TANZANIA AGRIC-TECH DEVELOPMENT COMPANY LIMITED

PROPOSED FEASIBILITY STUDY
FOR
THE ESTABLISHMENT OF PESTICIDE FACTORY AT MKUNDI WARD, IN MOROGORO CBD, MOROGORO REGION,
TANZANIA.

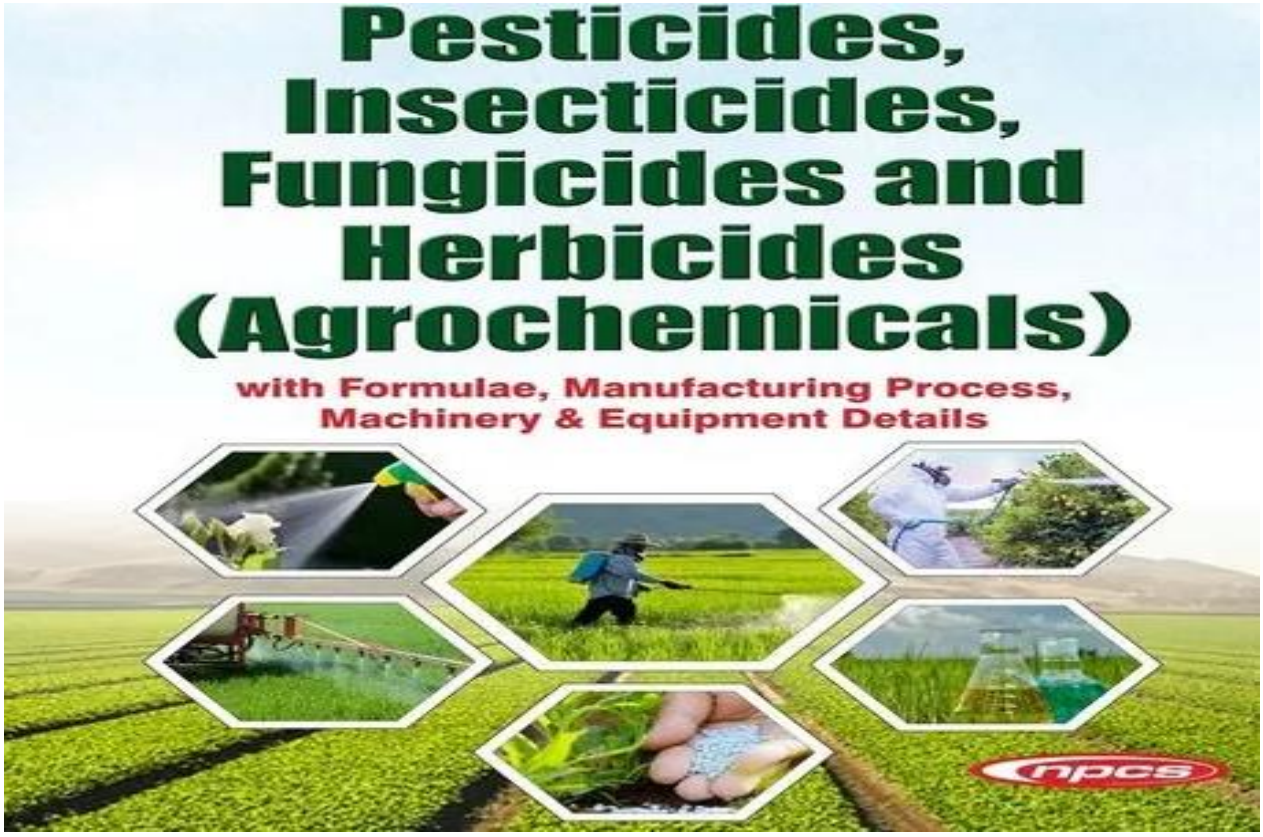

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Table of content

List of Abbreviations

4WD – Four Wheel Driver
CAPEX – Capital Expenditure
CIF- Central in Flight
EU – European Union
GDP – Growth Domestic Products
IRR – Internal rate of return
Kg – kilo gram
LTD - Limited
MIS - Management Information System
MT – Metric Ton
MW – Mega Watts
MOUWASA- Morogoro Urban Water Supply Authority
NBS – National Bureau of standard
NEMC – National Environment Management Council
OPEX – Operating Expenditure
SIDO- Small Development Organization
SWOC – Strength Weakness Opportunity Challenge
TANESCO – Tanzania Electric Supply Company
TIC- Tanzania Investment Centre
TZS – Tanzania Shilling
UK – United Kingdom
US$ - United State Dollar
USA - United states of America
VAT – Value Added tax
VETA - Vocation Education Training Authority

1.0. BUSINESS OVERVIEW AND BACK GROUND INFORMATION.

1.1. Overview – Pesticides manufacturing sector industry in Tanzania.

The use of pesticides in Tanzania is on the rise and the trend is expected to continue if alternative measures are not taken. In 2006, 682 different pesticides were registered in Tanzania, which increased to 874 and 1,114 in 2011 and 2018 respectively. This trend must be considered in terms of the possible impacts on people and food chains. The increased pesticide uses among farmers in Tanzania has been contributed by the perception of low effectiveness of pesticides, limited access on the safe use of pesticides, low use of protective gears.

The shift in agricultural activities globally from traditional to non-traditional methods which have increased the reliance on pesticides to increase productivity. The estimated pesticide-related deaths worldwide are 200,000 per year where 99% of these occur in developing countries despite the fact that the utilization of pesticides in these countries is only 25%. In Tanzania, the increased use of pesticides is evidenced by massive importation. For instance, from 2014 to 2016, there were about 82% increased pesticide importation permits issued (The United Republic of Tanzania 2018). Moreover, the imported pesticides were 4,039,243 liters in 2017. The uncontrolled issuing of these permits has created chances for the importation of fake pesticides and ease of access, hence, the unnecessary use of pesticides. It is estimated that about 81% of pesticides in Tanzania are used for livestock and agriculture, 18% for public health such as the control of vectors, and 1% is for protecting buildings from damage by insects.

The significant effects of pesticides on agricultural productivity and the reduction of post-harvest losses worldwide are well documented. On the other hand, the improper use of these chemicals potentiates negative effects on human health, which differ depending on the duration, levels, and routes of exposure as well as the pre-existing health status of individuals Additionally, physiological conditions and immaturity may increase the vulnerability of young children and adolescents to the deleterious health effects of exposure to pesticides. The highly energetic young men and women who are involved in farming activities like spraying pesticide, weeding, pruning, and harvesting are also likely to be at more risk from the prolonged durations of exposure to pesticides. Long term exposures to pesticides are associated with adverse effects on human health through the interference with almost all body systems such as the nervous, endocrine, immune, reproductive, renal, cardiovascular, and respiratory systems. Various chronic diseases and their co-morbidities such as cancer, diabetes, and cardiovascular and respiratory illnesses have also been associated with exposure to pesticides.

Despite this, data on the relationships between pesticide exposure and NCDs in Tanzania is scarce. Therefore, this review places emphasizes on pesticide exposure, handling, knowledge, and awareness, as well as the health effects and the linkage between pesticide exposure and NCDs.

Moreover, pesticides are classified based on functions which include insecticides, fungicides, herbicides, acaricides, avicides, and rodenticides. Insecticides, fungicides, and herbicides account for about 90% of all pesticide usage in agricultural activities in Tanzania. Basing on this classification pesticide which have been registered for use in Tanzania are shown in Table 1.

Table 1. Registered pesticides in Tanzania based on target pest.

Type of pesticides	***Action/activity***	***n***
Insecticides	Manage insect and arthropod	433
Fungicides	Destroy fungi	321
Herbicides	Destroy unwanted plant (weeds)	294
Acaricides	Inhibit growth of mites and insects eggs	56
Avicides	Manage birds	2
Rodentcides	Manage rodents	8

Source Ministry of Agriculture report 2023

The agricultural sector in Tanzania is largely dominated by small-scale farmers who are vulnerable to pesticide exposure from lack of awareness of pesticide application techniques. The existence of regulatory authorities and policies regarding pesticides in the country does not guarantee knowledge and awareness of the effects associated with unacceptable levels of pesticide residues in foods.

1.2 Sub-Sector overview - Establishment of Tanzania Agric-Tech Development Co. Ltd industry.

Tanzania Agric-Tech Development Co. Ltd industry is a major Manufacturer and Supplier of Pesticide and Fertilizer and raw material import, manufacturing, formulation and packing and sale, the company will provide training for technical and operational training to the show room that will be located in Morogoro CBD. The main focus of the company is to supply of Pesticide and pesticide raw material and lastly Fertilizer production process, the company as one has a l operations in the industrial area: from the planning through the project engineering to the production and documentation of Machineries production.

Currently in Tanzania there is a dichotomy between the large multinational manufacture companies and the artisanal mobile and stationed machineries'. Tanzania Agric-Tech Development Company Limited will seek to exploit this dichotomy in manufacturers of agro-pesticide opportunities in Morogoro, Tanzania; it will operate in a way that will add value to users of machineries' and equipment's while not troubling the larger companies.

The company will provide various services including extension training to customers, extension officer, and technicians on servicing machineries and equipments, which are known for their high performance, high efficiency and durability.

1.3. Project concept in Morogoro Region.

The proposed company aimed to expand her business volume from importing, supply and selling of pesticides for efficiently agricultural production. The plant will produces and sales pesticides for agricultural production processes throughout the world in order to protect crops from pests, fungus, and bacteria, but many of these materials have been found to pose such a health hazard,
However the company is already purchasing of land and few machineries' as will result of the significant investment in Tanzanian operations, the company is looking to register at the Tanzania investment Center. For that purpose, this business plan is prepared to outline the required information about the company and the operations being conducted for the Tanzania Investment Centre only. It is to be considered private and confidential.
The company main office is located in at Maili 18 Street, Mkundi ward, in Morogoro CBD, in Morogoro Region, Tanzania. The company will be established manufacturing of pesticides manufacturing plant. Whereas the yard is already secured with necessary building requirement for plant facilities. Other major capital expenditure will involve procurement of machineries' and equipment's for industrial productions.

1.4. The company objectives include the followings;

i. Pesticide and pesticide raw material import, manufacturing, formulation, packing and sale,
ii. Fertilizer and raw material import, manufacturing, formulation and packing and sale.
iii. Agricultural machinery import, manufacturing and sale.
iv. Seeds import, breeding, and packing and sale,
v. Agricultural products planting , processing, packing and sale.
vi. Agricultural products processing machinery import and sale,
vii. Import, installation and training of green house,
viii. Import, installation and training of agricultural irrigation system
ix. Animal meals production line import and sale.
x. Animal meals manufacturing, packing and sale and lastly,
xi. Livestock farming

1.5. Project setup at Maili 18 Street, Mkundi ward, in Morogoro CBD, in Morogoro Region, Tanzania.

The second phase of this project proposal entails setting up yard for Manufacturing of Pesticide and pesticide raw material import, manufacturing, formulation, packing and sale, and the last phase involves Fertilizer and raw material import, manufacturing, formulation and packing and sale. Pesticide manufacturers involves; formulators, producers, and pesticide products.

The fomulation process involves mixing, blending, and/or duluting one or more PAIs with solvent, inert materialss, or dyes without an intended chemicals reaction. PAIs are fulated into several different pesticide products for easy application, effective application and economy.

The project will be created in the said site above. The proposed project will therefore involve the following activities:

- Additional Acquisition of adequate processing facilities to ensure maximum production of finished products
- Development of processing camps and infrastructure
- Construction of laboratories building, storage warehouses, workshops and offices
- Importation and installation of working tools and equipments to a processing plants, laboratory for noble metal testing
- Procurement and installation of environmental protection plant equipment
- Importation and installation of equipment, machinery and plants for Agricultural machines and equipments,
- Procurement of trucks fleet for transportation of raw materials and other utility vehicles will also be procured for the project. This will include pickups, 4-WD station wagons to facilitate movement. Armored vehicles will also be procured for transportation.
- Purchase of furniture, equipment, fittings and administration motor vehicles, fencing of the factory compound and storage yard.

2.0. PROJECT OVERVIEW

2.1. The Industry

TANZANIA AGRIC-TECH DEVELOPMENT COMPANY LIMITED is a Tanzanian company registered in Tanzania with certificate of incorporation number 176942126 of 07th August, 2024. Issued by Business registrations and Licensing Agency for Pesticide and pesticide raw material import, manufacturing, formulation, packing and sale.

The main office of the company is located at Maili 18 Street, Mkundi ward, in Morogoro CBD, in Morogoro Region, Tanzania. The permanent address is P O Box 1189 Morogoro Region in Tanzania.

The initial Authorized Share Capital of the company is TZS 500,000,000/= divided into 1,000 ordinary shares of TZS 500,000/= each and the company have the power to divide the original or any increased capital into several classes, and to attach thereto any preferential, deferred, qualified or other special rights privileges, restrictions or conditions. Unless the conditions of issues shall otherwise expressly declare, every issue of shares, whether preference or otherwise, or any such rights, privileges or conditions shall not be altered or modified except in accordance with the registered Articles or Association. The liability of the members is limited and the following names compromise the company ownership and principal shareholding as illustrated on Table 1 below.

Table 2.1. Company Ownership and Principal Shareholders

S/No.	Shareholder's Name	Address	Occupation of Subscriber	Number of Shares
1.	HAO YANG,	P O Box 1189, MOROGORO, TANZANIA	Private Company By Share, Domicile In Tanzania- Incorporate Number 176942126	550
2.	GANG CHEN	P O Box 1189, MOROGORO TANZANIA	Private Company By Share, Domicile In Tanzania- Incorporate Number 176942126	250
3.	CHAO JIN	P O Box 1189, MOROGORO TANZANIA	Private Company By Share, Domicile In Tanzania- Incorporate Number 176942126	50
4.	BINGPING AI	P O Box 1189, MOROGORO TANZANIA	Private Company By Share, Domicile In Tanzania- Incorporate Number 176942126	50

5.	LINA CAO	P O Box 1189, MOROGORO TANZANIA	Private Company By Share, Domicile In Tanzania- Incorporate Number 176942126	50
6.	GUOQLANG LIN	P O Box 1189, MOROGORO TANZANIA	Private Company By Share, Domicile In Tanzania- Incorporate Number 176942126	50

2.2. Business Plan Objectives

The objectives of this study are two-fold. First is to determine the viability of the proposed project and serve as a business plan for the company's development program. Secondly, the business plan will act as a supporting document in the company's application for Tanzania Investment Centre (TIC) Certificate of Incentives so as to access exemptions on duties, VAT deferments and other benefits and protections as statutorily provided for under Tanzania Investment Act (1997). The project promoters have commissioned a reputable engineering and project planning consulting firm to advice on detailed technical and economic evaluation of the project and in determining its viability. As the report will be used to raise debt financing for the project, it is tailored to meet standard requirements of financial institutions in the region.

2.3. Project Technical aspect – Pesticide manufacturing process:

2.3.1. Explanatory note: and factory establishment.

Pesticides are widely used in agricultural processes throughout the world in order to protect crops from pests, fungus, and bacteria, but many of these materials have been found to pose such a health hazard that they have been banned under the Stockholm Convention or are considered Highly Hazardous under the Basel Convention. However, though the international community has taken great lengths to protect people and the environment from particularly hazardous pesticides, many of these products continue to be produced, used, and stored. Some of the more noxious, banned pesticides that can still be found in high quantities in storage facilities are carbamates, persistent organic pollutants, organophosphates, and organochlorines – which include DDT and chlordane.
Many of the facilities that currently house large stockpiles of hazardous pesticides are very old or dilapidated and do not have proper infrastructures to support safe storage of the chemicals. In many of these facilities, old and deteriorating drums of toxins are stored in the open where they can leak into the surrounding environment. Because numerous pesticide storage areas were built many years ago, urban centers have since sprung up around them, leaving dangerous toxins in

close proximity to residential neighborhoods. Other pesticides have been buried on site or in landfills, some of them to be excavated later and sold on black markets.

2.4. Industrial process

While a significant amount of toxic exposure to pesticides is due to improper storage, the pesticide manufacturing process itself can also release contaminants into surrounding areas. Though there are over 1,600 active ingredients that are used to create hundreds thousands of different kinds of pesticides. The basic method of creating pesticides consists of a manufacturing step and a formulation step. The manufacturing process involves the creation of a chemical reaction between two or more compounds in order to create an active ingredient The formulation stage consists of mixing active ingredients with solvents and other materials in order to produce different forms of pesticides for various application purposes such as sprays or powders. The processes that occur within each of these steps can potentially create toxic emissions, effluents, or solid wastes, especially if proper safety precautions are not taken.

2.5. Project objective and Description

The company aimed at expanding her Business volume by establish Pesticide and pesticide manufacturing factory in Morogoro Township in Morogoro Region as an agricultural and industrial hub, asserting that this initiative is poised to significantly boost the trade of value-added agro-goods. The experts noted that Morogoro is strategically located with a tropical climate and vast fertile land ideal for the extensive cultivation of both cash and food crops, such as sisal and rice. These crops require processing and manufacturing industries, which are essential for value addition.

2.6. Technical Characteristic of the project.

2.6.1. Project Location and site analysis

The project is located in Morogoro CBD in Morogoro Region. Based on physical inspection of the proposed site at Maili street, Morogoro CBD, Morogoro, the availability of basic and essential industrial infrastructure such transport, water supply, effluent disposal, electric power supply, telecommunication system and security were all checked out and are ok for factory establishment. The realization of the project development requires successful completion of a number of necessary activities and facilities to enable a successful development of the project. The project location is already installed necessary utilities such as reliable supplies

of energy, water, transportation, telecommunications services, waste disposal and other services are in place.

2.6.2. Buildings and related fixed cost

The floor plan and elevation of buildings and other related structures will be rehabilitating to Tanzania Agric-Tech Development Company Limited as rented by the shareholders. However, the total cost of Land acquisition and registration, factory buildings, Storage of raw materials and finished beverage products structure has been done by shareholders, the estimated cost of the structure is estimated to 199,021.74 US$ as cost associate to rehabilitation of the structure, project fixed cost have been estimated at US$ 1,919,198.96 which includes purchasing of machines, motor vehicles and structure rehabilitation.
The industry also set budget as working capital which involves purchase of raw materials and factory overhead cost of 200,000US$.. The minor rehabilitations costs are inclusive of contingency and reflect prevailing cost of building materials and labour costs in the country. Mostly local building materials will be used in the construction of the same.

2.6.3. Machinery and Equipment.

Proper machinery selection is one of the key problems in the development of an industry. The machinery must suit the two-fold requirements of the developing countries, i.e. it should be up-to-date to allow for competitive production. In view of the foregoing, an effort has been made to choose from modern technological alternatives, a level that strikes a balance between fixed costs based on depreciation and variable costs based essentially on wages.
The requirements of various items of equipment have been worked out taking into consideration the production programs, average equipment utilization and normal productivity level of an average worker etc. While working out details of equipment required, it has been assumed that the plant will be working in a double shift of 16 hours a day, 20 days a month or a total of 240 days a year.
The projects machinery and equipment will be sourced from Asia or Europe depending on the quality and production capacity in a given project life span and are estimated to cost 1,007,568.52US$, this includes, complete set production, pesticide, laboratory equipment for testing quality, flight charge. These cost assumptions are C.I.F Dar es Salaam and include installation, commissioning, consultancy, port charges and transport to the project site. Calculated depreciation of machines and other working facilities is estimated to cost 70,482 US$. Others working facilities have already in place this includes weighing scales, mini laboratory equipment, communications, computers and other office equipment, standby power generator and miscellaneous machinery and equipment.
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2.6.4.. Motor Vehicles

5 Light Box body trucks will purchased in the first of production whereas truck will be purchased at a price of 86,956.52 US$ in total and 10 Heavy trucks will be purchased at total price of 480,000 will added for smoothening distribution and 3 forklift 7MT totaling to 150,435US$. The total cost for motor vehicles and forklift is 697,391.3US$.

2.6.5. Furniture & Fittings and computers

This cost item includes the purchase of various office furniture: tables, chairs cabinets, safes, telecommunication gadgets, firefighting equipment, air conditioners etc. A budget of 4,347.83US$ will be allocated from general administration budget for furniture fittings and computer accessories. The total budget for furniture and fittings is small due to nature of industry as few or minor requirement of furniture and fittings.

2.6.6. Pre-Operational Expenses

Under pre-operational expenses are considered costs like company formation, preliminary project studies, business plan preparation costs, licenses, permits and authorization, including processing of TIC Certificate of Incentives, and legal fees, travelling expenses, initial recruitment and training expenses, and interest accrued during project construction period. Budget allocated for this is 2,000US$

2.6.7. Initial Working Capital

This item will mainly cover initial imports of raw materials estimated to last for the first three months of operations. Otherwise, raw materials will generally be maintained at one month's stock and debtors at one month's sales volume constitute the biggest portion of current assets. Trade credits will be 15 days for the items listed. The initial working capital allocated budget is 200,000US$.

2.6.8. Project Financing

The project costs, including fixed costs (machinery, equipment, building renovations, motor vehicles, office furniture and equipment and pre-operation expenses will be financed by shareholders own resources 100%. Working capital requirements will be financed by shareholder or seeking short term bank financing in form of overdraft facility. The project promoters are planning to finance project cost in the following pattern:

2.6.9. Project Implementation

Full implementation of the project is planned to take place by end of 2024. Machineries and motor vehicles will be imported immediately while construction/renovation works are in process.

2.6.10. Explanatory Notes

The production capacity of the plant is based on 240 working days excluding Holidays and Sunday. The factory runs per day with a maximum of 49,152Metric Tones per year for pesticide productions and capacity utilization will 80% during the start of the project. The proposed project is a complete set of modern technology with output capacity of 16,000Kg per hours. All machines are from well-known Asia brands (India/China), after being over hauled, run 20-25 years.

2.6.11. Auxiliary Materials/ services

Falling under this category is packing bags, paper for bags for bran, lubricants, grease and other miscellaneous items.

Utilities and service facilities that will need to be provided in this plant are as follows:

(i) Workshop
(ii) Electric power
(iii) Water supply
(iv) Miscellaneous facilities {Canteen; First Aid Kit, Storage and transport and Office Facilities}

(i) Workshop

It is necessary to make provision for a small workshop in the plant premises so that certain maintenance operations could be carried out following sudden breakdowns and major routine matters. The facility will comprise of necessary machines like small centre lathe, drilling machine, welding set, soldering and gas-cutting equipment including complete electrical kit to take care of necessary electrical maintenance as well as to replace worn-out parts and periodic oil and greases needs for the plant. Equipment provision has been restricted to the minimum.

(ii) Electric Power and Generator

The proposed site will be supplied with industrial production 3-phase standard power supply from Tanzania Electric Supply Company (TANESCO), the electricity is available through the National Grid Line Kidatu to Morogoro Region. As part of

an alternative power supply, the company is already installing a heavy duty 100KVA power generator automated generator in place to a premises for standby power supply.

(iii) Water Supply

Apart from the needs of electric power, water is also required for the actual process and other social needs. The proposed site has close to Morogoro Uban water supply and Authority "MORUWASA" water network, the agency is major supplier of water to urban and peri urban area in the region. The main line from this source will be tapped and let to the land site and water collected in an overhead reservoir provided at the top of the building of the plant. Adequate provision has been made in the project cost for the overhead tank and supply and laying of pipelines etc.

(iv) Miscellaneous Facilities e.g. First Aid Kit, Storage and Transport, Office Facilities etc

- Provision has been made in the project costs for necessary facilities for external telephones and fire alarm system;
- Sickness and ill-health are recognized to be among the cause of absenteeism and low morale leading to decreased production, increased waste and bad employee-management relations. Therefore, necessary provision has been made for the canteen and first aid facilities in case of accidents, sudden sickness etc.
- Necessary provision for furniture and office equipment has been made in the Capital Cost estimates.
- Provision has also been made for the various types of weighing equipment in various sections for material-handling equipment etc.

2.6.12. Warehousing and distribution

The Tanzania Agric-Tech Development Company Limited's warehousing service is ready to meet 24/7/365 in provision of drilling services and necessary material and chemicals imported. The efficiency of on-site combined with focal lift is already accommodated all needs and reduce supply chain costs. The industry uses electronics inventory management system means will ready for the efficiently movements of goods to next level.

The industry will use quick dispatch for fast distribution of final products and packed by manual means or by semi-automatic machines. The industry will take Extra care is therefore taken to make it hygienic so that the products do not get spoiled during storage.

2.6.13. Waste management for industry

In order to create a sustainable society, it is necessary to develop effective utilization of all sorts of wastes. One of the major wastes from our living is fiber wastes. Fiber wastes are generally divided to nonindustrial (organic chemicals) and industrial wastes (inorganic Chemicals)

In his strategic management for a Tanzania Agric-Tech Development Company Limited's; the industry has to move from an understanding of improvement at all costs to an understanding of continuous and balanced improvement once established. In modern times, environmental protection is being implemented not because it is enforced law, but as an administrative philosophy.

Rapid degradation in environmental conditions has changed at attitude of industrial managers toward ecological environment and had them consider ecology a significant factor while taking decisions related to industrial management. Parameters responsible for environmental pollution include chemicals discharged into air, water and soil as well as energy pollution all these will be taken into consideration of the proposed project.

Noise pollution caused by poorly planned settlement programs is also included in this plan. Furthermore, safety and health of those working in production will be also taken into account by installing modern machines free from noise pollution.

3.0. MANPOWER AND SALARY BUDGET

3.1. Employment

The whole process of production lines is looking at providing direct employment to at least 40 permanent jobs on full implementation and operation of the project. The industry is divided into 3 Departments; Administration (1) Finance and Marketing (2) and operational (36) departments are already in place.

3.2. Recruitment

Recruitment of the 36 persons will be carried out by giving first preference to ex-technician from our local technical institutes such as Vocation Education Training Authority "VETA" and employees of Tanzania Agric-Tech Development Company Limited in Tanzania, based on demonstration of skills and aptitude basis and their willingness to work for the company. Careful methodology is being worked out by a competent management consultant who will set the job descriptions. To ensure that the right calibre is recruited. Recruitment of expatriate personnel will be carried out in consultation with the relevant authorities in Government and the collaborating agencies.

3.3. Training and the use of Consultants

The Company plans to initially carry out on the job training for most of the technical staff to be dispatched to the project site by the suppliers of the plant which will be specified under sales agreement. In general the company will ensure that employees acquire new skills and procedures to increase their productivity fourfold. Educational materials will be subsidized or paid for to motivate the workers to develop themselves.

Whereas the company will endeavor to obtain the best talents to fill the permanent posts in the organization, it is intended where necessary, to continue with the policy of hiring out some specialized skills by way of consultants. Alternatively, those skills not required throughout the year will be left to consultants. These include legal counsels, systems and management consultants. To ensure efficient and scientific management, operational manuals will be prepared for the core functions of the company.

3.4. Organization and Management

The project will be managed by qualified professionals given the vast experience that the promoters have acquired over years in running and managing similar businesses. The Board of Directors formulates policy and offer strategic business

guidance to management and regularly monitor and evaluate performance of the company.

All the production line will be under the administrator under which the day to day leader/management of production line will be vested in the management team headed by a Administrator. The Administrator is to be assisted by qualified and experienced personnel.

Table 3.1. Proposed organization and manpower requirement for the plant is as follows:

A.Administration Department	***Full Time Staff***	***Monthly Salary Full Time Staff***	***Total Annual Salary***
Department	***Posts***	***Amount USD***	***Amount USD***
Production Manager	*1*	*600*	*7,200*
Sub Total	***1***	***1520***	***7,200***
Finance And Marketing Department	***Full Time Staff***	***Monthly Salary Full Time Staff***	***Total Annual Salary***
Department	***Posts***	***Amount USD***	***Amount USD***
Accountant	*1*	*180*	*2,160*
Procurement Officer	*1*	*175*	*2,100*
Total	***2***	***355***	***4,260***
C. Operational Department	***Full Time Staff***	***Monthly Salary Full Time Staff***	***Total Annual Salary***
Department Production	***Posts***	***Amount USD***	***Amount USD***
Quality Control	*2*	*300*	*7,200*
ICT Expert	*1*	*270*	*3,240*
Operators	*4*	*200*	*9,600*
Premix Expert	*2*	*190*	*4,560*
Mechanics	*1*	*300*	*3,600*
Helpers	*2*	*200*	*4,800*
Drivers	*15*	*180*	*32,400*
Supporting Staffs	*10*	*120*	*14,400*
Total	***37***	***960***	***79,800***
Grand Total	***40.00***	***2,835.00***	***91,260.00***

4.0. PROJECT FINANCING AND CAPITAL INVESTMENT SUMMARY

4.1. Project Cost & Financing Pattern

The proposed integrated project is estimated to cost a total of all machines and equipments. For whole project operations which include cost of buildings structure, machines and equipments, motor vehicles, initial capital investment, furniture's and fittings, Generators, Laboratory equipments, other charges, working capital, flight charges etc The project will be implemented within 5 years. Estimated total investment is 2,121,198.96US$ which includes 2 production line that will purchased in phase I and II.

4.2. Project Capital Investment Summary.

INVESTMENT SUMMARY - CF				
S/NO.	**CAPITAL ITEM**	**No. OF UNITS**	**UNIT OF MEASURE**	**ESTIMATED COST US$**
NB	**ALL FIGURES IN USD**			
	A. LAND AND BUILDINGS			
1	Land acquisition		acres	N/A
2	Processing factory Building structure	1		24,782.61
4	Semi-permanent Building and office	1		4,347.83
5	Warehouse for finished goods	2		52,500.00
7	Fencing and gates			N/A
8	Laboratory for quality testing	1		30,434.78
9	packaging room	1		21,739.13
10	TP and waste disposal	1		65,217.39
	SUB TOTAL			**199,021.74**
	B. MACHINERY EQUIPMENT			
1	Production line of drinking water Division – 1	1	set	434,782.61
2	production line of drinking water Division – 2	1	set	434,782.61
3	Weighing scale Max 100MT	1	set	44,000.00
4	Diagnosis Equipment for testing quality	2	set	2,004.00
5	Weighing Measures - 0.1 to 100Kg	5	unit	521.74
6	Transformer	1	unit	N/A
7	cutting, Sorting and Packaging machines	2	Complete set	21,912.35

8	Reserve water tanks –durable	2	100,000Lts	65,217.39
9	Generator 500KVA	1	unit	N/A
10	Miscellaneous Tools and Equipment	1	unit	4,347.83
	SUB TOTAL			**1,007,568.52**
1	Computer and accessories	Office sets		869.57
	SUB TOTAL			**869.57**
	C. MOTOR VEHICLES			
1	Folk lift	3	unit	130,434.78
2	Light Vehicles Trucks	5	unit	86,956.52
3	Lorries with trailers	10	unit	480,000.00
	SUB TOTAL			**697,391.30**
	D. FURNITURE			
1	Office Furniture	set in lump sum		4,347.83
2	Other cost			10,869.57
	SUB TOTAL			**15,217.39**
	TOTAL FIXED ASSET			**1,919,198.96**
	E. CURRENT ASSETS			
1	Pre operational expenses			2,000.00
2	Initial working capital			200,000.00
	SUB TOTAL			**202,000.00**
	TOTAL INVESTMENT			**2,121,198.96**
	EQUITY + LOAN			
1	**LOAN (0%)**			**-**
2	**EQUITY (100%)**			**2,121,198.96**
	TOTAL FINANCING			**2,121,198.96**

5.0. RISK ANALYSIS

5.1. Risk Analysis

Risk is the probability that an event or action will adversely affect the organization. Risk assessment is the identification and analysis of risks associated with the achievement of operations, financial reporting and compliance goals and objectives. Risk management is a central part of the Tanzania Agric-Tech Development Company Limited. The Industry's management will determine the level of operations, financial and compliance risk they are willing to assume. Risk assessment is one of the Company's management responsibilities.

5.2. Macroeconomic risk analysis

Since early 1986, the government of Tanzania has launched a comprehensive economic policy and stabilization plan with the aim to enhance the amount of infrastructure construction and improve the lives of the poor. During this time the main economic indicators significantly improved. However, uneven development of various region in the country, lack of relevant infrastructure in transportation, telecommunications, networking, health facilities, electricity and water supplies have proven to be investment barriers. Overall, Tanzania has a weak economic foundation but the project can achieve a greater impact in attaining social and economic goals for the country.

5.3. Finance risk analysis.

a) **Supply Risk:** The risk in Primary production relates to supply of raw material, transportation and price fluctuations. There is no assurance of enough supply of raw materials in the local market instead mostly of raw materials are imported.

b) **Processing Risks:** The technology, machines and equipment used in gold processing are in rudimentary stages all of which contribute to reducing production efficiency. Also quality/food safety and standards consideration in the production environment is limited. In Agri-mechanics and pesticide production facilities operation know-how is very low as there are notarized labourers.

c) **Sales/market risk:** Placing value added products on the consumer markets bears risk of demand fluctuations and rejections through retailers. Furthermore, distributor are not aware of the selling price mostly are controlled by world market.

5.4. Other potential external risk.

a) Lack of Governance: the governance mechanism in the value chain is underdeveloped, actors operate in an uncoordinated and unorganized fashion, and if rules exist they are often ignored;

b) Lack of market coordination: No lead organization has a coordinating role in relation to markets, technology and information such that producers and processors have no incentives for improving neither their product nor the chain process to promote sustainable income earning opportunities;

c) Unclear and conflicting roles regulatory authorities: Regulatory Agencies are responsible for quality control as well as enforcing TBS, NEMC etc, are regulatory role in issuing licensing.

d) Industry associations: Associations are weak at all levels of the chain;

e) Operating procedures: Standard procedures are inadequately enforced, or not enforced at all, because of relaxed production and trade regulations; and

f) Integration: there is little vertical integration of importers, mid chain actors and processors.

5.4. Mitigating potential risk

The development of a large and complex project such as Tanzania Agric-Tech Development Company Limited is necessarily accompanied by multiple risks during all the phases of the project development, construction, operation and maintenance. The right approach to manage the project in a manner which is fairly and adequately address the multiple risks in a comprehensive as well as systematic manner is to use the risk analysis and management methodology which identifies the risk issues and their instrumental cause. In this regard, the risk is eliminated or effectively managed by the party best suited with capacity to handle or deal with the risk factors.

6.0. ECONOMIC AND SOCIAL ASPECTS

The project is also likely to have a positive impact on the economy of Eastern Zone regions and Tanzania as a whole by creating employment, and contributing to Government revenues through various taxes, which will be paid. It also has potential for substantial exporting to foreign markets especially to neighboring countries in the Great Lakes Region. In summary the following table will show impact investment index framework

Impact Investment Index		
Frame Work		
Performance Area	**Quantitative Indicator**	**Remarks**
Investment Capital	Total investment capital, CAPEX and OPEX US$ 2.12Milion	Substantial amount of capital invested into the domestic economy.
Export Earnings	Indicative Annual sales of 100% earnings of 5,308,416US$ out of annual average collection	Increased foreign earnings.
Job requirements	Job creation after plant in operation 2024-2029. DIRECT TANZANIAN JOBS 40 local employed, and over 400 indirect employment SME (Small and Medium Enterprises) will be generated in Tanzania	• Reasonable number of direct job created to local Tanzanians with direct impact on poverty reduction through enhanced income generation; and • Improving skills development for Industrial production
Technology applied	High Tech Environmentally friendly machinery	• Enhancing technological transfer; and • Applied technology which is free from environmental pollution,
Other Implied Project Benefits		
▪ Increased sales to the Utility Companies providing services of electricity, water and sewerage, telecommunications; ▪ Increased business transacted by local banks and institutions providing		

financial services;

- Business opportunities for local entrepreneurs in market distribution channels,
- Business opportunities to contractors and sub-contractors during the minor construction phase;
- Increased regional intra-trade and international trade due to better infrastructure facility and links to markets;
- Increase of technology transfer & expertise to local employed staff,
- Capital spends in local economy over US$ 2.12Milions and
- Contribution to GDP growth through increased economic activities

Based on the Impact Investment Index analysis, the company can develop projections that the project can deliver both value for money in the context of broad socioeconomic impact and return on investment while complying with governance requirements. In this regard therefore, the company will promote the industrialization process in the country, create employment, attract new technologies, expand foreign exchange earnings and ultimately contribute substantially to the country's economic growth.

7.0. FINANCIAL MODELLING AND ANALYSIS.

The Financial Modelling and analysis, is the main source of information for assessing the potential financial viability of the company. The analysis is based on the assumptions that have been taken for the implementation of the site development, demand and the associated potential investment requirements for a 5 year time period. The purpose of establishing this project is to speed up the country´s economic development by being a catalyst for restructuring the existing local industrial set up and attracting new, both foreign and domestic entrepreneurs to a liberalized legal business framework.

7.1. Project investment inputs and revenue projects

The basis for pricing has been from observations and data collected from various parts of Tanzania, market value for exploration is estimated to 50% as profit from imported un-assembled machinery and equipment.

Expected quantities for production	
All cost and revenue in US$	
Revenue to a production line	
Working days per month	20.00
Annual working days	240.00
working hours	16.00
Production per Hour (assumed 80% the machines will operate out of 16,000Ltr per Hour)	12,800.00
Annual production of pesticide in Kg	49,152,000.00
Projected selling price per Kg	270TZS equivalent to 0.11USD
Annual sale per year US$	5,308,416.00
Total sales Revenue	**5,308,416.00**

7.2. Production, Revenue and project viability

- The estimated revenue gain in pesticide 5,308,416.00US$, and increases in the second years to 5,573,837 US$ sales excluding Value Added Tax.
- Net profit before tax is 805,504US$, second year earning is 35,837US$, which show the profit is increasing,
- Net profit after tax is 514,516US$, second year earning is 597,766US$, which show the profit is increasing,
- Gross sales contribution in the first year of production is 15% which increases tremendously in the second years up to 5 year

- The expected sales increase annually is 5% while increase production cost is 3% which depends on inflation rate of the country,
- Total investment cost of the project is 2,121,198.96US$ whereas the own equity is 100% and loan-able amount ZERO, project current assets for the first year is 514,5165US$, fixed asset 1,919,198.96US$, Project liquidity is 805,504 US$
- The end balance of project in cash flow statement is positive and increases tremendous.
- Testing the project viability is positive whereas IRR is positive 17.6%, and payback period of project is within 4 years. The Discounted Cash flow yields an Internal Rate of Return (IRR) of which is well above the assumed cost of capital.
- The end balance of project in cash flow statement is positive and increases tremendous.
- Cash generated from operation and net cash from operational activities increases positively of project (see cash flow sheet)
- Return on Investment is anticipated to 24% which is above normal bank interest rate, which show in case promoter will borrow a commercial loan the project will recover bank loan within project economic life - see balance sheet,
- Depreciation of fixed assets and amortization of the pre-operational expenses rates used are as follows: land 5%, Civil Works/ Structures/Buildings 5.00% on straight line basis, Plant Machinery & Technical Equipment 12.50% on straight line basis, Motor Vehicles. 20.00% on straight line basis. The business plan use 12.5% as depreciation factors. Depreciation is amounted to 70,482US$ and the value of assets increases as asset depreciate
- Salaries and Wages have been based on the prevailing scales in the industry. There is provision of 20% to cover company contribution to NSSSF (10%) and other social welfare (10%). Included to the total amount (see Income statement)
- Corporate Tax is fixed at 30% of taxable profits. The project is able to pay tax hence increase government revenue via GDP by **220,507**US$ this is for the production of pure drinking water
- The business plan has an assumption all capital investment will be recovered within 4 years for 5 year projected economic life,

7.3. Objective and Scope of Financial Model

7.3.1. Objective

The main objective of the financial modelling and analysis is to setup a financial model framework for potential generated revenues and operational &

maintenance costs for the full operation of TANZANIA AGRIC-TECH DEVELOPMENT COMPANY LIMITED based on the assumptions taken for the Market Analysis, the plan for the facility development, unit production costs and other overhead and operational charges.

7.3.2. Scope

The scope consists of a financial model that will be used to analyse the potential financial viability of the project based on the assumptions taken for the concept and scope of the project on the Market Analysis. The financial model has been developed in excel spread sheet and include information on costs, expenses and the subsequent sales revenue based on the average market prices and linked to the financial cash flow.

7.3.3. Project financial plan.

The project financial plan primarily consists of income statement, cash flow projection and balance sheet. From these 3 financial statements the project will derive Break even points, internal rate of returns, loan payment schedules, payback period and other financial ratios. These reports constitute reasonable estimate of company financial future. More importantly, the process of thinking through the financial plan improves insight into inner financial working of company.

ANNEX I INCOME STATEMENT

(all numbers in US$

Revenue

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Annual sale per year US$		5,308,416	5,573,837	5,852,529	6,145,155	6,452,413	**29,332,349**
Total Operating Revenue	-	**5,308,416**	**5,573,837**	**5,852,529**	**6,145,155**	**6,452,413**	**- 29,332,349**

Expected Expenses

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Salaries		91,260	93,998	96,818	99,722	99,722	481,520
Social Charges & Pension Payments		18,252	18,800	19,364	19,944	19,944	96,304
Consumable goods - raw materials		1,800,000	1,854,000	1,909,620	1,966,909	1,966,909	9,497,437
Administrative expemces		384,000	395,520	407,386	419,607	419,607	2,026,120
Fuel and lubricants for machineries and generators		432,000	444,960	467,208	490,568	490,568	2,325,305
Security services		86,400	88,992	91,662	94,412	94,412	455,877
Work wear and other related facilities		45,000	46,350	47,741	49,173	49,173	237,436
Insurances/licensing/healthy premium/other charges		36,000	37,080	38,192	39,338	39,338	189,949
Utilities - Electricity and water services		1,200,000	1,236,000	1,273,080	1,311,272	1,311,272	6,331,625
Other Costs		410,000	422,300	434,969	448,018	448,018	2,163,305
Total Operating Costs							

	4,502,912	**4,637,999**	**4,786,039**	**4,938,964**	**4,938,964**	**23,804,878**
Operational Net Earnings before Depreciation, Interest & Tax	**805,504**	**935,837**	**1,066,490**	**1,206,191**	**1,513,449**	**5,527,472**
%age Gross Contribution	*15*	*17*	*18*	*20*	*23*	*1*
Depreciation at12. 5% (Machines, equipments.)	**70,482**	**81,886**	**93,318**	**105,542**	**132,427**	**497,472**
Net Earnings before Tax & Interest	**735,022**	**853,952**	**973,172**	**1,100,649**	**1,381,022**	**5,029,999**
Interest Paid (Bank Loan)	**-**	**-**	**-**	**-**	**-**	**-**
Tax (30%)	**220,507**	**256,185**	**291,952**	**330,195**	**414,307**	**1,513,145**
Net Earnings	**514,516**	**597,766**	**681,221**	**770,455**	**966,716**	**3,530,673**

ANNEX II CASH FLOW

Cash Flow statement from Investing Activities for ten years					
(all numbers in US$)	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
CASH FLOW FROM OPERATING ACTIVITIES					
Cash receipts from Sales	5,308,416	5,573,837	5,852,529	6,145,155	6,452,413
Cash paid to suppliers and employees	(4,502,912)	(4,637,999)	(4,786,039)	(4,938,964)	(4,938,964)
Cash generated from operations	805,504	935,837	1,066,490	1,206,191	1,513,449
Dividends received*	0	0	0	0	0
Interest received	0	0	0	0	0
Interest paid	0	0	0	0	0
Tax paid	(220,507)	(256,185)	(291,952)	(330,195)	(414,307)
Net cash flow from operating activities	**584,997**	**679,652**	**774,538**	**875,996**	**1,099,142**
CASH FLOW FROM INVESTING ACTIVITIES					
Replacement of equipment	0	0	*0*	0	*0*
Proceeds** from sale of equipment	0	0	*0*	0	0
Net cash flow from investing activities	**0**	**0**	**0**	**0**	**0**
CASH FLOW FROM FINANCING ACTIVITIES					
Proceeds from capital contributed	2,121,199	0	0	0	0
Proceeds from loan	0	0	0	0	0
Payment of loan	0	0	0	0	0
Net cash flow from financing activities	**2,121,199**	**0**	**0**	**0**	**0**
NET INCREASE/ DECREASE IN CASH	**2,706,196**	**679,652**	**774,538**	**875,996**	**1,099,142**
Cash at the beginning of the period	514,516	597,766	681,221	770,455	966,716
Cash at the end of the period	**3,220,712**	**1,277,418**	**1,455,759**	**1,646,451**	**2,065,858**

ANNEX III BALANCE SHEET

Pro forma balance sheet					
(all numbers inUS$	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
ASSET					
Current asset	514,516	597,766	681,221	770,455	966,716
Fixed asset	1,919,199	1,848,717	1,766,832	1,673,514	1,567,972
Liquidity	805,504	935,837	1,066,490	1,206,191	1,513,449
TOTAL ASSET	3,239,219	3,382,321	3,514,542	3,650,160	4,048,136
NET ASSET MINUS DEPRECIATION	**3,168,737**	**3,300,435**	**3,421,224**	**3,544,618**	**3,915,710**
EQUITY & LIABILITIES					
Equity	2,121,199	2,015,139	1,914,382	1,818,663	1,727,730
Reserves	0	0	*0*	0	0
Total Own Equity	**2,121,199**	**2,015,139**	**1,914,382**	**1,818,663**	**1,727,730**
Provisions	756,550	947,225	1,121,573	1,290,218	1,641,246
Long term loan	0	0	0	0	0
Short term Liabilities	290,988	338,071	385,270	435,737	546,733
Total Equity & Liabilities	**3,168,737**	**3,300,435**	**3,421,224**	**3,544,618**	**3,915,710**
NET FA/CL	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CL/CA	0.57	0.57	0.57	0.57	0.57
DEBIT/CAPITAL RATIOS	0.33	0.39	0.44	0.49	0.56
ROI	24.3	29.7	35.6	42.4	56.0
BREAK EVEN POINT	2.38	1.98	1.66	1.39	1.04
BREAK EVEN RATIO	5.95	5.32	4.85	4.46	3.62
EQUITY/TOTAL LIABILITIES	67	61	56	51	44

ANNEX IV IRR.

IRR for the Project		
	(all numbers in US$	
	Initial Investment	-2,121,199
Year 1	Additional Annual Net Profit	514,516
Year 2	Additional Annual Net Profit	597,766
Year 3	Additional Annual Net Profit	681,221
Year 4	Additional Annual Net Profit	770,455
Year 5	Additional Annual Net Profit	966,716
	IRR (in 5 years)	**17.60%**
The IRR above indicates that the expected return on the 2,121,199USD initial investment after 5		

years is 17.60%.

ANNEX V PAYBACK PERIOD

Payback Period Analysis

	Year	Beginning Balance	Net Cash Flows	Ending Balance
Cost of investment	0.00	2,121,198.96	0.00	2,121,198.96
	1.00	2,121,198.96	514,515.68	1,606,683.28
	2.00	1,606,683.28	597,766.16	1,008,917.12
	3.00	1,008,917.12	681,220.55	327,696.56
	4.00	327,696.56	770,454.64	442,758.07
	5.00	442,758.07	966,715.53	1,409,473.60

Payback Period =	**4.00**	**Years**

8.0. CONCLUDING REMARKS AND WAY FORWARD

8.1. Evidence of project viability based on financial model and policy Framework support

On the basis of all the analysis done on this Business Plan on all aspects of assessment on both SWOC Analysis, market analysis, risk analysis and the financial analysis, the proposed investment options in the project as prescribed on this business plan have shown that the project is commercially viable. Nonetheless, TANZANIA AGRIC-TECH DEVELOPMENT COMPANY LIMITED through professional consultative manner, will continue to find ways of implementing cost effective options given time and financial resources that will be made available. Financial analysis results show that when the construction of integrated plant facility is financed 100% by shareholders it gives an IRR of about 17.6%. The computed IRR is well above Dollar market of the annual loan interest rate of (8.00%) which is technically interpreted that the project is financially viable. The payback period for the project is estimated at 4 years, which is within the range for this type of investment. Sensitivity analysis results also favor the project. Financial analysis for the project has shown feasible returns. Based on the investment scope and the assumptions taken in this Business Plan, the project will not face any difficulties during establishment, according to the projected cash flow be in a position to accomplish repayment of the loan and start generating profit.

8.2. Policy Framework Support

The development of the Tanzania Agric-Tech Development Company Limited is designed to tape advantages of the current Tanzanian market-oriented reforms. The Project will be developed and established to accelerate the industrialization process. The vision 2025 emphasizes the importance of the allocation of public funds for strategic investments and private sector financing for development investments.

The 15 years Perspective Plan (2015-2030); Priotize private investment in the context of Public Private Partnership. The First Five Years Development Plan (2021-2025) recognizes the fundamental role of the private sector in enabling the government to allocate its fund to strategic projects to facilitate a higher level of development. MKUKUTA III (2020-2025) identifies Public Private Partnership as a means of increasing the level of stakeholder participation and of easing the financial burden on the government. It should be noted that existing public resources are clearly insufficient to meet Tanzanian's huge development needs. The increased use of private enterprises participation in development projects can help alleviate the financing gap. This approach is now applied by Tanzania Agric-Tech Development Company Limited to ensure development of one among the ultra-modern plant in Morogoro Region. Private sector and investment have been recognized as the most significant potential source of additional funding required to facilitate development projects.

8.3. Conclusive Remarks and Way Forward

The development of this integrated plant will be funded by private finances. The company acting through its various shareholders and structures will provide the initial risk capital amounting to 2.12Milions US$, the whole amount will be raised from shareholders. The company will fund the development of the project minor rehabilitations of factory building, business offices, bulk storage facilities and purchasing machines as stated on this business plan. Before the Company engages into the development of this project as a private enterprise, it needs to accomplish the pre development activities to make way for the development of the designated project.

a) Apply for TIC certificate

The company by using this Business Plan and other required supporting documents should apply for the TIC Certificate at Tanzania investment centre or Head office. With this certificate, the company will be able to access tax reliefs which to a large extent will help to in reducing project costs, particularly in the purchasing of machineries and minor building of area of proposed industrial area.

b) Conduct Environmental Impact Assessment.

The company has to engage a consultant to conduct EIA in order to ensure that environmental and possibly other sustainability aspects are considered effectively in policy, plan and project development. The EIA Directive aims at introducing systematic assessment of the environmental effects of strategic land use related plans and programs. It typically applies to regional and local, development, waste and transport plans, within the country. EIA ensures that plans and programs take into consideration the environmental effects they cause.

c) Minor rehabilitation to suit project Industrial requirement

The company should engage a firm to make minor rehabilitation of existing structure that will suit project manufacturing requirements. The structure should include all vital service facilities described in this business plan. When possible, the process of design of the facility should be consultative insomuch that it should allow and incorporate ideas from experienced professionals from the industry.

d) Mobilizing Funds

As previously discussed on the Financial Analysis of this business plan, financing mechanism for plant should be scrutinized well before commencing the project implementation. There may be several options of financing the project development but the company will find the best option. The investment team should do consultation with relevant financial institutions (Banks and non-bank Financial Institutions), both

within and outside the country. This exercise should be more effective if the team works closely with central government agencies, particularly TIC and the Ministry of Industry & Trade and Ministry of Investment.