

ROFI FARMING COMPANY LTD FISH FARMING PROJECT



ROFI FARMING CO LIMITED

CHAPTER ONE: INTRODUCTION

1.1 Introduction

M/s Rofi Farming Company Limited is a newly-registered local company under certificate of incorporation number 167297765 dated 27th July, 2023. The company envisages developing an ultra-modern tilapia cage fish farm in Magu District, Mwanza region which when fully operational, the farm will accommodate 500 square cages measuring 128 square meters each with capacity to accommodate 80,000 fish. The project is estimated to cost a total of TShs 17.4284 billion (US\$ 7,414,738) in fixed assets alone at full completion. Working capital requirement is estimated at US\$ 714,894. The company targets to utilize the abundant water available around the shores of Lake Victoria, and particularly in Magu District.

1.2 Project Concept

The project entails establishing ultra-modern fully integrated tilapia cage fish farm in Lake Victoria waters in Magu District. The cage fish farm will comprise of two (2) major components: The first component will involve development of breeding ponds for the production of the highest quality sex-controlled (all males) 1.0-gram fingerlings for own requirements and sell the excess production. The second component will involve Importation and installation of 500 fish farm cages within Lake Victoria water to produce portion size(400-500 grams) at an average grow out period of 4 months to 5 months for local and export markets in the neighboring E.A Community member states andbeyond.

This document has been prepared for four (4) main reasons. Firstly, to determine the viability of the proposed project and serve as a business plan forestablishing and running the proposed integrated fish farm. Secondly, it will bepresented to the Directorate of Fisheries of the Ministry of Livestock and Fisheries Development to facilitate application for Fish Processing and Export Licence to conform to The Fisheries Act (2003) and Fisheries Regulations of 2009. Thirdly, it is meant to facilitate the application for Tanzania Investment Centre (TIC) Certificate of Incentives so as to access exemptions on duties, VATdeferments and other benefits and protections as statutorily provided for underTanzania Investment Act (2022) for the project. Lastly, the Feasibility Study Report will serve as a supporting document in the application for local short-term finance to facilitate financing of working capital requirements.

1.3 Ownership

The project is promoted by M/s Rofi Farming Company Limited, a locally registered company with authorized share capital of TShs 2,500,000,000/= divided into 2500 ordinary shares of TShs 1,000,000/= each. The shareholders are five (05) Chinese nationals with respective shareholding as shown in the below table:

Shareholding Structure

	Name	Nationality	No. Of Shares	% Of Shares
1	Xiaojiao Lin	Chinese	750	30%
2	Changson Chen	Chinese	600	24%
3	Yufang Chen	Chinese	500	20%
4	Mao Chen	Chinese	375	15%
5	Yanhui Lin	Chinese	275	11%

1.4 Project Location and Infrastructure

The proposed project will be located at un-surveyed land at Chabula ward in Magu District, Mwanza region. The project will be located in two different areas: (i) beach plot measuring 15 acres and cages will be inside the lake covering an area of 64,000 square meters whereby the distance between one cage to the other will be 5 meters.

1.5 Project Investment Capital

The directors and shareholders of Rofi Farming Company Limited plan to make substantial investments in the development of the cage fish farm, including land acquisition, construction of breeding ponds, processing buildings, structures and related civil works, storage buildings, residential buildings for key staff, office buildings, procurement and installation of fish farming cages and modern patrol boat. The proposed project also involves acquisition of tools, equipment, and utility and administration vehicles.

Capital Investment Summary

	ITEAMS	COST IN Tsh '000'	EQUIVALENT IN USD
1	Land Acquisition, Registration and Site Preparations	355,000	151,064
2	Civil works, structure and Buildings	1,735,000	738,298

	SUB TOTAL	2,090,000	889,362
3	Tools and equipment's	12,218,400	5,199,318
4	Utility and administration vehicles	2,850,000	1,210,764
5	Furniture, fixture and office equipment's	150,000	63,830
6	Pre- operational costs	120,000	51,064
7	Contingencies	100,000	42,553
	TOTAL	17,428,400	7,414,738
8	Working Capital	1,680,000	714,894
	GRAND TOTAL	19,208,400	8,171,785

1.6 Investment Financing Arrangements

Fixed assets cost of the project estimated to cost TShs 17.4284 billion (US\$7,414,738) is planned to be financed through owners' equity contributions and directors' loans. Equity contribution is estimated at approximately 70% while bank loan is 30%.

Sources of Investment Finance

	Source of finance	Tsh in "000"	USD	%
1	Shareholders' Equity	12,199,880	5,191,438	70%
2	Bank Loan	5,228,520	2,224,421	30%
3	Add working capital	1,680,000	714,894	
	TOTAL	19,108,400	8,130,753	100%

Working capital will be financed through local short-term loan if and when required, depending on the business tempo. Initially, an overdraft facility of TShs 1.680 billion (US\$ 714,894) is considered adequate for the initial workingcapital requirements.

M/s Rofi Farming Company Limited will apply to be registered with Tanzania Investment Centre under this project so as to be eligible to enjoy the various taxincentives and other benefits

as statutorily provided under Tanzania Investment Act of 2022 as well as for meeting conditions for obtaining processing and export licenses per The Fisheries Regulations of 2009.

1.8 Production Capacity

The directors envisage obtaining the initial batch of tilapia fingerlings from M/s Ruvu Fish Farm of Bagamoyo, Coast region before harvesting fingerlings from own breeding ponds within the first year. The project will procure and install 500 cages measuring 128 square meters each. Each cage will have capacity to 80,000 sex-controlled fish fingerlings which will grow therein to portion size fish (400 to 500 grams) each. Mortality rate is estimated to be less than 20% given the fresh waters of Lake Victoria which has very little pollution compared to other similar water bodies. The director's estimates that each cage will produce 64 tons within every 4 to 5 months, thus producing twice during the year and hence 128 tons per annum. This translates to total production of 64,000 metric tons per annum at full project implementation.

Production of sex-controlled fingerlings from breeding ponds is estimated at 36 million per annum, out of which 28.80 million are expected to survive. The project will utilize only 17.92 million while approximately 10.88 million will be for sale.

1.8.1 Revenue Estimates

The price of fish portion size (400 to 500 grams) is estimated at TShs 4,500/= per kilo. Under the production assumptions, therefore, the project is projected to generate revenue of 89,920,000,000 /= equivalent to US\$ 38,263,830 per annum from fish sales alone.

The price of fish fingerlings is conservatively projected at only TShs 80/= (US\$0.04) per piece, translating to revenue of TShs 870,400,000/= equivalent to US\$370,383- per annum.

The project envisages employing estimated number of 160 people among whom 10 will be foreign expatriate staff. Of the remaining 150 local employees, 65 will be skilled while 85 will be casual workers. Furthermore, among the local employees, 70 are expected to be males while 80 are expected to be females. Salaries, wages and allowance bill is estimated at 3% of total project sales revenue, hence TShs 2,723,712,000- equivalent to US\$ 1,159,026- per annum.

CHAPTER 2: BUSINESS ENVIRONMENT AND SECTOR ANALYSIS

2.1 Introduction

Tanzania is blessed with fisheries resources from marine, freshwater, riverine and wetland species, according to a Study Report “*The Tanzania Fisheries Sector: Challenges and Opportunities*” by the Ministry of Agriculture, Livestock and Fisheries (2016). By making use of these resources, the sector provides direct employment of about 183,800 fishers. More than 4,000,000 people such as boatbuilders, fish processors, net and engine repairers are indirectly employed. It provides income for local people from foreign earnings, food for coastal and upcountry communities and also contributes to GDP (2.4% in 2015). This makes the country one of the greatest fisheries nations in Africa, ranking in the top 10 in terms of total capture and fisheries production. Current information on the assessment of the fisheries management performance is scanty. The fisheries resources in Tanzania are currently exploited using the open access principle, through a licensing system and community participation in fisheries management.

2.1.1 The Fisheries Sector

Tanzania is endowed with rich marine and inland waters that yield a wide range of living aquatic resources, providing livelihoods, food security, export revenues, and potential further economic development. The fisheries can be divided into the following subsectors: marine and inland capture fisheries, aquaculture, and fish processing. The scale of operations ranges from small-scale subsistence fishing to industrial fish processing. There is a vibrant export market, exploited by small-scale fish processors and traders serving the regional market, and by large fish processors selling into international markets.

Over the last decade, Tanzania fisheries production has been in the range of 325,000 to 380,000 tons per annum. About 85% is from inland fisheries, 14% from marine fisheries and just 1% from aquaculture. In 2014, there were some 183,800 people engaged in fishing, accounting for about 0.7% of the work force, with a large, but unknown number, also engaged in fish trading and processing.

2.1.2 Fisheries Sector Institutions

The Ministry of Livestock and Fisheries (MLF) is responsible for the preparation, implementation, monitoring, and reviewing of national fisheries policies and regulatory frameworks in Tanzania. The Department of Fisheries Development within the MLF is responsible for the management of inland fisheries, and for marine fisheries within the territorial waters of the mainland.

In addition, several institutions work in the fisheries sector in research, training and development roles. The Tanzania Fisheries Research Institute (TAFIRI) carries out research in Fisheries and has its headquarters in Dar es Salaam and offices in Mwanza, Kigoma and Kyela. The institute undertakes research in freshwater and marine capture fisheries, aquaculture and mariculture, fish processing and quality as well as socio-economic studies.

The Mbegani Fisheries Development Centre and the Nyegezi Fisheries Institute (Mwanza) operate under Fisheries Education Training Agency (FETA). They offer technical training courses in fishing technology, aquaculture, fish processing and quality control, coastal resources management, and other subjects relevant to the development needs of the fishery sector.

2.1.3 Inland Fisheries

Inland fisheries accounted for about 85% of the national fish production in 2014. Lake Victoria and Lake Tanganyika are the most important lakes from a fishery point of view, accounting for about 94% of the total inland fish production. Lake Victoria, according to the Lake Victoria Fisheries Organization, is the most productive freshwater fishery in Africa.

The inland fisheries are currently exploited by an estimated 132,982 fishers, operating 42,288 (mostly very small) vessels, and over the last 15 years have produced an average overall catch of 296,370 tons. Of the three lakes, Lake Victoria accounted for about 63% of all fish production from freshwater capture fisheries during 2013, Lake Tanganyika contributed about 18% and Lake Nyasa about 3%. The main freshwater species of commercial interest are the Nile Perch (*Lates niloticus*), Nile Tilapia (*Oreochromis niloticus*), and freshwater sardine or Dagaa (*Rastrineobola argentea*).

2.2 Aquaculture in Tanzania

Aquaculture, in Tanzania started in the early 1950s with experiments with tilapia in pond culture. These days the sector includes tilapia, trout, and catfish (in fresh water), and a small marine aquaculture (mariculture) sector producing milkfish and prawns. There is also small seaweed farming and harvesting sector exploiting red algae used for carrageenan production. Although seaweed production is modest, this activity occupies large numbers of harvesters (mostly women).

2.2.1 Production

Aquaculture production is static at about 4,000 tons per year, three quarters of which is tilapia. The sector generates considerable employment, with an estimated 15,000–20,000 people engaged in the seaweed sector, 14,100 engaged in freshwater fish farming and 3,000 in the marine sector. Apart from a few notable examples, aquaculture in Tanzania is primarily a small-scale activity, with small ponds, little formal management and low productivity, reflecting its largely subsistence nature. Many ponds are small and small-scale seaweed farms are run by the women assisted by the younger family members. They can be found along the entire coast from Tanga to Mtwara and in Mafia and Zanzibar.

However, there are some larger vertically integrated production units with cage farming in Lake Victoria, and some larger ponds for shrimp production in coastal areas. Production of Tilapia in cages has been introduced in Bunda district and some parts of the lake in Mwanza and Bukoba. There is one major joint venture between a Danish and a Tanzanian company, and several of the training institutions, such as FETA, also operate farms. These producers have developed their own feed supply and hatchery facilities.

Constraints:

- ✓ Lack of Good Quality Supply of Fingerlings

There are nine hatcheries for tilapia in operation (three of them being government owned and operated) with production reaching slightly over 5,000,000 fingerlings, against a demand estimated by the Department of Fisheries Development to be over 30,000,000 fingerlings countrywide. There is an apparent lack of good quality fry, and the excess demand over supply results in lower quality and higher levels of mortality, undermining productivity.

- ✓ Lack of Good Quality Supply of Feeds

Feed supply is another constraint. There is one main fish feed producer and supplier based in Dar es Salaam. Government supports the distribution of affordable fish feed by subsidizing 85% of the commercial selling price to fish farmers. The company also supplies juvenile tilapia for grow-out. There are a few commercial operators with vertically integrated facilities, which include small-scale fish feed mills, using locally available raw materials such as fish meal (from dagaa), soya beans, sun flower oil, cassava flour, wheat and maize bran. Some feeds are also imported directly by larger producers, to ensure better quality and productivity. Government has strongly supported investment in aquaculture training, with degree programmes at Sokoine University of Agriculture and the University of Dar es Salaam, and skills training at Mbegani

Fisheries Development Centre and FETA Complexity of Multiple Licensing Requirements in Cage Culture Unlike Uganda and Kenya, cage culture in Lake Victoria has not taken off at commercial levels, due to the reported complexity of multiple licensing requirements with several agencies, namely the National Environment Management Council, Ministry of Environment and the Ministry of Agriculture, Livestock and Fisheries. Tanzania's aquaculture production equates to about 0.2% of fish supplies for human consumption in the country. In Kenya aquaculture contributes 1.4% and in Uganda it contributes 6.5%. Egypt, with considerably poorer production conditions than any of these countries, generates 80% of its fish supplies from aquaculture.

2.2.2 Tanzania Potentiality in Aquaculture

Clearly, Tanzania has considerable potential for increasing the contribution of aquaculture, given the extensive lake and river water resources, ideal temperatures and availability of raw materials for feed. Until now, despite the best efforts of the Department of Fisheries Development, and considerable investments, the Government has struggled to establish the right policy environment for private sector investment in aquaculture to take off. Tanzania will be one of the beneficiaries (along with Uganda and Kenya) of a major EU funded project "Support to Promoting Aquaculture in the East Africa Community", planned for launch in 2017, with funding up to EUR10 million.

2.2.3 Cage Fish Farming/Aquaculture in Tanzania

i. 822KJ Bulamba Detach Cage Fish Farm Project

Cage fish farming has now been officially allowed in Tanzania since November 2014 when the Ministry of Livestock and Fisheries Development launched the opening ceremony at Mara Region the fish farming projects in the Lake Victoria whereby All Male Tilapia are cultured in a large water body like this, this is so far the biggest cage fish farm within Tanzania borders, located at Bulamba Area, Bunda District under the ownership of JKT 822KJ- Bulamba Detach. The Bulamba JKT has to date developed more than 50 cages. Basically, the fingerlings were produced at Eden Hatcheries situated in Dar Es Salaam. It is a remarkable history for the first time in Tanzania that a huge project like this to take place.

The project was established in support of identification of fisheries demonstration site of Bulamba JKT in Bunda district for cage culture to reduce overfishing and illegal fishing in Lake Victoria and minimizing environmental and ecosystems degradation. Capacity building was done to 822KJ- Bulamba Detach, BMUs and communities on fish cage culture techniques

to ensure constantly high Fish production and supply to the local communities and market and reduce illegal fishing to its minimum level. The Bulamba JKT has to date developed more than 50 cages.

ii. Ruvu Fish Farm

This is the most notable aquaculture project in the country, located in Bagamoyo, Coast region which is a joint venture between a Tanzanian and a Danish partner with support from DANIDA. The project is expected to produce 450 tons of quality tilapia fish per year. However, this project uses ponds. Cage fish farming is rapidly expanding in Lake Victoria waters. A few more cage farms have started appearing in Magu District.

2.4 About Tilapia in Tanzania

Whilst Nile perch and dagaa dominate the inland fisheries, tilapia also makes an important contribution and it accounts for 11% of the Lake Victoria catch. Fresh tilapia is the preferred and most widely consumed fresh fish product in Tanzania, and the government has banned the exports of tilapia from the capture fishery as a food security measure. Tilapia is mainly consumed in a fresh form, but smoking and salting is widely practiced, especially by island communities that lack quick means of transport to the mainland markets. Due to its high popularity locally and regionally, the lakeside price of Tilapia per kg is higher than that of Nile perch. The high prices have started to bring in imports of tilapia fillets, with increasing quantities of tilapia entering Tanzania from China.

2.4.1 Fisheries and Aquaculture Policy and Implementation

The Government has prioritized development of the agricultural and fisheries sectors, and in October 2015 the MALF published the National Fisheries Policy 2015, which sets out the vision of: “By 2025 to have a progressive fisheries sector contributing significantly to socio-economic development through sustainable utilization of fisheries resources while conserving the environment.” The overall objective of the National Fisheries Policy is to develop a robust, competitive and efficient fisheries sector that contributes to food security and nutrition, growth of the national economy, and improvement of the wellbeing of fisheries stakeholders while conserving the environment. Key documents, which guide the implementation of policy, are the Fisheries Sector Development Program, the National Aquaculture Development Strategy and Fisheries Management Plans for the prawn, octopus, tuna and small-scale artisanal pelagic fisheries. The existing legal and regulatory framework applicable to the fisheries sector is

expressed in several legal measures enacted in the Fisheries Act CAP 279 of 2003, the Marine Parks and Reserves Act CAP 146, the Deep-Sea Fishing Authority Act CAP 388; and the Tanzania Fisheries Research Institute (TAFIRI) Act CAP 280, and other related laws and regulations. The Fisheries Act is presently under revision, to better reflect international best practices in fisheries governance and management. The Fisheries Regulations 2009 set out the detailed technical provisions applicable to the sector.

CHAPTER 3: TECHNICAL ASPECTS

3.1 The Project Concept

The project entails establishing ultra-modern fully integrated tilapia cage fish farm in Lake Victoria waters in Magu District. The cage fish farm will comprise of two (2) major components:

- ✓ Development of breeding ponds for the production of the highest quality sex-controlled (all males) 1.0-gram fingerlings for own requirements and sell the excess production;
- ✓ Import and install 500 fish farm cages in Lake Victoria water to produce portion size (400-500 grams) at an average grow out period of 4 months to 5 months, conduct processing and packaging the fish so produced for sale in the local market, surrounding E.A Community member states and beyond;

3.2 Location and Infrastructure

The proposed project will be located at un-surveyed land at Chabula Village, Chabula Ward in Magu District, Mwanza region. The company has managed to purchase a total of 15 acres of beach plot from locals and the Derivative process will start soon as we get our certificate of Incentive with TIC. Thus area will be used for the establishment of breeding ponds and hatcheries, establishment of processing area and cold storage facilities as well as setting up of

3.3 Planned Activities

As mentioned elsewhere, the project has three principal activities: breeding tilapia fish to produce 1.0-gram sex-controlled fingerlings; grow up all-male fingerlings in cages to portion size fish (400 to 500 grams), process and package the fish so produced for sale mainly for the local market and export to E.A Community partner state and beyond.

Specifically, the company plans to do the following during the next 3 years:

- ✓ Complete land acquisition and registration processes;
- ✓ Obtain the necessary licences, permits and authorizations necessary to establish the cage fish farming, processing and selling locally and export to the E.A Community member states and elsewhere abroad;
- ✓ Develop a cage fish farm with a maximum of 500 fish cages to produce all-male sex-controlled tilapia to ensure a 25-tons container is processed and moves out to the market within every day;
- ✓ Construct project buildings, storage facilities and related civil works;
- ✓ Procure new specialized fish transportation and administration vehicles.

3.4.1 Strategies to be employed

In order to realize planned activities, the company will use the following strategies

- ✓ Complete land acquisition process and obtain Derivative Right from TIC as well other licenses approvals and permits from other institutions for smooth project operations;
- ✓ Develop fifteen (15) most modern Tilapia Fish Breeding Ponds to produce topquality fingerlings at the ratio of one (1) male to three (3) females. Total femalesin one pond are estimated at 600. Each female produces 4,000 eggs per year, computing to 2,400,000 eggs per pond or 19,200,000 fingerlings per annum (8 ponds) with mortality rate of slightly above 20%. Out of this production, 17.92 million will go to own farm while 10.88 million will be sold out to other fish farmers, meaning 7.20 million are expected to perish. The breeding stock will be obtained from Lake Victoria.
- ✓ Import from China the state-of-the-art tilapia fish farm cages totaling 500 pieces The cages focus at producing all-male sex-controlled tilapia at the rate of 14,336 tons per annum. Each cage will measure 128 square meters.
- ✓ Construct at the project site processing and storage buildings and develop necessary civil works structures to accommodate all the proposed project facilities.
- ✓ Procure facilities necessary for production and distribution activities. This will include the following:
 - ✓ Procurement and installation of refrigeration equipment/system and compressors, cold rooms, IQF (Individually Quick Freezing) Plants;Processing Line Equipment (Blast and Flake Ice Plants);
 - ✓ Development of water treatment plant/effluent water plants,
 - ✓ Development of laboratory for quality analysis;
 - ✓ Establish a workshop for service and maintenance of plant equipment and transportation facilities and procurement of engineering equipment;
 - ✓ Undertake Staff recruitment and training;
 - ✓ Procurement and installation of a new heavy duty Standby Electric PowerGenerator
 - ✓ Procurement of 4 units of 25-ton refrigerated container trucks, 4 units light trucks for collection of feed materials from neighboring villages, 2 unitsmultipurpose pickups, and 2 units 4-WD administration vehicles, 2 unitspickups for general project purposes and 4 administration vehicles.
- ✓ Identify and establish fish distribution points and external markets;

- ✓ Adhere to the EU Food Standards in collaboration with the country's fisheries authorities to ensure we are eligible to enter any global market at all times
- ✓ Ensure continuous specialized staff training and motivation throughout so as to maintain a local trained and dedicated work force.

3.5 Investment Costs

Capital investment in fixed assets is estimated to be TShs 17,428,400,000/= (US\$7,414,738-. In addition, there will be a need for about TShs 1.680 billion (US\$ 714,894) to finance working capital requirements as indicated under Annex I of the Financial Projections section of this document. The main investment items are indicated in the same annexure which also show the implementation plan. The specific activities to be financed are indicated in the table below:

Investment Cost Summary

	ITEAM	TOTAL COST TSHS 000)	TOTAL COST (USD)
1	Land and site preparation		
2	Civil works structure & Buildings	1,735,000	728,298
	Subtotal	2,090,000	889,762
3	Machinery And Equipment's	2,480,000	1,055,319
	Fish Cages and related equipment (including cage nets, anchors, ropes, chain, buoys, diving equipment, patrol boats, pumps, buckets, etc.)	9,738,400	4,144,000
	Subtotal	12,218,400	5,199,318
4	Motor Vehicles	2,850,000	1,210,764
5	Furniture, fittings and office equipment's	150,000	63,830
6	Pre operational expenses	120,000	51,064
7	Contingencies	100,000	42,553
8	<i>Working capital</i>	<i>1,680,000</i>	<i>714,894</i>
	GRAND TOTAL	19,108,400	8,129,632

3.5.1 Financing Arrangement

The entire fixed assets cost of the project estimated to cost TShs 17,428,400,000/= (US\$ 7,418,340) is planned to be financed through owners' equity contributions at approximately 70% (TShs 12,199,880,000/- equivalent to US\$ 5,191,438-) and bank loan financing at 30%

(TShs 5,228,520,000/= equivalent to US\$ 2,224,421) Working capital will be financed through local short-term loan if and when required, depending on the business tempo. Initially, an overdraft facility of TShs 1.680 billion- is considered adequate for the initial working capital requirements.

M/s Rofi Farming Company Limited will apply to be registered with Tanzania Investment Centre under this project so as to be eligible to enjoy the various tax incentives and other benefits as statutorily provided under Tanzania Investment Act of 1997 as well as for meeting conditions for obtaining processing and export licences per The Fisheries Regulations of 2009.

3.6 Production process

Fish fingerlings are produced in breeding ponds where the parent stock will be obtained from Lake Victoria. The fingerlings are treated with hormones through feeds to ensure only males are produced. Fingerlings are transferred to the cages at the age of 26 days when they are 1.0 grams on average. The fingerlings are fed with top quality fish meal for four months when they will have grown to between 400 to 500 grams which is the standard market size. Thereafter, tilapia fish will be harvested and taken to the processing building. Here they will be cleaned, ready for packaging. Processing capacity is estimated at 40 tons per day.

Note should be taken that the company will sell whole fish. Apart from cleaning, no further processing will be done.

3.6.1 Packaging and store

Whole fish will be packaged in Styrofoam cartons, each carton 10kgs. One refrigerated container will thus carry 2,500 cartons. The products will then be chilled at minus 30 degrees centigrade before being transferred and stored in cold room below minus 18 degrees centigrade.

3.6.2 Production capacity

Initially, the project will procure and install 500 both square cages measuring 128 square meters each. Each cage will have capacity to accommodate between 80,000 sex-controlled fish fingerlings which will grow therein to portion size fish (400 to 500 grams) each. Mortality rate is estimated to be less than 20% given the fresh waters of Lake Victoria which has very little pollution compared to other similar water bodies. The director's estimates that each cage will produce 64 tons within every 4 to 5 months, thus producing twice during the year and hence 128 tons per annum. This translates to total production of 64,000 metric tons per annum at full project implementation. Timing of fish production will be organized in such a way that

everyday fish is harvested at the rate of 175 tons per day and the harvested cages will be filled in with a fresh stock of fingerlings.

Production of sex-controlled fingerlings from breeding ponds is estimated at 36million per annum, out of which 28.80 million are expected survive. The project will utilize only 17.92 million while approximately 10.88 million will be forsale.

3.6.3 Revenue estimates

The price of fish portion size (400 to 500 grams) is estimated at TShs 4,500/= per kilo. Under the production assumptions, therefore the project is projected to generate revenue of TShs 89,920,000,000 /= equivalent to US\$ 38,263,830per annum from fish sales alone.

The price of fish fingerlings is conservatively projected at only TShs 80/= (US\$0.04) per piece, translating to revenue of TShs 870,400,000/= equivalent to US\$370,383- per annum.

Revenue estimates summary

Product	Revenue in Tshs	Revenue in US \$
Fish sales	89,920,000,000	38,263,830
Fingerlings	870,400,000	370,383
Total	90,790,400,000	38,634,213

3.6.3 Production Costs

It requires 1.3kgs of feeds to produce 1.0kgs of fish. Production cost is estimated atTShs 2,000/= (US\$ 0.86) per kilo–in-house price since that the company plans to establish another project for the processing of fish feed for sell and own consumption. At full project production therefore, it will cost TShs35,840,000,000/= (US\$ 15,251,064-) to feed the entire population per annum.Fish meal alone therefore computes at 55.56% of total sales revenue.

The project envisages employing estimated number of 160 people among whom 10 will be foreign expatriate staff. Of the remaining 150 local employees,65 will be skilled while 85 will be casual/unskilled workers. Furthermore, amongthe local employees, 70 are expected to be males while 80 are expected to be females. Labour cost is estimated to cost approximately3% of total revenue, hence TShs 2,723,712,000/= (US\$ 1,159,026- per annum.

CHAPTER 4: MARKET EVALUATION

3.1 Market and Marketing aspects

The project targets both the local market and the E.A Community member states and beyond. The export market is not considered for the time being.

3.1.1 Competition

Cage fish farming has officially been allowed by the government in recent years. So far, there are only a few large commercial tilapia fish farming projects in the country. The most notable project is Ruvu Fish Farm located in Bagamoyo, Coast region which is a joint venture between a Tanzanian and a Danish partner with support from DANIDA. The project is expected to produce 450 tons of quality tilapia fish per year. However, this project uses ponds. Cage fish farming is rapidly expanding in Lake Victoria waters. The biggest cage fish farm within Tanzania borders is located at Bulamba Area, Bunda District under the ownership of JKT 822KJ- Bulamba Detach. The Bulamba JKT has to-date developed more than 50 cages. A few more cage farms have started appearing in Magu District.

It is therefore evident that there is no serious competition in cage fish farming, considering the fact that tilapia fish demand in the country is very high compared to available supply.

Market and Marketing aspects

The project targets both local and export at the ratio of 50% for each. The export market includes E.A Community member states and beyond.

CHAPTER FIVE: FINANCIAL ANALYSIS

5.1 Financial assumptions

The estimated capital cost and basic operating assumptions are summarized in the financial projections as shown in Annexure I to XI. In the financial analysis the following major assumptions have been taken into considerations:

- ✓ By taking into consideration gradual increase in production capacity, the financial projections are for 5 years.
- ✓ For convenience and stability, all financial figures have been quoted in United States Dollar at US\$ 1 = 2,350/=TShs.
- ✓ Total capital investment cost is estimated at TShs17,428,400,000/(US\$ 7,414,738) excluding working capital requirements.
- ✓ It is proposed to finance the total fixed Investment costs of this project through foreign equity contributions (70%), and local bank term loan(30%). The Initial Working Capital Requirements estimated at TShs1,680,000,000/(US\$ 714,894-) will be financed through bank short-term loan in form of overdraft facility to be charged interest at the prevailing rate of 8%.
- ✓ Implementation period of thirteen (13) months has been taken into consideration to allow for development of the site infrastructure and other civil works structures etc); procurement of fish cages and development of rearing and breeding pond/tanks, recruitment and training of technical staff; procurement and installation plant machinery equipment and necessary tools, and motor vehicles; and securing local and export markets.
- ✓ Discounting rate has been assumed to be 8%
- ✓ Depreciation of fixed assets and amortization of the pre-operational expenses/contingencies rates used are as shown in Appendix 3 (Annual Depreciation and Amortization of Assets) and Annex I (Investment, Replacement and Depreciation Schedules).
- ✓ Project capacity utilization is estimated at 60% in the first year, rising to 65% in second year, reaching 70% in year three, 75% in year four before stabilizing at 80% from year five onwards.
- ✓ Investment Costs are shown in Annex I (Investment, Replacement and Depreciation/Amortization Schedules).
- ✓ Direct production costs shown in Appendix 2 (Operational Costs) and Annex 1V

(Trading Account) are based on current rates.

- ✓ Salaries, Wages and Allowances have been based on the prevailing scales in the aquaculture industry in Tanzania. There is provision of 20% to cover company contribution to Social Security Fund (10%) and other Social Welfare Benefits (10%).
- ✓ Administrative/Overheads and farm/factory Overhead costs are based on the prevailing rates in the market and needs of the proposed project.

5.2 Major Operating costs

Corporate Tax is fixed at 30% of taxable profits. The project will be granted a Tanzania Investment Centre (TIC) Certificate of Incentives and therefore enjoy tax relief on both capital and deemed capital goods.

5.3 Analysis of Financial Results

Following are highlights of the financial projections and analysis:

5.3.1 Annex IV – Trading Account

Operations of the project are profitable right from year 1 when the company posts a net profit after tax of US\$ 4,114,407. The profitability position remains stable during the subsequent years, rising to US\$ 4,687,816 in year two, 4,981,404- in year three before climaxing at US\$ 5,828,880- by end of the 5th and last assumed economic life of the project.

5.3.2 Appendix V – Sources and Uses of Funds

The projected Cash flow for Financial Planning indicates that the project will generate enough cash to meet its financial obligations. The cumulative cash balance during the project period grows over six (6) fold, increasing from US\$ 4,114,407- to US\$ 25,027,411-. This is a positive indication that the project is liquid enough to meet its cash requirements to support its trading operations.

5.3.3 Appendix VI – Project Balance Sheet

The balance sheets indicate a favourable state of affairs of the project throughout the projected period. Similarly current liabilities are well covered by the current assets, the ratio ranging from 6.64 to 36.52 fold. The company net-worth (Initial Shareholders Equity plus Retained Earnings) grows 5.82 fold during the economic life of the project, increasing from US\$ 5,191,438- at the end of construction period to US\$ 30,218,849- by end of the 5th year, a significant growth in the value and profitability of the company.

5.3.4 Payback Period

The Normal Payback Period is 1.3 years at zero discount rate

5.3.5 Breakeven Analysis

Break-even ratio for this project is 36.72%. This tells us that the firm can break-even when it operates at 36.72% of the assumed security services provision capacity.

5.3.6 Sensitivity Analysis

From the analysis carried out on changes of some key factors to show their effect on profitability and IRR, the project shows to be more sensitive to changes in price than changes in decline in capacity utilization and increase in direct operating costs.

CHAPTER SIX: ENVIRONMENTAL ASPECTS

6.1 Introduction

The project activities involve installation of fish cages within lake waters, production of fish meal, cleaning and packaging of whole fish before packaging and chilling/freezing the products ready for transportation in refrigerated trucks to both local and export points (airport/sea port). In the process, the company cooperates with various regulatory authorities, including Tanzania Fisheries Department, OSHA, MMC, TRA, CGL and NEMC. Rofi Farming Company Limited will adhere to all regulations as appearing in The Fisheries Act (2003) and Fisheries Regulations (2003) which guides fish processors on the necessary the processors have to observe regarding environmental aspects before the processors can be granted fish processing and export licence.

Generally, Tanzania has environmental regulations governing the industrial operations/manufacturing activities etc. Nevertheless, each operator takes basic precautions to ensure that during operations, damage to environment is limited to the minimum possible level.

Rofi Farming Company Limited will seek to obtain European Union Certification for the proposed processing plant before starting operations, and this will ensure a working quality control system in place. The HACCP System (Hazard Analysis & Critical Control Points) of quality control will give this factory a global competence. A working laboratory, an efficient training programme, good teamwork and support from the government authorities will help this industry to grow day-by-day. The company will implement all directives from the EU and therefore grant approval for export to all the EU countries and the global market in general including the Middle East and to the other member states of East Africa. Furthermore,

6.2 Nature of Project Activities

Project Activities: involve collection, cleaning and packaging and chilling/freezing the products ready for transportation in refrigerated trucks to the local and export points (airport/sea port). Processing begins with fish receiving and selection of ideal fish for processing. The only chemical applied during the processing is Chlorine used for cleansing purposes.

Mode of Liquid Waste Disposal: Recycled and treated waste water and the affluent disposed in underground tanks.

6.3 Work Health and Safety Policy

To ensure environmental aspects are fully accommodated in the planned project activities, the Company will establish its Environmental Management Plan which shows commitment of Rofi Farming Company Limited Management and Workers to health and safety, with aims to remove or reduce risks to health, safety and welfare of all workers, contractors and visitors, and everyone else whomay be affected by the Company's business operations

The aim of this workbook is to:

- ✓ Show the commitment of Rofi Farming Company Limited Management and Workers, Contractors to health and safety;
- ✓ To remove or reduce the risks to health, safety and welfare of all workers, contractors and visitors, and anyone else who may be affected by the Company's business operations;
- ✓ Under this environmental management plan workbook, the Management is responsible for providing and maintaining:
 - ✓ Safe working environment;
 - ✓ Safe system of work;
 - ✓ Plant and substances in safe condition;
 - ✓ Facilities for the welfare of all workers;
 - ✓ Any information, instructions, training and supervision needed to make sure all workers are safe from injury and risks to health;
 - ✓ A commitment to consult and cooperate with workers in all matters relating to health and safety in the workplace.
 - ✓ A commitment to continually improve our performance through effective safety management.

6.4 Environmental Impact Screening

The nature of the project indicates that there are no major negative environmental effects of public concerns, except two minor ones:

6.4.1 Air pollution

It has been noted that during processing fish, the processing may be associated with release of offensive smell, and as a result, may disturb the surrounding community. However, the fish processing operations for M/s Rofi Farming Company Limited will be conducted in an ultra-

modern factory that will meet all the Fisheries Act (2009) and Fisheries Regulations (2009), and therefore processing will be carried out under very clean environment.

This impact is therefore considered negative, cumulative, short term and of low significance.

6.4.2 Land Contamination from Chemicals

It is urged that improper management of effluent and other cleansing chemicals like chlorine spills may occur from processing. This is also considered of low significance as all effluent water will be channeled to water treatment plant. Mitigation measures should be in place and other necessary precaution should be taken in order to avoid land pollution.

6.5 Risk Analysis

The major risk factor considered under this project is the possible breakdown of fish diseases. However, this is highly unlikely as Lake Victoria waters are very clean, almost pollution-free compared to similar water bodies. The second major risk is the possibility of the increase of number of cage fish farmers around Magu district who may compete for lake space. However, this is also unlikely to happen in a foreseeable future as commercial cage fish farming is relatively a young industry in the country.

6.6 Social, Economic and Developmental Benefits

The commercial cage fish farming activities generate a lot of developmental benefits, including but not limited to the following:

- ✓ Establishing the proposed fish meal production facilities in Magu and production of 10,812 metric tons for sale will help ease the fish feed supply constraint which is hindering the growth of fish farming industry.
- ✓ Supply of 10.88 million good quality tilapia fish fingerlings will reduce the huge deficit currently experienced which stands at over 30 million compared to the available supply of 5 million fingerlings countrywide.
- ✓ The good quality fingerlings sold to other farmers will further influence reduced mortality and improved productivity.
- ✓ The project envisages employing estimated number of 160 people among whom 10 will be foreign expatriate staff. Of the remaining 150 local employees, 65 will be skilled while 85 will be casual/unskilled workers. Furthermore, among the local employees,

70 are expected to be males while 80 are expected to be females.

- ✓ Salaries, wages and allowances estimated at TShs 2,723,712,000/= (US\$ 1,159,026-) expected to be earned by local workers at full project operations are expected to change the economy of Magu District irreversibly;
- ✓ Mwanza region traders are set to benefit tremendously from the supply of various fish farm and factory supplies estimated at TShs 10,295,193,600/= (US\$ 4,380,977-); Fish production is geared towards both local consumption and export to the neighbouring countries and beyond. Therefore, the increased supply of 14,336 metric tons of tilapia fish per year will not only influence to regulate fish price but also, with the project fish price being half of the current market price means more local people will have access to nutrients available in tilapia fish.
- ✓ Magu Municipal Council will collect substantial revenue (levies/taxes) from fish farming and processing activities;
- ✓ Revenue to the government Treasury and other organs in the form of taxes, fees and levies;
- ✓ The project will generate a considerable amount of foreign exchange through the sale of tilapia fish sales from the export market. Approximately 50% of fish production is planned for the export market particularly the EAC member states, SADC and other Africa countries and the Middle East;
- ✓ The project personnel will benefit from training on fish farming and processing skills.

6.7 conclusion And Recommendations

6.7.1 Conclusion

Financial and economic analyses above reveal the following:

- ✓ The project is financially viable, economically feasible and environmentally friendly as indicated by the projects' cost of production and profitability tables, cash flows and balance sheet.
- ✓ The project envisages expansion of Tanzania's market share in the fish export industry and thus maximizing government revenue in form of various taxes; The project has a very short payback period of 1.30 years relative to its fixed capital investment of US\$ 7,414,738-.

- ✓ The project is will employment opportunities, transfer of technology. It is geared to employ about 150 local employees, a significant number of which will be women.
- ✓ The project will generate a considerable amount of foreign exchange through the sale of tilapia fish.
- ✓ The project will have a huge impact in the economy of Mwanza region considering the amount of of money that will be paid to workers per annum in form of salaries and wages and the estimated amount of TShs 2,723,712,000/= (US\$ 1,159,026-) that will be collected by local employees. In addition, the project will provide a potential for supply of various fish farm and processing factory supplies estimated at TShs 10,295,193,600/= (US\$ 4,380,977-). The two factors are set to change the economy of Mwanza region irreversibly;

6.7.2 Recommendations

In view of the above it is strongly recommended that the project be approved by Tanzania Investment Centre and be granted the TIC Certificate of Incentives with its associated privileges and benefits as provided for under Tanzania Investment Act, 2022 to facilitate smooth implementation.

It is further recommended that TIC assist the investors to obtain a Letter of No Objection from the Ministry of Livestock and Fisheries and subsequent grant of Fish Processing and Export Licence as provided for under Section 6(d) of Tanzania Investment Act, 2022 which reads *“assist all investors to obtain all necessary permits, licences, approvals, consents, authorizations, registrations and other matters required by law for a person to set up and operate an investment, and to enable certificates issued by the Centre to have full effect”*.

FINANCIAL
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