

The Big Best Company Limited

Establishing a Fully Integrated Cage Fish Farm



**At Kasamiko Village, Sangabuye Ward,
Ilemela District**

in

Mwanza Region, Tanzania

Prepared for:

The Big Best Company Ltd

P.O. Box 6252

Mwanza

Tanzania

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

M/s The Big Best Company Limited is a newly-registered local company under certificate of incorporation number 159314391 dated 16th December, 2022. The company envisages developing an ultra-modern tilapia cage fish farm in Ilemela District, Mwanza region which when fully operational, the farm will accommodate 112 cylindrical cages measuring 20m radius x 4m height, 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 Ilemela District.

1.2 The Project Concept

The project entails establishing ultra-modern fully integrated tilapia cage fish farm in Lake Victoria waters in Ilemela District. The cage fish farm will comprise of three (3) 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 112 cylindrical 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 and beyond. The last major component will involve establishing a very modern fish feed mill for production of good quality fish meal of international standards for the fish farm project as well as selling the excess production to other fish farmers within the and abroad. The fish feed mill will be the largest plant in East and Central Africa, followed by Yalelo Plant situated in Zambia operating in the shores of Lake Kariba.

1.4 The Study Objectives

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 for establishing and running the proposed integrated fish farm. Secondly, it will be presented 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, VAT deferments and other benefits and protections as statutorily provided for under Tanzania Investment Act (1997) 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.

1.5 The Project Promoters

The project is promoted by M/s The Big Best Company Limited, a locally registered company with authorized share capital of TShs 1,170,000,000/= divided into 100 ordinary shares of TShs 11,700,000/= each. The shareholders are three (3) Zambian nationals with respective shareholding as shown below:

1. Mr. Goodward Mulubwa (4500 shares) – 45%;
2. Ms Yvonne (1500 shares) – 15%; and
3. Mrs. Carine Mukanda Mulubwa (4000 shares) – 40%.

1.6 Location and Infrastructure



The proposed project will be located at un-surveyed land at Kasamiko Village, Sangabuye Ward in Ilemela District, Mwanza region. The project will be located in two different areas: (i) beach plot measuring 5,400 square metres

earmarked for development of fish breeding ponds and hatcheries; (ii) 24,000 square metres planned for construction of the processing factory, storage facilities, offices, residential houses for key staff etc. The two plots are about one (1) kilometer apart. The sites are accessible by a rough



road, about 7 kms from Mwanza Airport and almost 17 kilometers from Mwanza City, It is nearly to the connections to the national power grid electricity to Kayenze Centre. Water will be drawn from the lake. The plot size is considered adequate to accommodate all the current and future planned activities.



1.7 Capital Investment Structure

The directors and shareholders of The Big Best 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, modern patrol boat, and acquisition of ultra-modern processing facilities. The proposed project also involves acquisition of tools, equipment, and utility and administration vehicles.

CAPITAL INVESTMENT SUMMARY

S/No.	Capital Item	Capital Investment (in TShs "000")	Capital Investment in Equivalent US\$
1.	Land Acquisition, Registration and Site Preparations	355,000	151,064
	Civil Works, Structures and Buildings	1,735,000	738,298
	<i>Sub total</i>	<i>2,090,000</i>	<i>889,362</i>
2.	Plant Machinery, Tools and Equipment	12,218,400	5,199,318
3.	Utility and Admin Motor Vehicles	2,850,000	1,210,764
4.	Furniture, Fixture and Office Equipment	150,000	63,830
5.	Pre-operational Expenditures (including interest incurred during construction period)	120,000	51,064
6.	Contingencies	100,000	42,553
	TOTAL	17,428,400	7,414,738
7.	Add: Working Capital Requirements	1,680,000	714,894
	GRAND	19,208,400	8,171,785

1.8 Proposed Financing Arrangement

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%. Hence:

S/No.	Source of Finance	Contribution	In TShs "000"	In US\$
1.	Owners' Equity	70%	12,199,880	5,191,438
2.	Bank Loan	30%	5,228,520	2,224,421
	Sub total		17,428,400	7,415,859
3.	Add: Working Capital		1,680,000	714,894
			19,108,400	8,130,753

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 working capital requirements.

M/s The Big Best 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 licenses per The Fisheries Regulations of 2009.

1.9 Fingerlings and Raw Materials Sources



The directors envisage obtaining the initial batch of tilapia fingerlings from M/s Ruvu Fish Farm of Bagamoyo, Coast region before start harvesting fingerlings from own breeding ponds within the first year. Materials for

making own fish meal including sardines; maize, polished rice, cotton cake etc. will be obtained locally, mainly from surrounding villages. However, premix (minerals, micro- element etc.) will be imported from China.

1.10 Production Capacity

Initially, the project will procure and install 112 cylindrical cages measuring 20m radius x 4m high, total 5,028.572 cube metres. 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 14,336 metric tons per annum at full project implementation.

On the other hand, installed production capacity for fish meal is estimated 28,800 tons p.a. when operating in single shifts of 8 hrs, per day times 360 days per annum. From the fish production plan above, 18,636.80 tons of fish meal will be for own use while the excess production of 10,163.20 tons will be available for sale.

Production of sex-controlled fingerlings from breeding ponds is estimated at 36 million 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 for sale.

1.11 Revenue Estimates

The price of fish portion size (400 500 grams) is estimated at TShs 4,500/= per kilo. Under the production assumptions, therefore the project is projected generate revenue of TShs 64,512,000,000/= equivalent to US\$ 27,451,915-per annum from fish sales alone.



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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 price of fish meal for sale is estimated at TShs 2,500/=(US\$1.07) per kilo, hence, revenue of TShs 25,408,000,000/= equivalent to US\$ 10,811,915- per annum is expected to be realized from sale of excess production of fish feeds.

Revenue Estimate Summary

Product	Revenue in TShs	Revenue in US\$
Fish Sales	64,512,000,000	27,451,915
Fingerlings	870,400,000	370,383
Fish Meal	25,408,000,000	10,811,915
Total	90,790,400,000	38,634,213

1.11 Production Costs

There are three major production costs under this project: fish meal production cost; raw materials in the production of fish meal for sale, and labour cost (salaries, wages and allowances). It requires 1.3kgs of feeds to produce 1.0kgs of fish. Production cost is estimated at TShs 2,000/= (US\$ 0.86) per kilo – the in-house price assigned to the fish production requirements in this part of the project. At full project production therefore, it will cost TShs 35,840,000,000/= (US\$ 15,251,064-) to feed the entire population per annum. Fish meal alone therefore computes at 55.56% of total sales revenue.

Production capacity for fish meal for sale is estimated at 10,163.20 tons p.a. It is assumed that raw materials and similar inputs for production of fish meal will cost about 60% of revenue generated from this source. Sales revenue is estimated at TShs 25,408,000,000/= equivalent to US\$ 10,811,915- per annum. Raw materials works out at TShs 15,244,800,000/= equivalent to US\$ 6,487.149-

On the other hand, production cost for fish fingerlings is estimated at 45% of sales revenue. At full project implementation, 10.88 million fingerlings will be available for sale at a price of TShs 80/= (US\$ 0.04) per piece, translating to revenue of TShs 870,400,000/= equivalent to US\$ 370,383- per annum. Production cost for fish fingerlings works out at TShs 391,168,000/= equivalent to US\$ 166,672-.

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 88 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.

1.12 Market and Marketing Aspects

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

1.13 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. Cagefish 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 Ilemela District.

It is therefore evident that there is no serious competition in cage fish farming, particularly in Lake Victoria, considering the fact that tilapia fish demand in the country is very high compared to available supply and the export potential is huge.

1.14 Financial Considerations

Annex IV of the attached Financial Projections Annexure analyses the Trading Account, Annex V analyses Sources and Uses of Funds while Annex VIII deals with Break-even Analysis as summarized here to below. The analysis is well

elaborated in the attached projections and summarized as follows:

- o Internal Rate of Return on investment 25%
- o The Normal Payback Period is 1.30 years at zero discount rate
- o Breakeven Point decreases as major assets depreciates, computing at 36.72% in year five when the project assets have depreciated for five years, serve for the project land.
- o The ratio between Net Profit + Interest to Investment ranges from 58%% to 79%.
- o Return on Equity on this project by the end of its assumed economic life at year five (5) is 82.82, translating to a return of 82.82 for every 100 equity dollars invested in the project. This indicates that the project is very profitable, over and above the industrial standard return of 15- 20%.
- o The company net-worth (Initial Shareholders Equity plus Retained Earnings) grows 5.82 fold during the economic life of the project.

1.15 Environmental Aspects

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 the markets. In the processes, the company will cooperate with various regulatory authorities, including Tanzania Fisheries Department, OSHA, MMC, TRA, CGL and NEMC. The Big Best Company Ltd will adhere to all regulations as appearing in The Fisheries Act (2003) and Fisheries Regulations (2003) which guides fish processors on the necessary regulations the fish farmers and processors have to observe regarding environmental aspects before the farmers/processors can be granted permits and license.

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.

To ensure environmental aspects are fully accommodated in the planned project activities, the Company will establish Work Health and Safety Policy which will show commitment of The Big Best Company Ltd 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 who may be affected by the Company's business operations.

1.16 Organization and Management Team

The project will be managed through the Board of Directors consisting of three members. The Board will formulate policy and offer strategic business guidance to management and regularly monitor and evaluate performance of the company.

The day to day management of the project will be vested in the Management Team. The Management Team will comprise of the General Manager who will be the overall in-charge of the project. The General Manager will be assisted by Deputy General Manager. The General Manager and his deputy will be assisted by three (3) Heads of Department: Production Manager, Marketing Manager and Finance & Administration Manager. These will in turn be supported by qualified personnel in their areas of specializations.

1.17 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 Ilemela 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.

1.18 Social, Economic and Developmental Benefits

The commercial cage fish farming activities generates a lot of developmental

benefits, including but not limited to the following:

- Establishing the proposed fish meal production facilities in Ilemela 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 and wages to be earned by local workers are expected to change the economy of Ilemela District irreversibly;
- Fish production is geared towards both local consumption and export to the neighboring 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.

1.19 Project Implementation Schedule

The company directors have the financial muscle, technology, market access and all other necessary resources required to implement the project at any time. However, implementation of the project will only start after obtaining all the necessary permits and authorizations from the relevant authorities. Of particular interest is the grant of a Letter of No Objection from the Fisheries Department, and grant of Tanzania Investment Centre (TIC) Certificate of Incentives with a

view to benefit from investment benefits and protection as statutorily allowed under Tanzania Investment Act, 1997. Implementation is scheduled to take 13 months to completion of phase one which involves acquisition and installation of 112. Depending on the success from the project, more cages are planned with a target of reaching at least 250 cages in ten yearstime. However, this particular business plan is for five (5) years only.

1.20 Conclusion and Recommendations

The foregoing discussion highlights on the social, economic and financial dimensions which the envisaged project is set to generate in this country. The brief analysis indicates that the proposed project is economically feasible, financially viable, socially desirable and environmentally manageable. Therefore, it is strongly recommended that the sponsors, The Big Best Company Limited be availed the required institutional assistance so as to enable them implement the proposed project. It is further recommended that an application for TIC Certificate of Investment Incentives be submitted to Tanzania Investment Centre with a view to benefit from investment benefits and protection as statutorily allowed under Tanzania Investment Act, 1997. Meantime, TIC should be asked to obtain a Letter of No Objection on behalf of the company for the establishment of the fish processing factory in Ilemela District, Mwanza region as part TIC facilitation services to investors as provided for under Section 6(d) of Tanzania Investment Act, 1997.

2.0 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 boat builders, 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.

2.2 The Fishery 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.

FISH PRODUCTION IN TANZANIA 2015

SOURCE	METRIC TONNES	AS A % OF TOTAL
Inland	314,062	85%
Marine	51,912	14%
Aquaculture	3,942	1%
TOTAL CATCH	369,966	100%

Source: Fisheries Statistics 2014 Ministry of Agriculture, Livestock and Fisheries (MALF) - Department of Fisheries

2.3 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 fresh water 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.

2.4 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*).

2.5 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).

2.5.1 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.

2.5.2 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.

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.

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 fishfarm 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. The support, also included expertise, fingerlings and some operations costs.

About Lake Victoria

Lake Victoria is the largest lake in Africa and the second largest and most productive fresh water lake in the world. The lake is the major source of Nile Perch (*Lates niloticus*). It is bordered by three East African countries – Kenya, Uganda and Tanzania.

Surface area	Kenya	4,100 sq. km	(6%)
	Tanzania	34,385sq. km	(49%)
	Uganda	31,000 sq. km	(45%)
	Total	69,485 sq. km	

Depth	84 m (max); 40 m (mean)
Max length	400 km
Max width	240 km
Shoreline	3,440 km
Catchment area	263,000 sq. km.

(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 Ilemela District.

2.5.3 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.

2.6 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.

3.0 TECHNICAL ASPECTS

3.1 The Project Concept

The project entails establishing ultra-modern fully integrated tilapia cage fish farm in Lake Victoria waters in Ilemela District. The cage fish farm will comprise of three (3) major components:

- (i) 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;
- (ii) Import and install 112 cylindrical 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;
- (iii) Establish a very modern fish feed mill for production of good quality fish meal (including floating pellets) of international standards for the fish farm project as well as selling the excess production to other local fish farmers and export the excess.

3.2 Location and Infrastructure

The proposed project will be located at un-surveyed land at Kasamiko Village, Sangabuye Ward in Ilemela District, Mwanza region. The project is spread in two areas: (i) Beach Plot measuring 5,400 square metres earmarked for establishment of fish breeding ponds and hatcheries; (ii) Plot measuring 24,000 square metres planned for establishment of the factory, storage, offices and residential for key staff. The two plots are about one (1) apart. Both sites are accessible by a rough road, about 7 kms from Mwanza Airport and 17 kms off the the City Centre.. It is connected to the national grid electricity. Water will be drawn from the lake. The plots sizes are considered adequate to accommodate all the current and future planned activities.

3.3 Ownership

The project is promoted by M/s The Big Best Company Limited, a locally registered company under Companies Act, 2002 with Certificate of Incorporation No: 159314391 dated 16th day of December, 2022 formed for the main objective of undertaking fish farming activities in Tanzania. The Company is registered with authorized share capital of TShs 1,170,000,000/= divided into 100 ordinary shares of TShs 11,700,000/= each.

The shareholders are three (3) Zambian nationals with respective shareholding as shown below:

COMPANY SHAREHOLDERS AND SHAREHOLDING STRUCTURE

NAME AND ADDRESS OF SHARE HOLDER	NUMBER OF SHARES TAKEN BY EACH	NATIONALITY
1. Mr. Goodward Mulubwa P.O.Box 6252 Mwanza, Tanzania	45 (45%)	Zambian
Ms Yvonne Mulubwa P.O.Box 121 Lusaka, Zambia	15 (15%)	Zambian
Mrs. Carine Mukanda Mulubwa P.O.Box 121 Lusaka, Zambia	40 (40%)	Zambian
TOTAL	100	

Company Directors:

- (1) Mr. Goodward Mulubwa
- (2) Ms Yvonne Mulubwa
- (3) Mrs. Carine Mukanda Mulubwa

The three company directors are also the owners of a Zambian Registered Company M/s Swift Cargo Company Limited, a cargo transportation company based in Zambia. M/s swift cargo company limited are well conversant in the transportation and Logistics sector, currently operating fuel and cargo transportation business in Zambia Democratic Republic of Congo and Tanzania,

Mr. Godward Mulubwa (Managing Director) is a share holder in another Zambian company engaged in aquaculture at Kariba Lake where they currently operate 74 fish cages measuring 10m radius and 4m high. He has decades of experience in this industry. Mr. Mulubwa is among the top successful businessmen in Zambia. He owns two big maize milling in Zambia with production capacity of 400 metric tons per day each, He likewise owns 75 tanker trucks and 120 Cargo Trucks operating from Beira to different parts of Zambia, DRC, Tanzania and South Africa, He currently resides in South Africa.

Initially, the company plans to engage experts from their Zambian counterpart project in establishing this project. Aquaculture basic skills will therefore be obtained in-house, though initially few aquaculture experts will be recruited from China in the areas of fish production, fish diseases and fish meal production to train local employees in those areas..The directors of Swift Cargo Company Ltd have resolved to finance all the initial investment costs of her sister company, The Big Best Company Ltd in Tanzania.

3.4 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; produce top quality fish meal for own project use and sell of excess production capacity to the market.

Specifically, the company plans to do the following during the next 4 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 112 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 and install new ultra-modern plant machineries and equipment for fish processing and production of own top quality fish feeds;
- Procure new specialized fish transportation and raw materials trucks and administration vehicles,

3.5 Strategies to be employed

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

- 3.5.1 Complete land acquisition negotiations focusing in obtaining about 29,400 square metres of land at Kasamiko Village, Sangabuye Ward in Ilemela District, as well as obtaining licences, permits and authorities to establish the project from relevant authorities;
- 3.5.2 Develop fifteen (15) most modern Tilapia Fish Breeding Ponds to produce top quality fingerlings at the ratio of one (1) male to three (3) females. Total females in 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.
- 3.5.3 Develop an ultra-modern fish feed mill to produce top quality feed mill to satisfy the demand of 18,636.80 tons of feeds per year computed on the ratio of 1.3kgs of feeds required to produce 1.0kgs of fish. In addition, the project will produce 10,163.20 tons more for sale to other fish farmers, particularly those who have procured fingerlings from them;
- 3.5.4 Import from China the state-of-the-art tilapia fish farm cylindrical cages totaling 112 pieces The cages focus at producing all-male sex-controlled tilapia at the

rate of 14,336 tons per annum. The cylindrical cages will measure 20m radius 4m high.

3.5.5 Construct at the project site processing and storage buildings, feed mill factory building and develop necessary civil works structures to accommodate all the proposed project facilities.

3.5.6 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;
- Procurement of processing equipment;
- Undertake Staff recruitment and training;
- Procurement and installation of a new heavy duty Standby Electric Power Generator
- Procurement of 4 units of 25-ton refrigerated container trucks, 4 units light trucks for collection of feed materials from neighboring villages, 2 units multipurpose pickups, and 2 units 4-WD administration vehicles, 2 units pickups for general project purposes and 4 administration vehicles.

3.5.7 Identify and establish fish distribution points and external markets;

3.5.8 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

3.5.5 Ensure continuous specialized staff training and motivation throughout so as to

maintain a local trained and dedicated work force.

3.6 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:

PROPOSED CAPITAL INVESTMENT STRUCTURE

	ITEM	NO. OF UNITS	UNIT COST (TSHS "000")	TOTAL COST (TSHS "000")	TOTAL COST (IN US\$)
I:	1. Land and Site Preparations			3355,000	151,064
	2. Civil Works, Structures & Buildings			1,735,000	738,298
	Processing Buildings, harbours, storage warehouse, fencing and internal roads, residential buildings, office buildings, staff kitchen/canteen, workshop, feed mill, civil works and structures				
	Sub total			2,090,000	889,762
II:	PLANT, MACHINERY & EQUIPMENT			2,480,000	1,055,319
	Cold Rooms (100-ton capacity - minus 18 degrees Centigrade); Chiller (10 tons/day,(5m x 6m – minus 30 degree Centigrade); Specialized Roofing Materials for Cold Room and Chiller; Packaging Plant; Puffing Plant with capacity of 1ton/hour, Processing Equipment; Crushers (for fish/cereals/cotton cake, Power Generator 200kVW and electrical installations; Weighing Scales and miscellaneous tools and equipment				

	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
	Sub total			12,218,400	5,199,318
III:	MOTOR VEHICLES				
1.	Refrigerated Container Trucks – 25 tons capacity	5	150,000	750,000	318,150-
	Heavy Duty Trucks for transportation of Raw Materials	5	150,000	750,000	318,150
	Fuso/Light Trucks	10	65,000	650,000	276,596
	Pickups	10	35,000	350,000	248,936
	Land Cruiser VX 4-WD	1	200,000	200,000	85,106
	Land Cruiser Prado 4-WD	1	150,000	150,000	63,830
	Sub total			2,850,000	1,210,764
IV:	Furniture, Fittings & Office Equipment:			150,000	63,830
V:	Pre-Operational Expenses (including accrued interest during construction period)			120,000	51,064
VI:	Contingencies			100,000	42,553
	TOTAL			17,428,400	7,414,738
VII:	Add: Initial Working Capital:			1,680,000	714,894
	GRAND TOTAL:			19,108,400	8,129,632

Proposed 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 The Big Best 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.

3.7 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 1.0grams on average. The fingerlings are fed with top quality fish meal for four months when they will have grown to between 400 to 500grams 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.

3.8 Packaging and Storage

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.

3.9 Production Capacity

3.9.1 Production Capacity

Initially, the project will procure and install 112 cylindrical cages measuring 20m radius x 4m high, total 5,028.572 cube metres. 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 14,336 metric tons per annum at full project implementation.

On the other hand, installed production capacity for fish meal is estimated 28,800 tons p.a. when operating in single shifts of 8 hrs, per day times 360 days per annum. From the fish production plan above, 18,636.80 tons of fish meal will be for own use while the excess production of 10,163.20 tons will be available for sale.

Production of sex-controlled fingerlings from breeding ponds is estimated at 36 million 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 for sale.

Timing of fish production will be organized in such a way that everyday fish is harvested at the rate of 40 tons per day (this translates into harvesting 1.25 cages per day); and the harvested cages will be filled in with a fresh stock of fingerlings.

3.9.2 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 64,512,000,000/= equivalent to US\$ 27,451,915-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 price of fish meal for sale is estimated at TShs 2,500/=(US\$1.07) per kilo, hence, revenue of TShs 25,408,000,000/= equivalent to US\$ 10,811,915- per annum is expected to be realized from sale of excess production of fish feeds.

Revenue Estimate Summary

Product	Revenue in TShs	Revenue in US\$
Fish Sales	64,512,000,000	27,451,915
Fingerlings	870,400,000	370,383
Fish Meal	25,408,000,000	10,811,915
Total	90,790,400,000	38,634,213

3.9.3 Production Costs

It requires 1.3kgs of feeds to produce 1.0kgs of fish. Production cost is estimated at TShs 2,000/= (US\$ 0.86) per kilo – in-house price assigned the fish production part of the project. At full project production therefore, it will cost TShs 35,840,000,000/= (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, among the local employees, 70 are expected to be males while 80 are expected to be females. Labour cost is estimated to cost approximately 3% of total revenue, hence TShs 2,723,712,000/= (US\$ 1,159,026- per annum.

MAJOR PRODUCTION COST ITEMS

Cost Item	in TShs	in US\$
Fish Feeds Purchases	35,840,000,000	15,251,064
Fish Meal Production Cost	15,244,800,000	6,487,149
Fish Fingerlings Production Cost	391,168,000	166,672
	51,475,968,000	21,904,885
Add: General Farm/Factory Supplies	10,295,193,600	4,380,977
	61,771,161,600	26,285,862
Add: Salaries, Wages and Allowances	2,723,712,000	1,159,026
	64,494,873,600	27,444,888

The four items amount to approximately 71% of sales revenue.

Refer to Appendix 2: Operating Costs

3.10 Project Organization, Management and Labour Requirement

The project will be managed through the Board of Directors consisting of three members. The Board will formulate policy and offer strategic business guidance to management and regularly monitor and evaluate performance of the company.

The day to day management of the project will be vested in the Management Team. The Management Team will comprise of the General Manager who will be the overall in-charge of the project. The General Manager will be assisted by Deputy General Manager. The General Manager and his deputy will be assisted by three (3) Heads of Department: Production Manager, Marketing Manager and Finance & Administration Manager. These will in turn be supported by qualified personnel in their areas of specializations.

4.0 MARKET EVALUATION

4.1 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.

1.13 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. Cagefish 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 Ilemela 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.

5.0 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:

- o 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 TShs 1,680,000,000/=(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).

- o 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.
 - o 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%).
 - o 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

Major production cost items are indicated in Appendix 2 (Operational Costs).

- o 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:

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.

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.

Appendix VI - Projected Balance Sheets

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.

Payback Period

The Normal Payback Period is 1.3 years at zero discount rate

Key Financial Ratios

- The ratio between Net Profit + Interest to Investment ranges from 58%% to 79%.
- **Return on Equity (RoE)** tells us how much profit the firm generates for each dollar of equity it owns. RoE on this project by the end of its assumed economic life at year five (5) is 82.82, translating to a return of 82.82 for every 100 equity dollars invested in the project. This indicates that the project is very profitable, over and above the industrial standard

return of 15-20%

- **Return on Investment (RoI)** is a performance measure used to evaluate the efficiency or profitability of an investment. RoI on this project is 238%, a return of 238% for every US\$ 100- invested.
- **Debt to Equity Ratio (D/E Ratio)** is used to evaluate a company's financial leverage. It is a measure of the degree to which a company is financing its operations with debt rather than its own resources. D/E Ratio for this particular project is only 0.01 by far lower than the standard range of 2 to 2.5. This result tells us that resource allocation in this project is not optimal. The directors should consider more borrowing to seize growth opportunities.
- **Equity to Total Liabilities** ratio range from 4.24 in year one, decreasing as the loan amount is reduced before reaching 21.51 at year three when the loan is fully paid, and 128.17 by the end of the assumed project life at year five.

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.

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.

6.0 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 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. The Big Best 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.

The Big Best 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 team work 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

The 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 The Big Best 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 who may be affected by the Company's business operations

The aim of this workbook is to:

- Show the commitment of The Big Best 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 (Odour/Offensive Smell)

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 The Big Best 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/Effluent

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 The Company's Commitment to Environmental Protection and Fisheries Regulations 2009

As discussed above, the project does not involve any wastes as all processing wastes are either further processed for sale or sold raw as an important input for production of animal feeds. Environmental degradation is therefore not an issue in this project. Notwithstanding the minimal environmental impact of the project, M/s The Big Best Company Limited will ensure maximum cleanliness of the project is maintained, and that the project conforms to requirements in The

Fisheries Act, 2003 and Fisheries Regulations, 2009.

7.0 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 Ilemela 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.

8.0 SOCIAL, ECONOMIC AND DEVELOPMENTAL BENEFITS

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

- Establishing the proposed fish meal production facilities in Ilemela 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 Ilemela 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.
- Ilemela 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.

9.0 CONCLUSIONS AND RECOMMENDATION.

9.1. Conclusion.

Financial and economic analyses above reveal the following:

9.1.1 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.

- 9.1.3 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-.
- 9.1.4 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.
- 9.1. 6 The project will generate a considerable amount of foreign exchange through the sale of tilapia fish.
- 9.1.7 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;

9.2 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 Incentiveswith its associated privileges and benefits as provided for under Tanzania Investment Act, 1997 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, 12997 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 PROJECTIONS

FINANCIAL PROJECTIONS AND ANALYSIS

The Big Best Company Limited - Aquaculture Project

ANNEX I: INVESTMENT, REPLACEMENT AND DEPRECIATION SCHEDULES (IN US\$)

Year		YEAR 0	1	2	3	4	5
Land, Buildings & Structures		889,762					
Cages, Machinery, Tools & Equipment		5,199,318					
Vehicles		1,210,764					
Furniture & Office Equipment		63,830					
Pre-operational Expenses		51,064					
Contingencies		42,553					
Total Investment Cost		7,457,291					
Depreciation							
Land, Buildings & Structures	5%	22,244	22,244	22,244	22,244	22,244	22,244
Machinery, Tools & Equipment	12.5%	422,445	422,445	422,445	422,445	422,445	422,445
Vehicles	20%	193,722	193,722	193,722	193,722	193,722	193,722
Furniture & Office Equipment	12.5%	6,782	6,782	6,782	6,782	6,782	6,782
Pre-operational Expenses	20%	10,213	10,213	10,213	10,213	10,213	10,213
Contingencies		8,511	8,511	8,511	8,511	8,511	8,511
Total Depreciation		663,917	663,917	663,917	663,917	663,917	663,917
Cummulative Depreciation		663,917	1,327,834	1,991,751	2,655,668	3,319,585	
Cummulative Investment							
Book Value of the Assets		7,457,291	6,793,374	6,129,457	5,465,540	4,801,623	4,137,706
Balance outstand							

ANNEX II: LOAN, INTEREST AND REPAYMENT SCHEDULE(\$)

Years		0	1	2	3	4	5
Loan Receipt		2,224,421					
Loan Repayment	3	741,474	741,474	741,473			
Loan interest	8%	177,954	118,636	59,318			
Total Payment		919,428	860,110	800,791			
Balance outstanding		2,224,421	1,482,947	741,473	-	-	-

ANNEX III: WORKING CAPITAL SCHEDULE(\$)								
Year		0	1	2	3	4	5	
Current Assets								
Stock of materials			428,573	375,954	383,335	383,335	383,335	
Stock of output			197,872	214,362	230,851	230,851	230,851	
			626,445	590,316	614,186	614,186	614,186	
Current liabilities			492,860	284,763	230,001	230,001	230,001	
Total W/C			1,119,305	875,079	844,187	844,187	844,187	
Incremental W/C			(-264,226)	(30,892)		-	-	
ANNEX IV: TRADING ACCOUNT (US\$)								
ITEM/YEAR		0	1	2	3	4	5	
Materials			13,136,931	14,231,675	15,326,420	16,421,164	17,515,908	
Farm/Factory Supplies		4,380,977	2,628,586	2,647,764	3,066,684	3,285,733	3,504,782	
Salaries/Wages/Allowances			695,416	753,367	811,318	869,270	927,221	
Other Operating Costs								
			16,460,933	17,632,806	19,204,422	20,576,167	21,947,911	
Total Operating costs			16,460,933	17,632,806	19,204,422	20,576,167	21,947,911	
Sales Revenue			23,180,528	25,112,238	27,043,949	28,975,660	30,907,370	
Trading Profit			6,719,595	7,479,432	7,839,527	8,399,493	8,059,459	
Trading Profit as% of Sales			28.99%	29.79%	28.99%	28.99%	28.99%	
Years		0	1	2	3	4	5	
Trading Profit			6,719,595	7,479,432	7,839,527	8,399,493	8,959,459	
Total depreciation			663,917	663,917	663,917	663,917	663,917	
Loan interest			177,954	118,636	59,318			
Net Profit			5,877,724	6,696,879	7,116,292	7,735,576	8,295,542	
			25.36%	26.67%	26.32%	26.70%	26.84%	
Cumm. Net Profit			5,877,724	12,574,603	19,690,895	27,426,471	35,722,013	
Tax at	30%		1,763,317	2,009,063	2,134,888	2,320,672	2,466,662	
Net Profit After Tax			4,114,407	4,687,816	4,981,404	5,414,904	5,828,880	
			17.75%	18.67%	18.42%	18.69%	18.86%	
Cumm. Net Profit after tax			4,114,	8,802,223	13,783,627	19,198,531	25,027,411	

			407				
			4,114,407	4,687,816	4,981,404	5,414,904	5,828,880
			177,954	118,636	59,318		
			4,292,361	4,806,452	5,040,722		
			0.58	0.65	0.68	0.73	0.79

ANNEX V: SOURCES AND USES OF FUNDS (US\$)

SOURCES & USES/YEAR		0	1	2	3	4	5
Sources							
Foreign Equity		2,224,421					
Local Bank Loan		5,191,438					
Sales Revenue			23,180,528	25,112,238	27,043,949	28,975,660	30,907,370
Total Sources		7,415,859	23,180,528	25,112,238	27,043,949	28,975,660	30,907,370
Use of Funds							
Total Invest. Costs		7,415,859					
Total Operating costs			16,460,933	17,632,806	19,204,422	20,576,167	21,947,911
Incremental W/C			-	(264,226)	(-30,892)	-	-
Loan Repayment			741,474	741,474	741,473		-
Loan interest			177,954	118,636	59,318		-
Tax at	30%		1,763,317	2,009,063	2,134,888	2,320,672	2,466,662
Total Uses		7,415,859	19,143,678	20,766,205	22,170,993	22,896,839	24,414,573
Balance		-	4,036,850	4,346,033	4,872,956	6,078,821	6,492,797
Balance/CF		-	4,036,850	8,382,683	13,255,639	19,334,460	25,827,257

ANNEX VI: PROJECTED BALANCE SHEET AT THE END OF EACH YEAR (\$)

PERIOD		YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
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100/3x75% = 25%								
ANNEX VIII – PAYBACK PERIOD								
Payback Period Analysis								
		Beginning	Net Profit					
	Year	Balance	After Tax	Ending Balance				
Cost of investment	0	7,415,859	0	7,415,859				
	1	7,415,859	4,114,407	3,301,452				
	2	3,301,452	4,687,816	1,386,364				
	3	1,386,364	4,981,404	6,367,768				
	4	6,367,768		11,782,572				
	5	11,782,572	5,414,904	17,611,552				
			5,828,880					
Payback Period =		1.3	Years					
ANNEX IX: RETURN ON EQUITY (RoE)								
RoE = Net Income After-tax/Shareholders Equity x 100								
Net Income After Tax for 5 years = Cumulative Net Profit After Tax =				25,027,411				
Shareholders Equity = Initial Equity + Retained Earnings (Cumulative Net Income After Tax)								
Net Income After Tax for 5 years		25,027,411						
Initial Shareholders Equity		5,191,438						
Add: Cumulative Net Profit After Tax		25,027,411						
		30,218,849						
RoE = 25,027,411/30,218,849 x100 = 82.82								
ANNEX X: RETURN ON INVESTMENT (RoI)								
RoI = Final Value - Initial Cost/Cost of Investment x 100								
RoI = 238%								
Final Value	25,027,411							
Minus Initial Cost	7,415,859							
	17,611,552							

Divide by Cost of Investment	7,415,859							
	2.38							
Times 100 =	238							
ANNEX XI: DEBT TO EQUITY RATIO (D/E RATIO)								
D/E Ratio = Company's Total Liabilities divide by its Shareholders Equity.								
Total Liabilities = Current + Long Term Liabilities								
Total Liabilities = 230,001								
Shareholders Equity = Owners Equity + Cumulative Retained Earnings After Tax = 30,218,849								
D/E Ratio = 230,001/30,218,849 = 0.01								
ANNEX XII BREAK-EVEN POINT								
Break-even Point = Gross Profit Margin/Fixed Costs x 100								
Gross Profit = 8,059,459								
Fixed Cost = 21,947,911								
Break-even Point = 8,059,459/21,947,911 x100 = 36.72								

APPENDIX 2: OPERATIONAL COSTS				YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Materials								
Fish Feeds costsfor Fish Farm				9,150,638	9,913,192	10,675,745	11,438,298	12,200,851
Fish Meal (for sale) production Costs				3,892,289	4,216,647	4,541,004	4,865,362	5,189,719
Fish Fingerlings Production cost				100,003	108,337	116,670	125,004	133,338
Estate and Factory Supplies				2,628,586	2,847,635	3,066,684	3,285,733	3,504,782
		<i>Sub total</i>		<i>15,771,516</i>	<i>17,085,811</i>	<i>18,400,103</i>	<i>19,714,397</i>	<i>21,028,690</i>
Salaries, Wages & Allowances				695,416	753,367	811,318	869,270	927,221
Total Materials and Labour Costs				16,466,932	17,839,178	19,211,421	20,583,667	21,955,911
Other Operating Costs								
Water Supply & Treatment				7,200	7,800	8,400	9,000	9,600
Electricity				14,400	15,600	16,800	18,000	19,200
Rapairs & Maintenance of capital assets				219,634	237,936	256,239	274,542	292,845
Motor Vehicle Running Expenses				108,967	118,050	127,131	136,211	181,615
Estate andFactory Overheads				139,083	150,673	162,264	173,654	185,444

Administrative Overheads			123,438	123,438	123,438	123,438	123,438	
Licences, Permits and Authorizations			18,000	18,000	18,000	18,000	18,000	
Direct Marketing & Travelling Costs			117,578	117,578	117,578	117,578	117,578	
Marketing Overhead costs			47,031	47,031	47,031	47,031	47,031	
Total			795,331	836,106	876,881	917,454	994,751	
GRAND TOTAL			17,262,263	18,675,284	20,088,302	21,501,121	22,950,662	

APPENDIX 3: ANNUAL DEPRECIATION AND AMORTIZATION OF ASSETS

CAPITAL ITEM/YEAR	Scrap Value	Rate	YEAR 0	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Land									
Commulative Investment	100%	0%	151,064						151,064
Annual Depreciation	0%	0%	-	-	-	-	-	-	-
Book Value			151,064	151,064	151,064	151,064	151,064	151,064	
Buildings & Structures			738,298						738,298
Commulative Investment			738,298	738,298	738,298	738,298	738,298	738,298	
Annual Depreciation	50%	5%		18,457	18,457	18,457	18,457	18,457	92,285
Book Value - Buildings			738,298	719,841	701,384	682,927	664,470	646,013	
Machinery, Tools & Equipment			5,199,318						5,199,318
Cumulative Investment			5,199,318	5,199,318	5,199,318	5,199,318	5,199,318	5,199,318	
Annual Depreciation	35%	12,5%		422,445	422,445	422,445	422,445	422,445	2,112,225
Book Value			5,199,318	4,776,873	4,354,428	3,931,983	3,509,538	3,087,093	
Vehicles			1,210,764						1,210,764
Cumulative Investment			1,210,764	1,210,764	1,210,764	1,210,764	1,210,764	1,210,764	
Annual Depreciation	20%	20%		193,722	193,722	193,722	193,722	193,722	968,610
Book Value			1,210,764	1,017,042	823,320	629,598	435,876	242,154	
Furniture & Office Equipment			63,830						63,830
Cumulative Investment			63,830	63,830	63,830	63,830	63,830	63,830	
Annual Depreciation	15%	12.5		6,782	6,782	6,782	6,782	6,782	33,910
Book Value			63,830	57,048	50,266	43,484	36,702	29,920	
Pre-operational Expenses			51,064						51,064
Cumulative Investment			51,064	51,064	51,064	51,064	51,064	51,064	
Annual Depreciation	0%	20%		10,213	10,213	10,213	10,213	10,212	51,064
Book Value			51,064	40,851	30,638	20,425	10,212	-	

Contingencies			42,553						42,553
Cumulative Investment			42,553	42,553	42,553	42,553	42,553	42,553	
Annual Depreciation	0%	20%		8,511	8,511	8,511	8,510	8,510	42,553
Book Value			42,553	34,042	25,531	17,020	8,510		
Total Cumulative Book Value			291,250	252,286	213,322	174,358	135,394	98,430	
Land			151,064	151,064	151,064	151,064	151,064	151,064	
Buildings & Structures			738,298	719,841	701,384	682,927	664,470	646,013	
Plant Machinery Equipment/Fish Cages			5,199,318	4,776,873	4,354,428	3,931,983	3,509,538	3,087,093	
Motor Vehicles			1,210,764	1,017,042	823,320	629,598	435,876	242,154	
Furniture & Office Equipment			63,830	57,048	50,266	43,484	36,702	29,920	
Pre-operational Expenditures			42,553	34,042	25,531	17,020	8,510		
Contingencies			42,553	34,042	25,531	17,020	8,510		
Total			7,448,380	6,789,952	6,131,524	5,473,096	4,814,670	4,156,244	