confinement of spraying and fumigation within the silos complex • Application of pesticides the day time when the wind speed is low	Minimal odors in the atmosphere around the project site	NFRA	2,000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Annual Estimated Costs [Tsh]
	Pollution due to mishandling of liquid Waste	• Ensuring proper design of septic tank and soak away system • Ensuring routine maintenance of storm water drainage system • Ensure septic tank is emptied frequently to reduce the overflow of liquid waste	No waste water overflowing	NFRA	1,000,000
	Bad odour and waste falling from the back of trucks during transportation	• Hiring of qualified waste collection company through competitive tendering • Using covered trucks as opposed to open tippers	No bad odour and wastes falling from the back during transportation	NFRA and waste contractor	10,000,000
	Loss of lives due to Fire break out	• Install Portable fire extinguishers shall be put in place in all strategic areas • Install Firefighting system incorporating water hydrants shall be installed including fire detection alarm system to avoid the risk of fire break out. • Fire assembly area shall be designated in the project area	zero fire break outs	NFRA	15,000,000
	Spreading of HIV/AIDS and other STIs	• Raising awareness of the dangers of the HIV/AIDS to workers • Support voluntary HIV counseling and testing.	Reduce spreading of STI	NFRA	5,000,000

Phase	Potential Direct Impacts	Management/Mitigation Measures	Target Level/Standard	Responsibility	Annual Estimated Costs [Tsh]
DECOMMISSIONING PHASE	Loss of aesthetic value due to abandonment of structures	• Either demolish the structures or undertake major rehabilitation in an environmentally sound manner • To restore the environment into its original appearance.	Minimum to zero pollution of environment	NFRA and Contractor	30,000,000
	Contamination and impairment of Environment	Proper decommissioning procedures are followed	Minimum to zero pollution of environment	NFRA and Contractor	20,000,000
	Loss of Employment	• Prepare workers for forced retirement by providing skills for self-employment, and wise investment of the retirement benefits, • Ensure that all employees are members of the Social Security schemes, • Consider redeploying employees in other projects of the proponent.	The retrenchment to go as smoothly as possible	NFRA	10,000,000

CHAPTER NINE: ENVIRONMENTAL AND SOCIAL MONITORING PLAN

Environmental and social monitoring plan (Table 9.1) provides the application of EMP as well as dealing with ad hoc or unforeseen issues which need to be mitigated. Details of parameters to be monitored have been considered along with costs estimates and responsible institution (s).

Table 9.1: Environmental and Social Monitoring Plan

Phase	POTENTIAL DIRECT IMPACT	Parameter to be Monitored	Monitoring frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsible person	Estimated costs (Tsh)
SITE MOBILIZATION PHASE	Loss Of Vegetation clearance	Number of trees	Before site clearance and after site clearance	Within project premises	NA	Achieve replacement of cleared trees	Contractor	1,000,000
	Noise pollutiom	Noise level	monthly	Clearance area	dBA	As per TZS 837 Parts 1, 2 and 3	NFRA	1,000,000
	Air pollution	Particulate matter	monthky	Around project area	ppm	As per TZS 837 Parts 1, 2 and 3	NFRA	1,000,000

Phase	POTENTIAL DIRECT IMPACT	Parameter to be Monitored	Monitoring frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsible person	Estimated costs (Tsh)
CONSTRUCTION PHASE	Depletion or degradation at points of source of construction materials	Quality of area	Before construction and after completion of works	Borrow pits and quarry sites	NA	Restoration of environment to be done	Contractor	5,000,000 paid once
	Noise due to Construction Equipment and Materials	noise level	Quarterly	Project area	dBA	As per TZS 932:2006	NFRA and Contractor	1,500,000 quarterly
	Impacts of dust from movement of vehicles and of construction equipment	Particulate matter in the air	Quarterly	Surrounding the area next to the Project site	µg/Nm^3 per hr	As per TZS 837 Parts 1, 2 and 3.	Contractor and NFRA	1,500,000 Quarterly

Phase	POTENTIAL DIRECT IMPACT	Parameter to be Monitored	Monitoring frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsible person	Estimated costs (Tsh)
	Occupational Health and Safety of the Construction Workers	Availability of personal protective gears	Monthly	Construction site	NA	All workers to use personal protective gears	NFRA and Contractor	2,000,000
	Potential for spread of HIV/AIDS, STDs	Number of people enrolled for Voluntary Counselling and Testing	Quarterly	Project workers	Number	prevalence rate to be reduced	NFRA and contractor	2,000,000 a
	Soil erosion due to run off effects and loosened top soil	Soil erosion tendencies	Once at the end of construction	Construction site	None	Zero erosion tendencies at site	NFRA and Contractor	5,000,000
	Pollution due to oil spills from vehicles and generators	Areas polluted by oil spills	Quarterly	Project site	M^2	Zero oil spills	NFRA and contractor	2,000,000

Phase	POTENTIAL DIRECT IMPACT	Parameter to be Monitored	Monitoring frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsible person	Estimated costs (Tsh)
	Interruptions due to Traffic congestion	Trucks operating during peak hours	Monthly	Roads to the project site	Number	zero congestion	NFRA and contractor	No cost
OPERATION PHASE	Health impacts due to application of chemical pesticides and fumigation	Amount of Residual pesticides in the air after spraying	Monthly	Within and outside the project area	Ppm	Minimal residues	NFRA	3,000,000
	Pollution due to mismanagement of liquid Waste	Efficiency of waste water management system	Quarterly	Project area	Mg/l	As per TZS 344:1989	NFRA	3,000,000
	Bad odour and waste falling from the back of trucks during transportation	Number of covered trucks operating	Quarterly	Project area	NA	No bad odor and waste falling from the back	NFRA	2,000,000

Phase	POTENTIAL DIRECT IMPACT	Parameter to be Monitored	Monitoring frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsible person	Estimated costs (Tsh)
	Loss of lives due to Fire break out and safety system	Number and state of firefighting and detection systems in the warehouse	Semi annually	Project buildings, silos and ware houses	Number	Enough fire extinguishers and proper working system	NFRA	3,000,000
	Spreading of HIV and other STIs in the District	New cases of HIV infected staff	Thrice per year	Staffs	Number of cases	Minimized to zero	NFRA /NGOs dealing with HIV/AIDS	1,000,000
	Pollution due to mishandling of solid Wastes	Frequency of collection of solid waste	Semi annually	Project area	NA	project area quality maintained	NFRA	2,000,000

Phase	POTENTIAL DIRECT IMPACT	Parameter to be Monitored	Monitoring frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsible person	Estimated costs (Tsh)
DECOMMISSIONING	Safety hazard during demolition	availability and proper use of Personal Protective Equipment	Once every week	Project facilities and structures	Number of users of PPE	All workers	NFRA and contractor	2,000,000
	Loss of Employment,	Payment of social security remittance for workers	Semiannually for workers	Social Security schemes for workers	Number of workers registered with social security fund	Workers' remittances paid in time	Workers and employers	1,000,000
	Loss of Aesthetics	Project site	Once every month	Project Area	NA	restored environment into its original appearance	NFRA	1,000,000

Phase	POTENTIAL DIRECT IMPACT	Parameter to be Monitored	Monitoring frequency	Monitoring Area	Measurement unit	Target Level/Standard	Responsible person	Estimated costs (Tsh)
	Noise and dust from demolition activities	Air quality, noise level	Once every month	Project area	ppm, mg/m^3, dB	As per As per TZS 932:2006 and TZS 837 Parts 1, 2 and 3.	NFRA and Contractor	2,000,000

CHAPTER TEN: COST BENEFIT ANALYSIS

10.1 FINANCIAL COST BENEFIT ANALYSIS

Cost benefit analysis is normally done in the framework of feasibility study. The aim of cost-benefit analysis is to inform decisions makers on:

- The costs of alternative ways of delivering a service;
- Estimates of the size of a project;
- Whether a project should be undertaken; and/or
- Whether a current project should be continued, changed or ceased

The costs may include:

- Capital expenditures;
- Operating and maintenance costs;
- Maintenance costs;
- Materials;
- Opportunity costs; and
- Environmental health and other social costs.

Benefits may include:

- Better, more cost-effective service delivery;
- The avoided costs-being the costs of the existing or conventional service delivery option;
- Additional taxes generated;
- Productivity savings; and
- Environmental, health and other social benefits.

10.1.1 Quantifiable and non-Quantifiable Benefits

The benefit to the communities may be direct or indirect. Availability of employment opportunities (within the project and outside) are considered direct quantifiable benefits due to the project. Also, contribution to the municipal levies from truck parking will be a quantifiable direct benefit. However, the benefits accrued from such paid levies e.g. in building of roads, schools, hospitals etc, may not be apparent to the communities. Such benefits may be considered non-quantifiable.

10.1.2 Quantifiable and non-Quantifiable Benefits to communities

The benefit to the communities may be looked into different perspectives. The successful investment will provide a permanent market to the farmers who wish to sell their grain at the price set by NFRA, Other operators of different businesses and services which serve the silos complex will pay taxes which will be used by the government to provide social services to the community. The project activities will also generate employment during construction and operation of the project and facilities. As indicated in chapter 2 the activities that will be undertaken during development of the project will provide direct employment to Tanzanians. The investment will also provide variety of services to Mpanda community by providing an opportunity of farmers to invest more in agriculture and other business activities.

10.1.3 Quantifiable and non-Quantifiable Benefits to Government

As already mentioned the government will directly and indirectly benefit from all farmers and other operators such as truck owners who will pay taxes and levies depending on their operations. Apart from income generation, the investment will also enhance the economic growth spurred by the operations and activities associated with the silos complex project. The availability of food stock will ensure food security and socio-economic development of the population which is the main goal of the government.

10.2 ENVIRONMENTAL COST BENEFIT ANALYSIS

Environmental cost benefit analysis is assessed in terms of the negative versus positive analysis. Furthermore, the analysis is made to consider whether the impacts can be ameliorated and the costs of mitigating the impacts are reasonable. As it has been mentioned, the benefits of the project, in terms of financial and social benefit are substantial, the environmental impacts may be mitigated and the financial resources needed to mitigate the impacts are relatively small compared to the actual capital investment versus that to be invested in the implementation of Environmental and Social Management and Monitoring Plan.

10.3 SOCIAL ECONOMIC COST BENEFIT ANALYSIS

The project may contribute to enhancing investment in various business and services which may indirectly encourage local investors to invest more in the agricultural sector for food stock production. All these will enhance employment opportunities to the citizens and contribute towards poverty eradication. As it can be seen in the impact analysis, there are no serious negative social economic impacts. It can therefore be deduced that the social benefit outweighs the social costs that are anticipated.

CHAPTER ELEVEN: DECOMMISSIONING PLAN

11.1 INTRODUCTION

It is important to note that by project decommissioning phase it implies or mean that it is the time or period when the silos, building structures and the warehouses are too old such that there is a necessity for their demolishment or major refurbishment.

It is anticipated that the life span of the grain storage facilities is 50 years based on the design of structures and materials which are to be used for construction. Activities undertaken in the grain storage facilities may stop when it becomes unsuitable for habitation. At this time the proponent may decides to demolish the silos and warehouse or change their use after major renovations. There will be a loss of storage facilities as well as jobs to workers. Businessmen and women, who depend on supplying the grain, commodities and services to the NFRA, may suffer market loss and some will go out of business. This will also involve the loss of income to the families supported by the employment at the project area.

In regarding the aspect of environmental impact: demolition waste and other equipment will have to be disposed or removed from the site. In the course of demolition and removal some environmental impacts may occur. Therefore, preparation of the decommissioning plan is aimed at ensuring that demolition, transportation, disposal and overall closure activities are done in a way that does not adversely affect the people nor the surroundings.

11.2 DECOMMISSIONING PLAN

Decommissioning plan is prepared to comply with environmental legislations and regulatory requirements. For the case of projects that cause massive changes of land scape and biodiversity, the law requires that the land used for project facilities is rehabilitated and returned to the state so that it can be reused by others after the project is decommissioned. However, the grain storage facilities project is not in such category but the decommissioning plan may involve the removal of the following project components but not limited to:

- Building and concrete works
- Roofing materials,
- Firefighting equipment
- Metals
- Electrical and water fittings

11.3 DECOMMISSIONING COSTS

The proponent will fund and implement all aspects of project decommissioning, including but not limited to, all engineering, environmental monitoring, permitting, construction and mitigation activities associated with decommissioning.

11.4 DECOMMISSIONING PERMITS AND OTHER REQUIREMENTS

The proponent will ensure that all permits required for decommissioning process are sought. The permits may include permit to dispose hazardous materials (if any), and a permit from relevant bodies to dispose waste around the site or on unpaved feeder roads close to the demolition site.

Standard procedures of demolishing techniques shall be used, and all identified hazardous materials will be collected and disposed in accordance with the respective laws, practice and regulations. Equipment made up of steel will be re-used or sold to steel rolling mills to be recycled. Concrete works will be broken into small pieces and used for road surfacing or other uses.

11.5 DECOMMISSIONING TASK FORCE

When the time for decommissioning is due, the proponent will form a team of experts (engineers, labor laws and human resources and environmental experts) with a representative from NEMC, Mpanda Municipal Council and any other relevant authority to monitor the implementation of the decommissioning plan so as to ensure that decommissioning is done according to the plan.

The table below entails activities and responsible party to be involved during the decommissioning phase of the project.

Table 11.1: Decommissioning Plan

S/N	Activity	Responsible	Budget
1	Provide information about the decommissioning to employees and neighboring community	Proponent	To be determined during decommissioning time
2	Seeking decommissioning permits from NEMC	Proponent	Pay requisite fees as prescribed
3	Prepare workers psychologically about the fears of losing livelihoods, jobs and business	Proponent	To be determined during decommissioning time
4	Serving all service providers with letters of termination of contracts if any	Proponent,	To be determined during decommissioning time
5	Demolition of the buildings and/or rebuilding of new structures	Proponent	To be determined during at decommissioning time

CHAPTER TWELVE: SUMMARY AND CONCLUSION

12.1 SUMMARY

The scoping study as well as the EIA identified a number of issues pertaining to the proposed project. The issues/impacts have been described and assessed in detail to gain adequate understanding of the possible environmental effects of the proposed project at all stages from construction/installation to decommissioning. The Environmental Management plan provides a way forward for implementation of the proposed mitigation measures. The Environmental and Social Monitoring Plan shows what has to be monitored during construction and implementation phases. The estimated costs for implementing the mitigation measures as well as monitoring have been shown though they are just indicative figures based on the consultant's informed judgment. Based on the findings of the EIA exercise and supplementary information, it is recommended that the project proponent has to implement the Environmental Management Plan (EMP). The EMP provides guidelines on managing and mitigating impacts and monitoring performance. In addition to the EMP, it is recommended that the proponent appoint an Environmental Officer who will monitor the application of the EMP, as well as dealing with *ad hoc* or unforeseen issues which need to be mitigated during implementation of the project.

12.2 CONCLUSION

The EIA study has identified a number of impacts both positive and negative and other residual or cumulative issues pertaining to the proposed expansion of grain storage facilities project at Mpanda hotel area in Mpanda municipality at Katavi region. The issues or impacts have been described and assessed in detail to gain adequate understanding of possible environmental effects of the proposed project – from site selection to decommissioning, in order to formulate mitigation measures in response to negative aspects which may emerge. The Environmental Management Plan (EMP) provides a way forward for implementation of the identified mitigation measures.

The study concludes that although the project can have a wide range of impacts on the environment, the project is environmentally suitable and socially acceptable when subjected to the implementation of the Environmental Management Plan and Environmental Monitoring Plan as proposed in chapter 8 and 9.

Assess Consulting Company Ltd. of Dar es Salaam is of the opinion that all environmental impacts identified can be mitigated. If implemented properly, the proposed environmental management plan and environmental monitoring plan can safeguard the integrity of the environment.

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APPENDICES

Appendix 1: TERMS OF REFERENCE

TERMS OF REFERENCE FOR ENVIRONMENTAL IMPACT ASSESSMENT OF THE PROPOSED EXPANSION OFGRAIN STORAGE FACILITIES, ON PLOTS NO. 1,2,3,4,5,6,7 & 8, BLOCK 'C', MPANDA MTAA, MPANDA HOTEL WARD, MPANDA MUNICIPALITY, KATAVI REGION

1 INTRODUCTION

The purpose of these Terms of Reference (TOR) is to provide formal guidance to the ESIA consultant on the proposed construction of silos complex and warehouse for grain storage project in Mpanda Municipality on the range of issues that must be addressed in the ESIA process. They form the basis for the subsequent review process.

2 Project Description

The Government of United Republic of Tanzania has received a Polish credit (tie-up soft loan) toward the cost of Storage Capacity Expansion Project (SCEP). The project, is being implemented by the National Food Reserve Agency (NFRA). The project has four components amongst which involve construction of modern silos and other strictures in eight sites across Tanzania. The overall goal of this project is to enhance storage capacity of grain in the country.

NFRA now intends to construct a silos complex, administration block, canteen building, and warehouse with capacity to hold 5,000MT, laboratory, weighbridge and agrochemicals store room. The site is located on Plots No. 1,2,3,4,5,6,7 & 8, Block 'C', Mpanda mtaa, Mpanda Hotel Ward, Mpanda municipality, Katavi region.

3 Environmental Assessment Requirements

The Environmental Management Act, 20 of 2004 requires that EIA be undertaken for all new projects that may cause adverse environmental and social impacts. Under the Environment Impact Assessment & Audit Regulations, 2005 GN No.349 of 2005, the silos complex and grain storage expansion project is categorized as an EIA obligatory project for which a full EIA is required.

4 OBJECTIVES OF THE EIA STUDY

Construction of silos complex and grain storage expansion project in Mpanda Municipality is the type of project included in the mandatory list of projects that are required to develop EIA by the Environmental Management Act (2004). Part IV of the EIA and Audit Regulations (2005) provides the general objectives for carrying out EIA, among others a list includes the following:

a) To ensure that environmental considerations are explicitly addressed and incorporated into the development decision making process
b) To anticipate and avoid, minimise or offset the adverse significant biophysical, social and relevant effects of developmental proposal
c) To protect the productivity and capacity of natural systems and ecological processes which maintain their functions

d) To promote development that is sustainable and optimises resources use and management opportunities.

Consequently, the National Food Reserve Agency (NFRA) would like to undertake Environmental Impact Assessment so as to translate the principles of sustainable development and environmental protection into strategies and actions that can be practically applied to her proposed project.

The specific objectives of the EIA are to:

- Establish baseline information on both natural and built environment including socio-economic conditions of the proposed project area;
- Identify, predict and evaluate foreseeable impacts, both beneficial and adverse, of the proposed investment;
- Develop mitigation measures that aim at eliminating or minimising the potential negative impacts and promote the positive ones; and
- Develop management plan and monitoring plan for ease of reference during project implementation.

5 SCOPE OF WORK.

The EIA shall be conducted in accordance with the guidelines laid down by the Environmental Management Act (EMA, 2004). The main steps to be followed by the Consultant in the environmental impact assessment will involve:

- Identifying, collecting and analysing information which include:
    - Project characteristics and activities;
    - baseline data of the environmental and socio-economic setup;
    - predicting impacts;
    - evaluating impacts' significance;
    - Identifying and proposing mitigation measures;
    - Preparing the Management and Monitoring Plan and Follow up; and
    - Presenting the information which involves writing an Environmental Impact Statement (EIS).

The approval process shall also be according to the procedure laid down by the National Environment Management Council (NEMC) whereby these ToRs will be approved by NEMC before further field work is done. Following the EIA study the Environmental Impact Assessment Report will be submitted to NEMC for review and approval.

6 TASK TO BE CARRIED DURING THE EIA

The Consultant shall carry out the following tasks:

Task 1: Stakeholders Consultations

Consultations with stakeholders have been undertaken in the EIA. Main stakeholders and their concerns are elaborated under chapter 5 of the report. Further consultation of stakeholders *shall be conducted by The Consultant* during the impact study.

Among other things in task 1, the EIA report shall also feature how the views and concerns of the stakeholders have been addressed.
Consulted stakeholders shall sign against their names and the sheet containing their respective signatures shall be appended in the EIS.

Task 2: Description of project area

In order to ensure coverage of all key issues related to the project during the assessment, the study area shall be much wider than that covered by the project site where most of the project operations and facilities and services will be located. This is because some of the impacts might have local, regional or national implication. The core area has been determined to be the whole area that is covered by the project site.

The Consultant shall: further determine and set the project boundaries particularly spatial and temporal boundaries (i.e. Impact area coverage and area of influence).

The Consultant shall give details of:

i. Location of all project-related development and operation sites;
ii. General layout of facilities at the site - diagrams of facilities, design basis, size, capacity;
iii. Pre-construction activities and construction activities; and
iv. Organizational relationships, mandates and interactions among the different parties to be involved in the project.

In addition to the above tasks the consultant shall give details of the following:

- Activities to be carried out in each phase of the project i.e. pre-construction, construction, operation and decommissioning phase
- The purpose and objectives of the proposed development shall be clearly stipulated.
- Types and quantities of material and inputs needed during pre-construction, construction and operational phases
- Types and quantities of wastes, energy and residual materials and the rate at which these will be produced
- The description of methods used to make estimations of waste generated, and the proposed methods of waste treatment and disposal.
- The project capital cost and source of funds

Task 3: Description of the Environment

The Consultant shall provide description of:

- The location and area of land affected by the development. This shall also be shown on maps and the current land uses of the area shall be clearly demarcated.
- Definition of affected site shall be broad enough to include any potential effects occurring away from the construction site (e.g. Dispersal of pollutants, traffic, changes in channel capacity of water sources as a result of increased surface run off etc.)
- Baseline condition of the current biophysical, ecological, socio-economic and cultural environment and, prediction of the future condition if the project did not take place
- The method used to gather the baseline information.

Baseline data shall be gathered in such a way that the importance of the particular area to be affected can be planned into the context of the Municipality or surrounding area and that the effect of the proposed change be predicted and monitored

Task 4: Legislative and Regulatory Considerations

The Consultant shall:

Describe pertinent local, national and international regulations and standards governing environmental quality, health and safety, protection of sensitive areas and underground water resources, land use control etc. The EIS shall show how the proponent will comply with the cited policies and Legislation

Task 5: Prediction, Identification and Analysis of Impacts

Under this activity the consultant shall:

i. Identify issues and concerns in order to find suitable remedies;
ii. Identify linkages between project components and the issues;
iii. Identify where project activities or elements interact with social and biophysical environment (direct impacts):
iv. Identify indirect impacts of the project on the environment;
v. Identify cumulative impacts that may be anticipated;
vi. Identify residual impacts if any;
vii. Predict probability, magnitude, distribution and timing of expected impacts:
viii. Carry out assessment of alternative sites and alternative technologies in order to come out with the best option; and
ix. Forecast what will happen to the affected environmental components if the project is implemented as is or if the alternatives (e.g. sites and technologies) are chosen (a no-project option will also be considered)

The consultant shall also outline:

- The methodology used to identify and analyse likely impacts
- The logic used to identify key impacts on human beings, flora and fauna, soil, water, air, climate, landscape, cultural heritage, or their interaction, should be explained
- The data used to estimate the magnitude

Furthermore, the consultant shall: assess:

- The significance of impacts using the appropriate national and international quality standards where available.
- Remaining impacts after mitigation using the appropriate national and international quality standards where available. Where no such standards exist, the assumptions and value systems used to assess significance should be justified.

Task 6: Estimation of the Significance of the Impacts

The consultant shall:

i. Determine which environmental components are mostly affected by the project or its alternatives;
ii. List issues raised by the public and classify them according to the level and frequency of concern whenever possible;
iii. List regulatory standards, guidelines etc. that need to be met; and

iv. Rank predicted impacts in order of priority for avoidance, mitigation, compensation and monitoring.

Task 7: Analysis of alternatives to the project

The consultant shall:

- Discuss alternative sites, undertakings, processes, technologies and design
- Discuss the main environmental advantages and disadvantages and the reasons for the final choice given.
- Make a comparison of the alternatives in terms of potential environmental impacts as well as capital and operating costs i.e. cost benefit analysis of each alternative/option

Task 8: Development of Environmental and Social Management Plan (ESMP)

In preparation of the ESMP the following activities shall be performed:

- Specific mitigation measures and enhancement measures shall be identified on all significant impacts.
- Effectiveness of mitigation methods shall be ascertained. Where the effectiveness is uncertain justification of the acceptance of the suggested interventions/assumptions shall be provided.
- Effective environmental and social management plan shall be prepared. The Environmental and Social Management Plan shall identify among other thing: Phase of the project, identified impacts, mitigation measures, responsibility and budget estimates

Task 9: Development of Environmental Monitoring Plan

In preparation of the Monitoring plan the consultant shall ensure that the plan is consisted of the following:

i. Phases of the project;
ii. Identified impacts;
iii. Mitigation measures;
iv. Parameter to be monitored;
v. Sampling area/points;
vi. Frequency of monitoring;
vii. Standard/target level;
viii. Responsible institutions; and
ix. Budget estimates.

The consultant shall also:

- Determine and assess methods to monitor impacts for predicting accuracy remedial measures for effectiveness
- Describe follow up scheme and post project action plan
- Assess the level of financial commitment by the proponent for management and monitoring plan and follow on activities

The consultant shall be guided by the cost-effectiveness principles in proposing mitigation measures. Estimation of the costs of those measures shall be made. The assessment will provide a detailed plan to monitor the implementation of the mitigation measures and impacts of the project during construction and operation.

Task 10 Reporting requirement and Report Presentation

The final draft of the EIS document shall be concise and in line with EIS format stipulated in the Environmental Impact Assessment and Audit Regulations (2005) G.N. No. 349 0f 2005. The *contents* and the *structure* of the main text (EIS) shall be presented according to *Regulations 18(1) and (2) of the Environmental Impact Assessment and Audit Regulation, 2005.*

The Executive summary shall not be in separate document rather, shall be part of the EIS. The *contents* and *structure* of the Executive Summary shall be as per *Regulation 18 (3).* There shall be a *standalone/separate document* of Non Technical Executive Summary to be both in *Kiswahili* and *English* languages stating the *key findings*, *conclusions* and *recommendations* as per the requirement *of Regulation 19 (2) of the EIA and Audit Regulations 2005.*

Submission of the EIS, Non-Technical summary and prescribed fees shall observe the requirements of Regulations 19 to 21 of the *EIA and Audit Regulations of 2005.*

7 STUDY TEAM

The consultants shall deploy consultants/experts with the demonstrable practical experience in conducting EIA studies, with specific experience in environmental engineering, environmental management and sociology.

8 TIME FRAME FOR EIA

The time frame estimated for undertaking of Impact assessment is one month after approval of Terms of Reference. The EIS shall be submitted to NEMC not more than 28 days after the proponent receives the letter of approval of these Terms of Reference.

9. OUTPUTS

Immediately after Impact Assessment, the consultant shall submit to NEMC, 15 printed and bound copies of the Environmental Impact Statement and Fifteen printed and bound copies of Non Technical Summary for review.

Appendix 2: Letter from NEMC on approval of TOR

NATIONAL ENVIRONMENT MANAGEMENT COUNCIL(NEMC)
BARAZA LA TAIFA LA HIFADHI NA USIMAMIZI WA MAZINGIRA

Telephone: +255 22 2774889,
Direct line: +255 22 2774852
Mobile: 0713 608930
Fax: +255 22 2774901
Email: dg@nemc.or.tz
Website: www.nemc.or.tz

35 Regent Street,
P. O. Box 63154
11404 Dar es Salaam
TANZANIA

In reply please quote:

Ref: **NEMC/HQ/EIA/01/0679/Vol.1/4** Date: **21/02/2017**

Chief Executive Officer,
National Food Reserve Agency (NFRA),
P.O. Box 5384,
Dar es Salaam

Attn: Joseph P. Ogonga

RE: SCOPING REPORT AND TERMS OF REFERENCE FOR THE PROPOSED DEVELOPMENT OF SILOS COMPLEX AND WAREHOUSE FOR GRAIN STORAGE ON PLOT NO. 1,2,3,4,5,6,7&8 BLOCK "C" IN MPANDA HOTEL WARD, MPANDA MUNICIPALITY, KATAVI REGION

Kindly refer the heading above.

We acknowledge receipt your letter of **10th February, 2017**, attached with 5 copies of scoping reports and terms of reference of the above mentioned project for review.

Kindly be informed that the Council has reviewed the scoping report and terms of reference and found to be adequate to guide the EIA study. However, the following should also be taken into consideration to improve the ToRs.

i. Evidence of land ownership for the proposed project site and all other documents relevant to the proposed development;

ii. Detailed description of the nature and size, components/activities and historical commencement of the existing grain storage facilities;

iii. Detailed description of all project components/activities of the expected expansion of the storage facilities;

All correspondence should be addressed to the Director General

iv. Stakeholders' consultation should be exhaustive and records of meeting, communication and comments raised should be appended and addressed in the EIS. Names and signatures of all consulted stakeholders should be appended as well. Also, include stakeholder's issue response table showing how and where significant issues raised by stakeholders have been addressed in the EIS and

v. The contents and the structure of the EIA report should adhere to Regulations 18 and 19 respectively of the EIA and Audit Regulations, 2005.

Please, work on these comments and the improved ToRs should be appended in the EIA report to be submitted to NEMC for review.

Following receipt of the EIA report, the Council will arrange for the site verification visit to the project site and review meeting that will follow thereafter.

You will be required to provide transport facility for site verification team and review costs amounting to **Tshs. 11,000,000/=** which excludes transport costs as elaborated on the attached sheet (**NEMC Invoice NO. 4137 of 09/02/2017**).

The funds can be paid by cheque or electronic money transfer to NEMC's Bank Account No. **0150005055800**, Bank Name: **CRDB Bank Limited**, Branch: **PPF Tower Branch**, Swift Code: **CORUTZXXX**. Please, submit copy of bank transfer note to the Council. We look forward to your cooperation on this matter.

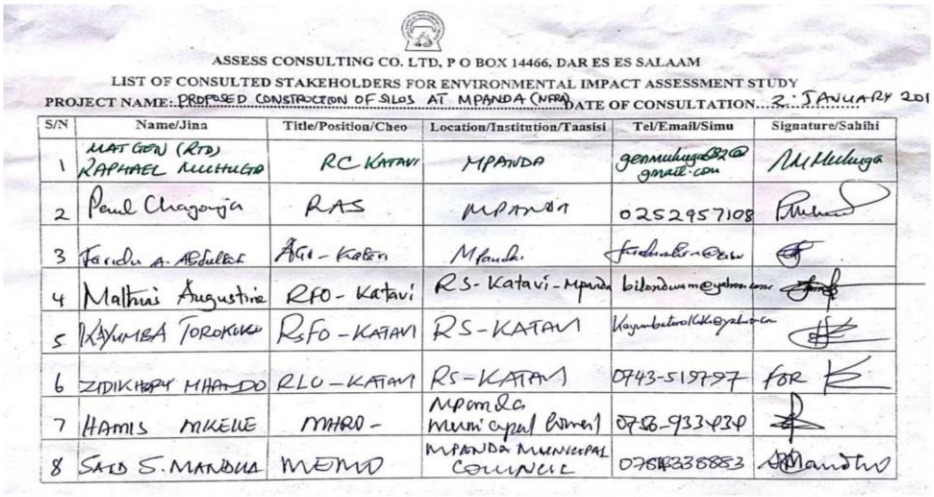
Yours Sincerely,

R. Said
For: Director General

Cc: ASSESS Consulting Company Ltd, P.O. Box 36086**, Dar es Salaam**.

All correspondence should be addressed to the Director General

Appendix 3: Signatures of consulted stakeholders

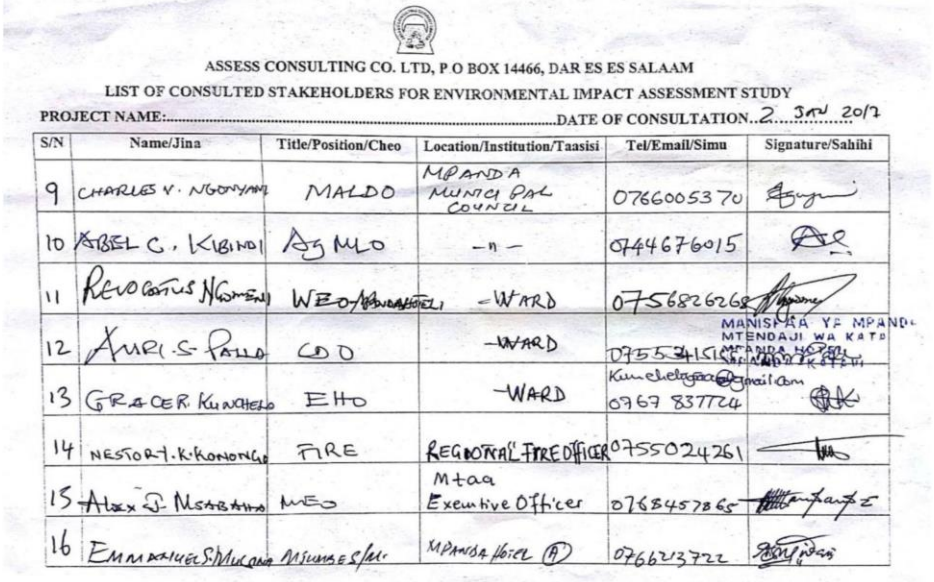


ASSESS CONSULTING CO. LTD, P O BOX 14466, DAR ES ES SALAAM

LIST OF CONSULTED STAKEHOLDERS FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY

PROJECT NAME: PROPOSED CONSTRUCTION OF SILOS AT MPANDA (NFRA) DATE OF CONSULTATION... 2 JANUARY 201

S/N	Name/Jina	Title/Position/Cheo	Location/Institution/Taasisi	Tel/Email/Simu	Signature/Sahihi
1	MAT GEN (RTD) RAPHAEL MUHUGA	RC KATAVI	MPANDA	genmuhuga82@gmail.com	
2	Paul Chagonja	RAS	MPANDA	0252957108	
3	Faridu A. Abdulla	Afi - Katavi	Mpanda		
4	Mathias Augustine	RFO - Katavi	RS - Katavi - Mpanda	bilandumm@yahoo.com	
5	KAYUMBA TOROKIKU	RSFO - KATAVI	RS - KATAVI	Kayumbatorok@yahoo.co	
6	ZIDIKHERY MHANDO	RLO - KATAVI	RS - KATAVI	0743-519797	FOR
7	HAMIS MKELE	MHRO -	Mpanda Municipal Council	0758-933939	
8	SAID S. MANDULA	MEMO	MPANDA MUNICIPAL COUNCIL	0758235883	



ASSESS CONSULTING CO. LTD, P O BOX 14466, DAR ES ES SALAAM

LIST OF CONSULTED STAKEHOLDERS FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY

PROJECT NAME: DATE OF CONSULTATION... 2 JAN 2017

S/N	Name/Jina	Title/Position/Cheo	Location/Institution/Taasisi	Tel/Email/Simu	Signature/Sahihi
9	CHARLES Y. NGONYANI	MALDO	MPANDA MUNICIPAL COUNCIL	076600537 0	
10	ABEL C. KIBIMO	Ag MLO	-11-	0744676015	
11	REVOCATUS NGOMEN	WEO/MWAMAPULI	-WARD	0756826268	
12	AMRI S. PALLO	CDO	-WARD	0755341515	MANISPAA YA MPANDA MTENDAJI WA KATA MPANDA MJINI
13	GRACER KUNCHELO	EHO	-WARD	Kunchelograce@gmail.com 0767 837724	
14	NESTORY. K. KIMONGO	FIRE	REGIONAL FIRE OFFICER	0755024261	
15	Alex D. Msabaha	MEO	Mtaa Executive Officer	0768457865	
16	EMMANUEL S. MUKONO	MSUNGUSI/SEC.	MPANDA HOTEL (A)	0766213722	

ASSESS CONSULTING CO. LTD, P O BOX 14466, DAR ES ES SALAAM

LIST OF CONSULTED STAKEHOLDERS FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY

PROJECT NAME:.....DATE OF CONSULTATION.

S/N	Name/Jina	Title/Position/Cheo	Location/Institution/Taasisi	Tel/Email/Simu	Signature/Sahihi
17.	EMMANUEL HUSSEIN	Meimamizi	Hamis Hussein - Kiwanda cha Kukoboa mpunga	0755 730699	
18.	LABAN JOHN	MFANYAKAZI	— " —	0762-766424	
19	OMARI ALLY	Mfanyakazi - operator	Deo Msagoye - Kiwanda cha kukoboa mpunga	—	
20	SAMWEL MMARI	ECO.	TPRI - DSM	BOX 1565 DSM	

ASSESS CONSULTING CO. LTD, P O BOX 14466, DAR ES ES SALAAM

LIST OF CONSULTED STAKEHOLDERS FOR ENVIRONMENTAL IMPACT ASSESSMENT STUDY

PROJECT NAME: MPANDA WAREHOUSE & SILOS COMPLEX CONSTRUCTION DATE OF CONSULTATION: 25/5/2017

S/N	Name/Jina	Title/Position/Cheo	Location/Institution/Taasisi	Tel/Email/Simu	Signature/Sahihi
1.	ELIMPAA KIRANGA	KAIMU KATIBU MKUU	MALF - DODOMA	0754446233	
2.	Nimtin Elanhaba	Ag. CEO	NFRA	0744468044	
3.	JOSEPH. P. OLOMOLI	~~DG DED~~	NFRA HQ	0742507492	
4.	Oswald Ruboha	AD- M&E	MALF - DODOMA	0754882005	
5	Paulo Tarimo	DLNP	MALF	2860450	
6	Inspector. W/Mtei	AD- LM	MALF	0762-879011	
7	Richard Y. Kaaya	HGCU	MALF	0769-239946	
8	Beatus Malecela	DDCS	MALF	0754608806	
9.	B. A. Shabani	DPMU	MALF	0713 227288	
10.	Seushi J. Mbuni	DAHRM	—11—	0754745305	
11.	George Mandepo		—11—	0754375056	

Appendix 4: Status of Title Deed acquisition process

JAMHURI YA MUUNGANO WA TANZANIA
WIZARA YA KILIMO MIFUGO NA UVUVI
WAKALA WA TAIFA WA HIFADHI YA CHAKULA
Kizota Viwandani Area | S.L.P 1050 Dodoma | Simu: +255(0)26 2340012 | Fax:+255(0)26 2340014
Barua pepe: info@nfra.go.tz | Tovuti: www.nfra.go.tz

NFRA

Kumb. Na. CAB. 26/165/112/01/52 **27 Oktoba 2017**

Mkurugenzi Mkuu
National Environmental Management Council (NEMC)
35 Regent Street
S.L.P. 63154,
11404 DAR ES SALAAM

YAH: HATI MILIKI ZA MAENEO UTAKAPOTEKELEZWA MRADI

Tafadhali husika na kichwa cha habari hapo juu.

Ifuatayo ni hali halisi ya upatikanaji wa Hati Miliki za eneo utakapotekelezwa Mradi wa Kuongeza uwezo wa Hifadhi ya Akiba ya Chakula (Storage Capacity Expansion Project):

NA.	KANDA/ENEO	NAMBA YA KIWANJA	MAELEZO
1.	Sumbawanga	Plot No. 20 & 21, Block "EE", Mtaa wa NMC, Kata ya Mazwi, Manispaa ya Sumbawanga, Mkoa wa Rukwa	Manispaa wamekamilisha kuandaa *Deed Plan* pamoja na Hati Miliki. Tarehe 01 Novemba 2017 itawasilishwa kwa Kamishina Msaidizi wa Ardhi kanda ya Mbeya kwa ajili ya kusainiwa.
2.	Mpanda	Plot No. 16 & 17, Block "C" Mtaa wa Mpanda Hotel, Manispaa ya Mpanda, Mkoa wa	Manispaa wamekamilisha kuandaa *Deed Plan* pamoja na Hati Miliki. Tarehe 01 Novemba 2017 itawasilishwa kwa Kamishina Msaidizi wa

1

		Katavi	Ardhi kanda ya Mbeya kwa ajili ya kusainiwa.
3.	Mbozi	Plot No. 92, Block "J" Mtaa wa Ipanga, Kata ya Ichenjezya, Wilaya ya Mbozi, Mkoa wa Songwe	Hati Miliki Na. 41660-MBYLR; LO No. 537669 ipo kwa jina la NFRA.
4.	Songea	Plot No. 101, 102 & 106; Block "B" Mtaa wa Ruhuiko Shuleni, Kata ya Ruhuiko, Manispaa ya Songea, Mkoa wa Ruvuma.	Hati Miliki Na. 27169-MBYLR; LO No. 176125 na Hati Na. 23840-MBYLR; LO No. 176126 zipo kwa jina la NFRA. Plot Na. 106 mchakato wake bado upo ngazi ya Ardhi Manispaa ya Songea kwa ajili ya kuandaliwa Deed Plan.
5.	Shinyanga	Plot No. 176 & Plot No. 178 Mtaa wa Ibadakuli, Manispaa ya Shinyanga.	Manispaa wamekamilisha kuandaa *Valuation for Transfer,* Wakala umelipa gharama za kuhamisha umiliki na mchakato wa kuandaa Hati Miliki ili ipatikane kabla ya mwisho wa mwezi Novemba 2017.
6.	Babati	Plot No. 794 – 803 Block "YY" Maisara area, Wilaya ya Babati, Mkoa wa Manyara.	Hati Miliki Na. 52892; LO No. 618201 ipo kwa jina la NFRA.

F.M. Masele

KNY: KAIMU AFISA MTENDAJI MKUU

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COMMMENTS RESPONSE TABLE ON THE TECHNICAL ADVISORY COMMITEE (TAC) COMMENTS ON EIS FOR THE PROPOSED EXPANSION OF GRAIN STORAGE FACILITIES ON PLOTS NO. 1,2,3,4,5,6,7 AND 8 BLOCK 'C' MPANDA MTAA IN MPANDA HOTEL WARD, MPANDA MUNICIPALITY, KATAVI REGION

	GENERAL COMMENTS 1. The project title should read as "proposed expansion of grain storage facilities on Plot No. 1,2,3,4,5,6,7 and 8, Block 'c' Mpanda Mtaa in Mpanda Hotel Ward, Mpanda Municipality, Katavi region 2. On page xi, the acknowledgement should include the names and professional of other experts who participated in the EIS study but not registered as EIA Expert. 3. On page xvii in the Table of the content delete the word Error! Bookmark not defined and provide the actual page numbers. 4. The date submitting EIS and Non-Technical Executive Summary Report to NEMC should be the similar. The date of submitting EIS to NEMC is on 6th July 2017 while in Non-Technical Executive Summary Report is 5th July 2017. 5. Maintain uniformity of front size. 6. The title should add ward expansion as there are already existing facilities.	1) This has been addressed throughout the whole document 2) All participated in EIA are registered experts 3) This has been addressed in the Table of Content 4) This has been rectified 5) This has been rectified in the whole document 6) This has been addressed see cover page and the whole report
	1.0 SPECIFIC COMMENTS	
	REVIEW AREA I: ***Description of the Development, Local Environment Regulatory Framework and Baseline Conditions***	
	1) Include the following information in the project description. i. Number of people to be using the proposed building, and ii. Provide actual number of cars to be accommodated by proposed building as well as criteria for selecting that numbers. 2) Provide an estimation of the quantity of power (energy) to be used by the proposed project. 3) Provide information on how construction materials will be transported to the proposed project site. 4) Provide an estimation of the quantity of solid waste (non-degradable i.e. Scarp metals, drums Tins, Glasses and Plastics) during construction phase. 5) Provide cost for implementing the activities that will be carried out during decommissioning phases. 6) Provide methodology that was used to obtain baseline information. 7) Indicate in the title of the EIS the Mtaa where the proposed project will be located. 8) Project location, location maps should be clearly illustrating the location of project in hierarchical order	1) See i. This has been addressed on sectiion 2.2.2.4 ii. This has been addressed on section 2.3.2 2) This has been addressed on section 2.2.2.2 3) This has been addressed on section 2.3.3.1 4) This has been addressed on section 2.3.4 5) This has been addressed on section 2.3.6 6) This has been addressed on section 1.4.2.1 7) This has been addressed throughout the whole document 8) This has been addressed on fig 2.1 on page 8

	from National level to Local level. 9) On the Project Description please improve by indicate the following information; i. Quality of waste for each for category indicated on page 10 item 2.2.2.3. Empty pesticides containers are categorized as hazardous waste. Please indicate how this will be handled. The same applies on item 2.3.5, page 13. ii. Page 14 item 2.5.5.6 insect control, 2nd bullet. It is indicated that debris from sweepings from inside the bin will be managed through burning, burying etc. or saturate it with Malathion, atelic or reldan. Burning is not environmentally friendly, please indicate how the burning will be done to reduce impact on the environment. And incase saturating it with pesticide is the alternative indicative indicate how the saturated debris will finally be disposed of. 10) Project Design. Should be Mobilization phase, Construction phase and Operation phase. All sub-activities described in pre-construction phase have been conducted. 11) Statement for project design is missing. Project design should be include and design considerations might be;- I. Topographical of the area. II. Existing facilities. III. Clint requirement. IV. Technological aspect. V. Geographical survey. VI. Compatibility of facilities/components 12) Total area, area size is 10129.6m2 and not l.6Ha. 13) State how much area in covered by existing facilities and the expected expansion will occur how much area. 14) Section 2.l.5, 5m from Railway line is within Railway line reserve. 15) Provide clear descriptions of the project components and its impacts reflected in the EMP 16) Provide capacity of standby generator 17) Provide quantity of expected SW to be generated and describe clearly will be employed. 18) Land ownership documents should be appear in the document to verify land use, ownership and plot size. 19) Review and include texts from Plans and programs such as; i. Tanzania Agriculture and Food Security Investments Plan (T AFSIP) 2011112 to 2020/21. ii. ASDP II especially Component 3. Improved and expanded rural marketing and value addition promoted by a thriving competitive private sector and effective farmer organization (indicate the link between the component and the storage facility). iii. Add CSA programme CSA (link Component 3: Improved Food Storage and Distribution with the proposed grain storage facility. 20) Consultant shall review the following Laws and Regulation	9) See i. This has been addressed on section 2.2.2.3 ii. This has been addressed in section 2.5.5.6 10) This has been addressed on section 2.3 11) See I. This has been addressed on section 2.3.2.1 II. This has been addressed on section 2.3.2.2 III. This has been addressed on section 2.1.4 IV. This has been addressed on section 2.3.2.4 V. This has been addressed on section 2.3.2.3 VI. This has been addressed on section 2.3.2.5 12) This has been addressed 2.3.1 13) This has been addressed 2.3.1 14) Railway is part of infrastructure within the site 15) This has been addressed on 2.1.6 page 8 16) This has been addressed on section 2.2.2.2 17) This has been addressed on section 2.2.2.3 18) This has been addressed on appendix 4 19) See i. This has been addressed on page 1 ii. This has been addressed on section 3.3.12 iii. This has been addressed on section 3.3.13 20) See page i. This has been addressed on section

	i. The Local Government (Urban and Authorities) Act ii. The Urban Planning Act, No.8 of 2007 section 29, 31, 32 and 33. iii. The Land Act, No.4 of 1999 section 4 and 19. iv. The Plant Protection Act, 1997. v. The Environmental (Solid Waste Management) Regulations, 2009. vi. The Industrials and Consumers Chemicals Management and Control Act, 2003. vii. Noise and Vibration Standards Regulations, 2015. viii. Urban Planning Act, 2007. 21) Page 7, Site description • Please indicate what will be done to the several structure which exist on the ground. If they will be demolished, demolition permit has to be obtained impacts of the demolition identified and mitigation measures identified and incorporated in the EIS report. 22) On page 8, item 2.1.4. Existing structures: Beef this part by indicating whether they will be maintained. This structures need to be audited and incorporated in the EMP of the project.	3.4.19 ii. This has been addressed on section 3.4.20 iii. This has been addressed on section 3.4.21 iv. This has been addressed on section 3.4.24 v. This has been addressed on section 3.4.26 vi. This has been addressed on section 3.4.22 vii. This has been addressed on section 3.4.25 viii. This has been addressed on section 3.4.20 21) This has been addressed on section 2.1.4 22) This has been addressed on section 2.1.2
	REVIEW AREA II: ***Identification and Evaluation of key Impacts*** 1. Review ASDP II and includes its relevancy to the project. 2. Developer should ensure proper management of waste water and solid waste during implementation and operation phases. 3. Provide an estimation of the quantity of liquid waste items of oil and greases during construction phase.	I. This has been addressed on section 3.3.12 II. This has been addressed on chapter 7,8 and 9 III. This has been addressed on section 2.3.4
	REVIEW AREA III: ***Alternatives, Mitigation Measures and commitment*** 1) Monitoring borehole should be included in the layout for the purpose of monitoring ground water quality, 2) Provide information on the alternative source of water, power, alternative design, e.t.c, 3) Include emergency assembly point and buckets of sand in your fire fighting system. 4) Page 102.please not those only contractors with permission to handle hazardous waste can deal with waste oil. Please name the recycling contractor to who waste oil will be sold. 5) Construction of the structures of the project and paving is likely to increase surface run off and if not well managed may lead to erosion of weights near the area. Please indicated how storm water will be managed. 6) Provide discussion on impacts that will be associated with the demolition activities and its mitigation measures.	1. This has been addressed on appenidx 5 2. This has been addressed on section 6.7.2, 6.7.3 and 6.7.5 3. This has been addressed on section 7.4.4 4. This has been addressed on section 2.2.2.3 5. This has been addressed on section 7.3.9 6. This has been addressed on section 6.5.2 and 7.5.2 7. This has been addressed on section 6.7.4 8. This has been noted

	7) No consideration of alternative in terms of waste water management 8) Priorities for employment should be given to local people first.	
	REVIEW AREA IV: ***Public Participation and Communication of results*** 1. EIA study is a multidisciplinary in nature. Therefore EIA study should be done by different people with different expertise. Show the area of the expertise of the person who conducted and / or were involved in this study. 2. The final report of this project must be submitted to Mpanda Municipality. This will facilitate monitoring and evaluation of the project. 3. Consultation should also be done to TPRI for their views. 4. Indicate the time when EIA Study was undertaken. 5. Developer should ensure that development condition stipulated in a title deed is for use group 'L' use class (a) or use group 'M' use class (a) otherwise change of land use should be seek out in order to comply with Urban Planning Act, No.8 of2007 section 30.	1. This has been addressed on declaration part 2. This has been noted 3. This has been addressed Table 5.2 4. This has been addressed on page ii 5. This has been addresed see appendix 4

Appendix 5: Site Lay out Plan