Proposal and Business Plan to
Invest for Establishment, Construction, Development and Operations of
An Integrated Industrial Parks
For
Manufacturing of Pharmaceutical, Electrical Engineering Products, ICT devices, Agro-Processing, Food products Plants, Machines and Devices
At
Misungwi in Mwanza, Tanzania

To be implemented by:
Charles Muhangwa Kitwanga
In Partnership with among others
Infosys (IPS) Tanzania Ltd, SE Holdings Ltd and Misungwi District Council

General Executive Summary.

In order for Tanzania to use her ample natural and human resources to address prevailing challenges and achieves the noble goals of Vision 2025 and beyond to makes it possible for realizing the dream of a better life for all Tanzanians within this period. Stimulating and sustaining double digit rates of economic growth remains the only route for achievement of this core objective within the coming five (5) to ten (10) years in line with the National Development Vision 2025. Delivering double digit broad-based growth in Tanzania within the 2nd decade of the 21st Century depends on transformation of agriculture to raise productivity to global levels and kick-start a dynamic process of agriculture-led and resource-based industrialization. Success depends in achieving and sustaining higher productivity and lower costs in agricultural production as well as adoption of good agricultural practices. Success depends even more on achieving good manufacturing practices in agro-processing and industrial activities in general. Success depends largely on better government interventions for the development of a robust and competitive private sector.

While developed nations add value to everything they produce, poor nations export raw materials. Tanzania and Africa at large must quit being at the bottom of the global value chains and move to rapidly industrialize, with value addition to everything that it produces. Africa must work for itself, its people, not exporting wealth to others. In Order to make Tanzania an industrialise country, this plan present a proposal to invest for establishment, construction, development and operations of an Integrated industrial park at Misungwi in Mwanza, Tanzania of which will have a total cost of US$ 1 Billion and broken down to different industries such as :

(1) Manufacturing of pharmaceutical products – US$ 350 Million
(2) Manufacturing of electrical engineering and ICT devices:- US$ 350 Million
(3) Manufacturing of agro-processing, food products plants, machines and devices:- US$ 300 Million

The lead promoter Mr. Charles Muhangwa Kitwanga and partners are committed to mobilising capital amounting to US$ 1 Billion from international foreign direct investors and or financiers for the investments to be implemented in Tanzania.

This investment is essential for moving Tanzania's Industrial agenda forward and for building a Tanzania of the twenty-first century that is well positioned to take its place in the regional and global value chains as Tanzania is certainly the place to do business today. We have a rapidly growing young population, and an increasing demand for consumer goods, food, and financial services. Together, these factors make Tanzania an attractive business and industrial proposition for the private sector. This planned Misungwi Integrated Industrial park is to be located at Plot No. 126, 123, 890, 099 and 087 all located at Mawe Matatu area of Misungwi District Council, Mwanza Region. The industrial park which is an industrial shed for the implementation and creation of different Industries as mentioned above will have an estimated cost of US$ 1 Billion which will be mobilised from international foreign direct investors and internal i.e. local investors. The aim of the park is to create an investor friendly space that can cater to the needs of the investors and motivate and instigate value addition from the ground roots of every Tanzanian national.

SECTION ONE: BUSINESS PLAN FOR PHARMACEUTICAL MANUFACTURING AT THE PARK

Table of Contents

Executive Summary

The project at hand entails establishment of a pharmaceutical industrial park in Tanzania with a total estimated cost of US$ 1 billion that will comprise of six plants, namely; pharmaceutical plant, imaging equipment plant, non – imaging medical equipment plant, medical research equipment plant, therapeutic devices plant and the packaging and consumables materials plant. This business plan is put in place to provide backing for the management of the proposed industrial park to secure funding for developing and executing the park in Misungwi - Mwanza, Tanzania. The proposal document provides economic, market, environmental, management, financial and social viability of the project that ascertains the management, their financial partners and technological allies to put together their resources towards attaining the accomplishment.

Fundamentally, the business idea emanates from a great untapped opportunity of underdeveloped but fast-growing pharmaceutical industry in Tanzania which satisfies only 15% of local demand for medicines and medical equipment, leaving 85% share of the market to be satisfied by imports. This is further stimulated by the government need and encouragement to have participation of the private sector in local pharmaceutical manufacturing to increase production so as to support its effort of ensuring realization of health service goals, namely; access to quality primary health care for all as well as availability of drugs, reagents and medical supplies and infrastructures, among others. The government is doing so by constantly improving provision of basic infrastructure such as power, roads and water, to facilitate local production. In fact, upgrading of the local pharmaceutical industry is quite urgent and that, considerable investment is needed. This is ostensibly because; there is under-production of essential drugs locally and existence of very few local medical equipment manufacturers which is the main shortcoming of the pharmaceutical market to extent of being largely reliant on imports. Business opportunity aside, participation of the medical industrial production in the country will address a number of policy frameworks which spell out the need to ensure that, the health services (medicines and medical equipment inclusive) are available and accessible to all the people in the country. Thus, establishment of the industrial park in Misungwi has come at the right time to salvage the situation something that will get all the necessary supports from the authorities.

Furthermore, economic situation of the country provides good and fruitful ground to venture into a pharmaceutical industrial park business. Politically the country is stable and gives assurance and tranquility to engage in a huge and long-term investment. There are also indications for people of Tanzania to have their buying power improving day by day. This is due to increased government spending on development of the public infrastructure and stability of economic indicators which would support increased production of goods and services. Increased production means increased ability to spend and rising of demand for various products and services, medications inclusive. Thus, the management of the proposed industrial park intends to operationalize the business idea and has clear vision and mission including well spelt out objectives. Among the motives which activated the management to engage into pharmaceutical industrial park production is the huge existing and fast-growing market for drugs in the country. Another noble reason is the Government willingness to support the project because the intention augers very well with its objective of ensuring the availability of drugs, reagents and medical supplies and infrastructures. Furthermore, Misungwi District Council (local government) which is the host of the project will own 5% shares of the proposed industrial park.

In executing the proposed project, the industrial park intends to meet the following objectives, namely; to produce excellent and wide range of medicines and medical equipment which meet international standards and avail them to distributors, service providers and consumers at competitive prices, to penetrate into pharmaceutical based regional markets apart from serving Tanzania, to become a market leader within Eastern and Central Africa in terms of meeting customer demand and quality of pharmaceuticals and medical equipment to the requisite international level and satisfaction of all concerned stakeholders and to provide employment, transfer technology and avail training opportunities to Tanzanians and other players in the area of pharmaceuticals, medical engineering and its related services. The Park will also be guided by six core principles, namely; Sterility and Cleanness, Integrity, Society

Based, Partnerships, Innovation and Creativity and Authority (abbreviated as **SISPIA**).

Demand analysis shows that; Tanzania has adequate pharmaceutical market to satisfy apart from the potentiality of supplying the regional market specifically, SADC countries through MSD and other distributors so long as quality and affordability are assured. Actually, established pharmaceutical plants in Tanzania are unable to utilize the existing opportunity due to their inadequate funding level to acquire sufficient raw materials because the same need to be imported. Furthermore, the companies do not conduct research which is one of the major pillars in pharmaceutical production. Thus, arrangements which could overcome the above snags would result into positive outcomes that will pave way to utilize the existing opportunity. Furthermore, SWOC analysis and the environmental scanning indicate that, the envisaged industrial park has got competitive advantages over other pharmaceutical and medical equipment producers/suppliers in the industry.

Finally, financial analysis shows that, in order to execute the project at hand, a total of US$ **350,249,721.87** equivalents to TZS 805,574,360,305 would be required. Out of this amount, US$ 176,973,124.94 (TZS 397,663,992,331) would be needed to put up facilities for pharmaceutical plant, US$ 65,802,562.17 (TZS 152,003,918,615) would be required for establishing imaging equipment plant and US$ 22,962,229.34 (TZS 53,042,749,784) would be [1]needed for creating facilities for non – imaging medical equipment plant. Furthermore, US$ 28,791,992.65(TZS 66,509,503,030) would be required to put in place facilities for medical research (specialized) equipment plant, US$ 16,403,028.80 (TZS 37,890,996,537) would be required for establishing the therapeutic devices plant and finally, US$ 11,964,450.07 (TSZ 27,637,879,654) would be needed to put in place the factory for packaging and consumables materials.

In addition to that, working capital requirements are; US$ 5,394,625.0 for pharmaceutical plant, US$ 9,872,202.5 for imaging equipment plant and US$ $ 2,297,435.1 for non – imaging medical equipment manufacturing plant. Others are, US$ 4,320,617 for medical research equipment plant, US$ 2,473,311.5 for therapeutic devices plant and US$ 2,994,142.8 for packaging and consumables materials plant. Apart from the financial resource requirement, the project would also require appropriate caliber of human resource in terms of qualifications, experience and moral behaviors to execute the entire project to the required tune and culture. The type of human resource required ranges from supervisors/managers, engineers, equipment operators, accountants, technicians, machineries mechanics, procurement and supplies specialists, sales people, administrators, vehicle drivers to operatives. Moreover, the project would require necessary support from the Government for its realization.

1.0 BACKGROUND INFORMATION

This section provides background information regarding the pharmaceutical industry in general by discussing an overview of Tanzania, followed by health system and then medical status in the country. Other issues discussed are; an overview of the pharmaceutical industry, rationale for establishing a pharmaceutical plant, procedure for establishing a pharmaceutical plant in Tanzania and an overview of Mwanza Region as well as Misungwi District where the industrial park will be located. Furthermore, the section as presented Key Project Investment Partners, Key Stakeholders, Investment Financing Concept (MODEL) and has winded up by discussing about Corporate Social Responsibility (CSR) of the Proposed Industrial Park.

1.1 An Overview of Tanzania

Tanzania is a union of two countries, Tanganyika and Zanzibar. The country is the largest in East Africa having an area of 947,300 km^2 of which land occupies 885,800 km^2 and water occupies 61,500 km^2. Tanzania is also the most

populous East African country with a population estimated at 59,625,497on 1st July 2020 growing at a rate of 2.98% based on projections of the latest United Nations data. It is further estimated that, by the end of 2020, the country's population will be 59.73 million. The capital of the country is Dodoma after the government decision to move the government activities and services from Dar es Salaam to Dodoma in 2017.
Tanzania has climate that varies from tropical along coast to temperate in highlands. In fact, there are areas in the country like Njombe and Mbeya which can be very cold during winter recording temperatures below 15°C. There are also regions like Dar es Salaam, Coast and Tanga which can be hot with temperatures above 32°C. The main languages used in the country are Swahili as an official language and English as an official as well as primary business language. In fact, almost every Tanzanian can speak Swahili and the literacy rate in the country is above 68%.

Infrastructural wise, the country has so far managed to supply electricity power to a tune of about 33% of the entire nation with urban areas covered at the level of 65% and rural areas about 17%. The main energy sources in the country are fossil fuel accounting for 54%, Hydro power (40%) another renewable accounting for about 6%. About 52% of the population has access to improved water sources and 33% have access to improved sanitation. With regards to transport, the country can be reached using four means of transportation, namely; by road, railway, ports and air. For the case of roads, the country has about 86,500 km of road network out of which 11,000 are paved. In fact, the central part of the country, Dodoma inclusive lies along the Great North Road, a major infrastructural network of Africa which connects Cairo to Cape Town. In as far as railway is concerned, the country has two functional railway lines meanwhile which are TAZARA that connects the port of Dar es Salaam in east Tanzania with the town of Kapiri-Mposhi in Zambia 's Central Province and the central line, that runs west from Dar es Salaam to Kigoma on Lake Tanganyika through Dodoma. A branch of this line leads to Mwanza on Lake Victoria. In the meantime, Tanzania is constructing a Standard Gauge Railway (SGR) aiming at linking the country to the neighboring countries of Rwanda and Uganda, and through these two, to Burundi and the Democratic Republic of the Congo. For the case of Ports, the country has two main gateways connecting the country to the rest of the world, these are; Dar es Salaam and Zanzibar. Finally, regarding air transport, the country has 10 airports so far with four of them being international, namely; Mwalimu Nyerere International Airport in Dar es Salaam, Kilimanjaro International Airport in Arusha, Mwanza International Airport in Mwanza and Karume International Airport in Zanzibar. Meanwhile, the United republic of Tanzania is at the final stages to start construction of Msalato International Airport - a new international airport in the capital Dodoma.

Economically, Tanzania has sustained relatively high economic growth over the last decade, averaging 6–7% a year. While the poverty rate in the country has declined, the absolute number of poor citizens has not because of the high population growth rate. According to African Economic Outlook – AEO (2019), the medium-term outlook for the country is positive, with growth projected at 6.6% in both 2019 and 2020, supported by large infrastructure spending. Headline inflation is projected to marginally increase to 5.2% in 2019 and 5.1% in 2020 due to increased government spending. Key economic development challenges include slow progress towards inclusive growth, infrastructure bottlenecks, and vulnerability to climate change. Poverty and income inequality remain high despite high economic growth. Infrastructure bottlenecks are most notable in the transport and energy sectors. Reliance on rain-fed agriculture has exposed farmers to income shocks. One of the development challenges on the social front is youth unemployment, which increased to 7.3% in 2016, compared with 5.7% in 2012. All in all, the major pillars of the country's economy are agriculture, minerals and now industrialization which has been given priority in a move to elevate the country to the middle-income status by 2025. This is in line with the targets of vision 2025 which among others; are to have a strong and competitive economy that is expected to be diversified and semi-industrialized with a substantial industrial sector comparable to typical middle-income countries.

It is important to note the key opportunities available which include peace and political stability, abundant natural resources, a strategic geographic location, and immense development potential for tourism. The Export Zone

Processing Agency established in 2008 to accelerate manufacturing exports and help the country achieve structural transformation has helped attract close to $1 billion in foreign direct investment and revive the manufacturing sector into one of the fastest growing in Africa. The implication of this situation is that, politically, Tanzania is stable to put in place investment ventures. Apart from that, opportunities are there which implies that, demand for various products and services pharmaceuticals inclusive is inevitable in order to support actualization of the available opportunities. In addition to that, the economy of the country in the region including Africa in general is stable and is likely to remain that way at least in the medium-term duration.
Economic stability and excessive government spending in infrastructural development like roads, airports, railways, power production facility installation, etc. means creation of means and ways of Tanzanians to be more productive and thus become capable of accumulating more wealth. This will sooner or later increase peoples' buying power and accelerate demand for necessities like good health that includes medications among others.

1.2 Health System in Tanzania

The health system in Tanzania is composed of eight levels, namely; dispensary, health centre, district hospital, regional hospital and national, referral and specialized hospital. Others are national hospital (Muhimbili), Zonal for referral hospital and Specialized Hospital. This is briefly elaborated below:

1) Dispensary which is the first formal health unit of level one health services at village level. This is a primary health facility which offers outpatient services including reproductive and child health services, and diagnostic services. Normally, a dispensary oversees all the village health services and is supposed to have all the standard units in all parameters including the staffing level, equipment, drugs, and medical supplies and approved building. Unfortunately, such standards are not met in most of the dispensaries in the country.

2) Health Centre which is the second formal health unit of level one-health services. This is a primary health facility, which offers outpatient and in-patient services, maternity care, laboratory, and dispensing and mortuary services. A Health Centre supervises all the dispensaries in the Division. Accordingly, the Health Centre is expected to have all the standards in terms of staffing levels, equipment, drugs, medical supplies, reagents, dental oral health and building plans. However, the situation on the ground reveals inadequacy in many areas most notably, staffing levels, equipment and drugs.

3) District Hospital which offers level one hospital providing out-patient and in-patient care. It acts as the second referral level for the primary health care facilities in the district and performs general surgical and obstetric operations. Distinct Hospitals are expected to maintain all the standards with respect to all areas of these types of hospitals including the staffing level, equipment, drugs, reagents, medical supplies and approved building plans. Nonetheless, there are many incidences of lack of appropriate and adequate staffing levels, equipment and drugs that have quite often been reported.

4) Regional Hospital that provides level two referral services from level one hospital. Regional Hospitals provide all services offered at district level but at a higher level of expertise. They offer second level referral services from level one hospitals, conduct teaching and training of middle and operational level health cadres, conduct health research programmes in the Region and provide technical skills to lower health facilities in the Region. They further offer specialized treatment in Medicine, Surgery, Obstetrics and Gynaecology and Paediatric. In general, the health services are not easily accessible by the very poor, major obstacles being health care charges, long distances to facilities and poor quality of care.

5) National, Referral and Specialized Hospital which is level three and the highest level of hospital services in the country. It acts as a referral centre for level two hospitals.

6) National Hospital (Muhimbili) which is supervised by the Ministry of Health through Board of Muhimbili National Hospital. The hospital also acts as zonal referral hospital for the Eastern Zone. The Hospital is supposed to be equipped with qualified human resources, sophisticated equipment and reliable and adequate transport/communication facilities so as to provide services as required.

7) Zonal for referral hospital **-**meanwhile, there are four zonal referral/consultant hospitals. These are Muhimbili National Hospital and Mbeya Hospital owned by the government and other two voluntary agency hospitals – Bugando Medical Centre and KCMC. The locations of these referral hospitals are in Eastern (Muhimbili), Western (Bugando Medical Centre), Northern (KCMC) and Southern Highlands (Mbeya Hospital). In fact, Referral Hospitals are required to be equipped with the best mix of qualified specialists and consultants as well as sophisticated modern medical equipment so that they are able to handle cases, which are currently being referred abroad. They are further required to conduct the training of high and middle level health personnel, health research, provide consultancy on various health and medical issues, and conduct outreach visits to other hospitals in the zone to offer specialists support services to the medical staff services.

8) Specialized Hospital**-**so far there are two specialized hospitals in Tanzania. These are Mirembe Hospital (Dodoma) and Kibongoto Hospital (Moshi). The hospitals respectively provide services to the mentally sick and TB patients. They are also required to be equipped with qualified specialists and consultants as well as sophisticated modern medical equipment so that they can deliver the services as required.

It is important to note that, there is a host of privately owned hospitals in Tanzania categorized at the level of district level, regional level as well as specialized hospitals especially in big cities like Dar es Salaam, Arusha, Mwanza and Zanzibar. In most cases, these hospitals provide better medical services compared to their counterparts in the public sector. The main problem is accessibility to the poor due to higher medical charges and low coverage of medical insurance to the majority of Tanzanians.

1.3 Medical Status in Tanzania

Major infectious diseases in Tanzania are; 1) food or waterborne diseases such as bacterial diarrhoea, hepatitis A, and typhoid fever, 2) vector borne diseases such as malaria, dengue fever, and Rift Valley fever, and 3) water contact diseases such as schistosomiasis and leptospirosis. These communicable diseases and obstetric complications together account for approximately 70% of overall hospital attendance. Nonetheless, HIV is the leading cause of death (17%) in Tanzania, followed by lower respiratory infections (11%), and malaria (7%). Infectious diseases are emerging health concerns especially those related to poor sanitation. On the other side, non-communicable diseases incidence is actually rising in the country with over 10% of the population dying from diet-related cases.

On the other hand, there has been a commitment to expand the insurance coverage in the country in order to improve accessibility. So far, the country has seven predominant health insurance firms, being a mixture of publicly and privately owned. Nonetheless, available data shows that, Health insurance coverage is still low in the country gauging at about 30% only. In fact, the country guarantees health covers for people who are formally employed; those who are in the informal sector have to pay out of their pockets to access health services. Meanwhile, the government is striving to expand health insurance coverage to reach 50% of all Tanzanians by end of 2020.

1.4 An Overview of the Pharmaceutical Industry in Tanzania

The pharmaceutical and health care industry in Tanzania is one of the fastest growing in the economy (estimated 5-7% growth rate). In spite of this, the Pharmaceutical Industry is relatively underdeveloped when compared to other emerging market economies. The reasons for this variance include inadequate funding and low resources allocation to research and development. Due to that, about 85% of pharmaceutical products consumed in the country are

imported and the plants established utilize their capacities to the tune of 40% or less. It is well known that, imported drugs are expensive for an average Tanzanian consumer. The situation is further worsened by the fact that; household spending constitutes the major mode of funding pharmaceutical purchases in the country. At conditions of low income, it forces some households to seek for alternative treatment in herbal and other social remedies. Thus, the proposed plant in Mwanza is expected to augment efforts to provide access to quality drugs by offering its locally produced brand of the globally acclaimed drugs at affordable prices.

On the other side, business in the pharmaceutical industry is quite prospective ostensibly due to its magnitude of expenditure where available data shows that, expenditure level in 2015 was TZS900 billion equivalents to US$442million. It is expected that, by 2020, pharmaceutical market in the country will reach a value of TZS1.6 trillion equivalents to US$605million. This corresponds to a five-year compound annual growth rate of 12.3% (6.5% in US$ terms).

With regards to the main actors, there are over six local pharmaceutical manufacturing companies in the sector in the meantime, which altogether do meet about 15% of local demand. The remaining 85% is met by imports mainly from Asia and particularly from India. These local firms produce a range of products that include; liquid preparations, tablets, capsules, ointments, lotions, creams and ophthalmic preparations. Generally, the production flow scheme is in accordance with Good Manufacturing Practice (GMP). Production processes are step by step, mixed manual and automated with the degree of automation varying between 10% and 50%.The average capacity utilization for the companies is only 30%, thus leaving ample spare capacity available, if manufacturers could become more competitive with imported products. On its side, the government of the united Republic of Tanzania has encouraged more participation in local manufacturing to increase production. Basically, the Government has been improving provision of basic infrastructure such as power and water, to facilitate local production. So far, there is only one industry that is able to export its products to other SADC member countries. This raises the opportunity of more investments in this industry.

The introduction of a universal health scheme will have a positive impact on market growth, increasing the size of the formal drug sector and reducing the prevalence of street-sellers. While international aid is improving conditions, the national health infrastructure is in need of rebuilding, and modernization of the local pharmaceutical industry is quite urgent - for which considerable investment is needed. However, the under-production of essential drugs is a major problem with the market still largely reliant on import. While the potential for future growth in the Tanzania pharmaceutical market is considerable, it will continue to perform below its capabilities, mainly due to funding shortages. This is an area which needs urgent attention for investment.

It is also suggested that, the established pharmaceutical plant channels its products through the existing and established pharmaceutical distributors, which will also involve hospitals and medical establishments as well as Government agencies like Tanzania Medical Store Department (MSD). In fact, SADC has selected MSD as the distributor of medicines for all member states which increases channels of distribution. It will be necessary to utilize the system in place, hence the existing opportunity.

1.5 Source of Medical Equipment in Tanzania

While some pharmaceutical products are produced in the country, available information shows that, most of the medical and diagnostic equipment to include surgical instruments, medical and laboratory products as well as laboratory reagents and test kits are imported from abroad. In some health facilities, especially the privately owned, even the general hospital furniture and supplies are also imported. In fact, it is strange but real that, Tanzania imports even consumables such as IV fluids, syringes, and surgical materials. The main imports of medical equipment, devices and consumables come from China, India, South Africa, Kenya and United Arab Emirates. The few pharmaceutical Companies operating in the country have capacity utilization of less than 40%, something that

necessitates importation of more than 70% of the country's requirement for medical supplies. Therefore, establishment of the industrial park in Tanzania will not only address the industrialization agenda of the nation, but will also close the huge existing gap of medical equipment, devices and consumables requirement. Even the neighbouring countries like Kenya and Uganda which do produce and supply some consumables, import a host of medical equipment and devices from overseas. Depending on the maintenance of quality and other marketing considerations, the industrial park to be established will find a wider market in the Eastern and central Africa to satisfy.

1.6 Rationale for Establishing Medical Industrial Park in Tanzania

Establishment and execution of the proposed industrial park in Tanzania will actually address various policy frameworks including the millennium development goals, Tanzania's Vision 2025, The National Strategy for Growth and Reduction of Poverty (NSGRP), Tanzania Health Policy and the Ruling party's Election Manifesto (2015), all of which clearly spell out the need to ensure that the health services (medicines and medical equipment inclusive) are available and accessible to all the people in the country (urban and rural areas) among others. In addition, the Tanzania Development Vision 2025 also identifies health as one of the priority sectors and among the main objectives of the Vision in this regard is achievement of high-quality livelihood for all Tanzanians. This is expected to be attained through strategies, which will ensure realization of health service goals, namely; access to quality primary health care for all. Also, among the objectives of the national health policy is to ensure the availability of drugs, reagents and medical supplies and infrastructures. In fact, the national health policy is aimed at among other things; encouraging the growth of local industries in the manufacture of pharmaceuticals, medical supplies and equipment for the purpose of meeting the local needs and creates the environment of the local industries competing in the regional and international markets.

Thus, establishment of the pharmaceutical industrial park in Misungwi in Mwanza will address major policy frameworks in general and should expect maximum support from the Authorities. In particular, locating the plant in Mwanza is well directed because it is one of the major four cities in Tanzania but lacks even a pharmaceutical factory. Most of the local pharmaceutical firms and distributors in the country are mainly based in Dar es Salaam. An industrial park based in Mwanza will provide optimality in terms logistics to medical facilities based in the Lake Zone, other nearby regions and the neighbouring counties such as Burundi, Rwanda, Congo DRC, Malawi, Zambia, Uganda, etc.

1.7 An Overview of the Proposed Pharmaceutical Industrial Park in Misungwi

This project entails an integrated pharmaceutical industrial park with all medicinal, pharmaceutical, surgical and packaging industries in the park. It will essentially compose of six plants (factories), which are; pharmaceutical manufacturing plant, imaging equipment manufacturing plant, non – imaging medical equipment manufacturing plant, medical research equipment manufacturing plant, therapeutic devices manufacturing plant and the packaging and consumables materials manufacturing plant. The project concept initiators are the SE Holdings Ltd in Tanzania, Infosys (IPS) Tanzania Ltd, Pharmadule Morimatsu-Sweden and Misungwi District Council.

1.8 Procedure for Establishing a Pharmaceutical Plant in Tanzania

According to Tanzania Medicines and Medical Devices Authority (TMDA) – the umbrella organization, the procedure for establishing a pharmaceutical/medical equipment plant in Tanzania involves the following:

1) Filling and submitting an application form for registration of premises and business permit. Application form should be supported with the following documents: -
   (i) A copy of certificate of Registration from the Business Registration and Licensing Agency(BRELA);
   (ii) A copy of Certificate of Incentives from the Tanzania Investment Centre(TIC);
   (iii) A copy of Memorandum and Articles of Association;
   (iv) An approval from the National Environment Management Council (NEMC) on suitability of a site/plot for

pharmaceutical manufacturing activities.

2) The above documents should be submitted to TMDA together with schematic drawings of a proposed pharmaceutical manufacturing plant depicting premises layout, air handling system design and specific locations of the equipment. Premises layout should among other things indicate ancillary, storage, weighing, and production and quality control areas.
3) Thereafter, TMDA will scrutinize the application and grant approval of the drawings for construction/renovation of premises if satisfied that the drawing has been designed to meet requirements.
4) After completion of construction, TMDA will inspect the plant and upon being satisfied that it meets Good Manufacturing Practice requirements, a registration certificate of the premises and a business permit will be issued to the applicant.

1.9 An Overview of Mwanza Region

Mwanza Region is one of Tanzania's administrative regions having its regional capital known as Mwanza. The neighbouring regions of Mwanza are Geita to the west, Shinyanga to the south, Mara to the north east and Simiyu to the east. Furthermore, Lake Victoria borders the region's north borderline which in turn separates the region from neighbouring countries of Uganda and Kenya. According to the 2012 national census, Mwanza Region had a population of 2,772,509, which was lower than the pre-census projection of 3,771,067. According to 2012 census data, the region had a 3.0% average annual population growth rate and was the eighth highest in the country. It was also the sixth most densely populated region with 293 people per square kilometres.

Mwanza Region lies on 1149 meters above sea level and the climate in the Region is tropical. In winter, there is normally less rainfall than in summer. The temperature at Mwanza averages 22.6°C/72.7 °F with October being the warmest month of the year. The temperature in October averages 23.3 °C/73.9 °F. July has the lowest average temperature of the year gauging at 21.5 °C/70.7 °F. Precipitation in Mwanza is about 1054 mm/41.5 inch per year. Normally, the driest month is July, with 8 mm/0.3 inch of rain. With an average of 175 mm/6.9 inch, the most precipitation falls in April.

Mwanza Region is occupied by four tribes which include the Wasukuma, the Wakerewe, Wakara and Wazinza. Wasukuma tribe is the major tribe occupying the Mwanza Region. Mwanza people are well known for their hardworking character. The main occupations of common Mwanza people are agriculture, fishing and animal husbandry. With regards to agriculture, the main crops produced are maize, rice, beans, millet and potatoes with maize being the main staple food. For the case of animal husbandry, the main animals kept are cattle. Other types of livestock kept are goats and poultry mainly chicken. Apart from fishing along Lake Victoria, Mwanza people are champions of small-scale aquaculture practices in the country. The main type of fish being farmed is tilapia.

With regards to transport means, Mwanza region is well connected by road, rail, water and air transport. For the case of Roads, the paved trunk road T4 from Musoma to Bukoba passes through Mwanza from east to west. Also, the paved trunk road T8 from Mwanza to Shinyanga passes through the region from north to south. With regards to railway, Mwanza branch of the Central Line railway passes through the region on its way from Mwanza to Tabora and there are several stations within the region's borders. In as far as Maritime transport is concerned, Ferries connect Ukerewe Island with Mwanza city. Other ferries operate between Mwanza and Sengerema District. Finally, for the case of air transport, Mwanza Airport is located within the region's boundaries, in the city of Mwanza and is one of the international airports of the country.

Mwanza Region has several attractive places to visit. Among the attractive places to visit are; the Rubondo Island National Park a place in the middle of Lake Victoria that is special for Chimpanzee, the Sukuma Museum with classic Sukuma music and dancing among others, the Bismarck Rock which is the symbol of Mwanza, located at the shores of Lake Victoria, and the Saa-nane Island National Park, just to mention but few.

Mwanza is endowed with several health facilities which provide a range of medical services for both out patients and in patients. The main hospitals in Mwanza Region are; Bugando Hospital, Sekou Toure Hospital, Aga Khan Hospital, Biharamulo Designated District Hospital, Sengerema, Designated District Hospital and Ukerewe District Hospital located in Ukerewe Island. Unluckily, there is no pharmaceutical plant located in Mwanza despite of having several health facilities both government and privately owned. This is the place where the proposed pharmaceutical plant will be located. It is important to note that, Mwanza is one among the big cities of Tanzania, namely; Dar es Salaam, Arusha, Mwanza and Zanzibar. These cities have significant roles in the contribution of the Tanzania economy.

1.10 An Overview of Misungwi District

Misungwi District is one of the seven districts of the Mwanza Region of Tanzania. It is bordered to the north by Nyamagana District and Magu District, to the east by Kwimba District, to the south by Shinyanga Rural District and to the west by Nyang'hwale District and Lake Victoria. The Misungwi district in Mwanza has a population of 351,000 people over half of whom are under 18 years of age. People of Misungwi are mostly Sukuma's and the economic activities of the district are subsistence farming, cattle raising, fishing as well as little aquaculture farming along Lack Victoria.

Access to local health care services and referral into the Health System in Misungwi is good mainly due to improving community-based health care. There are several local organizations, including Ireland which provide comprehensive support to improve the health of women and children. Irish Aid is supporting the health workers based in the local communities who visit families and provide health education. The services they provide include counselling on nutrition, caring for children, and education about good hygiene practices, the importance of sleeping under mosquito nets and measures to prevent other diseases including HIV/AIDS and diet related illness. These measures increase health care and welfare standards within the local communities.

On the side of investments, the District of Misungwi has allocated about 2,400 hectors of land intended for promoting investment opportunities. This area is between Bulemeji and Ukiriguru wards. In the meantime, the government is implementing various development projects in Misungwi which when completed will provide necessary support for big investments. Thus, establishment of the pharmaceutical industrial park in Misungwi will make the District to shine more. This will further create more opportunities for other investments to be actualized in the District. Such investments will also provide extra support to the industrial park. In others words, the envisaged pharmaceutical industrial park and other investments to be put in place will provide symbiotic relationship to each other.

1.11 Key Project Investment Partners

This proposed pharmaceutical industrial park of Misungwi has seven key investment partners, led by: Charles Muhangwa Kitwanga, the Land Lord at Misungwi, Infosys (IPS) Tanzania Ltd; SE Holdings Ltd, LaRoucci International, Zhenjiang province and Jinhua County Government, ESSB Swabury KG, Pharmadule Morimatsu AB and Misungwi District Council. The proposed ownership in terms of shares and responsibilities are as presented in Table 1 below.

Table 1: Ownership Arrangements and Roles of Key Investment Partners

S/N	Shareholder	Responsibility	Shares (%)
1.	Charles, Muhangwa Kitwanga	Provider of land measuring at least 200 acres to locate the entire Industrial Park investments also mobilize additional funds to invest	45
2	Infosys (IPS) Tanzania Ltd	Provider of Electronic Engineering and ICT know-how and Investments	5

3	SE Holdings Ltd.	(i) Developer and implementer of the proposed project. (ii) Project conceptualization with detailed information, proposal, business planning, operations and literary rights (iii) To be entrusted with day to day management of the project. (iv) Provider of facilitations to include management-based trainings. (v) Will form part of the management team. (vi) Provider of expertise in engineering of finances.	35
4	ESSB Swabury KG	Project mobilization and financial engineering, sourcing of international technological and financial investment	10
5	Pharmadule Morimatsu AB	Provider of pharmaceutical technology & technical know-how	5
Total			**100**

1.12 Key Stakeholders

The proposed pharmaceutical industrial park at Misungwi has several stakeholders, however, the key ones are; the Bugando Medical Centre, Muhimbili University of Health Sciences, other International Pharmaceutical Patents and Medical Store Department (MSD). While Bugando Medical Centre and Muhimbili University of Health Sciences will mainly support the industrial park for R&D, other International Pharmaceutical Patents and Medical Store Department will largely support the industrial park for marketing & Distribution of pharmaceutical and medical equipment and devices to be produced.

1.13 Investment Financing Concept (MODEL)

This project will be financed by Pharmaceutical Manufacturing Companies from Jinhua, Zhejiang, China through Zhejiang Provincial Government. The Zhejiang Provincial Government has a friendship with Mwanza Regional Government which is represented by Misungwi District Council in this particular project. Therefore, it is basically a friendship of Misungwi District Council with Jinhua County in China.

1.14 Corporate Social Responsibility (CSR) of the Proposed Industrial Park

The proposed pharmaceutical industrial park at Misungwi will have a number of activities that will form a special programme for Corporate Social Responsibility. All these programmes will be governed by the Misungwi District Council which will receive 10% shares of the project returns. It is this contribution that will be returned back to Misungwi community as benefits. The Misungwi District Council will not be interfered in the way it plans to return the benefits to the community but will be asked to show the activities it implements to the people

2.0 DESCRIPTION OF THE PROPOSED PROJECT

This chapter provides detailed description of the components of the proposed project. It starts by showing the magnitude of the project followed by Mission, Vision, Core Values, objectives and finally ends with expected outputs of the proposed pharmaceutical industrial park that will be availed to the envisaged markets.

2.1 Magnitude of the Project

The proposed plant requires putting in place nine (9) components, namely; acquiring of land, construction of the required shades, acquiring and installation of the machineries and establishment of the office building. Others are; establishment of the domestic outlets, transporting vehicles, construction of houses for some staff, establishing of sports and recreational facilities, and staff training details of the components are provided below.

2.1.1 Acquiring of Land

In order to actualize the proposed project, Mr. Charles Muhangwa Kitwanga has required around 200 acres of land at plot No.....in Misungwi. This area will be used to station the head office of the project and about 95% of the required facilities. These will include the shades to accommodate manufacturing facilities, warehouses, office buildings, show rooms, and houses for some employees. Moreover, eight small plots of about 300 square meters each will be required in some Regions for erection of small buildings to be used as outlets for the products to be produced. Meanwhile, the process of acquiring the 200 acres in Misungwi has completed. Also, the process of acquiring the small plots in the eight regions anticipated to have sales centres has started. The proposed regions for the centres are; Dodoma, Dar es Salaam, Mwanza, Mbeya, Arusha, Shinyanga, Mtwara and Zanzibar as justified by the zoning of the country as per the classification of MoHSW Health Zonal Classification. The 200 acres in Misungwi have been allocated to be used as shown in the following Table.

Table 2: Land Distribution for Medical Industrial Park in Misungwi

S/N	Plant	Space Requirements (Acres)
1	Pharmaceutical manufacturing plant	12
2	Imaging Equipment Plant	16
3	Non – Imaging Medical Equipment Plant	12
4	Medical Research (Specialized) Equipment Plant	12
5	Therapeutic Devices Plant	10
6	Packaging and consumables materials Plant	6
7	Houses for some employees	14
8	Administrative Building	6
9	Recreational facilities	2
10	Space for Expansion	110
Total		**200**

2.1.2 Construction of the Required Shades

Construction of shades is the requisite requirement for the establishment of any medical industrial park. For the purpose of the proposed project, the shades will provide required space to accommodate six main plants outlined below.

a) Shades for pharmaceutical manufacturing plant;
b) Shades for imaging equipment manufacturing plant;
c) Shades for non – imaging medical equipment manufacturing plant;
d) Shades for medical research (specialized) equipment manufacturing plant;
e) Shades for therapeutic devices manufacturing plant, and;
f) Shades for packaging and consumables materials plant.

Depending on the requirements as per Good Manufacturing Practices (GMP), in terms of the number of shades, space requirements for the envisaged plants in the industrial park is indicated in the Table below.

Table 3: Space requirements for the proposed plants

S/N	Plant	Space Required (Sq. m)
1	Pharmaceutical plant	2,000
2	Imaging equipment plant	2,500
3	Non – imaging medical equipment plant	2,000
4	Medical research (specialized) equipment plant	2,000
5	Therapeutic devices plant	1,500
6	Packaging and consumables materials plant	1,000

For pharmaceutical plant, the following is the proposed space requirements for the various sections as per GMP.

Table 4: Space requirements for the pharmaceutical plant Sections

Plant	Sections	Space Required (Sq. m)
Pharmaceutical manufacturing plant	Tablet Section	240
	Capsule Section	240
	Ointment/Tube Filling Machine	240
	Liquid Section	240
	Laboratory & Quality Control Section	240
	Receiving and storage of raw material section	300
	Finished goods storage section	300

	Rejected goods/drugs storage section	200
Total		**2,000**

2.1.3 Acquiring and Installation of the Machineries

Machinery acquiring and its installation is the heart of the plants in the industrial park. Given the magnitude of the project and the envisaged quality of the products, it is proposed to have machineries developed from state-of-the-art technology in the manufacturing of medicines and the medical equipment. The estimated costs for the various machineries required for establishment of the envisaged industrial part are indicated under section 5.1 (Direct Operating Costs).

2.1.4 Establishment of the Main Office Building

In order to create an administrative point for all the plants, it is necessary to have an office that can be used for all management-based activities for the business. In fact, this is also in line with Good Manufacturing Practices (GMP), because for instance, for pharmaceutical production, it is important to separate manufacturing area from administrative activities section. The same is required for imaging equipment manufacturing and the like. Based on that, it is recommended to have a standalone building dedicated specifically as office building. All paper work based, accounting, procurement and supply, human resource, marketing, administration and other related functions will be carried out in the office building. This area will also have an adequate car parking bay for some employees as well as visitors. It is necessary to ensure availability of all requirements in the office building including but not limited to staff canteen. Apart from that, individual plants will have some office spaces for their internal administrative matters just adequate for their usage.

2.1.5 Establishment of the Main Domestic Outlets

As part of the proposed project, it is also suggested to have at least 8 outlets for supplying the finished products for the plants especially the medicines, medical devices and consumables. These outlets should start with Mwanza City Centre, Arusha, Dodoma, and Dar es Salaam. Others should be in Shinyanga, Mbeya, Zanzibar and Mtwara. This arrangement will cater for covering all the zones of the country, namely; Mwanza (Lake Zone), Arusha (Northern zone), Dodoma (Central zone), Dar es Salaam (Eastern zone), Shinyanga (Western zone), Mbeya (Southern Highlands), Zanzibar (Zanzibar zone) and Mtwara (Southern zone). Thereafter, the number of outlets will be escalated in other regions in order to improve accessibility of the medicines, medical devices, consumables and other pharmaceutical products in the country as deemed necessary. The initial outlets' locations are based on the zoning of the country as per the classification of MoHSW Health Zonal Classification shown in Table 5below.

Table 5: MoHSW Health Zonal Classification

S/N	Zone	Regions
1	Western	Tabora, Shinyanga, Kigoma
2	Northern	Kilimanjaro, Tanga, Arusha, Manyara
3	Central	Dodoma, Singida
4	Southern Highlands	Mbeya, Iringa, Rukwa
5	Zanzibar	Unguja North, Unguja South, Town West, Pemba North, Pemba South
6	Lake	Kagera, Mwanza, Mara
7	Southern	Lindi, Mtwara, Ruvuma
8	Eastern	Dar Es Salaam, Pwani, Morogoro

2.1.6 Transporting Vehicles

The project will require at least twenty (20) special hauling trucks for transporting the products from the plants to the main outlets or distributing agents and beyond. The 20 trucks should be having a haulage capacity of 10 – 30 tons. In addition to that, the project will require at least 28 vehicles (at least four for each plant and the central administration) to support mobility of senior officers of the plants in implementing their day-to-day activities and for other administrative activities as may be deemed appropriate.

2.1.7 Houses for Some Staff

Houses for staff are part of the components of the proposed project. These are for staff members who must stay close to the plants due to their responsibilities. Some of them will be entitled for such accommodation while others will be eligible just because of their responsibilities. This kind of arrangement is necessary for the betterment of the project. The staff housing will not provide income to the plants as part of revenues but will in fact safeguard the revenues and general wellbeing of the plants. For that regard, it is proposed to have at least 84 units built in a flat housing mode in order to have good usage of the provided land. Seven acres of land have been allocated for construction of staff houses.

2.1.8 Sports and Recreational Facilities, Staff Training

As part of the project, it is proposed to have some facilities for sports and recreational activities. This is again planned for safeguarding the health of people who will reside at the industrial area as well as enhancing harmony and friendship among employees. It is also part of the retention strategies to be implemented by the industrial park management. One acre of land close to the housing estate will be allotted for this purpose.

2.1.9 Staff Training

The issue of training when engaging in industrial manufacturing in general is inevitable. It is imperative because business in medical equipment and pharmaceutical production is governed by international standards, GMP, rules and regulations as well as guidelines and requirements stipulated by TMDA for the case of Tanzania. It is a requirement to ensure that all possibilities of contamination are eradicated in the manufacturing process. It is also necessary to have the basic knowledge about manufacturing in this sector or employee/partner with persons who have good knowledge of manufacturing and analytical procedures. Without having basic knowledge of manufacturing, it is difficult to compete or survive even after investing huge amount of money. Of course, not all the employees in the industrial park will have that required knowledge. Thus, the employees will need to be trained, re-trained and reminded every now and then about the basic issues regarding medical based manufacturing practices and requirements. Another important concern is that, an institution establishing medical based plants becomes a centre of knowledge sharing and training as well as various visitations. Thus, it is important to have people who will be knowledgeable in the business to respond to all requests regarding imparting knowledge to others or responding to any presented enquiry.

2.2 Mission, Vision and Core Values

This part defines the visualization of the proposed industrial park to be established in Misungwi which include; the motto, objectives, vision, mission and guiding principles.

2.2.1 The Motto:

Quality and affordable medicines and medical equipment for quality life.

2.2.2 Objectives

The main objectives of the proposed project are:

1) To produce excellent and wide range of medicines and medical equipment which meet international standards

and avail them to distributors, service providers and consumers at competitive prices;

2) To penetrate into medical based regional markets apart from serving Tanzania;
3) To become a market leader within Eastern and Central Africa in terms of meeting customer demand and quality of pharmaceuticals and medical equipment to the requisite international level and satisfaction of all concerned stakeholders.
4) To provide employment, transfer technology and avail training opportunities to Tanzanians and other players in the area of pharmaceuticals, medical engineering and its related services.

2.2.3 Vision

To deliver safe and high-quality medicines, medical equipment and other related services that meet National, Regional and International standards.

Indicators of success towards achieving the vision are:

1) Increased access to medicines, medical equipment and other related services within Tanzania and the neighbouring countries.
2) Acknowledged as forerunner in producing and supplying pharmaceuticals, medical equipment and other related services that address the needs of the community in the Region.
3) Ability to make use of available skills, natural resources, and opportunities to produce best quality medicines and medical equipment that support delivery of best medical services in the medical facilities that use the manufactured medicines and medical equipment.

2.2.4 Mission

Producing, supplying and constantly improving availability and accessibility of broad range of pharmaceutical products, medical equipment and other related services that are demand and quality-driven, research based and affordable oriented to the community in region.

2.2.5 Guiding Principles

The following core values will guide the envisaged Industrial Park in executing the proposed plants for realizing its vision, mission and undertakings. The core values will be abbreviated as **SISPIA**.

Sterility and Cleanness– In undertaking the manufacturing processes and procedures, the plants will guarantee and oversee the conservation of hygiene conditions and free of contamination systems and products in order to safeguard peoples' health care.

Integrity- In all its undertakings, the plants will uphold and observe accuracy, professional ethics, honesty, reliability, and life significance.

Society Based – In the delivery of services, the plants will always give emphasis on the importance of the community's health care needs.

Partnerships – The plants will operate very close with its stakeholders both within and outside the country.

Innovation and Creativity – In discharging its duties and responsibilities, the plants will endeavour to be creative, up to date and exceptional.

Authority – In honouring its mandate, the plants will observe quality in all its activities by ensuring that standards are adhered to, and quality control and assurance mechanisms are institutionalized and sustained.

2.3 Expected Outputs of the Industrial Park

The proposed project will manufacture a broad range of pharmaceutical products and medical equipment. However, for the case of pharmaceutical products, production will focus on essential medicines which are those that satisfy the priority health care needs of the population. These medicines should be available all the time and at affordable prices. Thus, to start with, only 43 products will be produced as presented in Table 6 below. Through market analysis, research and development, necessities of health care need, collaboration with other actors and opportunity capturing, other drugs will be introduced as deemed appropriate. On the other hand, manufacturing of various medical equipment and devices will focus on the few selected most preferred equipment, thereafter, other products may be introduced in the market pending market analysis, research and development, necessities of health care need and collaboration with other actors. These outputs are as indicated in Tables 6, 7, 8, 9 and 10.

Table 6: Essential Drugs to be Produced During Year 1

S/N	Product type	Product name
1	Capsules	Amoxicillin 250mg
2		Amoxicillin 500mg
3		Ampiclox 500mg
4		Omeprazole 20mg
5		Piroxicam 20mg
6	Tablets	Paracetamol 500mg
7		Ciprofloxacin 500mg
8		Cotrimoxazole 480mg
9		Metronidazole 200mg
10		Salbutamol 5mg
11		Prednisolone 5mg
12		Erythromycin 250mg
13		Phenobarbital 5mg
14		Diclofenac 50mg
15		Ibuprofen 200mg
16		Artemether Lumenfantrine (ALU) 20mg/120mg
17		Cetirizine 10mg
18		Chlopheniramine 5mg
19		Metformin 500mg
20		Glibenclamide 5mg
21		Nifedipine 10 mg
22		Furosemide 5 mg
23		Folic acid 5 mg
24		Vitamin B complex
25	Ointments/Tubes	Hydrocortisone cream/ointment
26		Clotrimazole cream
27		Tetracycline eye ointment
28		Tetracycline 3% ointment for topical wounds treatment
29		Ciprofloxacin ear & eye drop
30		Gentamycin ear & eye drop
31		Xylometazoline 0.1% nasal drop
32		Xylometazoline 0.05% nasal drop

S/N	Product type	Product name
33	Powders suspensions	Amoxicillin powder suspension 125mg/5mls
34		Ampiclox powder suspension 250mg/5mls
35		Erythromycin powder suspension 125mg/5mls
36	Liquids	Paracetamol syrup 120mg/5mls
37		Ibuprofen syrup 100mg/5mls
38		Metronidazole syrup 200mg/5mls
39		Dextromethorphan syrup 7.5mg/5mls
40		Cetirizine syrup 5mg/5mls
41	Other Liquids (Intravenous infusion)	Normal saline 500mls
42		Ringer Lactate 500mls
43		Dextrose 5%

Table 7: Imaging Equipment to be Produced During Year 1

S/N	Item (Equipment) – Product Name
1	Digital X-Ray Machine
2	CT Scan (64 slices)
3	Ultra sound machine (with probes)
4	MRI (1.5 Tessier)
5	Mammography Machine
6	C-ARM X-Ray Machine

Table 8: Non – Imaging Medical Equipment to be Produced During Year 1

S/N	Item (Equipment) – Product Name
1	Microscope
2	Centrifuge Machines (cell analyser)
3	Dental Chair
4	Monitors
5	Gynaecological bed
6	Operating room Stretcher
7	Suction machine
8	Hospital infusion pump
9	Dialysis Machine
10	Theatre bed
11	Theatre lamp
12	Anaesthetic machine
13	Medical syringe
14	Diathermy knife
15	Pulse Oximeter (per piece for 100 pieces)

Table 9: Medical Research Equipment to be Produced During Year 1

S/N	Item (Equipment) – Product Name
1	CT for Animal studies
2	MRI for Animal studies
3	Portable X Ray for animal use
4	Ultra sound for animal use
5	Tissue paraffin dispenser machine
6	Reticulocyte blood machine
7	Haematology analyser

Table 10: Therapeutic Devices to be Produced During Year 1

S/N	Item (Equipment) – Product Name
1	Physiotherapy machine
2	Phototherapy machine
3	Electromagnetic wave physiotherapy machine
4	Nebulizer machine
5	Gait training machine
6	Transcranial magnetic stimulation machine
7	Infrared laser device
8	Microwave diathermy therapeutic machine

Table 11: Packaging and consumables materials to be Produced During Year 1

S/N	Item (Equipment) – Product Name
1	Syringes (5000 pieces)
2	IV drips (50,000 pieces)
3	IV drip stand (pieces)
4	IV Bags (10,000 pieces)
5	IV cannula (piece)
6	Disposable Gloves (piece)
7	Surgical gloves (piece)
8	Glass bottles (piece)
9	Plastic bottles (piece)
10	PVC soft bags (piece)
11	Non- PVC soft bags (piece)

3.0 MARKETING PLAN

This section provides a discussion on the unique features of the envisaged pharmaceutical industrial park, target market, some specific needs of the target customers, market coverage and demand analysis and demand forecasts. Other issues discussed are; planned capacities and production levels, pricing of the proposed products, promotion and strategies for securing the first clients, SWOC analysis for the proposed industrial park, environment scanning, the proposed project competitive advantages and marketing budget. Finally, the section winds up by presenting the future plans of the pharmaceutical industrial park.

3.1 Unique features of the Envisaged Medical Industrial Park

The Medical Industrial Park being proposed will have unique features that put it in a good position to operate the proposed business effectively. The features are presented as below:

1) There is no medical industrial park in the region of this kind in general and there is no any of its components in Mwanza in particular. This provides an upper hand to the plants of concurring the market along the Lake zone and the nearby countries like Rwanda, Burundi, Congo DRC and even the entire SADC region.
2) The Industrial Park will partner with Misungwi District Council in its establishment and operation. This will allow the management of the entity to leverage in terms of fast tracking the administrative requirements and prospects to supply products to government-based institutions like MSD, hospitals, etc. both in the country as well as within the Region.
3) Misungwi where the project will be operating from is one of the districts of Mwanza Region which is geographically well positioned. For that reason, it is expected to supply the various products easily to the regions in the Lake zone (Kagera, Mwanza, and Mara), those in the Western zone (Tabora, Shinyanga, and Kigoma) and the neighboring countries (Rwanda, Burundi, Congo DRC, Uganda, etc.). This will lower logistical costs and subsequently reduce the prices of the various products to users.
4) Given the quality products that the industrial park is going to produce and the competitive prices that will be offered, there are high expectations of outperforming the competitors who most of them operate remotely and thus, make the expected products fetch broader acceptance in the regional market.

3.2 Target Market

The proposed Medical Industrial Park targets to secure customers from the following market segments:

a) Distributors of medical supplies, equipment and medicines in the country to include MSD.
b) The various pharmacies across the country mainly through the established domestic outlets which will be located in all geographical zones.
c) Government based medical facilities due to the fact that local government in Mwanza will be one of the shareholders of the proposed pharmaceutical plant. This will encourage other government-based institutions to acquire drugs from the plant.
d) Export overseas to other countries as may be deemed appropriate.
e) Individual users through the use of the established domestic outlets which will have two windows, one for wholesaling and the other for retailing.

3.3 Some Specific Needs of the Targeted Markets

The management of the envisaged Medical Industrial Park executing the project understands that, to be in business, they have to satisfy the markets' needs which include but not limited to the following:

i) High quality products that meet international standards.
ii) Competitive prices of the products to enable users buy them affordably with gratification.
iii) Assurance of availability, accessibility, instant responsiveness of requested orders, exceptional after sale services and special business considerations.

iv) Perpetuity of GMP in the production, good handling and marketing of pharmaceutical products and medical equipment as per national and international rules and regulations.

3.4 Market Coverage

The proposed Medical Industrial Park plans to cater for the needs of wide range of pharmaceutical products and medical equipment to the people and service providers in nearby community (Lake Zone) in particular, Tanzania in general and overseas at large. To be able to achieve that, it would be important to establish ways and means to penetrate the prospective markets. The basic pillar that can enable the industrial park to meet this objective is to adhere to the specific needs of the targeted markets.

3.5 Analysis of Demand

Available data shows that, pharmaceutical expenditure in Tanzania reached US$ 500 million in 2018. Apart from that, total medicines consumption for the country is forecasted to increase by 17.2% in 2021, yielding a market size of US$ 700 million. According to Business Monitor International (BMI), Tanzania's pharmaceutical market was forecasted to reach a value of TZS1.6 trillion by 2020. BMI attributes Tanzania strong pharmaceutical market growth to high GDP growth over the next decade, estimated at approximately 7% per annum in real terms. On the other side, Tanzania population is expected to reach 60 million people in 2021 compared to about 54 million people in 2018. The population increase translates to an increase in the need for pharmaceuticals as well leave aside the pandemic catastrophe of COVID 19. So, the market trend and possibility to produce other products which have not been considered in the first batch of manufacturing, there is clear assurance of making good business in the Tanzanian pharmaceutical industry. In fact, the proposed pharmaceutical industrial plant is estimated to contribute an average of only about US$ 241.4 million of sales annually starting from 2023.This translates to only 34.5% of the forecasted pharmaceutical market magnitude. Since the proposed market plans to grab at least 40% share of the Tanzanian market, the park has more than adequate market to supply the essential drugs, consumables and the medical equipment intended for production. This has not considered the regional market in the neighboring countries. It suffices to say that, existing demand in the meantime cannot be met by the planned production level. Yet, the industrial park expects to expand its market to overseas marketplace.

For the case of neighboring countries, especially; Rwanda, Burundi, Congo DRC, Zambia, Malawi and Mozambique mostly depend on pharmaceutical products from abroad. In fact, MSD uses to supply medicines and medical equipment to SADC region which is an indication of the dependency of these countries of foreign producers regarding their pharmaceutical products consumptions. So far, available data on expenditure of pharmaceutical products for some countries in the region shows high prospects of doing business in the region so long as quality assurance and upholding of standards is guaranteed. Table 12presented below provides data on health expenditure as a percentage of GDP for some selected countries neighboring Tanzania in the region just to provide an overview of demand of medicines.

With regards to medical equipment, there is no country in the Eastern and Central African region that produces heavy medical equipment like Digital X-Ray Machine, CT scan, Ultra sound machine, MRI, Mammography Machine, C-ARM X-Ray Machine, Tissue paraffin dispenser machine, Reticulocyte blood machine, Hematology analyzer and the like. Kenya and Uganda produce some of medical consumables like, IV drips, IV Bags, IV cannula and some medical devices where other countries like Tanzania use to import from. Generally, the region depends on imports for the needs of most medical equipment used in the medical facilities (state owned and private). Table 12 below provides the number of medical facilities that include hospitals, health centers and dispensaries which are available in some selected countries neighboring Tanzania. All these medical facilities require to use pharmaceutical products and medical equipment on daily basis. Unfortunately, large majority of them do not have the necessary medical equipment to undertake various diagnoses.

Table 12: Medical Facilities and Health Expenditures in some Selected Countries Neighboring Tanzania

Country	Medical Facilities (Hospitals, Health Centers and Dispensaries)	Health Expenditure (% of GDP)
Burundi	665	8.02
Congo DRC	14,586	3.51
Kenya	6,146	4.48
Malawi	648	8.34
Rwanda	572	11.4
Tanzania	8,497	7.31
Uganda	3,792	9.76
Zambia	1,263	5.03
Total	**36,169**	**-**

Source: Wikipedia, 2020 and World Atlas, 2020

In fact, if the proposed industrial park utilizes only 15% of the demand for pharmaceutical products and medical equipment of the 36,169heath facilities in the Region, it should be able to do excellent business. With time and good strategies, the industrial park will be in a position to grab even a bigger share of the market especially for consumables and pharmaceutical products which are consumed on daily basis.

A general look of the African pharmaceutical market considers the tropical climate of Africa a course of the continent being the largest reservoir of infectious diseases, particularly malaria, tuberculosis (TB), and acquired immune deficiency syndrome (AIDS), besides frequent outbreaks of polio, meningitis, cholera, pandemic influenza, yellow fever, measles, hepatitis, and tetanus. With the increasing adoption of western lifestyle in Africa, there has been a paradigm shift in the burden of illness towards non-communicable diseases (NCDs), driving the demand for chronic prescription drugs.

Based on World Health Organization prediction, the proportional contribution of NCDs to the healthcare burden in Africa will rise by 21% through 2030. In the meanwhile, population will continue to suffer from infectious and parasitic illness, but lifestyle diseases such as cardiovascular diseases, diabetes, and cancer will witness high growth rates throughout the forecast period. According to McKinsey & Company (2020) analysis for African countries with imports comprising of 70 to 90 percent of drugs consumed, it would be better for such governments to consider promoting more local production of pharmaceuticals depending on impact and feasibility. For the case of Tanzania where imports of drugs are more than 70% and total medicines consumption for the country is forecasted to reach US$ 700 million in 2021, considering establishing a pharmaceutical industrial park is a sound decision.

Given the above analysis, Tables 13, 14, 15, 16, 17and 18shown below show the demand forecasts for the various products of the envisaged industrial park.

Table 13: Demand Forecasts for the Selected Pharmaceutical Products (Doses)

S/N	Product type	Product name	2023	2024	2025	2026	2027
1	Capsules	Amoxicillin 250mg	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
2		Amoxicillin 500mg	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
3		Ampiclox 500mg	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300

S/N	Product type	Product name	2023	2024	2025	2026	2027
4		Omeprazole 20mg	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
5		Piroxicam 20mg	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
6	Tablets	Paracetamol 500mg	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
7		Ciprofloxacin 500mg	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
8		Cotrimoxazole 480mg	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
9		Metronidazole 200mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
10		Salbutamol 5mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
11		Prednisolone 5mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
12		Erythromycin 250mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
13		Phenobarbital 5mg	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
14		Diclofenac 50mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
15		Ibuprofen 200mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
16		Artemether Lumenfantrine (ALU) 20mg/120mg	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
17		Cetirizine 10mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
18		Chlopheniramine 5mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
19		Metformin 500mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
20		Glibenclamide 5mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
21		Nifedipine 10 mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
22		Furosemide 5 mg	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
23		Folic acid 5 mg	4,500,000	4,950,000	5,445,000	5,989,500	6,588,450
24		Vitamin B complex	4,500,000	4,950,000	5,445,000	5,989,500	6,588,450
25	Ointments/Tubes	Hydrocortisone cream/ointment	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
26		Clotrimazole cream	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
27		Tetracycline eye ointment	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
28		Tetracycline 3% ointment for topical wounds treatment	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
29		Ciprofloxacin ear & eye drop	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
30		Gentamycin ear & eye drop	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
31		Xylometazoline 0.1% nasal drop	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
32		Xylometazoline 0.05% nasal drop	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
33	Powders suspensions	Amoxicillin powder suspension 125mg/5mls	2,250,000	2,475,000	2,722,500	2,994,750	3,294,225
34		Ampiclox powder suspension 250mg/5mls	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
35		Erythromycin powder suspension 125mg/5mls	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
36	Liquids	Paracetamol syrup 120mg/5mls	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
37		Ibuprofen syrup 100mg/5mls	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
38		Metronidazole syrup 200mg/5mls	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
39		Dextromethorphan syrup 7.5mg/5mls	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
40		Cetirizine syrup 5mg/5mls	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
41	Other Liquids (Intravenous infusion)	Normal saline 500mls	4,500,000	4,950,000	5,445,000	5,989,500	6,588,450
42		Ringer Lactate 500mls	4,500,000	4,950,000	5,445,000	5,989,500	6,588,450
43		Dextrose 5%	4,500,000	4,950,000	5,445,000	5,989,500	6,588,450

Table 14: Demand Forecasts for Imaging Equipment

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Digital X-Ray Machine	60	66	73	80	88
2	CT Scan	60	66	73	80	88
3	Ultra sound machine (with probes)	60	66	73	80	88

4	MRI (1.5 Tessier)	60	66	73	80	88
5	Mammography Machine	60	66	73	80	88
6	C-ARM X-Ray Machine	60	66	73	80	88

Table 15: Demand Forecasts for Non – Imaging Medical Equipment

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Microscope	1,200	1,320	1,452	1,597	1,757
2	Centrifuge Machines (cell analyser)	1,200	1,320	1,452	1,597	1,757
3	Dental Chair	1,200	1,320	1,452	1,597	1,757
4	Monitors	1,200	1,320	1,452	1,597	1,757
5	Gynaecological bed	1,200	1,320	1,452	1,597	1,757
6	Operating room Stretcher	1,200	1,320	1,452	1,597	1,757
7	Suction machine	1,200	1,320	1,452	1,597	1,757
8	Hospital infusion pump	1,200	1,320	1,452	1,597	1,757
9	Dialysis Machine	150	165	182	200	220
10	Theatre bed	1,200	1,320	1,452	1,597	1,757
11	Theatre lamp	1,200	1,320	1,452	1,597	1,757
12	Anaesthetic machine	1,200	1,320	1,452	1,597	1,757
13	Medical syringe	1,200	1,320	1,452	1,597	1,757
14	Diathermy knife	1,200	1,320	1,452	1,597	1,757
15	Pulse Oximeter (per piece for 100 pieces)	1,200	1,320	1,452	1,597	1,757

Table 16: Demand Forecasts for Medical Research Equipment

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	CT for Animal studies	75	83	91	100	110
2	MRI for Animal studies	75	83	91	100	110
3	Portable X Ray for animal use	150	165	182	200	220
4	Ultra sound for animal use	150	165	182	200	220
5	Tissue paraffin dispenser machine	225	248	272	299	329
6	Reticulocyte blood machine	225	248	272	299	329
7	Haematology analyser	225	248	272	299	329

Table 17: Demand Forecasts for Therapeutic Devices

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Physiotherapy machine	360	396	436	479	527
2	Phototherapy machine	360	396	436	479	527
3	Electromagnetic wave physiotherapy machine	360	396	436	479	527
4	Nebulizer machine	360	396	436	479	527
5	Gait training machine	360	396	436	479	527
6	Transcranial magnetic stimulation machine	360	396	436	479	527
7	Infrared laser device	360	396	436	479	527

8	Microwave diathermy therapeutic machine	360	396	436	479	527

Table 18: Demand Forecasts for Packaging and consumables materials

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Syringes (5000 pieces)	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
2	IV drips (50,000 pieces)	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
3	IV drip stand (pieces)	4,500,000	4,950,000	5,445,000	5,989,500	6,588,450
4	IV Bags (10,000 pieces)	1,500,000	1,650,000	1,815,000	1,996,500	2,196,150
5	IV cannula (piece)	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
6	Disposable Gloves (piece)	3,000,000	3,300,000	3,630,000	3,993,000	4,392,300
7	Surgical gloves (piece)	7,500,000	8,250,000	9,075,000	9,982,500	10,980,750
8	Glass bottles	7,500,000	8,250,000	9,075,000	9,982,500	10,980,750
9	Plastic bottles	7,500,000	8,250,000	9,075,000	9,982,500	10,980,750
10	PVC soft bags	7,500,000	8,250,000	9,075,000	9,982,500	10,980,750
10	Non- PVC soft bags	7,500,000	8,250,000	9,075,000	9,982,500	10,980,750

3.6 Planned Capacities and Production Levels

Based on the demand forecasts presented in the foregoing section, the Tables below indicate simultaneously, planned capacities and production levels for all the proposed plants in the industrial park.

Table 19: Planned Capacity for the Selected Pharmaceutical Products (Doses)

S/N	Product type	Product name	2023	2024	2025	2026	2027
1	Capsules	Amoxicillin 250mg	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
2		Amoxicillin 500mg	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
3		Ampiclox 500mg	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
4		Omeprazole 20mg	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
5		Piroxicam 20mg	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
6	Tablets	Paracetamol 500mg	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
7		Ciprofloxacin 500mg	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
8		Cotrimoxazole 480mg	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
9		Metronidazole 200mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
10		Salbutamol 5mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
11		Prednisolone 5mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
12		Erythromycin 250mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
13		Phenobarbital 5mg	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
14		Diclofenac 50mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
15		Ibuprofen 200mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
16		Artemether Lumenfantrine (ALU) 20mg/120mg	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
17		Cetirizine 10mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
18		Chlopheniramine 5mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
19		Metformin 500mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
20		Glibenclamide 5mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
21		Nifedipine 10 mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
22		Furosemide 5 mg	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
23		Folic acid 5 mg	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000
24		Vitamin B complex	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000
25	Ointments/Tubes	Hydrocortisone cream/ointment	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
26		Clotrimazole cream	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
27		Tetracycline eye ointment	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000

S/N	Product type	Product name	2023	2024	2025	2026	2027
28		Tetracycline 3% ointment for topical wounds treatment	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
29		Ciprofloxacin ear & eye drop	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
30		Gentamycin ear & eye drop	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
31		Xylometazoline 0.1% nasal drop	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
32		Xylometazoline 0.05% nasal drop	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
33		Amoxicillin powder suspension 125mg/5mls	3,750,000	3,750,000	3,750,000	3,750,000	3,750,000
34	Powders suspensions	Ampiclox powder suspension 250mg/5mls	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
35		Erythromycin powder suspension 125mg/5mls	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
36		Paracetamol syrup 120mg/5mls	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
37		Ibuprofen syrup 100mg/5mls	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
38	Liquids	Metronidazole syrup 200mg/5mls	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
39		Dextromethorphan syrup 7.5mg/5mls	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
40		Cetirizine syrup 5mg/5mls	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
41	Other Liquids (Intravenous infusion)	Normal saline 500mls	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000
42		Ringer Lactate 500mls	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000
43		Dextrose 5%	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000

Table 20: Planned Production Levels for the Selected Pharmaceutical Products (Doses)

S/N	Product type	Product name	2023	2024	2025	2026	2027
1		Amoxicillin 250mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
2		Amoxicillin 500mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
3	Capsules	Ampiclox 500mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
4		Omeprazole 20mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
5		Piroxicam 20mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
6		Paracetamol 500mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
7		Ciprofloxacin 500mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
8		Cotrimoxazole 480mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
9		Metronidazole 200mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
10		Salbutamol 5mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
11		Prednisolone 5mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
12		Erythromycin 250mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
13		Phenobarbital 5mg	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
14		Diclofenac 50mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
15		Ibuprofen 200mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
16	Tablets	Artemether Lumenfantrine (ALU) 20mg/120mg	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
17		Cetirizine 10mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
18		Chlopheniramine 5mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
19		Metformin 500mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
20		Glibenclamide 5mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
21		Nifedipine 10 mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
22		Furosemide 5 mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
23		Folic acid 5 mg	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
24		Vitamin B complex	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
25		Hydrocortisone cream/ointment	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
26	Ointments/Tubes	Clotrimazole cream	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
27		Tetracycline eye ointment	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506

S/N	Product type	Product name	2023	2024	2025	2026	2027
28		Tetracycline 3% ointment for topical wounds treatment	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
29		Ciprofloxacin ear & eye drop	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
30		Gentamycin ear & eye drop	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
31		Xylometazoline 0.1% nasal drop	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
32		Xylometazoline 0.05% nasal drop	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
33	Powders suspensions	Amoxicillin powder suspension 125mg/5mls	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
34		Ampiclox powder suspension 250mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
35		Erythromycin powder suspension 125mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
36	Liquids	Paracetamol syrup 120mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
37		Ibuprofen syrup 100mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
38		Metronidazole syrup 200mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
39		Dextromethorphan syrup 7.5mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
40		Cetirizine syrup 5mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
41	Other Liquids (Intravenous infusion)	Normal saline 500mls	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
42		Ringer Lactate 500mls	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
43		Dextrose 5%	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519

Table 21: Planned Capacity for Imaging Equipment

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Digital X-Ray Machine	100	100	100	100	100
2	CT Scan	100	100	100	100	100
3	Ultra sound machine (with probes)	100	100	100	100	100
4	MRI (1.5 Tessier)	100	100	100	100	100
5	Mammography Machine	100	100	100	100	100
6	C-ARM X-Ray Machine	100	100	100	100	100

Table 22: Planned Production Levels for Imaging Equipment

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Digital X-Ray Machine	40	42	44	46	49
2	CT Scan	40	42	44	46	49
3	Ultra sound machine (with probes)	40	42	44	46	49
4	MRI (1.5 Tessier)	40	42	44	46	49
5	Mammography Machine	40	42	44	46	49
6	C-ARM X-Ray Machine	40	42	44	46	49

Table 23: Planned Capacity for Non – Imaging Medical Equipment

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Microscope	2,000	2,000	2,000	2,000	2,000
2	Centrifuge Machines (cell analyser)	2,000	2,000	2,000	2,000	2,000
3	Dental Chair	2,000	2,000	2,000	2,000	2,000
4	Monitors	2,000	2,000	2,000	2,000	2,000
5	Gynaecological bed	2,000	2,000	2,000	2,000	2,000

S/N	Item (Equipment)	2023	2024	2025	2026	2027
6	Operating room Stretcher	2,000	2,000	2,000	2,000	2,000
7	Suction machine	2,000	2,000	2,000	2,000	2,000
8	Hospital infusion pump	2,000	2,000	2,000	2,000	2,000
9	Dialysis Machine	250	250	250	250	250
10	Theatre bed	2,000	2,000	2,000	2,000	2,000
11	Theatre lamp	2,000	2,000	2,000	2,000	2,000
12	Anaesthetic machine	2,000	2,000	2,000	2,000	2,000
13	Medical syringe	2,000	2,000	2,000	2,000	2,000
14	Diathermy knife	2,000	2,000	2,000	2,000	2,000
15	Pulse Oximeter (per piece for 100 pieces)	2,000	2,000	2,000	2,000	2,000

Table 24: Planned Production Levels for Non – Imaging Medical Equipment

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Microscope	800	840	882	926	972
2	Centrifuge Machines (cell analyser)	800	840	882	926	972
3	Dental Chair	800	840	882	926	972
4	Monitors	800	840	882	926	972
5	Gynaecological bed	800	840	882	926	972
6	Operating room Stretcher	800	840	882	926	972
7	Suction machine	800	840	882	926	972
8	Hospital infusion pump	800	840	882	926	972
9	Dialysis Machine	100	105	110	116	122
10	Theatre bed	800	840	882	926	972
11	Theatre lamp	800	840	882	926	972
12	Anaesthetic machine	800	840	882	926	972
13	Medical syringe	800	840	882	926	972
14	Diathermy knife	800	840	882	926	972
15	Pulse Oximeter (per piece for 100 pieces)	800	840	882	926	972

Table 25: Planned Capacity for Medical Research Equipment

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	CT for Animal studies	125	125	125	125	125
2	MRI for Animal studies	125	125	125	125	125
3	Portable X Ray for animal use	250	250	250	250	250
4	Ultra sound for animal use	250	250	250	250	250
5	Tissue paraffin dispenser machine	375	375	375	375	375
6	Reticulocyte blood machine	375	375	375	375	375
7	Haematology analyser	375	375	375	375	375

Table 26: Planned Production Levels for Medical Research Equipment

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	CT for Animal studies	50	53	55	58	61
2	MRI for Animal studies	50	53	55	58	61
3	Portable X Ray for animal use	100	105	110	116	122
4	Ultra sound for animal use	100	105	110	116	122
5	Tissue paraffin dispenser machine	150	158	165	174	182

6	Reticulocyte blood machine	150	158	165	174	182
7	Haematology analyser	150	158	165	174	182

Table 27: Planned Capacity for Therapeutic Devices

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Physiotherapy machine	600	600	600	600	600
2	Phototherapy machine	600	600	600	600	600
3	Electromagnetic wave physiotherapy machine	600	600	600	600	600
4	Nebulizer machine	600	600	600	600	600
5	Gait training machine	600	600	600	600	600
6	Transcranial magnetic stimulation machine	600	600	600	600	600
7	Infrared laser device	600	600	600	600	600
8	Microwave diathermy therapeutic machine	600	600	600	600	600

Table 28: Planned Production Levels for Therapeutic Devices

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Physiotherapy machine	240	264	290	319	351
2	Phototherapy machine	240	264	290	319	351
3	Electromagnetic wave physiotherapy machine	240	264	290	319	351
4	Nebulizer machine	240	264	290	319	351
5	Gait training machine	240	264	290	319	351
6	Transcranial magnetic stimulation machine	240	264	290	319	351
7	Infrared laser device	240	264	290	319	351
8	Microwave diathermy therapeutic machine	240	264	290	319	351

Table 29: Planned Capacity for Packaging and consumables materials

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Syringes (5000 pieces)	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
2	IV drips (50,000 pieces)	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
3	IV drip stand (pieces)	7,500,000	7,500,000	7,500,000	7,500,000	7,500,000
4	IV Bags (10,000 pieces)	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000
5	IV cannula (piece)	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
6	Disposable Gloves (piece)	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
7	Surgical gloves (piece)	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000
8	Glass bottles	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000
9	Plastic bottles	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000
10	PVC soft bags	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000
11	Non- PVC soft bags	12,500,000	12,500,000	12,500,000	12,500,000	12,500,000

Table 30: Planned Production Levels for Packaging and Consumables Materials

S/N	Item (Equipment)	2023	2024	2025	2026	2027
1	Syringes (5000 pieces)	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
2	IV drips (50,000 pieces)	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
3	IV drip stand (pieces)	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
4	IV Bags (10,000 pieces)	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506

5	IV cannula (piece)	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
6	Disposable Gloves (piece)	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
7	Surgical gloves (piece)	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531
8	Glass bottles	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531
9	Plastic bottles	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531
10	PVC soft bags	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531
11	Non- PVC soft bags	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531

From Tables 13 through 30, presented above, we can see that, planned level of production in Year 1 of operations (2023) is only 40% of the installed capacities, the same accounts for about 67% of the forecasted demand. Thus, the proposed pharmaceutical industrial park has adequate room to expand its production in order to attain anticipated demand and installed capacity. Furthermore, it can be seen that, management of the park needs to work more in sustaining supply (production) than worrying about market (demand). Note that, these forecasted demand figures are based on levels which put the park on the safest side. Note further that, planned production levels and forecasted demand have been assumed to grow at an average of 5% from year to year based on the anticipated inflation rate which is anticipated to be about 5% and due to the need of gradually increasing capacity utilization. For the case of production capacity, the levels have been assumed to be constant because once capacities are installed, they cannot be changed immediately. The capacities are also beyond expected demand figures in order to take an advantage of accelerating production when needed.

3.7 Pricing of the Proposed Products

In setting the prices for the expected products, consideration will be made on a number of factors. These include clients' ability to buy the products, competitors' prices, operating costs incurred and necessity to make reasonable profit. For the purpose of promoting the products, it is planned to perform the following:

a) Allow credit sales to distribution agents;
b) Allow payments in installations for hospitals and health-based facilities especially for medical equipment and devices;
c) Provide quantity discounts to big buyers, hospitals and the distribution agents;
d) Charging lower profit margins compared to what is charged by the competitors;
e) Deliver the goods to designated destinations as required by the clients;
f) Provide excellent, prompt, scheduled and reduced price after sell services;
g) Provide free after sale services for medical equipment within the guarantee period;
h) Update the software for running medical equipment in not less than three years;
i) Offer training in the usage and management of medical equipment and devices to accurately support the services delivered by the clients, and;
j) Engage in high customer care, human dignity and close customer relationship policy.

With the above strategies in mind, the indicative prices for the various products to be offered are as presented in the Tables that follow.

Table31: Indicative Prices per Dose for the Selected Pharmaceutical Products

S/N	Product type	Product name	Price	
			TZS	US$
1	Capsules	Amoxicillin 250mg	975	0.39
2		Amoxicillin 500mg	1,950	0.77

S/N	Product type	Product name	Price	
			TZS	US$
3		Ampiclox 500mg	1,950	0.77
4		Omeprazole 20mg	650	0.26
5		Piroxicam 20mg	390	0.15
6	Tablets	Paracetamol 500mg	650	0.26
7		Ciprofloxacin 500mg	1,300	0.52
8		Cotrimoxazole 480mg	650	0.26
9		Metronidazole 200mg	975	0.39
10		Salbutamol 5mg	325	0.13
11		Prednisolone 5mg	325	0.13
12		Erythromycin 250mg	1,950	0.77
13		Phenobarbital 5mg	325	0.13
14		Diclofenac 50mg	325	0.13
15		Ibuprofen 200mg	325	0.13
16		Artemether Lumenfantrine (ALU) 20mg/120mg	2,600	1.03
17		Cetirizine 10mg	650	0.26
18		Chlopheniramine 5mg	3,250	1.29
19		Metformin 500mg	650	0.26
20		Glibenclamide 5mg	650	0.26
21		Nifedipine 10 mg	650	0.26
22		Furosemide 5 mg	325	0.13
23		Folic acid 5 mg	325	0.13
24		Vitamin B complex	325	0.13
25	Ointments/Tubes	Hydrocortisone cream/ointment	1,300	0.52
26		Clotrimazole cream	650	0.26
27		Tetracycline eye ointment	650	0.26
28		Tetracycline 3% ointment for topical wounds treatment	1,300	0.52
29		Ciprofloxacin ear & eye drop	1,300	0.52
30		Gentamycin ear & eye drop	650	0.26
31		Xylometazoline 0.1% nasal drop	1,300	0.52
32		Xylometazoline 0.05% nasal drop	1,300	0.52
33	Powders suspensions	Amoxicillin powder suspension 125mg/5mls	1,300	0.52
34		Ampiclox powder suspension 250mg/5mls	2,275	0.90
35		Erythromycin powder suspension 125mg/5mls	1,950	0.77
36	Liquids	Paracetamol syrup 120mg/5mls	1,300	0.52
37		Ibuprofen syrup 100mg/5mls	1,300	0.52
38		Metronidazole syrup 200mg/5mls	1,300	0.52
39		Dextromethorphan syrup 7.5mg/5mls	1,300	0.52
40		Cetirizine syrup 5mg/5mls	1,300	0.52
41	Other Liquids (Intravenous infusion)	Normal saline 500mls	1,300	0.52
42		Ringer Lactate 500mls	1,300	0.52
43		Dextrose 5%	1,300	0.52

Table 32: Indicative Prices for Imaging Equipment

S/N	Item (Equipment)	Price	
		TZS	(US$)
1	Digital X-Ray Machine	92,400,000	40,000.0
2	CT Scan	1,293,600,000	560,000.0
3	Ultra sound machine (with probes)	73,920,000	32,000.0
4	MRI (1.5 Tessier)	1,600,000,000	692,640.7
5	Mammography Machine	240,000,000	103,896.1
6	C-ARM X-Ray Machine	120,000,000	51,948.1

Table 33: Indicative Prices for Non – Imaging Medical Equipment

S/N	Item (Equipment)	Price	
		TZS	(US$)
1	Microscope	1,200,000	519.5
2	Centrifuge Machines (cell analyser)	1,600,000	692.6
3	Dental Chair	4,000,000	1,731.6
4	Monitors	1,200,000	519.5
5	Gynaecological bed	7,200,000	3,116.9
6	Operating room Stretcher	2,800,000	1,212.1
7	Suction machine	400,000	173.2
8	Hospital infusion pump	400,000	173.2
9	Dialysis Machine	24,000,000	10,389.6
10	Theatre bed	13,600,000	5,887.4
11	Theatre lamp	8,000,000	3,463.2
12	Anaesthetic machine	24,000,000	10,389.6
13	Medical syringe	800,000	346.3
14	Diathermy knife	40,000	17.3
15	Pulse Oximeter (per piece for 100 pieces)	5,600	2.4

Table 34: Indicative Prices for Medical Research Equipment

S/N	Item (Equipment)	Price	
		TZS	(US$)
1	CT for Animal studies	320,000,000	138,528.1
2	MRI for Animal studies	480,000,000	207,792.2
3	Portable X Ray for animal use	8,000,000	3,463.2
4	Ultra sound for animal use	25,600,000	11,082.3
5	Tissue paraffin dispenser machine	1,200,000	519.5
6	Reticulocyte blood machine	96,000,000	41,558.4
7	Haematology analyser	12,000,000	5,194.8

Table 35: Indicative Prices for Therapeutic Devices

S/N	Item (Equipment)	Price	
		TZS	(US$)
1	Physiotherapy machine	960,000	415.6

2	Phototherapy machine	120,000,000	51,948.1
3	Electromagnetic wave physiotherapy machine	8,000,000	3,463.2
4	Nebulizer machine	96,000	41.6
5	Gait training machine	33,600,000	14,545.5
6	Transcranial magnetic stimulation machine	5,600,000	2,424.2
7	Infrared laser device	5,200,000	2,251.1
8	Microwave diathermy therapeutic machine	2,000,000	865.8

Table 36: Indicative Prices for Packaging and consumables materials

S/N	Item (Equipment)	Price	
		TZS	(US$)
1	Syringes (5000 pieces)	45,000	19.48
2	IV drips (50,000 pieces)	75,000	32.47
3	IV drip stand (pieces)	15,000	6.49
4	IV Bags (10,000 pieces)	15,000	6.49
5	IV cannula (piece)	270	0.12
6	Disposable Gloves (piece)	98	0.04
7	Surgical gloves (piece)	263	0.11
8	Glass bottles	45	0.02
9	Plastic bottles	45	0.02
10	PVC soft bags	75	0.03
10	Non- PVC soft bags	75	0.03

3.8 Promotion and Strategies for Securing the First Clients

On the first look, it looks difficult to secure customers who are doing business with other dealers or producers. Indeed, this calls for the necessity to undertake communication campaign to potential clients. Thus, the proposed industrial park intends to undertake the following promotional activities:

a) Convening Meetings with Main Distributors, Big Hospitals and Pharmacy's Operators

Before advertising in any news media, the management of the Industrial Park plans to walk around and meet with prospective main distributor(s), hospitals and operators of some pharmacies. In these meetings, the management will outline their policies and products. They will then request the potential clients to provide their anticipated demands for the various products.

b) Advertising

This will be aimed at informing the general public about the existence of the industrial park, its production plants and the associated products after contacting with the distribution agents and big buyers. Interested retailers and distributors can also visit the industrial park for their needs. At the same time, advertising will encourage individuals and other types of buyers to consider doing business with the factories in the park given the competitive prices and quality compared to what is charged by competitors. This is planned to be done through TV channels, radio stations, newspapers and outdoor advertisement.

c) Introduce the plants by sending introductory letters

The management of the industrial park will send introductory letters along with brochures of the production plants to various stakeholders like hospitals, dispensaries, distributors of drugs and pharmacies not just in Tanzania but also in the entire Region.

d) Internet Advertising

Internet Advertising will start by developing the website for the industrial park where all the necessary information for all the production plants will be obtained. Apart from that, the plants and their products will be advertised in big internet search engines as deemed appropriate. This will open doors to access overseas clients within and outside the Region.

3.9 SWOC Analysis for the Proposed Industrial Park

For the purpose of assessing the capability of industrial park to execute the proposed project, an evaluation of the strengths, weaknesses, opportunities and challenges is essential. This is presented below as follows:

a) Strengths

- The management of the industrial park that will coordinate the project has been in other kinds of businesses for quite some time and has thus gained reasonable experience in business management. The only need is for the team to build capacity in this area of medical products but not in administration per se. Furthermore, all the Companies which will engage in the production of pharmaceuticals and medical equipment have adequate experience, capacity and state of the art technology in the specified areas. Thus, they are likely to do good business because they have already built image and brand of their products.
- The management of the industrial park has already built good recognition and image in other businesses to several people. This will provide a good starting point at least for disseminating information to others for the newline of business and its products.
- There is goodwill and political support from the government because establishment of the industrial part is big step towards implementation of the industrialization agenda of the country.
- Prices to be charged on medicines and medical equipment along with devices will be competitive and optimally affordable.
- The products to be supplied will be of acceptable quality and standards to be accompanied with high customer care, after sale service, dignity and timeliness.

b) Weaknesses

- The management of the industrial park is new in this area of business despite the fact that, it has been dealing with other businesses. So, time is required to build a name in pharmaceutical and medical industry business in general.
- Implementation of the idea depends on financial injection from outside sources. In fact, the management of the industrial park is not strong financially to execute the project, thus, time is needed to build financial muscles.

c) Opportunities

- The proposed industrial park has sufficient market to supply pharmaceutical products and medical equipment as well as the consumables.
- The industrial park has a possibility of making good business in future by producing more products after the envisaged plants attain full swing.
- The pharmaceutical industry of Tanzania is growing at a faster rate. According to the World Health Organization, the United Nations Comtrade and Business Monitor International, pharmaceuticals in Tanzania grew to almost $450 million in 2017 from $107 million in 2007 and the market is forecast to grow up to $700 million by 2021. Also, historical data has shown gradual and fast-growth of this industry. Thus,

there are high market prospects to tape and possibility of sustainable pharmaceutical business in Tanzania in particular and the region in general.

- There are few and limited capacity plants which produce consumables in the entire region. This is huge gap of opportunity that requires to be filled.
- The geographical and strategic positioning of Misungwi in Mwanza gives the envisaged industrial park an advantage and wide possibility of doing successful business by supplying to agents, health facilities and pharmacies around the Lake zone and other nearby regions leave aside neighboring countries.
- Completion of the 3km bridge being constructed that connects Mwanza city and Sengerema District, provides unique opportunity to entire Mwanza areas in terms of being reached by prospective clients from nearby countries in all business endeavors.

d) Challenges

- There are big Companies and distributors which supply pharmaceutical products and medical equipment in the Tanzanian market and the region as a whole. These Companies will create stiff competition that may call for creativity and strategic planning and positioning.
- There is a need to seek for external funding from financial institutions or investors. In case this does not materialize, the proposed idea will lose a massive opportunity.
- Pharmaceutical industry and medical equipment production businesses have a host of rules, regulations and GMP to comply with. Training and re-training of employees followed by close monitoring is needed to ensure compliance at all times.

Nonetheless, a look at the strengths and opportunities versus weaknesses and challenges indicates that, the proposed industrial park project management with its competencies and capabilities stand at a better position to effectively run the envisaged business.

3.10 Environment Scanning

Competitors of the proposed industrial park with its plants comprise of many Companies and distributors which produce or supply pharmaceutical products and medical equipment like the ones intended to offer in the market. They include but not limited to; Kekofina pharmaceuticals, Shelly's Pharmaceuticals Ltd, Mansour Daya Chemicals Ltd, Tanzania pharmaceutical Industries, Zenufa Laboratories, Pharmaceutical Investments Ltd, Gurnah Pharmaceutical Ltd, Fern Pharmaceuticals and others. All these are acknowledged as competitors and it is necessary to have strategies in place to stiffly compete with them or turn some of them (especially the distributors) into business associates. The following are the strengths and weaknesses of the competitors at least in Tanzania.

a) Their Strengths

These companies have some competencies and experience in running their businesses. They also have been in the business for quite some time; therefore, they have created relationships and adequate loyal customers. Furthermore, the companies are big as regard to their financial capabilities and some operate in the domestic as well as overseas markets.

b) Their Weaknesses

- Their prices are relatively higher compared to what the plants under the proposed industrial park are going to offer. Many of these Companies have been established so as to tap the opportunities existing in the pharmaceutical industry specifically.
- Most of these Companies import ready-made medicines and medical equipment and depending on the mode of transport used, they become disadvantaged because they incur additional transport and distribution costs, etc. This causes their prices to remain high beyond the reach of many Tanzanians and

service providers.

- All most all the pharmaceutical manufacturers in the country produce at low capacity (about 40% only). This is mainly due to inability to acquire adequate raw materials ostensibly because of funds inadequacy. For that matter, they are unable to benefit from economies of scale, subsequently, their prices remain high.
- Pharmaceutical's producers in the country have overlooked production of important consumables such as IV fluids and its supports. This has left Tanzania in particular and the region in general to continue importing these necessities.

3.11 The Proposed Project Competitive Advantages

Envisaged competitive advantages pertaining to the proposed Industrial Park project are as follows:

- The planned prices will be relatively lower compared to those of competitors in the market.
- Quality of the products will be consistently high to make distributors, pharmacies, hospitals and users have no doubt on the curative capacity of the products purchased.
- The terms of payment are planned to attract distributors and big buyers for them to purchase from the proposed industrial park.
- High level of customer care, service, human dignity, timeliness and close marketing relationship will attract people doing business with the plant.
- Excellent, timely, readily availability and affordable after sale services will give the plants at the industrial park high acceptance in the market.
- The Enterprises will relatively enjoy economies of scale due to the magnitude of the project and possibility to acquire adequate raw materials. The Enterprises will also enjoy economies of scope due to state-of-the-art technology that will be installed.

3.12 Marketing Budget

For the purpose of creating awareness to the general public and communicating with potential clients, some costs need to be incurred. The budget planned for undertaking such activities is presented in the Table that follows:

Table 37: Promotional Budget for the Proposed Industrial Park Project

Promotional Activity	Frequency	Cost per Unit (TZS)	Total Amount	
			TZS	US$
Registration	1	4,000,000	4,000,000	1,731.6
Meetings with Agents	20	1,200,000	24,000,000	10,389.6
Website design	1	5,000,000	5,000,000	2,164.5
Sending introductory letters and brochures	500	1,000	500,000	216.5
Radio, Newspaper and TV Advertising	10	3,000,000	30,000,000	12,987.0
Attending trade fairs	2	10,000,000	20,000,000	8,658.0
Corresponding with potential overseas agents	40	5,000	200,000	86.6
Total			**81,700,000**	**36,233.8**

3.13 Future Plans

The following are the future plans of the industrial park.

a) The industrial park plants will escalate capacity by acquiring new machineries to produce more equipment and pharmaceutical products;

b) The industrial park plans to increase types of pharmaceutical products to be produced as per demand and exploiting potential existing opportunities in the market;
c) The industrial park intends to open more offices in Tanzania and in the neighboring countries if possible, in order to supply the products for more accessibility, availability and affordability of pharmaceutical products and medical equipment;
d) The industrial park plans to penetrate into overseas market starting with the neighboring countries such as Rwanda, Burundi, Congo DRC, etc.

4.0 MANAGEMENT TEAM

This section presents the magnitude and type of management team required in order to execute the envisaged project. It analyses the resource people required for the project and puts them under individual plants forming the industrial park.

4.1 Resource People for the Industrial Park

The entire project expects to employ at least 360 people to run activities at the envisaged pharmaceutical industrial park in Misungwi. The employees are as presented under individual plants below.

4.1.1 Resource People for Pharmaceutical Plant

The pharmaceutical plant expects to employ at least 79 people to run various activities when production attains full swing. The employees will comprise of the managing director, managers, administrators, pharmacists, engineers, micro biologists, laboratory technicians, accountants, auditors, supplies and acquisition officers, production technicians, operatives, drivers and security guards.

4.1.2 Resource People for Imaging Equipment Plant

This plant will be based on state-of-the-art technology mainly controlled by robotic technology. Due to that, it will require highly specialized technicians and few people at managerial positions. The plant will employ at least 50 people to run activities at the facility. The staff will comprise of the plant managing director, managers, plant engineer, instrumentation & controls technician, instrument specialist/technician, instrument & automation technician, instrumentation & process controls technician, automation technician, process control technician and programmable logic controller's technician. Others are; quality assurance engineer, quality supervisor, legal personnel, vehicle drivers, accountant, sales people, administrator, operatives, management secretary and security guards.

4.1.3 Resource People for Non – Imaging Medical Equipment Plant

This plant will also be based on state-of-the-art technology by employing people who can research, design, develop, and test automation, intelligent systems, smart devices, or industrial systems control. Thus, the plant will require specialized engineers, some few people at managerial positions and some administrative staff. This plant will employ at least 60 people to run the activities. The employees will comprise of the Plant managing director, managers, plant engineer, senior plant engineer, automation engineer/specialist, senior design engineer, process engineer, equipment engineer, development engineer, quality assurance engineer and quality supervisor. Others are; legal personnel, vehicle drivers, chief accountant, accountants, sales people, administrator, operatives, management secretary and security guards.

4.1.4 Resource People for Medical Research Equipment Plant

Like the imaging equipment plant, medical research equipment plant will be based on state-of-the-art technology mainly controlled by robotic technology. Thus, the plant will require highly specialized technicians and few people at managerial positions. The plant will employ at least 52 people to run activities at the facility. The staff will comprise of the plant managing director, managers, plant engineer, instrumentation & controls technician, instrument specialist/technician, instrument & automation technician, instrumentation & process controls technician, automation technician, process control technician and programmable logic controller's technician. Others are; quality assurance engineer, quality supervisor, legal personnel, vehicle drivers, accountant, sales people, administrator, operatives, management secretary and security guards.

4.1.5 Resource People for Therapeutic Devices Plant

Therapeutic devices plant will also be based on state-of-the-art technology by employing people who can research, design, develop, and test automation, intelligent systems, smart devices, or industrial systems control. Thus, the plant will require specialized engineers, some few people at managerial positions and some administrative cadres. This plant will employ at least 48 people. The employees will comprise of the plant managing director, managers,

plant engineer, senior plant engineer, automation engineer/specialist, senior design engineer, process engineer, equipment engineer, development engineer, quality assurance engineer and quality supervisor. Others are; legal personnel, vehicle drivers, chief accountant, accountants, sales people, administrator, operatives, management secretary and security guards.

4.1.6 Resource People for Packaging and Consumables materials Plant

The packaging and consumables materials plant expects to employ at least 57 people to run various activities. The employees will comprise of the managing director, managers, administrators, pharmacists, engineers, micro biologists, laboratory technicians, machinery mechanics, accountants, auditors, supplies and acquisition officers, production technicians, operatives, drivers and security guards.

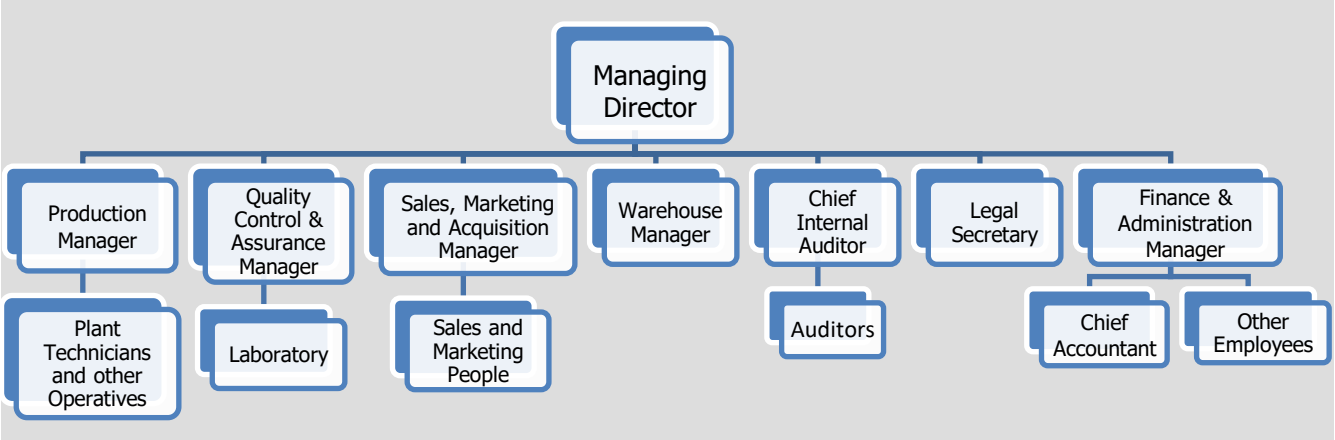
4.1.7 Resource People for the Central Administration of the Industrial Park

The central administration office for the industrial park will employ few individuals mostly at managerial positions who will deal with decision making functions of the industrial park. There will be at least 15 people to run various activities under central administration office. They will comprise of the industrial park commissioner, director of operations, director of research and development (R&D), director of finance and administration and director of marketing. Others are; administrator, accountant, auditor, sales people, laboratory technicians, quality control technicians, drivers and security guards.

4.1.8 Proposed Organization Structure of the Plants

In order to have uniformity in the management of the plants under the industrial park, it is proposed to adopt the organizational structure presented below. Nonetheless, the plants management will be at liberty to develop and operate their own organograms based on the best practice, type of products and orientation of the firm that will operate a particular plant.

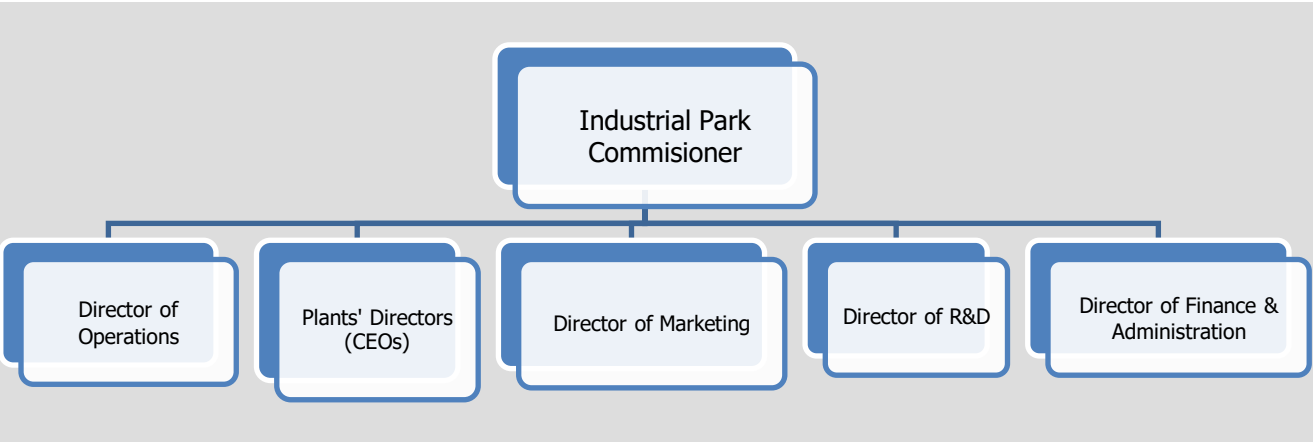
Figure 1: Proposed Organogram for the Plants under the Industrial Park



4.1.9 Proposed Organization Structure of the Industrial Park

The envisaged industrial park will have the organization structure presented in Figure 2 below

Figure 2: Proposed Organogram for the Industrial Park



4.2 Modus Operand

There will be six plants operating under the proposed industrial park. These are; pharmaceutical manufacturing plant, imaging equipment manufacturing plant, non – imaging medical equipment manufacturing plant, medical research (specialized) equipment manufacturing plant, therapeutic devices manufacturing plant and packaging and consumables materials plant. Each plant will have its own management and will further have semi autonomy in terms of budgeting, types and quantity of products to produce, and other management decisions. However, there will a central office that will provide oversight mandate. The main function of the central administration will be to approve the various strategic decisions that will be proposed by the plants. The central office will also take care of the promotional activities for all the plants and will centrally support the individual plants in terms of marketing both internally and abroad. In turn, the individual plants will support activities of the central administration by contributing 1% of their annual sales. This will be used by the central administration office to run all the required activities as will be agreed by the top management which will be composed of the managing directors of the individual plants and the top administrators of the central office.

5.0 COSTS ANALYSIS

This section provides cost analysis for the entire business. It breaks down the costs that will be incurred for the individual plants in order to provide the foundation for revenues analysis presented in chapter 7. The section outlines both direct costs to be incurred in the form of fixed investment as well as the indirect costs (salaries and administrative costs).

5.1 Direct Operating Costs

The direct operating costs involves acquiring of land/site for actualizing the project, construction of shades and offices, acquiring of production machineries, acquiring of vehicles, etc. The total fixed investment outlay for all the six plants of the industrial park is US$ 172,897,387.97 equivalents to TZS 399,392,966,235. Summary breakdown of fixed cost requirements for the plants is as depicted in Table 38 below.

Table 38: Summary Breakdown of Fixed Cost Requirements

S/N	Sub - project	Fixed Cost Requirements	
		TZS	US$
1	Pharmaceutical manufacturing plant	62,307,918,615	26,973,124.94
2	Imaging Equipment Manufacturing Plant	152,003,918,615	65,802,562.17
3	Non – Imaging Medical Equipment Manufacturing Plant	53,042,749,784	22,962,229.34
4	Medical Research (Specialized) Equipment Manufacturing Plant	66,509,503,030	28,791,992.65

5	Therapeutic Devices Manufacturing Plant	37,890,996,537	16,403,028.80
6	Packaging and Consumables materials Plant	27,637,879,654	11,964,450.07
Total		**399,392,966,235**	**172,897,387.97**

The above summary of the fixed costs requirements for individual plants is further detailed below to show all the costs of items forming part of the investment required.

5.1.1 Fixed Asset for the Pharmaceutical Manufacturing Plant

The fixed asset requirements for the pharmaceutical manufacturing plant are detailed in Table 39 depicted below.

Table 39: Fixed Asset for the Pharmaceutical Plant

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
1	Acquiring land/area for the project 1	12	Twelve (12) acres of land in Misungwi, Mwanza (already acquired	6,493.51	38,961.04	15,000,000	90,000,000
3	Water storage system installation	1	Storage system for water distribution	25,974.03	25,974.03	60,000,000	60,000,000
4	Water distribution system installation and connection	1	Water distribution system installation for the entire plant	64,935.06	64,935.06	150,000,000	150,000,000
5	Water treatment plant	1	Water treatment plant for the plant	12,121.21	12,121.21	28,000,000	28,000,000
6	Waste water treatment and management system	1	Establishment of waste water management system as per requirements by Authorities and GMP	194,805.19	194,805.19	450,000,000	450,000,000
7	Ware house facilities	3	Ware house facilities for storage of raw materials, manufactured products and that for rejected goods/drugs store	173,160.17	519,480.52	400,000,000	1,200,000,000
8	Acquiring domestic outlets	8	Establishing domestic outlets (Part contribution)	25,252.53	202,020.20	58,333,333	466,666,667
9	Constructing shade for the production plant	1	Shade having an area of at least 2,000 square meters to house the production lines and storage facilities	865,800.87	865,800.87	2,000,000,000	2,000,000,000
10	Office building	1	Small office building to accommodate senior administrators of the plant	259,740.26	259,740.26	600,000,000	600,000,000
11	Fencing of the Pharmaceutical Plant area	1	Fencing of the entire pharmaceutical plant area for security and guarding of properties	109,090.91	109,090.91	252,000,000	252,000,000
12	Machineries for Tablet Section, Capsule Section Ointment/Tube Filling section, Liquid Section, Laboratory& Quality Control Equipment and Other Pharmaceutical Machineries	1	These include; Rapid Mixer Granulator, double Cone Blender / Mechanical Shifter, Spray Coating Machine, Rotary Tablet Press, Tablet Counting Machine, Tablet Polishing Machine, Automatic Tablet Printing Machine and Strip Packing Machine	16,450,216.45	16,450,216.45	38,000,000,000	38,000,000,000
13	Commissioning and testing for all production lines	1	Cost for Commissioning and testing for all production lines	51,948.05	51,948.05	120,000,000	120,000,000
14	Special trucks to support drugs from plant to agents or sales outlets	5	Special truck (10 – 15 tons)	73,593.07	367,965.37	170,000,000	850,000,000
15	Few Houses for employees	12	Houses for few employees who should stay near farm and plants	43,290.04	519,480.52	100,000,000	1,200,000,000
16	Roads construction (km)	2	Part contribution in the construction of roads	865,800.87	1,731,601.73	2,000,000,000	4,000,000,000
17	Main office building construction	1	Part contribution in the construction of the main office building	129,870.13	129,870.13	300,000,000	300,000,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
18	Fencing of the housing area for employees	1	Fencing of the entire housing estate area for security and guarding of properties	29,090.91	29,090.91	67,200,000	67,200,000
19	Office Furniture and fixtures	1	Complete set of furniture and fixtures for all the offices	51,948.05	51,948.05	120,000,000	120,000,000
20	Solar power system (2MW) installation	1	Solar power system for power generation	1,095,238.10	1,095,238.10	2,530,000,000	2,530,000,000
21	Power distribution system	1	Establishment of power distribution system for the entire premises	121,212.12	121,212.12	280,000,000	280,000,000
22	Connect to TANESCO power for energy stability	1	Power connection to TANESCO for energy stability in case of solar system breakdown	60,606.06	60,606.06	140,000,000	140,000,000
23	Incinerator acquiring and installation	1	Acquiring standard incinerator for destroying rejected drugs	73,593.07	73,593.07	170,000,000	170,000,000
24	Moving trolleys	3	Moving trolleys for factory movements	12,121.21	36,363.64	28,000,000	84,000,000
25	Surveillance system	1	Complete surveillance system for the entire farms, systems and buildings	649,350.65	649,350.65	1,500,000,000	1,500,000,000
26	ICT based information network system will all the necessary supports	1	ICT based information networking system for the entire facility to provide reliable and up to date communication requirements	129,870.13	129,870.13	300,000,000	300,000,000
27	Wi-Fi Installation system and necessary gadgets	1	Wireless connectivity for the entire plant for providing work conducive environment	9,523.81	9,523.81	22,000,000	22,000,000
28	Office Equipment (Computers, supporters and other accessories)	1	Acquire 30 computers, 12 comprehensive service printers and other ICT based devices.	51,948.05	51,948.05	120,000,000	120,000,000
29	Office vehicle	4	Acquire at least three office vehicles to support office movements and mobility of senior officers for office related functions.	51,948.05	207,792.21	120,000,000	480,000,000
30	Mini bus for staff members	1	Acquire two mini buses for staff	129,870.13	129,870.13	300,000,000	300,000,000
31	Shipping of all the machineries and facilities	1	Cost for shipping the acquired machineries and other facilities (12% of FOB cost)	2,696,126.38	2,696,126.38	6,228,051,948	6,228,051,948
32	Other fixed cost	1	This is the cost of unforeseen equipment which might arise during the course of project implementation.	86,580.09	86,580.09	200,000,000	200,000,000
Total					**26,973,124.94**		**62,307,918,615**

5.1.2 Fixed Asset for Imaging Equipment Manufacturing Plant

Furthermore, the fixed asset requirements for imaging equipment manufacturing plant is detailed in Table 40 shown below.

Table 40: Fixed Asset for Imaging Equipment Plant

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
1	Acquiring land/area for the project	16	Sixteen (16) acres of land in Misungwi, Mwanza (already acquired	6,493.51	51,948.05	15,000,000	120,000,000
3	Water storage system installation	1	Storage system for water distribution	25,974.03	25,974.03	60,000,000	60,000,000
4	Water distribution system installation and connection	1	Water distribution system installation for the entire plant	64,935.06	64,935.06	150,000,000	150,000,000
5	Water treatment plant	1	Water treatment plant for the plant	12,121.21	12,121.21	28,000,000	28,000,000
6	Waste water treatment and management system	1	Establishment of waste water management system as per requirements by Authorities and GMP	194,805.19	194,805.19	450,000,000	450,000,000
7	Ware house facilities	3	Ware house facilities for storage of raw materials, manufactured products and that for rejected goods/drugs store	173,160.17	519,480.52	400,000,000	1,200,000,000
8	Acquiring domestic outlets	8	Establishing domestic outlets (Part contribution)	25,252.53	202,020.20	58,333,333	466,666,667
9	Constructing shade for the production plant	1	Shade having an area of at least 2,500 square meters to house the production lines and storage facilities	1,082,251.08	1,082,251.08	2,500,000,000	2,500,000,000
10	Office building	1	Small office building to accommodate senior administrators of the plant	259,740.26	259,740.26	600,000,000	600,000,000
11	Fencing of the Plant area	1	Fencing of the entire pharmaceutical plant area for security and guarding of properties	145,454.55	145,454.55	336,000,000	336,000,000
12	Machineries requirement	1	All the required machineries and supports	49,783,549.78	49,783,549.78	115,000,000,000	115,000,000,000
18	Commissioning and testing for all production lines	1	Cost for Commissioning and testing for all production lines	51,948.05	51,948.05	120,000,000	120,000,000
19	Special trucks to support movement of equipment from plant to agents or sales outlets	3	Special truck (10 – 15 tons)	73,593.07	220,779.22	170,000,000	510,000,000
20	Few Houses for employees	12	Houses for few employees who should stay near farm and plants	43,290.04	519,480.52	100,000,000	1,200,000,000
21	Fencing of the housing area for employees	1	Fencing of the entire housing estate area for	29,090.91	29,090.91	67,200,000	67,200,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
			security and guarding of properties				
22	Roads construction (km)	2	Part contribution in the construction of roads	865,800.87	1,731,601.73	2,000,000,000	4,000,000,000
23	Main office building construction	1	Part contribution in the construction of the main office building	129,870.13	129,870.13	300,000,000	300,000,000
24	Office Furniture and fixtures	1	Complete set of furniture and fixtures for all the offices	51,948.05	51,948.05	120,000,000	120,000,000
25	Solar power system (2MW) installation	1	Solar power system for power generation	1,095,238.10	1,095,238.10	2,530,000,000	2,530,000,000
26	Power distribution system	1	Establishment of power distribution system for the entire premises	121,212.12	121,212.12	280,000,000	280,000,000
27	Connect to TANESCO power for energy stability	1	Power connection to TANESCO for energy stability in case of solar system breakdown	60,606.06	60,606.06	140,000,000	140,000,000
28	Moving trolleys	2	Moving trolleys for factory movements	12,121.21	24,242.42	28,000,000	56,000,000
29	Surveillance system	1	Complete surveillance system for the entire farms, systems and buildings	649,350.65	649,350.65	1,500,000,000	1,500,000,000
30	ICT based information network system will all the necessary supports	1	ICT based information networking system for the entire facility to provide reliable and up to date communication requirements	129,870.13	129,870.13	300,000,000	300,000,000
31	Wi-Fi Installation system and necessary gadgets	1	Wireless connectivity for the entire plant for providing work conducive environment	9,523.81	9,523.81	22,000,000	22,000,000
32	Office Equipment (Computers, supporters and other accessories)	1	Acquire 30 computers, 12 comprehensive service printers and other ICT based devices.	51,948.05	51,948.05	120,000,000	120,000,000
33	Office vehicle	4	Acquire at least four office vehicles to support office movements and mobility of senior officers for office related functions.	51,948.05	207,792.21	120,000,000	480,000,000
34	Mini bus for staff members	1	Acquire two mini buses for staff	129,870.13	129,870.13	300,000,000	300,000,000
35	Shipping of all the machineries and facilities	1	Cost for shipping the acquired machineries and other facilities (12% of FOB cost)	8,159,329.85	8,159,329.85	18,848,051,948	18,848,051,948
36	Other fixed cost	1	This is the cost of unforeseen equipment which might arise during the course of project implementation.	86,580.09	86,580.09	200,000,000	200,000,000
Total					**65,802,562.17**		**152,003,918,615**

5.1.3 Fixed Asset for Non – Imaging Medical Equipment Plant

In addition to that, the fixed asset requirements for the Non – Imaging Medical Equipment Manufacturing Plant is presented in Table 41 presented below.

Table 41: Fixed Asset for Non – Imaging Medical Equipment Plant

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
1	Acquiring land/area for the project	12	Twelve (12) acres of land in Misungwi, Mwanza (already acquired	6,493.51	38,961.04	15,000,000	90,000,000
3	Water storage system installation	1	Storage system for water distribution	25,974.03	25,974.03	60,000,000	60,000,000
4	Water distribution system installation and connection	1	Water distribution system installation for the entire plant	64,935.06	64,935.06	150,000,000	150,000,000
5	Water treatment plant	1	Water treatment plant for the plant	12,121.21	12,121.21	28,000,000	28,000,000
6	Waste water treatment and management system	1	Establishment of waste water management system as per requirements by Authorities and GMP	194,805.19	194,805.19	450,000,000	450,000,000
7	Ware house facilities	3	Ware house facilities for storage of raw materials, manufactured products and that for rejected goods/drugs store	173,160.17	519,480.52	400,000,000	1,200,000,000
8	Acquiring domestic outlets	8	Establishing domestic outlets (Part contribution)	25,252.53	202,020.20	58,333,333	466,666,667
9	Constructing shade for the production plant	1	Shade having an area of at least 2,500 square meters to house the production lines and storage facilities	1,082,251.08	1,082,251.08	2,500,000,000	2,500,000,000
10	Office building	1	Small office building to accommodate senior administrators of the plant	259,740.26	259,740.26	600,000,000	600,000,000
11	Fencing of the Plant area	1	Fencing of the entire pharmaceutical plant area for security and guarding of properties	145,454.55	145,454.55	336,000,000	336,000,000
12	Machineries requirement	1	All the require machineries	12,987,012.99	12,987,012.99	30,000,000,000	30,000,000,000
18	Commissioning and testing for all production lines	1	Cost for Commissioning and testing for all production lines	51,948.05	51,948.05	120,000,000	120,000,000
19	Special trucks to support movement of equipment from plant to agents or sales outlets	3	Special truck (10 – 15 tons)	73,593.07	220,779.22	170,000,000	510,000,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
20	Few Houses for employees	12	Houses for few employees who should stay near farm and plants	43,290.04	519,480.52	100,000,000	1,200,000,000
21	Fencing of the housing area for employees	1	Fencing of the entire housing estate area for security and guarding of properties	29,090.91	29,090.91	67,200,000	67,200,000
22	Roads construction (km)	2	Part contribution in the construction of roads	865,800.87	1,731,601.73	2,000,000,000	4,000,000,000
23	Main office building construction	1	Part contribution in the construction of the main office building	129,870.13	129,870.13	300,000,000	300,000,000
24	Office Furniture and fixtures	1	Complete set of furniture and fixtures for all the offices	51,948.05	51,948.05	120,000,000	120,000,000
25	Solar power system (2MW) installation	1	Solar power system for power generation	1,095,238.10	1,095,238.10	2,530,000,000	2,530,000,000
26	Power distribution system	1	Establishment of power distribution system for the entire premises	121,212.12	121,212.12	280,000,000	280,000,000
27	Connect to TANESCO power for energy stability	1	Power connection to TANESCO for energy stability in case of solar system breakdown	60,606.06	60,606.06	140,000,000	140,000,000
28	Moving trolleys	2	Moving trolleys for factory movements	12,121.21	24,242.42	28,000,000	56,000,000
29	Surveillance system	1	Complete surveillance system for the entire farms, systems and buildings	649,350.65	649,350.65	1,500,000,000	1,500,000,000
30	ICT based information network system will all the necessary supports	1	ICT based information networking system for the entire facility to provide reliable and up to date communication requirements	129,870.13	129,870.13	300,000,000	300,000,000
31	Wi-Fi Installation system and necessary gadgets	1	Wireless connectivity for the entire plant for providing work conducive environment	9,523.81	9,523.81	22,000,000	22,000,000
32	Office Equipment (Computers, supporters and other accessories)	1	Acquire 30 computers, 12 comprehensive service printers and other ICT based devices.	51,948.05	51,948.05	120,000,000	120,000,000
33	Office vehicle	4	Acquire at least four office vehicles to support office movements and mobility of senior officers for office related functions.	51,948.05	207,792.21	120,000,000	480,000,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
34	Mini bus for staff members	1	Acquire two mini buses for staff	129,870.13	129,870.13	300,000,000	300,000,000
35	Shipping of all the machineries and facilities	1	Cost for shipping the acquired machineries and other facilities (12% of FOB cost)	2,128,520.83	2,128,520.83	4,916,883,117	4,916,883,117
36	Other fixed cost	1	This is the cost of unforeseen equipment which might arise during the course of project implementation.	86,580.09	86,580.09	200,000,000	200,000,000
Total					**22,962,229.34**		**53,042,749,784**

5.1.4 Fixed Asset for Medical Research Equipment Plant

Moreover, the fixed asset requirements for the medical research equipment manufacturing plant are detailed in Table 42 presented below.

Table 42: Fixed Asset for the Medical Research Equipment Manufacturing Plant

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
1	Acquiring land/area for the project	12	Twelve (12) acres of land in Misungwi, Mwanza (already acquired	6,493.51	38,961.04	15,000,000	90,000,000
3	Water storage system installation	1	Storage system for water distribution	25,974.03	25,974.03	60,000,000	60,000,000
4	Water distribution system installation and connection	1	Water distribution system installation for the entire plant	64,935.06	64,935.06	150,000,000	150,000,000
5	Water treatment plant	1	Water treatment plant for the plant	12,121.21	12,121.21	28,000,000	28,000,000
6	Waste water treatment and management system	1	Establishment of waste water management system as per requirements by Authorities and GMP	194,805.19	194,805.19	450,000,000	450,000,000
7	Ware house facilities	3	Ware house facilities for storage of raw materials, manufactured products and that for rejected goods/drugs store	173,160.17	519,480.52	400,000,000	1,200,000,000
8	Acquiring domestic outlets	8	Establishing domestic outlets (Part contribution)	25,252.53	202,020.20	58,333,333	466,666,667
9	Constructing shade for the production plant	1	Shade having an area of at least 2,000 square meters to house the production lines and storage facilities	865,800.87	865,800.87	2,000,000,000	2,000,000,000
10	Office building	1	Small office building to accommodate senior administrators of the plant	259,740.26	259,740.26	600,000,000	600,000,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
11	Fencing of the Pharmaceutical Plant area	1	Fencing of the entire pharmaceutical plant area for security and guarding of properties	145,454.55	145,454.55	336,000,000	336,000,000
12	Machineries requirement	1	All the require machineries	18,181,818.18	18,181,818.18	42,000,000,000	42,000,000,000
18	Commissioning and testing for all production lines	1	Cost for Commissioning and testing for all production lines	51,948.05	51,948.05	120,000,000	120,000,000
19	Special trucks to support movement of equipment from plant to agents or sales outlets	3	Special truck (10 – 15 tons)	73,593.07	220,779.22	170,000,000	510,000,000
20	Few Houses for employees	12	Houses for few employees who should stay near farm and plants	43,290.04	519,480.52	100,000,000	1,200,000,000
21	Fencing of the housing area for employees	1	Fencing of the entire housing estate area for security and guarding of properties	29,090.91	29,090.91	67,200,000	67,200,000
22	Roads construction (km)	2	Part contribution in the construction of roads	865,800.87	1,731,601.73	2,000,000,000	4,000,000,000
23	Main office building construction	1	Part contribution in the construction of the main office building	129,870.13	129,870.13	300,000,000	300,000,000
24	Office Furniture and fixtures	1	Complete set of furniture and fixtures for all the offices	51,948.05	51,948.05	120,000,000	120,000,000
25	Solar power system (2MW) installation	1	Solar power system for power generation	1,095,238.10	1,095,238.10	2,530,000,000	2,530,000,000
26	Power distribution system	1	Establishment of power distribution system for the entire premises	121,212.12	121,212.12	280,000,000	280,000,000
27	Connect to TANESCO power for energy stability	1	Power connection to TANESCO for energy stability in case of solar system breakdown	60,606.06	60,606.06	140,000,000	140,000,000
28	Moving trolleys	2	Moving trolleys for factory movements	12,121.21	24,242.42	28,000,000	56,000,000
29	Surveillance system	1	Complete surveillance system for the entire farms, systems and buildings	649,350.65	649,350.65	1,500,000,000	1,500,000,000
30	ICT based information network system will all the necessary supports	1	ICT based information networking system for the entire facility to provide reliable and up to date communication requirements	129,870.13	129,870.13	300,000,000	300,000,000
31	Wi-Fi Installation system and necessary gadgets	1	Wireless connectivity for the entire plant for providing work conducive environment	9,523.81	9,523.81	22,000,000	22,000,000
32	Office Equipment (Computers, supporters and other accessories)	1	Acquire 30 computers, 12 comprehensive service printers and other ICT based devices.	51,948.05	51,948.05	120,000,000	120,000,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
33	Office vehicle	4	Acquire at least four office vehicles to support office movements and mobility of senior officers for office related functions.	51,948.05	207,792.21	120,000,000	480,000,000
34	Mini bus for staff members	1	Acquire two mini buses for staff	129,870.13	129,870.13	300,000,000	300,000,000
35	Shipping of all the machineries and facilities	1	Cost for shipping the acquired machineries and other facilities (12% of FOB cost)	2,979,929.16	2,979,929.16	6,883,636,364	6,883,636,364
36	Other fixed cost	1	This is the cost of unforeseen equipment which might arise during the course of project implementation.	86,580.09	86,580.09	200,000,000	200,000,000
Total					**28,791,992.65**		**66,509,503,030**

5.1.5 Fixed Asset for Therapeutic Devices Manufacturing Plant

Also, the fixed asset requirements for therapeutic devices manufacturing plant is as presented in the Table below.

Table 43: Fixed Asset for Therapeutic Devices Manufacturing Plant

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
1	Acquiring land/area for the project	10	Ten (10) acres of land in Misungwi, Mwanza (already acquired	6,493.51	32,467.53	15,000,000	75,000,000
3	Water storage system installation	1	Storage system for water distribution	25,974.03	25,974.03	60,000,000	60,000,000
4	Water distribution system installation and connection	1	Water distribution system installation for the entire plant	64,935.06	64,935.06	150,000,000	150,000,000
5	Water treatment plant	1	Water treatment plant for the plant	12,121.21	12,121.21	28,000,000	28,000,000
6	Waste water treatment and management system	1	Establishment of waste water management system as per requirements by Authorities and GMP	194,805.19	194,805.19	450,000,000	450,000,000
7	Ware house facilities	3	Ware house facilities for storage of raw materials, manufactured products and that for rejected goods/drugs store	173,160.17	519,480.52	400,000,000	1,200,000,000
8	Acquiring domestic outlets	8	Establishing domestic outlets (Part contribution)	25,252.53	202,020.20	58,333,333	466,666,667
9	Constructing shade for the production plant	1	Shade having an area of at least 1,500 square meters to house the production lines and storage facilities	649,350.65	649,350.65	1,500,000,000	1,500,000,000
10	Office building	1	Small office building to accommodate senior administrators of the plant	259,740.26	259,740.26	600,000,000	600,000,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
11	Fencing of the Pharmaceutical Plant area	1	Fencing of the entire pharmaceutical plant area for security and guarding of properties	145,454.55	145,454.55	336,000,000	336,000,000
12	Machineries requirement	1	All the require machineries	7,792,207.79	7,792,207.79	18,000,000,000	18,000,000,000
18	Commissioning and testing for all production lines	1	Cost for Commissioning and testing for all production lines	51,948.05	51,948.05	120,000,000	120,000,000
19	Special trucks to support movement of equipment from plant to agents or sales outlets	2	Special truck (10 – 15 tons)	73,593.07	147,186.15	170,000,000	340,000,000
20	Few Houses for employees	12	Houses for few employees who should stay near farm and plants	43,290.04	519,480.52	100,000,000	1,200,000,000
21	Fencing of the housing area for employees	1	Fencing of the entire housing estate area for security and guarding of properties	29,090.91	29,090.91	67,200,000	67,200,000
22	Roads construction (km)	2	Part contribution in the construction of roads	865,800.87	1,731,601.73	2,000,000,000	4,000,000,000
23	Main office building construction	1	Part contribution in the construction of the main office building	129,870.13	129,870.13	300,000,000	300,000,000
24	Office Furniture and fixtures	1	Complete set of furniture and fixtures for all the offices	51,948.05	51,948.05	120,000,000	120,000,000
25	Solar power system (2MW) installation	1	Solar power system for power generation	1,095,238.10	1,095,238.10	2,530,000,000	2,530,000,000
26	Power distribution system	1	Establishment of power distribution system for the entire premises	121,212.12	121,212.12	280,000,000	280,000,000
27	Connect to TANESCO power for energy stability	1	Power connection to TANESCO for energy stability in case of solar system breakdown	60,606.06	60,606.06	140,000,000	140,000,000
28	Moving trolleys	2	Moving trolleys for factory movements	12,121.21	24,242.42	28,000,000	56,000,000
29	Surveillance system	1	Complete surveillance system for the entire farms, systems and buildings	649,350.65	649,350.65	1,500,000,000	1,500,000,000
30	ICT based information network system will all the necessary supports	1	ICT based information networking system for the entire facility to provide reliable and up to date communication requirements	129,870.13	129,870.13	300,000,000	300,000,000
31	Wi-Fi Installation system and necessary gadgets	1	Wireless connectivity for the entire plant for providing work conducive environment	9,523.81	9,523.81	22,000,000	22,000,000
32	Office Equipment (Computers, supporters and other accessories)	1	Acquire 30 computers, 12 comprehensive service printers and other ICT based devices.	51,948.05	51,948.05	120,000,000	120,000,000
33	Office vehicle	4	Acquire at least four office vehicles to support office movements and	51,948.05	207,792.21	120,000,000	480,000,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
			mobility of senior officers for office related functions.				
34	Mini bus for staff members	1	Acquire two mini buses for staff	129,870.13	129,870.13	300,000,000	300,000,000
35	Shipping of all the machineries and facilities	1	Cost for shipping the acquired machineries and other facilities (12% of FOB cost)	1,277,112.50	1,277,112.50	2,950,129,870	2,950,129,870
36	Other fixed cost	1	This is the cost of unforeseen equipment which might arise during the course of project implementation.	86,580.09	86,580.09	200,000,000	200,000,000
Total					**16,403,028.80**		**37,890,996,537**

5.1.6 Fixed Asset for Packaging and Consumables materials Plant

Finally, the fixed asset requirements for Packaging and Consumables materials Plant is as depicted in Table 44 below.

Table 44: Fixed Asset for Packaging and Consumables materials Plant

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
1	Acquiring land/area for the project	6	Six (6) acres of land in Misungwi, Mwanza (already acquired	6,493.51	19,480.52	15,000,000	45,000,000
3	Water storage system installation	1	Storage system for water distribution	25,974.03	25,974.03	60,000,000	60,000,000
4	Water distribution system installation and connection	1	Water distribution system installation for the entire plant	64,935.06	64,935.06	150,000,000	150,000,000
5	Water treatment plant	1	Water treatment plant for the plant	12,121.21	12,121.21	28,000,000	28,000,000
6	Waste water treatment and management system	1	Establishment of waste water management system as per requirements by Authorities and GMP	194,805.19	194,805.19	450,000,000	450,000,000
7	Ware house facilities	3	Ware house facilities for storage of raw materials, manufactured products and that for rejected goods/drugs store	173,160.17	519,480.52	400,000,000	1,200,000,000
8	Acquiring domestic outlets	8	Establishing domestic outlets (Part contribution)	25,252.53	202,020.20	58,333,333	466,666,667
9	Constructing shade for the production plant	1	Shade having an area of at least 1,000 square	432,900.43	432,900.43	1,000,000,000	1,000,000,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
			meters to house the production lines and storage facilities				
10	Office building	1	Small office building to accommodate senior administrators of the plant	259,740.26	259,740.26	600,000,000	600,000,000
11	Fencing of the Plant area	1	Fencing of the entire pharmaceutical plant area for security and guarding of properties	145,454.55	145,454.55	336,000,000	336,000,000
12	Machineries requirement	1	All the require machineries	4,112,554.11	4,112,554.11	9,500,000,000	9,500,000,000
18	Commissioning and testing for all production lines	1	Cost for Commissioning and testing for all production lines	51,948.05	51,948.05	120,000,000	120,000,000
19	Special trucks to support movement of equipment from plant to agents or sales outlets	3	Special truck (10 – 15 tons)	73,593.07	220,779.22	170,000,000	510,000,000
20	Few Houses for employees	12	Houses for few employees who should stay near farm and plants	43,290.04	519,480.52	100,000,000	1,200,000,000
21	Fencing of the housing area for employees	1	Fencing of the entire housing estate area for security and guarding of properties	29,090.91	29,090.91	67,200,000	67,200,000
22	Roads construction (km)	2	Part contribution in the construction of roads	865,800.87	1,731,601.73	2,000,000,000	4,000,000,000
23	Main office building construction	1	Part contribution in the construction of the main office building	129,870.13	129,870.13	300,000,000	300,000,000
24	Office Furniture and fixtures	1	Complete set of furniture and fixtures for all the offices	51,948.05	51,948.05	120,000,000	120,000,000
25	Solar power system (2MW) installation	1	Solar power system for power generation	1,095,238.10	1,095,238.10	2,530,000,000	2,530,000,000
26	Power distribution system	1	Establishment of power distribution system for the entire premises	121,212.12	121,212.12	280,000,000	280,000,000
27	Connect to TANESCO power for energy stability	1	Power connection to TANESCO for energy stability in case of solar system breakdown	60,606.06	60,606.06	140,000,000	140,000,000
28	Moving trolleys	2	Moving trolleys for factory movements	12,121.21	24,242.42	28,000,000	56,000,000
29	Surveillance system	1	Complete surveillance system for the entire farms, systems and buildings	649,350.65	649,350.65	1,500,000,000	1,500,000,000
30	ICT based information network system will all the necessary supports	1	ICT based information networking system for the entire facility to provide reliable and up to date communication requirements	129,870.13	129,870.13	300,000,000	300,000,000
31	Wi-Fi Installation system and necessary gadgets	1	Wireless connectivity for the entire plant for providing work conducive environment	9,523.81	9,523.81	22,000,000	22,000,000
32	Office Equipment (Computers, supporters and other accessories)	1	Acquire 30 computers, 12 comprehensive service printers and	51,948.05	51,948.05	120,000,000	120,000,000

S/N	Item	Quantity	Description	Unit Cost (US $)	Total Cost (US$)	Cost (TZS)	Total Cost (TZS)
			other ICT based devices.				
33	Office vehicle	4	Acquire at least four office vehicles to support office movements and mobility of senior officers for office related functions.	51,948.05	207,792.21	120,000,000	480,000,000
34	Mini bus for staff members	1	Acquire two mini buses for staff	129,870.13	129,870.13	300,000,000	300,000,000
35	Shipping of all the machineries and facilities	1	Cost for shipping the acquired machineries and other facilities (12% of FOB cost)	674,031.60	674,031.60	1,557,012,987	1,557,012,987
36	Other fixed cost	1	This is the cost of unforeseen equipment which might arise during the course of project implementation.	86,580.09	86,580.09	200,000,000	200,000,000
Total					**11,964,450.07**		**27,637,879,654**

5.2 Indirect Operating Costs

Indirect operating costs involve salaries to be paid to employees and other administrative costs such as power consumption, supplies, fuel consumption, communication and other expenses. These will be incurred in the course of executing the project. The monthly as well as annual indirect costs for the individual plants are as analyzed below.

5.2.1 Indirect Operating Costs for Pharmaceutical manufacturing plant

For the case of salaries, the pharmaceutical plant will need to spend TZS 2,572,800,000 annually to actualize its production. This is equivalent to US$ 1,113,766.2 as elaborated in the Table below.

Table 45: Salaries Level for Pharmaceutical Plant

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
1	Managing Director	8,600,000	3,722.9	1	103,200,000	44,675.3
2	Production manager	6,000,000	2,597.4	1	72,000,000	31,168.8
3	Quality control and assurance manager	6,000,000	2,597.4	1	72,000,000	31,168.8
4	Ware house Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
5	Manager of Finance and Administration	6,000,000	2,597.4	1	72,000,000	31,168.8
6	Sales, Marketing and Acquisition Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
7	Plant Engineer	6,000,000	2,597.4	1	72,000,000	31,168.8
8	Chief Accountant	5,000,000	2,164.5	1	60,000,000	25,974.0
9	Chief Pharmacist	5,000,000	2,164.5	1	60,000,000	25,974.0
10	Chief Supplies and Procurement Officer	5,000,000	2,164.5	1	60,000,000	25,974.0
11	Chief Internal Auditor	5,000,000	2,164.5	1	60,000,000	25,974.0
12	Auditors	3,000,000	1,298.7	2	72,000,000	31,168.8
13	Pharmacists	3,500,000	1,515.2	6	252,000,000	109,090.9
14	Accountants	3,000,000	1,298.7	2	72,000,000	31,168.8
15	Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
16	Legal Personnel	3,000,000	1,298.7	1	36,000,000	15,584.4
17	ICT Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
18	Sales and Marketing officers	3,000,000	1,298.7	5	180,000,000	77,922.1
19	Supplies and Procurement officers	3,000,000	1,298.7	2	72,000,000	31,168.8
20	Medical Engineer	3,000,000	1,298.7	1	36,000,000	15,584.4
21	Ware house technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
22	Quality assurance technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
23	Quality control technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
24	Production plant technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
25	Laboratory technicians	2,500,000	1,082.3	3	90,000,000	38,961.0
26	Operatives	1,600,000	692.6	20	384,000,000	166,233.8
27	Microbiologists	1,600,000	692.6	2	38,400,000	16,623.4
28	Management Secretary	1,600,000	692.6	1	19,200,000	8,311.7
29	Drivers	1,500,000	649.4	13	234,000,000	101,298.7
	Total		**48,009**	**79**	**2,572,800,000**	**1,113,766.2**

With regards to administrative expenses, the plant will need to spend TZS 1,398,000,000 annually for implementing its business. This is equivalent to US$ 605,194.8 as elaborated in the Table below.

Table 46: Administrative Expenses for Pharmaceutical Plant

S/N	Expense Items	Monthly Expenses		Annual Expenses	
		TZS	US$	TZS	US$
1	Office Supplies	4,000,000	1,731.6	48,000,000	20,779.2
2	Electricity expenses (mainly services and maintenance)	20,000,000	8,658.0	240,000,000	103,896.1
3	Water expenses	32,000,000	13,852.8	384,000,000	166,233.8

4	Posting bills	500,000	216.5	6,000,000	2,597.4
5	Data transfer and telephone expenses	5,000,000	2,164.5	60,000,000	25,974.0
6	Transport Cost	39,000,000	16,883.1	468,000,000	202,597.4
7	Continuing Advertisement	4,500,000	1,948.1	54,000,000	23,376.6
8	Drinking Water and Refreshments	1,500,000	649.4	18,000,000	7,792.2
9	Other Costs	10,000,000	4,329.0	120,000,000	51,948.1
	Total	**116,500,000**	**50,432.9**	**1,398,000,000**	**605,194.8**

5.2.2 Indirect Operating Costs for Imaging Equipment Manufacturing Plant

In as far as the salaries are concerned; the imaging equipment plant will need to spend TZS 2,090,400,000 annually to operationalize the plant to the planned level. This is equivalent to US$ 904,934.4as elaborated in the Table below.

Table 47: Salaries Level for Imaging Equipment Manufacturing Plant

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
1	Managing Director	8,600,000	3,722.9	1	103,200,000	44,675.3
2	Production manager	6,000,000	2,597.4	1	72,000,000	31,168.8
3	Quality control and assurance manager	6,000,000	2,597.4	1	72,000,000	31,168.8
4	Ware house Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
5	Manager of Finance and Administration	6,000,000	2,597.4	1	72,000,000	31,168.8
6	Sales, Marketing and Acquisition Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
7	Plant Engineer	6,000,000	2,597.4	1	72,000,000	31,168.8
8	Chief Accountant	5,000,000	2,164.5	1	60,000,000	25,974.0
9	Supplies and Procurement Officers	5,000,000	2,164.5	2	120,000,000	51,948.1
10	Auditors	3,000,000	1,298.7	2	72,000,000	31,168.8
11	Pharmacist	3,500,000	1,515.2	1	42,000,000	18,181.8
12	Accountants	3,000,000	1,298.7	2	72,000,000	31,168.8
13	Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
14	Legal Personnel	3,000,000	1,298.7	1	36,000,000	15,584.4
15	ICT Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
16	Sales and Marketing officers	3,000,000	1,298.7	2	72,000,000	31,168.8
17	Medical Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
18	Ware house technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
19	Quality assurance technicians	3,500,000	1,515.2	2	84,000,000	36,363.6
20	Quality control technicians	3,500,000	1,515.2	2	84,000,000	36,363.6
21	Instrumentation & Controls Technician	5,500,000	2,381.0	1	66,000,000	28,571.4
22	Instrument Specialist/Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
23	Instrument & Automation Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
24	Instrumentation & Process Controls Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
25	Automation Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
26	Process Control Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
27	Programmable Logic Controllers Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
28	Operatives	1,600,000	692.6	5	96,000,000	41,558.4

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
29	Management Secretary	1,600,000	692.6	1	19,200,000	8,311.7
30	Drivers	1,500,000	649.4	10	180,000,000	77,922.1
	Total				**2,090,400,000**	**904,934.4**

With regards to the administrative expenses, the Imaging Equipment Plant will need to spend TZS 906,000,000 annually to run the plant as anticipated. This is equivalent to US$ 392,207.8as depicted in Table 48 below.

Table 48: Administrative Expenses for Imaging Equipment Manufacturing Plant

S/N	Expense Items	Monthly Expenses		Annual Expenses	
		TZS	US$	TZS	US$
1	Office Supplies	4,000,000	1,731.6	48,000,000	20,779.2
2	Electricity expenses (mainly services and maintenance)	12,000,000	5,194.8	144,000,000	62,337.7
3	Water expenses	8,000,000	3,463.2	96,000,000	41,558.4
4	Posting bills	500,000	216.5	6,000,000	2,597.4
5	Data transfer and telephone expenses	5,000,000	2,164.5	60,000,000	25,974.0
6	Transport Cost	30,000,000	12,987.0	360,000,000	155,844.2
7	Continuing Advertisement	4,500,000	1,948.1	54,000,000	23,376.6
8	Drinking Water and Refreshments	1,500,000	649.4	18,000,000	7,792.2
9	Other Costs	10,000,000	4,329.0	120,000,000	51,948.1
	Total	**75,500,000**	**32,684.0**	**906,000,000**	**392,207.8**

5.2.3 Indirect Operating Costs for Non – Imaging Medical Equipment Plant

Non – imaging medical equipment plant will be required to spend TZS 2,258,400,000 annually to pay salaries for employees. This translates to US$ 977,662.3 annually as presented in Table 49 below.

Table 49: Salaries Level for Non – Imaging Medical Equipment Plant

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
1	Managing Director	8,600,000	3,722.9	1	103,200,000	44,675.3
2	Production manager	6,000,000	2,597.4	1	72,000,000	31,168.8
3	Quality control and assurance manager	6,000,000	2,597.4	1	72,000,000	31,168.8
4	Ware house Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
5	Manager of Finance and Administration	6,000,000	2,597.4	1	72,000,000	31,168.8
6	Sales, Marketing and Acquisition Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
7	Plant Engineer	6,000,000	2,597.4	1	72,000,000	31,168.8
8	Chief Accountant	5,000,000	2,164.5	1	60,000,000	25,974.0
9	Auditors	3,000,000	1,298.7	2	72,000,000	31,168.8
10	Pharmacists	3,500,000	1,515.2	2	84,000,000	36,363.6
11	Accountants	3,000,000	1,298.7	2	72,000,000	31,168.8
12	Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
13	Legal Personnel	3,000,000	1,298.7	1	36,000,000	15,584.4
14	ICT Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
15	Sales and Marketing officers	3,000,000	1,298.7	3	108,000,000	46,753.2
16	Supplies and Procurement officers	3,000,000	1,298.7	2	72,000,000	31,168.8
17	Medical Engineer	3,000,000	1,298.7	1	36,000,000	15,584.4
18	Ware house technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
19	Senior plant Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
20	Automation Engineer/Specialist	5,000,000	2,164.5	1	60,000,000	25,974.0
21	Senior Design Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
22	Process Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
23	Equipment Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
24	Development Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
25	Quality assurance engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
26	Quality supervisor	5,000,000	2,164.5	1	60,000,000	25,974.0
27	Quality assurance technicians	2,500,000	1,082.3	1	30,000,000	12,987.0
28	Quality control technicians	2,500,000	1,082.3	1	30,000,000	12,987.0
29	Production plant technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
30	Laboratory technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
31	Operatives	1,600,000	692.6	10	192,000,000	83,116.9
32	Management Secretary	1,600,000	692.6	1	19,200,000	8,311.7
33	Drivers	1,500,000	649.4	10	180,000,000	77,922.1
	Total			**60**	**2,258,400,000**	**977,662.3**

For the case of administrative expenses, the non- imaging equipment plant will need to spend TZS 1,230,000,000 annually remunerate the employees. This is equivalent to US$ 532,467.5 as indicated in Table 50hereunder.

Table 50: Administrative Expenses for Non – Imaging Medical Equipment Plant

S/N	Expense Items	Monthly Expenses		Annual Expenses	
		TZS	US$	TZS	US$
1	Office Supplies	4,000,000	1,731.6	48,000,000	20,779.2
2	Electricity expenses (mainly services and maintenance)	25,000,000	10,822.5	300,000,000	129,870.1
3	Water expenses	22,000,000	9,523.8	264,000,000	114,285.7
4	Posting bills	500,000	216.5	6,000,000	2,597.4
5	Data transfer and telephone expenses	5,000,000	2,164.5	60,000,000	25,974.0
6	Transport Cost	30,000,000	12,987.0	360,000,000	155,844.2
7	Continuing Advertisement	4,500,000	1,948.1	54,000,000	23,376.6
8	Drinking Water and Refreshments	1,500,000	649.4	18,000,000	7,792.2
9	Other Costs	10,000,000	4,329.0	120,000,000	51,948.1
	Total	**102,500,000**	**44,372.3**	**1,230,000,000**	**532,467.5**

5.2.4 Indirect Operating Costs for Medical Research Equipment Plant

For operationalizing the proposed medical research equipment plant, TSZ 2,128,800,000 will be required to pay salaries annually. This is equivalent to US$ 921,558.4as shown in the Table below.

Table 51: Salaries for Medical Research Equipment Plant

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
1	Managing Director	8,600,000	3,722.9	1	103,200,000	44,675.3
2	Production manager	6,000,000	2,597.4	1	72,000,000	31,168.8
3	Quality control and assurance manager	6,000,000	2,597.4	1	72,000,000	31,168.8
4	Ware house Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
5	Manager of Finance and Administration	6,000,000	2,597.4	1	72,000,000	31,168.8
6	Sales, Marketing and Acquisition Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
7	Plant Engineer	6,000,000	2,597.4	1	72,000,000	31,168.8
8	Chief Accountant	5,000,000	2,164.5	1	60,000,000	25,974.0
9	Supplies and Procurement Officers	5,000,000	2,164.5	2	120,000,000	51,948.1
10	Auditors	3,000,000	1,298.7	2	72,000,000	31,168.8
11	Pharmacist	3,500,000	1,515.2	1	42,000,000	18,181.8
12	Accountants	3,000,000	1,298.7	2	72,000,000	31,168.8
13	Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
14	Legal Personnel	3,000,000	1,298.7	1	36,000,000	15,584.4
15	ICT Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
16	Sales and Marketing officers	3,000,000	1,298.7	2	72,000,000	31,168.8
17	Medical Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
18	Ware house technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
19	Quality assurance technicians	3,500,000	1,515.2	2	84,000,000	36,363.6
20	Quality control technicians	3,500,000	1,515.2	2	84,000,000	36,363.6
21	Instrumentation & Controls Technician	5,500,000	2,381.0	1	66,000,000	28,571.4
22	Instrument Specialist/Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
23	Instrument & Automation Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
24	Instrumentation & Process Controls Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
25	Automation Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
26	Process Control Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
27	Programmable Logic Controllers Technician	5,000,000	2,164.5	1	60,000,000	25,974.0
28	Operatives	1,600,000	692.6	7	134,400,000	58,181.8
29	Management Secretary	1,600,000	692.6	1	19,200,000	8,311.7
30	Drivers	1,500,000	649.4	10	180,000,000	77,922.1
	Total			**52**	**2,128,800,000**	**921,558.4**

On the other hand, the Medical Research Equipment Plant will need to spend TZS 966,000,000 to meet

administrative expenses. This is equivalent to US$ 418,181.8 as shown in the Table below.

Table 52: Administrative Expenses for Medical Research Equipment Plant

S/N	Expense Items	Monthly Expenses		Annual Expenses	
		TZS	US$	TZS	US$
1	Office Supplies	4,000,000	1,731.6	48,000,000	20,779.2
2	Electricity expenses (mainly services and maintenance)	15,000,000	6,493.5	180,000,000	77,922.1
3	Water expenses	10,000,000	4,329.0	120,000,000	51,948.1
4	Posting bills	500,000	216.5	6,000,000	2,597.4
5	Data transfer and telephone expenses	5,000,000	2,164.5	60,000,000	25,974.0
6	Transport Cost	30,000,000	12,987.0	360,000,000	155,844.2
7	Continuing Advertisement	4,500,000	1,948.1	54,000,000	23,376.6
8	Drinking Water and Refreshments	1,500,000	649.4	18,000,000	7,792.2
9	Other Costs	10,000,000	4,329.0	120,000,000	51,948.1
	Total	**80,500,000**	**34,848.5**	**966,000,000**	**418,181.8**

5.2.5 Indirect Operating Costs for Therapeutic Devices Plant

On the issue of remunerating the employees, the therapeutic devices plant needs to spend TSZ 2,095,200,000 annually to pay salaries. This amount translates to US$ 907,013.0 as analyzed in Table 53 below.

Table 53: Salaries Level for Therapeutic Devices Plant

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
1	Managing Director	8,600,000	3,722.9	1	103,200,000	44,675.3
2	Production manager	6,000,000	2,597.4	1	72,000,000	31,168.8
3	Quality control and assurance manager	6,000,000	2,597.4	1	72,000,000	31,168.8
4	Ware house Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
5	Manager of Finance and Administration	6,000,000	2,597.4	1	72,000,000	31,168.8
6	Sales, Marketing and Acquisition Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
7	Plant Engineer	6,000,000	2,597.4	1	72,000,000	31,168.8
8	Chief Accountant	5,000,000	2,164.5	1	60,000,000	25,974.0
9	Supplies and Procurement Officers	5,000,000	2,164.5	2	120,000,000	51,948.1
10	Auditors	3,000,000	1,298.7	2	72,000,000	31,168.8
11	Pharmacist	3,500,000	1,515.2	1	42,000,000	18,181.8
12	Accountants	3,000,000	1,298.7	2	72,000,000	31,168.8
13	Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
14	Legal Personnel	3,000,000	1,298.7	1	36,000,000	15,584.4
15	ICT Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
16	Sales and Marketing officers	3,000,000	1,298.7	2	72,000,000	31,168.8
17	Medical Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
18	Ware house technicians	2,500,000	1,082.3	2	60,000,000	25,974.0

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
19	Quality assurance technicians	3,500,000	1,515.2	2	84,000,000	36,363.6
20	Quality control technicians	3,500,000	1,515.2	2	84,000,000	36,363.6
21	Senior plant Engineer	5,500,000	2,381.0	1	66,000,000	28,571.4
22	Automation Engineer/Specialist	5,000,000	2,164.5	1	60,000,000	25,974.0
23	Senior Design Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
24	Process Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
25	Equipment Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
26	Development Engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
27	Quality assurance engineer	5,000,000	2,164.5	1	60,000,000	25,974.0
28	Quality supervisor	5,000,000	2,164.5	1	60,000,000	25,974.0
29	Operatives	1,600,000	692.6	4	76,800,000	33,246.8
30	Management Secretary	1,600,000	692.6	1	19,200,000	8,311.7
31	Drivers	1,500,000	649.4	8	144,000,000	62,337.7
Total				**48**	**2,095,200,000**	**907,013.0**

On the side of administrative expenses, the plant will require to spend TZS 810,000,000 annually in order to make the plant running. This amount is equivalent to US$ 350,649.4 as depicted in the following Table.

Table 54: Administrative Expenses for Therapeutic Devices Plant

S/N	Expense Items	Monthly Expenses		Annual Expenses	
		TZS	US$	TZS	US$
1	Office Supplies	4,000,000	1,731.6	48,000,000	20,779.2
2	Electricity expenses (mainly services and maintenance)	10,000,000	4,329.0	120,000,000	51,948.1
3	Water expenses	8,000,000	3,463.2	96,000,000	41,558.4
4	Posting bills	500,000	216.5	6,000,000	2,597.4
5	Data transfer and telephone expenses	5,000,000	2,164.5	60,000,000	25,974.0
6	Transport Cost	24,000,000	10,389.6	288,000,000	124,675.3
7	Continuing Advertisement	4,500,000	1,948.1	54,000,000	23,376.6
8	Drinking Water and Refreshments	1,500,000	649.4	18,000,000	7,792.2
9	Other Costs	10,000,000	4,329.0	120,000,000	51,948.1
	Total	**67,500,000**	**29,220.8**	**810,000,000**	**350,649.4**

5.2.6 Indirect Operating Costs for Packaging and Consumables materials Plant

As seen in Table 55 below, the packaging and consumables materials plant will need to spend TZS 1,970,400,000 annually to pay salaries to its employees. This is equivalent to US$ 852,987.

Table 55: Salaries Level for Packaging and Consumables materials Plant

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
1	Managing Director	8,600,000	3,722.9	1	103,200,000	44,675.3
2	Production manager	6,000,000	2,597.4	1	72,000,000	31,168.8
3	Quality control and assurance manager	6,000,000	2,597.4	1	72,000,000	31,168.8
4	Ware house Manager	6,000,000	2,597.4	1	72,000,000	31,168.8

S/N	Employees cadre	Monthly Salary		Number of Employees	Annual Salary	
		TZS	US$		TZS	US$
5	Manager of Finance and Administration	6,000,000	2,597.4	1	72,000,000	31,168.8
6	Sales, Marketing and Acquisition Manager	6,000,000	2,597.4	1	72,000,000	31,168.8
7	Plant Engineer	6,000,000	2,597.4	1	72,000,000	31,168.8
8	Chief Accountant	5,000,000	2,164.5	1	60,000,000	25,974.0
9	Chief Pharmacist	5,000,000	2,164.5	1	60,000,000	25,974.0
10	Auditors	3,000,000	1,298.7	2	72,000,000	31,168.8
11	Pharmacists	3,500,000	1,515.2	3	126,000,000	54,545.5
12	Accountants	3,000,000	1,298.7	2	72,000,000	31,168.8
13	Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
14	Legal Personnel	3,000,000	1,298.7	1	36,000,000	15,584.4
15	ICT Administrator	3,000,000	1,298.7	1	36,000,000	15,584.4
16	Sales and Marketing officers	3,000,000	1,298.7	3	108,000,000	46,753.2
17	Supplies and Procurement officers	3,000,000	1,298.7	2	72,000,000	31,168.8
18	Medical Engineer	3,000,000	1,298.7	1	36,000,000	15,584.4
19	Ware house technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
20	Quality assurance technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
21	Quality control technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
22	Production plant technicians	2,500,000	1,082.3	2	60,000,000	25,974.0
23	Laboratory technicians	2,500,000	1,082.3	3	90,000,000	38,961.0
24	Operatives	1,600,000	692.6	8	153,600,000	66,493.5
25	Microbiologists	1,600,000	692.6	2	38,400,000	16,623.4
26	Management Secretary	1,600,000	692.6	1	19,200,000	8,311.7
27	Drivers	1,500,000	649.4	10	180,000,000	77,922.1
	Total		**43,680**	**57**	**1,970,400,000**	**852,987.0**

Finally, the plant will need to spend TZS 1,194,000,000 to manage all the administrative activities annually. This is equivalent to US$ 516,883.1 per year as depicted in the Table below.

Table 56: Administrative Expenses for Packaging and Consumables materials Plant

S/N	Expense Items	Monthly Expenses		Annual Expenses	
		TZS	US$	TZS	US$
1	Office Supplies	4,000,000	1,731.6	48,000,000	20,779.2
2	Electricity expenses (mainly services and maintenance)	16,000,000	6,926.4	192,000,000	83,116.9
3	Water expenses	28,000,000	12,121.2	336,000,000	145,454.5
4	Posting bills	500,000	216.5	6,000,000	2,597.4
5	Data transfer and telephone expenses	5,000,000	2,164.5	60,000,000	25,974.0
6	Transport Cost	30,000,000	12,987.0	360,000,000	155,844.2
7	Continuing Advertisement	4,500,000	1,948.1	54,000,000	23,376.6
8	Drinking Water and Refreshments	1,500,000	649.4	18,000,000	7,792.2
9	Other Costs	10,000,000	4,329.0	120,000,000	51,948.1
Total		**99,500,000**	**43,073.6**	**1,194,000,000**	**516,883.1**

6.0 IMPLEMENTATION PLAN

The proposed industrial park will require at least 24 months for putting the required facilities in place before actual production can start. Breakdown of the pre-requisite activities to be accomplished before conducting the business is presented hereunder. Please note that, the activities presented below represents all the plants because construction and installation activities for the plants will go concurrently.

1) Registration procedure;
2) Acquiring of land (50 acres);
3) Acquiring of land (additional 8 plots for establishing sales outlets);
4) Documentation of the plant undertaking;
5) Solicitation of funds;
6) Installing clean water infrastructure;
7) Construction of sheds for the plants;
8) Construction of waste water management system;
9) Installation of storage facilities;
10) Construction of central office building;
11) Establishing domestic outlets;
12) Construction of the houses for some employees;
13) Acquiring and fitting of Furniture and fixtures;
14) Acquiring of computers, peripherals and related devices;
15) Acquiring of trucks, other moving objects and vehicles;
16) Acquiring of the plant machineries;
17) Installation of the plant machineries;
18) Commissioning and testing of the plant machineries;
19) Installation of solar power facilities;
20) Installation of surveillance system;
21) Installation of ICT based information system;
22) Installation of Wi-Fi infrastructure;
23) Acquisition of the necessary raw materials;
24) Recruiting and training of employees;
25) Start production, and;
26) Full scale production.

The above activities may be depicted in a bar chart shown in Table 57 below:

Table 57: Implementation Schedule for Proposed Project

Activity	Time Duration (Years/Quarters)								
	Year 1 (2021)				Year 2 (2022)				Year 3 (2023)
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Quarter 1
Registration procedure									
Acquiring of land (200 acres)									
Acquiring of land (additional 8 plots for establishing sales outlets)									
Documentation of the plant undertaking									
Solicitation of funds									
Installing clean water infrastructure									
Construction of sheds for the plants									
Construction of waste water management system									
Installation of storage facilities									
Construction of central office building									
Establishing domestic outlets									
Construction of the houses for some employees									

Acquiring and fitting of Furniture and fixtures									
Acquiring of computers, peripherals and related devices									
Acquiring of trucks, other moving objects and vehicles									
Acquiring of the plant machineries									
Installation of the plant machineries									
Commissioning and testing of the plant machineries									
Installation of solar power facilities									
Installation of surveillance system									
Installation of ICT based information system;									
Installation of Wi-Fi infrastructure									
Acquisition of the necessary raw materials									
Recruiting and training of employees									
Start production									
Full scale production									

As seen in the chart above, all preparatory activities will take 24 months. Production will start in the fourth quarter of 2022, if funding is obtained in 2021. In case arrangements are fast tracked and construction as well as installation is well supervised, production can start in the middle of 2022since most of the preparations can go concurrently. However, to be more realistic, it is wise to anticipate commencement of production in the first quarter of 2023.

7.0 FINANCIAL PLAN

This section provides an analysis of the financial implications of the various activities explained in the forgoing chapters. It starts by stating the assumptions made in developing the financial statements. This is followed by putting down the financial requirements of the entire business. The section winds up by showing all the necessary financials for the individual plants under the envisaged pharmaceutical industrial park.

7.1 Assumptions of Financial Statements Generation

To come up with the financial statements, the following assumptions have been made:

a) Production has been increased by 5% from year to year. This has been kept almost equal to anticipated average inflation rate in the country which is about 5%;
b) Like the production levels, costs have also been consistently increased at a rate of 5% from year to year;
c) All prices have been assumed to remain constant throughout the projected time of five years. This has been done in order to be pessimistic on the expected revenues. That is, the projected net incomes are the minimum possible amounts that should be earned by the project;
d) This analysis has considered the important and essential products which any plant of that type should produce. Plants' management are expected to add more products into their production lines. This will also add to their revenues that has not been considered here;
e) The plants which will produce medical equipment will also provide services and parts for the equipment sold to medical facilities. These will contribute more than 5% of the revenues on annual basis at least starting from year 2 of operations. These revenues have purposely not considered in this analysis just to give more comfort to investors and managers of the Park.
f) An allowance has been made to take care of interest to be paid on the loan. The rate has been taken as 3% which is in fact expected to go down further;
g) The fixed investment as well as the pre-operating investment have been accordingly depreciated and/or amortized using straight-line method;
h) All the prices for the products have been set at somehow below the current market levels;
i) A provision of 30% corporate tax has been considered as the laws require, and;
j) Several costs such as office supplies, stationeries, communication, as well as some contingencies or unforeseen expenses, etc. have been classified under administrative expenses.

7.2 Financial Requirements and their Economic Implications

For clarity and the need for showing analysis and feasibility of each plant, financial requirements and their economic implications are provided hereunder for individual undertaking under the industrial park.

7.2.1 Pharmaceutical manufacturing plant Financials

As shown in Table 58 below, total financial investment requirement for pharmaceutical plant is **US$36,479,187.1**. Out of this, US$ **4,084,929.8** is equity contribution already invested in acquiring the land and feasibility study conduct and documentation. The remaining **US$32,394,257.4** is expected to come from financing arrangement either in the form of loan or investment. Furthermore, of the **US$32,394,257.4**, **US$ 26,934,163.9** will be used to finance acquiring of fixed assets and the remaining **US$ 5,394,625.0**will be spent for working capital in the form of raw materials in order to kick start production. Breakdown of the investment plan for the project may be depicted in Table 58 below.

1) Pharmaceutical manufacturing plant Investment Plan

Investment plan for the pharmaceutical plant is as presented in Table 58 shown below.

Table 58: Investment Plan for Pharmaceutical Plant (US$)

ITEM		Total	Equity	Loan
Land		38,961.0	38,961.0	0.0
Water systems		297,835.5	0	297,835.5
Buildings		4,439,769.1	0	4,439,769.1
Plant Machineries and necessary supports		19,198,290.9	0	19,198,290.9

ITEM		Total	Equity	Loan
Equipment, Trucks, Working gears and accessories		741,991.3	0	741,991.3
Furniture and Fixtures		51,948.1	0	51,948.1
Computers, Office support devices and other ICT based equipment		191,342.0	0	191,342.0
Solar power installation		1,277,056.3	0	1,277,056.3
Surveillance system for security purposes		649,350.6	0	649,350.6
Others		86,580.1	0	86,580.1
Total Fixed Asset		**26,973,124.9**	**38,961.0**	**26,934,163.9**
B. PRE-OPERATING INVESTMENT				
1. Proposal document preparation, ownership, administration, financial engineering and other facilitations		2,697,312.5	2,697,312.5	0.0
2. Financial engineering, development, administration and execution			0.0	0.0
3. Local Government contribution and participation		1,348,656.2	1,348,656.2	0.0
4. Promotion costs		6,038.96	0	6,039.0
5. Other-Preparations (Training and visits)		59,429.50	0	59,429.5
Total Pre-Operating Investment (POI)		4,111,437.2	0	65,468.5
C. TOTAL INVESTMENT (A+B)		31,084,562.1	0	26,999,632.4
D. WORKING OPERATING COST				
DIRECT OPERATING COST				
1. Raw materials	5,394,625.0	5,394,625.0	0	5,394,625.0
Working Capital Required (X)		5,394,625.0	0	5,394,625.0
INDIRECT OPERATING COSTS				
1. Salaries	1,113,766.2			
2. Administrative Expenses	605,194.8			
Total Indirect Cost	1,718,961.0			
Total Investment Required		**36,479,187.1**	**4,084,929.8**	**32,394,257.4**
EQUITY SHARE (%)		**100%**	**11%**	**89%**

2) Pharmaceutical Plant Income Statement

The projected five-year income statement for the Pharmaceutical plant may be depicted in Table 59 below.

Table 59: Projected Five-years Income Statement for Pharmaceutical Plant (US$)

ITEM	2023	2024	2025	2026	2027
Planned Level of Sales (Units)					
Amoxicillin 250mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Amoxicillin 500mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Ampiclox 500mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Omeprazole 20mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Piroxicam 20mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Paracetamol 500mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Ciprofloxacin 500mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Cotrimoxazole 480mg	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Metronidazole 200mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Salbutamol 5mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Prednisolone 5mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Erythromycin 250mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Phenobarbital 5mg	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Diclofenac 50mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Ibuprofen 200mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Artemether Lumenfantrine (ALU) 20mg/120mg	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Cetirizine 10mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259

ITEM	2023	2024	2025	2026	2027
Chlopheniramine 5mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Metformin 500mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Glibenclamide 5mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Nifedipine 10 mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Furosemide 5 mg	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Folic acid 5 mg	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
Vitamin B complex	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
Hydrocortisone cream/ointment	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Clotrimazole cream	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Tetracycline eye ointment	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Tetracycline 3% ointment for topical wounds treatment	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Ciprofloxacin ear & eye drop	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Gentamycin ear & eye drop	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Xylometazoline 0.1% nasal drop	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Xylometazoline 0.05% nasal drop	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
Amoxicillin powder suspension 125mg/5mls	1,500,000	1,575,000	1,653,750	1,736,438	1,823,259
Ampiclox powder suspension 250mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Erythromycin powder suspension 125mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Paracetamol syrup 120mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Ibuprofen syrup 100mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Metronidazole syrup 200mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Dextromethorphan syrup 7.5mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Cetirizine syrup 5mg/5mls	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Normal saline 500mls	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
Ringer Lactate 500mls	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
Dextrose 5%	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
Planned Level of Sales (US$)					
Amoxicillin 250mg	844,156	886,364	930,682	977,216	1,026,077
Amoxicillin 500mg	1,688,312	1,772,727	1,861,364	1,954,432	2,052,153
Ampiclox 500mg	1,688,312	1,772,727	1,861,364	1,954,432	2,052,153
Omeprazole 20mg	562,771	590,909	620,455	651,477	684,051
Piroxicam 20mg	337,662	354,545	372,273	390,886	410,431
Paracetamol 500mg	562,771	590,909	620,455	651,477	684,051
Ciprofloxacin 500mg	1,125,541	1,181,818	1,240,909	1,302,955	1,368,102
Cotrimoxazole 480mg	562,771	590,909	620,455	651,477	684,051
Metronidazole 200mg	633,117	664,773	698,011	732,912	769,558
Salbutamol 5mg	211,039	221,591	232,670	244,304	256,519
Prednisolone 5mg	211,039	221,591	232,670	244,304	256,519
Erythromycin 250mg	1,266,234	1,329,545	1,396,023	1,465,824	1,539,115
Phenobarbital 5mg	140,693	147,727	155,114	162,869	171,013
Diclofenac 50mg	211,039	221,591	232,670	244,304	256,519
Ibuprofen 200mg	211,039	221,591	232,670	244,304	256,519
Artemether Lumenfantrine (ALU) 20mg/120mg	1,125,541	1,181,818	1,240,909	1,302,955	1,368,102
Cetirizine 10mg	422,078	443,182	465,341	488,608	513,038
Chlopheniramine 5mg	2,110,390	2,215,909	2,326,705	2,443,040	2,565,192
Metformin 500mg	422,078	443,182	465,341	488,608	513,038
Glibenclamide 5mg	422,078	443,182	465,341	488,608	513,038
Nifedipine 10 mg	422,078	443,182	465,341	488,608	513,038
Furosemide 5 mg	211,039	221,591	232,670	244,304	256,519
Folic acid 5 mg	422,078	443,182	465,341	488,608	513,038
Vitamin B complex 35mg	422,078	443,182	465,341	488,608	513,038
Hydrocortisone cream/ointment	562,771	590,909	620,455	651,477	684,051
Clotrimazole cream	281,385	295,455	310,227	325,739	342,026
Tetracycline eye ointment	281,385	295,455	310,227	325,739	342,026
Tetracycline 3% ointment for topical wounds treatment	562,771	590,909	620,455	651,477	684,051

ITEM	2023	2024	2025	2026	2027
Ciprofloxacin ear & eye drop	562,771	590,909	620,455	651,477	684,051
Gentamycin ear & eye drop	281,385	295,455	310,227	325,739	342,026
Xylometazoline 0.1% nasal drop	562,771	590,909	620,455	651,477	684,051
Xylometazoline 0.05% nasal drop	562,771	590,909	620,455	651,477	684,051
Amoxicillin powder suspension 125mg/5mls	844,156	886,364	930,682	977,216	1,026,077
Ampiclox powder suspension 250mg/5mls	1,969,697	2,068,182	2,171,591	2,280,170	2,394,179
Erythromycin powder suspension 125mg/5mls	1,688,312	1,772,727	1,861,364	1,954,432	2,052,153
Paracetamol syrup 120mg/5mls	1,125,541	1,181,818	1,240,909	1,302,955	1,368,102
Ibuprofen syrup 100mg/5mls	1,125,541	1,181,818	1,240,909	1,302,955	1,368,102
Metronidazole syrup 200mg/5mls	1,125,541	1,181,818	1,240,909	1,302,955	1,368,102
Dextromethorphan syrup 7.5mg/5mls	1,125,541	1,181,818	1,240,909	1,302,955	1,368,102
Cetirizine syrup 5mg/5mls	1,125,541	1,181,818	1,240,909	1,302,955	1,368,102
Normal saline 500mls	1,688,312	1,772,727	1,861,364	1,954,432	2,052,153
Ringer Lactate 500mls	1,688,312	1,772,727	1,861,364	1,954,432	2,052,153
Dextrose 5%	1,688,312	1,772,727	1,861,364	1,954,432	2,052,153
Total Sales (US$)	**35,088,745**	**36,843,182**	**38,685,341**	**40,619,608**	**42,650,588**
B. DIRECT OPERATING COST					
1. Raw Materials Costs	5,394,625	5,664,356	5,947,574	6,244,953	6,557,200
2. Rejects expenses	526,331	552,648	580,280	609,294	639,759
3. Overheads	350,887	368,432	386,853	406,196	426,506
Total Direct Operating Costs	6,271,844	6,585,436	6,914,708	7,260,443	7,623,465
C. GROSS PROFIT (A-B)	28,816,901	30,257,746	31,770,633	33,359,165	35,027,123
D. INDIRECT OPERATING COSTS					
1. Salaries	1,113,766	1,169,455	1,227,927	1,289,324	1,353,790
2. Administrative Expenses	605,195	635,455	667,227	700,589	735,618
TOT IND. OPE. COST BEF DEP'N POI	1,718,961	1,804,909	1,895,155	1,989,912	2,089,408
3. Depreciation	2,697,312	2,697,312	2,697,312	2,697,312	2,697,312
4. POI amortization	411,144	411,144	411,144	411,144	411,144
E. TOTAL OPERATING COSTS	4,827,417	4,913,365	5,003,611	5,098,368	5,197,864
F. OPERATING PROFIT (C-E)	23,989,484	25,344,381	26,767,023	28,260,797	29,829,259
G. INTEREST	97,183	97,183	97,183	97,183	97,183
H. PROFIT BEFORE TAX (F-G)	23,892,301	25,247,198	26,669,840	28,163,614	29,732,076
I. Corporate Tax (30% of Gross Sales)	10,526,623	11,052,955	11,605,602	12,185,882	12,795,177
K. NET PROFIT (H-I)	**13,365,678**	**14,194,243**	**15,064,238**	**15,977,731**	**16,936,900**
Net Profit Margin	**38.1%**	**38.5%**	**38.9%**	**39.3%**	**39.7%**

As seen in Table 59 above, net profit margin for pharmaceutical plant is promising with a minimum of 38.1 in year 1 (2023) of operations and a maximum of 39.7% in year 5 (2027). Furthermore, analysis shows that, average net profit margin is 38.9% growing at an average rate of 0.4% from year to year. The upward trend of net profit margin is an indicator of better prospects in the business operations at higher levels of production and in fact, demand justifies.

3) Pharmaceutical plant Cash Flow Projections

The projected cash flows for the respective five years for the pharmaceutical plant are shown in the Table 60 below.

Table 60: Projected Cash Flows Statement for Pharmaceuticals Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
Cash in Flow						
A: Beginning Cash Balance		**5,394,625**	**18,629,333**	**32,692,607**	**47,625,875**	**63,472,637**
B: Cash Receipts						
1. Cash Sales		35,088,745	36,843,182	38,685,341	40,619,608	42,650,588
3. Equity	4,084,930					
4. Loan	32,394,257					
Total Cash Receipts	36,479,187	35,088,745	36,843,182	38,685,341	40,619,608	42,650,588
Cash Available for Use (A+B)	**36,479,187**	**40,483,370**	**55,472,515**	**71,377,948**	**88,245,483**	**106,123,225**
C: Cash Payments						

ITEMS	2022	2023	2024	2025	2026	2027
1. Total Investment	31,084,562					
2. Total Direct Operating Costs		6,271,844	6,585,436	6,914,708	7,260,443	7,623,465
3. Total Indirect Operating Costs		1,718,961	1,804,909	1,895,155	1,989,912	2,089,408
4.Taxes		10,526,623	11,052,955	11,605,602	12,185,882	12,795,177
Total Cash Payments	31,084,562	18,517,428	19,443,299	20,415,464	21,436,238	22,508,049
D: Minimum Cash Balance						
Total Cash Needed (C+D)	31,084,562	18,517,428	19,443,299	20,415,464	21,436,238	22,508,049
Cash Surplus/Deficit (A+B)-(C+D)	5,394,625	21,965,942	36,029,215	50,962,483	66,809,245	83,615,176
E: Financing						
Principal		3,239,426	3,239,426	3,239,426	3,239,426	3,239,426
Interest		97,183	97,183	97,183	97,183	97,183
Total Financing Effects -(Principal +Interest)		-3,336,609	-3,336,609	-3,336,609	-3,336,609	-3,336,609
F: Ending Cash Balance (A+B+E-C)	**5,394,625**	**18,629,333**	**32,692,607**	**47,625,875**	**63,472,637**	**80,278,567**

4) Pharmaceutical Plant Balance Sheet

The financial stand of the pharmaceutical plant as at the end of the respective five years are as shown in Table 61 that follows:

Table 61: Projected Balance Sheet for Pharmaceutical Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
1. ASSETS						
1.1 CURRENT ASSETS						
1. Cash	5,394,625	18,629,333	32,692,607	47,625,875	63,472,637	80,278,567
Total Current Assets (A)	5,394,625	18,629,333	32,692,607	47,625,875	63,472,637	80,278,567
Land	38,961	38,961	38,961	38,961	38,961	38,961
Water systems	297,835	297,835	297,835	297,835	297,835	297,835
Buildings	4,439,769	4,439,769	4,439,769	4,439,769	4,439,769	4,439,769
Plant Machineries and necessary supports	19,198,291	19,198,291	19,198,291	19,198,291	19,198,291	19,198,291
Equipment, Trucks, Working gears and accessories	741,991	741,991	741,991	741,991	741,991	741,991
Furniture and Fixtures	51,948	51,948	51,948	51,948	51,948	51,948
Computers, Office support devices and other ICT based equipment	191,342	191,342	191,342	191,342	191,342	191,342
Solar power installation	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056
Surveillance system for security purposes	649,351	649,351	649,351	649,351	649,351	649,351
Others	86,580	86,580	86,580	86,580	86,580	86,580
Total Fixed Assets	26,973,125	26,973,125	26,973,125	26,973,125	26,973,125	26,973,125
1. Less Accumulated Depreciation	0	2,697,312	5,394,625	8,091,937	10,789,250	13,486,562
2. Book Value of Fixed Assets (B)	26,973,125	24,275,812	21,578,500	18,881,187	16,183,875	13,486,562
1.3 PREPATORY EXPENSES						
1. Business Plan Ownership and Preparation	2,697,312	2,697,312	2,697,312	2,697,312	2,697,312	2,697,312
2. Promotional Expenses	6,039	6,039	6,039	6,039	6,039	6,039
3. Other -Preparations	59,430	59,430	59,430	59,430	59,430	59,430
Total Preparatory Expenses	2,762,781	2,762,781	2,762,781	2,762,781	2,762,781	2,762,781
Less Amortization		411,144	822,287	1,233,431	1,644,575	2,055,719
Net book Value of Prepaid Expenses (C)	2,762,781	2,351,637	1,940,494	1,529,350	1,118,206	707,062
TOTAL ASSETS (A+B+C)	35,130,531	45,256,783	56,211,600	68,036,412	80,774,718	94,472,192
2 LIABILITIES AND EQUITY						
2.1 CURRENT LIABILITIES						
1. Accounts Payable (Interests)		971,828	874,645	777,462	680,279	583,097
2. Loan	32,394,257	26,834,348	23,692,105	20,549,862	17,407,619	14,265,376
Total Current Liabilities (D)	32,394,257	27,806,175	24,566,750	21,327,324	18,087,898	14,848,472
2.2 LONG TERM LIABILITIES						
1. Fixed Investment Loan						
Total Long-Term Liabilities (E)						
TOTAL LIABILITIES	32,394,257					

ITEMS	2022	2023	2024	2025	2026	2027
3. EQUITY						
1. Owners' Equity	4,084,930	4,084,930	4,084,930	4,084,930	4,084,930	4,084,930
2. Retained Earnings			13,365,678	27,559,921	42,624,159	58,601,890
3. Current Profit		13,365,678	14,194,243	15,064,238	15,977,731	16,936,900
4. Total Equity (F)	4,084,930	17,450,607	31,644,851	46,709,088	62,686,820	79,623,720
TOTAL LIABILITIES & EQUITY (D+E+F)	36,479,187	45,256,783	56,211,600	68,036,412	80,774,718	94,472,192

5) Summary of Financials for Pharmaceutical Plant

The summary of all financial information for the pharmaceutical plant may be depicted in Table 62 presented below.

Table 62: Summary of Financial Information for Pharmaceutical Plant (US$)

ITEM	2023	2024	2025	2026	2027
Sales	35,088,745	36,843,182	38,685,341	40,619,608	42,650,588
Costs	11,099,261	11,498,801	11,918,318	12,358,811	12,821,329
Operating profit	23,989,484	25,344,381	26,767,023	28,260,797	29,829,259
Net profit	13,365,678	14,194,243	15,064,238	15,977,731	16,936,900
Cash balance	18,629,333	32,692,607	47,625,875	63,472,637	80,278,567
Return on Investment (%)	29.53	25.25	22.14	19.78	17.93
Net profit Margin	38.1%	38.5%	38.9%	39.3%	39.7%
Recouping Period (Years)	10				
Average Return on Investment (%)	22.9				
Average Net profit Margin (%)	38.9				

7.2.2 Imaging Equipment Plant Financials

For the case of imaging equipment plant, total financial investment requirement is **US$ 85,633,692.2.** Out of this, **US$9,924,150.6** represents equity financing and the remaining **US$75,709,541.** is expected to come from other sources of financing arrangement like loan or investment. Moreover, of the **US$75,709,541.6**, **US$65,762,735.3** will be used to finance acquiring of fixed assets in the form of buildings, machineries, vehicles, etc. and the remaining **US$ 9,872,202.5**will be spent for working capital purposes in the form of raw materials. Breakdown of the investment plan for the project may be depicted in Table 63 below.

1) Imaging Equipment Plant Investment Plan

Investment plan for imaging equipment plant is as presented in Table 63 shown below.

Table 63: Investment Plan for Imaging Equipment Plant (US$)

ITEM		Total	Equity	Loan
Land		51,948.1	51,948.1	0.0
Water systems		297,835.5	0	297,835.5
Buildings		4,618,989.9	0	4,618,989.9
Plant Machineries and necessary supports		57,994,827.7	0	57,994,827.7
Equipment, Trucks, Working gears and accessories		594,805.2	0	594,805.2
Furniture and Fixtures		51,948.1	0	51,948.1
Computers, Office support devices and other ICT based equipment		191,342.0	0	191,342.0
Solar power installation		1,277,056.3	0	1,277,056.3
Surveillance system for security purposes		649,350.6	0	649,350.6
Others		86,580.1	0	86,580.1
Total Fixed Asset		**65,814,683.4**	**51,948.1**	**65,762,735.3**
B. PRE-OPERATING INVESTMENT				
1. Proposal document preparation, ownership, administration, financial engineering and other facilitations		6,581,468.3	6,581,468.3	0.0

ITEM		Total	Equity	Loan
2. Financial engineering, development, administration and execution			0.0	0.0
3. Local Government contribution and participation		3,290,734.2	3,290,734.2	0.0
4. Promotion costs		15,174.30	0	15,174.3
5. Other-Preparations (Training and visits)		59,429.50	0	59,429.5
Total Pre-Operating Investment (POI)		9,946,806.3	0	74,603.8
C. TOTAL INVESTMENT (A+B)		75,761,489.7	0	65,837,339.1
D. WORKING OPERATING COST				
DIRECT OPERATING COST				
1. Raw materials	9,872,202.5	9,872,202.5	0	9,872,202.5
Working Capital Required (X)		9,872,202.5	0	9,872,202.5
INDIRECT OPERATING COSTS				
1. Salaries	904,935.1			
2. Administrative Expenses	392,207.8			
Total Indirect Cost	1,297,142.9			
Total Investment Required		**85,633,692.2**	**9,924,150.6**	**75,709,541.6**
EQUITY SHARE (%)		**100%**	**12%**	**88%**

2) Imaging Equipment Plant Income Statement

The projected five-year income statement for the Imaging Equipment Plant may be depicted in Table 64 presented below.

Table 64: Projected Five-Years Income Statement for Imaging Equipment Plant (US$)

ITEM	2023	2024	2025	2026	2027
Planned Level of Sales (Units)					
Digital X-Ray Machine	40	42	44	46	49
CT Scan	40	42	44	46	49
Ultra sound machine (with probes)	40	42	44	46	49
MRI (1.5 Tessier)	40	42	44	46	49
Mammography Machine	40	42	44	46	49
C-ARM X-Ray Machine	40	42	44	46	49
Planned Level of Sales (US$)					
Digital X-Ray Machine	1,600,000	1,680,000	1,764,000	1,852,200	1,944,810
CT Scan	22,400,000	23,520,000	24,696,000	25,930,800	27,227,340
Ultra sound machine (with probes)	1,280,000	1,344,000	1,411,200	1,481,760	1,555,848
MRI (1.5 Tessier)	27,705,628	29,090,909	30,545,455	32,072,727	33,676,364
Mammography Machine	4,155,844	4,363,636	4,581,818	4,810,909	5,051,455
C-ARM X-Ray Machine	2,077,922	2,181,818	2,290,909	2,405,455	2,525,727
Total Sales (US$)	**59,219,394**	**62,180,364**	**65,289,382**	**68,553,851**	**71,981,543**
B. DIRECT OPERATING COST					
1. Raw Materials Costs	9,872,203	10,365,813	10,884,103	11,428,308	11,999,724
2. Overheads (1% of sales contribution to run the head office)	592,194	621,804	652,894	685,539	719,815
Total Direct Operating Costs	10,464,396	10,987,616	11,536,997	12,113,847	12,719,539
C. GROSS PROFIT (A-B)	48,754,997	51,192,747	53,752,385	56,440,004	59,262,004
D. INDIRECT OPERATING COSTS					
1. Salaries	904,935	950,182	997,691	1,047,575	1,099,954
2. Administrative Expenses	392,208	411,818	432,409	454,030	476,731
TOT IND. OPE. COST BEF DEP'N POI	1,297,143	1,362,000	1,430,100	1,501,605	1,576,685
3. Depreciation	6,581,468	6,581,468	6,581,468	6,581,468	6,581,468
4. POI amortization	994,681	994,681	994,681	994,681	994,681
E. TOTAL OPERATING COSTS	8,873,292	8,938,149	9,006,249	9,077,754	9,152,834
F. OPERATING PROFIT (C-E)	39,881,706	42,254,598	44,746,136	47,362,250	50,109,170
G. INTEREST	227,129	227,129	227,129	227,129	227,129
H. PROFIT BEFORE TAX (F-G)	39,654,577	42,027,470	44,519,007	47,135,121	49,882,041

ITEM	2023	2024	2025	2026	2027
I. Corporate Tax (30% of Gross Sales)	17,765,818	18,654,109	19,586,815	20,566,155	21,594,463
K. NET PROFIT (H-I)	**21,888,759**	**23,373,361**	**24,932,193**	**26,568,966**	**28,287,578**
Net Profit Margin	**37.0%**	**37.6%**	**38.2%**	**38.8%**	**39.3%**

It can be observed from Table 64 above that, net profit margin for imaging equipment plant is good having a minimum of 37.0% and a maximum of 39.3%. It can further be found out that, average net profit margin is 38.2% growing at a rate of 0.6% from year to year.

3) Imaging Equipment Plant Cash Flow Projections

The projected cash flows for the respective five years for the imaging equipment plant are shown in Table 65 below.

Table 65: Projected Cash Flows Statement for the Imaging Equipment Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
Cash in Flow						
A: Beginning Cash Balance		**9,872,203**	**31,766,156**	**55,144,712**	**80,082,099**	**106,656,260**
B: Cash Receipts						
1. Cash Sales		59,219,394	62,180,364	65,289,382	68,553,851	71,981,543
2. Equity	9,924,151					
3. Loan	75,709,542					
Total Cash Receipts	85,633,692	59,219,394	62,180,364	65,289,382	68,553,851	71,981,543
Cash Available for Use (A+B)	**85,633,692**	**69,091,596**	**93,946,520**	**120,434,093**	**148,635,950**	**178,637,803**
C: Cash Payments						
1. Total Investment	75,761,490					
2. Total Direct Operating Costs		10,464,396	10,987,616	11,536,997	12,113,847	12,719,539
3. Total Indirect Operating Costs		1,297,143	1,362,000	1,430,100	1,501,605	1,576,685
4.Taxes		17,765,818	18,654,109	19,586,815	20,566,155	21,594,463
Total Cash Payments	75,761,490	29,527,357	31,003,725	32,553,912	34,181,607	35,890,688
D: Minimum Cash Balance						
Total Cash Needed (C+D)	75,761,490	29,527,357	31,003,725	32,553,912	34,181,607	35,890,688
Cash Surplus/Deficit (A+B)-(C+D)	9,872,203	39,564,239	62,942,794	87,880,182	114,454,343	142,747,116
E: Financing						
Principal		7,570,954	7,570,954	7,570,954	7,570,954	7,570,954
Interest		227,129	227,129	227,129	227,129	227,129
Total Financing Effects -(Principal + Interest)		-7,798,083	-7,798,083	-7,798,083	-7,798,083	-7,798,083
F: Ending Cash Balance (A+B+E-C)	**9,872,203**	**31,766,156**	**55,144,712**	**80,082,099**	**106,656,260**	**134,949,033**

4) Imaging Equipment Plant Balance sheet

The financial stands for imaging equipment plant as at the end of each of the respective years are as shown in Table 66 that follows:

Table 66: Projected Balance Sheet for Imaging Equipment Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
1. ASSETS						
1.1 CURRENT ASSETS						
1. Cash	9,872,203	30,877,865	53,323,715	77,281,762	102,827,615	130,040,665
Total Current Assets (A)	9,872,203	30,877,865	53,323,715	77,281,762	102,827,615	130,040,665
Land	51,948	51,948	51,948	51,948	51,948	51,948
Water systems	297,835	297,835	297,835	297,835	297,835	297,835
Buildings	4,618,990	4,618,990	4,618,990	4,618,990	4,618,990	4,618,990
Plant Machineries and necessary supports	57,994,828	57,994,828	57,994,828	57,994,828	57,994,828	57,994,828
Equipment, Trucks, Working gears and accessories	594,805	594,805	594,805	594,805	594,805	594,805
Furniture and Fixtures	51,948	51,948	51,948	51,948	51,948	51,948
Computers, Office support devices and other ICT based equipment	191,342	191,342	191,342	191,342	191,342	191,342
Solar power installation	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056

ITEMS	2022	2023	2024	2025	2026	2027
Surveillance system for security purposes	649,351	649,351	649,351	649,351	649,351	649,351
Others	86,580	86,580	86,580	86,580	86,580	86,580
Total Fixed Assets	65,814,683	65,814,683	65,814,683	65,814,683	65,814,683	65,814,683
1. Less Accumulated Depreciation	0	6,581,468	13,162,937	19,744,405	26,325,873	32,907,342
2. Book Value of Fixed Assets (B)	65,814,683	59,233,215	52,651,747	46,070,278	39,488,810	32,907,342
1.3 PREPATORY EXPENSES						
1. Business Plan Ownership and Preparation	6,581,468	6,581,468	6,581,468	6,581,468	6,581,468	6,581,468
2. Promotional Expenses	15,174	15,174	15,174	15,174	15,174	15,174
3. Other -Preparations	59,430	59,430	59,430	59,430	59,430	59,430
Total Preparatory Expenses	6,656,072	6,656,072	6,656,072	6,656,072	6,656,072	6,656,072
Less Amortization		994,681	1,989,361	2,984,042	3,978,723	4,973,403
Net book Value of Prepaid Expenses (C)	6,656,072	5,661,392	4,666,711	3,672,030	2,677,350	1,682,669
TOTAL ASSETS (A+B+C)	82,342,958	95,772,472	110,642,173	127,024,071	144,993,775	164,630,676
2 LIABILITIES AND EQUITY						
2.1 CURRENT LIABILITIES						
1. Accounts Payable (Interests)		2,271,286	2,044,158	1,817,029	1,589,900	1,362,772
2. Loan	75,709,542	62,576,567	55,232,742	47,888,916	40,545,090	33,201,265
Total Current Liabilities (D)	75,709,542	64,847,853	57,276,899	49,705,945	42,134,991	34,564,037
2.2 LONG TERM LIABILITIES						
1. Fixed Investment Loan						
Total Long-Term Liabilities (E)						
TOTAL LIABILITIES	75,709,542					
3. EQUITY						
1. Owners' Equity	9,924,151	9,924,151	9,924,151	9,924,151	9,924,151	9,924,151
2. Retained Earnings			21,000,468	43,441,123	67,393,975	92,934,633
3. Current Profit		21,000,468	22,440,655	23,952,852	25,540,658	27,207,855
4. Total Equity (F)	9,924,151	30,924,619	53,365,274	77,318,126	102,858,784	130,066,639
TOTAL LIABILITIES & EQUITY (D+E+F)	85,633,692	95,772,472	110,642,173	127,024,071	144,993,775	164,630,676

5) Summary of Financials for Imaging Equipment Plant

The summary of financial information on imaging equipment plant may be depicted in Table 67 presented below.

Table 67: Summary of Financials for Imaging Equipment Plant **(US$)**

ITEM	2023	2024	2025	2026	2027
Sales	59,219,394	62,180,364	65,289,382	68,553,851	71,981,543
Costs	19,337,688	19,925,765	20,543,246	21,191,601	21,872,374
Operating profit	39,881,706	42,254,598	44,746,136	47,362,250	50,109,170
Net profit	21,888,759	23,373,361	24,932,193	26,568,966	28,287,578
Cash balance	31,766,156	55,144,712	80,082,099	106,656,260	134,949,033
Return on Investment (%)	22.64	20.78	19.20	17.85	16.68
Net profit Margin	37.0%	37.6%	38.2%	38.8%	39.3%
Recouping Period (Years)	10				
Average Return on Investment (%)	19.4				
Average Net profit Margin (%)	38.2				

7.2.3 Non – Imaging Medical Equipment Plant Financials

With regards to the non – imaging medical equipment plant, total financial investment requirement is **US$ 28,792,542.0**. Out of this, **US$ 3,485,113.6** represents equity financing and the remaining **US$ 25,307,428.4** is expected to come from other sources of financing arrangement like loan or investment. Moreover, of the **US$ 25,307,428.4**, **US$ 22,935,389.5** will be used to finance acquiring of fixed assets in the form of machineries, buildings, trucks, etc. and the remaining **US$ 2,297,435.1** will be spent for working capital purposes in the form of raw materials. Breakdown of the investment plan for the project may be depicted in Table 68 below.

1) Non – Imaging Medical Equipment Plant Investment Plan

Investment plan for the non – imaging medical equipment plant is as presented in Table 68 shown below.

Table 68: Investment Plan for Non – Imaging Medical Equipment Plant (US$)

ITEM		Total	Equity	Loan
Land		38,961.0	38,961.0	0.0
Water systems		297,835.5	0	297,835.5
Buildings		4,618,989.9	0	4,618,989.9
Plant Machineries and necessary supports		15,167,481.9	0	15,167,481.9
Equipment, Trucks, Working gears and accessories		594,805.2	0	594,805.2
Furniture and Fixtures		51,948.1	0	51,948.1
Computers, Office support devices and other ICT based equipment		191,342.0	0	191,342.0
Solar power installation		1,277,056.3	0	1,277,056.3
Surveillance system for security purposes		649,350.6	0	649,350.6
Others		86,580.1	0	86,580.1
Total Fixed Asset		**22,974,350.6**	**38,961.0**	**22,935,389.5**
B. PRE-OPERATING INVESTMENT				
1. Proposal document preparation, ownership, administration, financial engineering and other facilitations		2,297,435.1	2,297,435.1	0.0
2. Financial engineering, development, administration and execution			0.0	0.0
3. Local Government contribution and participation		1,148,717.5	1,148,717.5	0.0
4. Promotion costs		15,174.30	0	15,174.3
5. Other-Preparations (Training and visits)		59,429.50	0	59,429.5
Total Pre-Operating Investment (POI)		3,520,756.4	0	74,603.8
C. TOTAL INVESTMENT (A+B)		26,495,106.9	0	23,009,993.3
D. WORKING OPERATING COST				
DIRECT OPERATING COST				
1. Raw materials	2,297,435.1	2,297,435.1	0	2,297,435.1
Working Capital Required (X)		2,297,435.1	0	2,297,435.1
INDIRECT OPERATING COSTS				
1. Salaries	977,662.3			
2. Administrative Expenses	532,467.5			
Total Indirect Cost	1,510,129.9			
Total Investment Required		**28,792,542.0**	**3,485,113.6**	**25,307,428.4**
EQUITY SHARE (%)		**100%**	**12%**	**88%**

2) Non – Imaging Medical Equipment Plant Income Statement

The projected five-years income statement for non – imaging medical equipment plant may be depicted in Table 69 presented below.

Table 69: Projected Five-Years Income Statement for Non – Imaging Medical Equipment Plant (US$)

ITEM	2023	2024	2025	2026	2027
Planned Level of Sales (Units)					
Microscope	800	840	882	926	972
Centrifuge Machines (cell analyser)	800	840	882	926	972
Dental Chair	800	840	882	926	972
Monitors	800	840	882	926	972
Gynaecological bed	800	840	882	926	972
Operating room Stretcher	800	840	882	926	972

ITEM	2023	2024	2025	2026	2027
Suction machine	800	840	882	926	972
Hospital infusion pump	800	840	882	926	972
Dialysis Machine	100	105	110	116	122
Theatre bed	800	840	882	926	972
Theatre lamp	800	840	882	926	972
Anaesthetic machine	800	840	882	926	972
Medical syringe	800	840	882	926	972
Diathermy knife	800	840	882	926	972
Pulse Oximeter (per piece for 100 pieces)	800	840	882	926	972
Planned Level of Sales (US$)					
Microscope	415,584	436,364	458,182	481,091	505,145
Centrifuge Machines (cell analyser)	554,113	581,818	610,909	641,455	673,527
Dental Chair	1,385,281	1,454,545	1,527,273	1,603,636	1,683,818
Monitors	415,584	436,364	458,182	481,091	505,145
Gynaecological bed	2,493,506	2,618,182	2,749,091	2,886,545	3,030,873
Operating room Stretcher	969,697	1,018,182	1,069,091	1,122,545	1,178,673
Suction machine	138,528	145,455	152,727	160,364	168,382
Hospital infusion pump	138,528	145,455	152,727	160,364	168,382
Dialysis Machine	1,038,961	1,090,909	1,145,455	1,202,727	1,262,864
Theatre bed	4,709,957	4,945,455	5,192,727	5,452,364	5,724,982
Theatre lamp	2,770,563	2,909,091	3,054,545	3,207,273	3,367,636
Anaesthetic machine	8,311,688	8,727,273	9,163,636	9,621,818	10,102,909
Medical syringe	277,056	290,909	305,455	320,727	336,764
Diathermy knife	13,853	14,545	15,273	16,036	16,838
Pulse Oximeter (per piece for 100 pieces)	1,939	2,036	2,138	2,245	2,357
Total Sales (US$)	**23,634,840**	**24,816,582**	**26,057,411**	**27,360,281**	**28,728,296**
B. DIRECT OPERATING COST					
1. Raw Materials Costs	2,297,435	2,412,307	2,532,922	2,659,568	2,792,547
2. Overheads (1% of sales contribution to run the head office)	236,348	248,166	260,574	273,603	287,283
Total Direct Operating Costs	2,533,783	2,660,473	2,793,496	2,933,171	3,079,830
C. GROSS PROFIT (A-B)	21,101,056	22,156,109	23,263,915	24,427,110	25,648,466
D. INDIRECT OPERATING COSTS					
1. Salaries	977,662	1,026,545	1,077,873	1,131,766	1,188,355
2. Administrative Expenses	532,468	559,091	559,091	559,091	559,091
TOT IND. OPE. COST BEF DEP'N POI	1,510,130	1,585,636	1,636,964	1,690,857	1,747,446
3. Depreciation	2,297,435	2,297,435	2,297,435	2,297,435	2,297,435
4. POI amortization	352,076	352,076	352,076	352,076	352,076
E. TOTAL OPERATING COSTS	4,159,641	4,235,147	4,286,474	4,340,368	4,396,956
F. OPERATING PROFIT (C-E)	16,941,416	17,920,962	18,977,440	20,086,742	21,251,510
G. INTEREST	75,922	75,922	75,922	75,922	75,922
H. PROFIT BEFORE TAX (F-G)	16,865,494	17,845,040	18,901,518	20,010,820	21,175,587
I. Corporate Tax (30% of Gross Sales)	7,090,452	7,444,975	7,817,223	8,208,084	8,618,489
K. NET PROFIT (H-I)	**9,775,042**	**10,400,065**	**11,084,295**	**11,802,736**	**12,557,099**
Net Profit Margin	**41.4%**	**41.9%**	**42.5%**	**43.1%**	**43.7%**

It can be observed from Table 69 above that, net profit margin for the non – imaging medical equipment plant is quite impressive having a minimum of 41.4% and a maximum of 43.7%. It can further be found out that, average net profit margin is 42.5% growing at a rate of 0.6% from year to year. The situation can even be improved further if production is escalated through seeking for more clients to supply.

3) Non – Imaging Medical Equipment Plant Cash Flow Projections

The projected cash flows for the respective five years for non – imaging medical equipment plant are shown in Table 70 below.

Table 70: Projected Cash Flows Statement Non – Imaging Medical Equipment Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027

Cash in Flow						
A: Beginning Cash Balance		**2,297,435**	**12,191,244**	**22,710,078**	**33,913,140**	**45,834,644**
B: Cash Receipts						
1. Cash Sales		23,634,840	24,816,582	26,057,411	27,360,281	28,728,296
2. Equity	3,485,114					
3. Loan	25,307,428					
Total Cash Receipts	28,792,542	23,634,840	24,816,582	26,057,411	27,360,281	28,728,296
Cash Available for Use (A+B)	**28,792,542**	**25,932,275**	**37,007,826**	**48,767,489**	**61,273,422**	**74,562,939**
C: Cash Payments						
1. Total Investment	26,495,107					
2. Total Direct Operating Costs		2,533,783	2,660,473	2,793,496	2,933,171	3,079,830
3. Total Indirect Operating Costs		1,510,130	1,585,636	1,636,964	1,690,857	1,747,446
4.Taxes		7,090,452	7,444,975	7,817,223	8,208,084	8,618,489
Total Cash Payments	26,495,107	11,134,365	11,691,084	12,247,683	12,832,113	13,445,764
D: Minimum Cash Balance						
Total Cash Needed (C+D)	26,495,107	11,134,365	11,691,084	12,247,683	12,832,113	13,445,764
Cash Surplus/Deficit (A+B)-(C+D)	2,297,435	14,797,910	25,316,743	36,519,805	48,441,309	61,117,175
E: Financing						
Principal		2,530,743	2,530,743	2,530,743	2,530,743	2,530,743
Interest		75,922	75,922	75,922	75,922	75,922
Total Financing Effects - (Principal + Interest)		-2,606,665	-2,606,665	-2,606,665	-2,606,665	-2,606,665
F: Ending Cash Balance (A+B+E-C)	**2,297,435**	**12,191,244**	**22,710,078**	**33,913,140**	**45,834,644**	**58,510,510**

4) Non – Imaging Medical Equipment Plant Balance sheet

The financial stands for the non – imaging medical equipment plant as at the end of each of the respective years are as shown in Table 71 that follows:

Table 71: Projected Balance Sheet for Non – Imaging Medical Equipment Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
1. ASSETS						
1.1 CURRENT ASSETS						
1. Cash	2,297,435	12,191,244	22,710,078	33,913,140	45,834,644	58,510,510
Total Current Assets (A)	2,297,435	12,191,244	22,710,078	33,913,140	45,834,644	58,510,510
Land	38,961	38,961	38,961	38,961	38,961	38,961
Water systems	297,835	297,835	297,835	297,835	297,835	297,835
Buildings	4,618,990	4,618,990	4,618,990	4,618,990	4,618,990	4,618,990
Plant Machineries and necessary supports	15,167,482	15,167,482	15,167,482	15,167,482	15,167,482	15,167,482
Equipment, Trucks, Working gears and accessories	594,805	594,805	594,805	594,805	594,805	594,805
Furniture and Fixtures	51,948	51,948	51,948	51,948	51,948	51,948
Computers, Office support devices and other ICT based equipment	191,342	191,342	191,342	191,342	191,342	191,342
Solar power installation	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056
Surveillance system for security purposes	649,351	649,351	649,351	649,351	649,351	649,351
Others	86,580	86,580	86,580	86,580	86,580	86,580
Total Fixed Assets	22,974,351	22,974,351	22,974,351	22,974,351	22,974,351	22,974,351
1. Less Accumulated Depreciation	0	2,297,435	4,594,870	6,892,305	9,189,740	11,487,175
2. Book Value of Fixed Assets (B)	22,974,351	20,676,916	18,379,480	16,082,045	13,784,610	11,487,175
1.3 PREPATORY EXPENSES						
1. Business Plan Ownership and Preparation	2,297,435	2,297,435	2,297,435	2,297,435	2,297,435	2,297,435
2. Promotional Expenses	15,174	15,174	15,174	15,174	15,174	15,174
3. Other -Preparations	59,430	59,430	59,430	59,430	59,430	59,430
Total Preparatory Expenses	2,372,039	2,372,039	2,372,039	2,372,039	2,372,039	2,372,039
Less Amortization		352,076	704,151	1,056,227	1,408,303	1,760,378
Net book Value of Prepaid Expenses (C)	2,372,039	2,019,963	1,667,888	1,315,812	963,736	611,661
TOTAL ASSETS (A+B+C)	27,643,824	34,888,123	42,757,446	51,310,998	60,582,990	70,609,346
2 LIABILITIES AND EQUITY						
2.1 CURRENT LIABILITIES						
1. Accounts Payable (Interests)		759,223	683,301	607,378	531,456	455,534

ITEMS	2022	2023	2024	2025	2026	2027
2. Loan	25,307,428	20,868,745	18,413,925	15,959,104	13,504,283	11,049,463
Total Current Liabilities (D)	25,307,428	21,627,968	19,097,225	16,566,482	14,035,739	11,504,997
2.2 LONG TERM LIABILITIES						
1. Fixed Investment Loan						
Total Long-Term Liabilities (E)						
TOTAL LIABILITIES	25,307,428					
3. EQUITY						
1. Owners' Equity	3,485,114	3,485,114	3,485,114	3,485,114	3,485,114	3,485,114
2. Retained Earnings			9,775,042	20,175,107	31,259,402	43,062,137
3. Current Profit		9,775,042	10,400,065	11,084,295	11,802,736	12,557,099
4. Total Equity (F)	3,485,114	13,260,155	23,660,221	34,744,515	46,547,251	59,104,350
TOTAL LIABILITIES & EQUITY (D+E+F)	28,792,542	34,888,123	42,757,446	51,310,998	60,582,990	70,609,346

5) Summary of Financials for Non – Imaging Medical Equipment Plant

The summary of financial information on Non – Imaging Medical Equipment Plant may be depicted in Table 72 presented below.

Table 72: Summary of Financial Information for Non – Imaging Medical Equipment Plant (US$)

ITEM	2023	2024	2025	2026	2027
Sales	23,634,840	24,816,582	26,057,411	27,360,281	28,728,296
Costs	6,693,424	6,895,620	7,079,971	7,273,539	7,476,786
Operating profit	16,941,416	17,920,962	18,977,440	20,086,742	21,251,510
Net profit	9,775,042	10,400,065	11,084,295	11,802,736	12,557,099
Cash balance	12,191,244	22,710,078	33,913,140	45,834,644	58,510,510
Return on Investment (%)	28.02	24.32	21.60	19.48	17.78
Net profit Margin	41.4%	41.9%	42.5%	43.1%	43.7%
Recouping Period (Years)	10				
Average Return on Investment (%)	22.2				
Average Net profit Margin (%)	42.5				

7.2.4 Medical Research (Specialized) Equipment Plant Financials

Regarding Medical Research (Specialized) Equipment Plant, total financial investment requirement is **US$ 37,519,951.8** of which, **US$ 4,359,578.1** is equity financing and the remaining **US$ 33,160,373.7**is loan or investment financing. Furthermore, of the **US$ 33,160,373.7**, US$ **28,765,152.8** will be used to finance acquiring of fixed assets and the remaining **US$ 4,320,617**will be spent for working capital purposes. Breakdown of the investment plan for the medical research (specialized) equipment plant is presented in Table 74 below.

1) Medical Research (Specialized) Equipment Plant Investment Plan

Investment plan for the Medical Research Equipment Plant is as presented in Table 73 shown below.

Table 73: Investment Plan for Medical Research Equipment Plant (US$)

ITEM		Total	Equity	Loan
Land		38,961.0	38,961.0	0.0
Water systems		297,835.5	0	297,835.5
Buildings		4,402,539.7	0	4,402,539.7
Plant Machineries and necessary supports		21,213,695.4	0	21,213,695.4
Equipment, Trucks, Working gears and accessories		594,805.2	0	594,805.2
Furniture and Fixtures		51,948.1	0	51,948.1
Computers, Office support devices and other ICT based equipment		191,342.0	0	191,342.0
Solar power installation		1,277,056.3	0	1,277,056.3
Surveillance system for security purposes		649,350.6	0	649,350.6
Others		86,580.1	0	86,580.1

ITEM		Total	Equity	Loan
Total Fixed Asset		**28,804,113.9**	**38,961.0**	**28,765,152.8**
B. PRE-OPERATING INVESTMENT				
1. Proposal document preparation, ownership, administration, financial engineering and other facilitations		2,880,411.4	2,880,411.4	0.0
2. Financial engineering, development, administration and execution			0.0	0.0
3. Local Government contribution and participation		1,440,205.7	1,440,205.7	0.0
4. Promotion costs		15,174.30	0	15,174.3
5. Other-Preparations (Training and visits)		59,429.50	0	59,429.5
Total Pre-Operating Investment (POI)		4,395,220.9	0	74,603.8
C. TOTAL INVESTMENT (A+B)		33,199,334.7	0	28,839,756.6
D. WORKING OPERATING COST				
DIRECT OPERATING COST				
1. Raw materials	4,320,617.1	4,320,617.1	0	4,320,617.1
Working Capital Required (X)		4,320,617.1	0	4,320,617.1
INDIRECT OPERATING COSTS				
1. Salaries	921,558.4			
2. Administrative Expenses	418,181.8			
Total Indirect Cost	1,339,740.3			
Total Investment Required		**37,519,951.8**	**4,359,578.1**	**33,160,373.7**
EQUITY SHARE (%)		**100%**	**12%**	**88%**

2) Medical Research (Specialized) Equipment Plant Income Statement

The projected five-years income statement for the Medical Research (Specialized) Equipment Plant may be depicted in the Table below.

Table 74: Projected Five-Years Income Statement for Medical Research (Specialized) Equipment Plant (US$)

ITEM	2023	2024	2025	2026	2027
Planned Level of Sales (Units)					
CT for Animal studies	50	53	55	58	61
MRI for Animal studies	50	53	55	58	61
Portable X Ray for animal use	100	105	110	116	122
Ultra sound machine for animal use	100	105	110	116	122
Tissue paraffin dispenser machine	150	158	165	174	182
Reticulocyte blood machine	150	158	165	174	182
Haematology analyser	150	158	165	174	182
Planned Level of Sales (US$)					
CT for Animal studies	6,926,407	7,272,727	7,636,364	8,018,182	8,419,091
MRI for Animal studies	10,389,610	10,909,091	11,454,545	12,027,273	12,628,636
Portable X Ray for animal use	346,320	363,636	381,818	400,909	420,955
Ultra sound machine for animal use	1,108,225	1,163,636	1,221,818	1,282,909	1,347,055
Tissue paraffin dispenser machine	77,922	81,818	85,909	90,205	94,715
Reticulocyte blood machine	6,233,766	6,545,455	6,872,727	7,216,364	7,577,182
Haematology analyser	779,221	818,182	859,091	902,045	947,148
Total Sales (US$)	**25,861,472**	**27,154,545**	**28,512,273**	**29,937,886**	**31,434,781**
B. DIRECT OPERATING COST					
1. Raw Materials Costs	4,320,617	4,536,648	4,763,480	5,001,654	5,251,737
2. Overheads (1% of sales contribution to run the head office)	258,615	271,545	285,123	299,379	314,348
Total Direct Operating Costs	4,579,232	4,808,193	5,048,603	5,301,033	5,566,085
C. GROSS PROFIT (A-B)	21,282,240	22,346,352	23,463,670	24,636,853	25,868,696
D. INDIRECT OPERATING COSTS					
1. Salaries	921,558	967,636	1,016,018	1,066,819	1,120,160

ITEM	2023	2024	2025	2026	2027
2. Administrative Expenses	418,182	439,091	461,045	484,098	508,303
TOT IND. OPE. COST BEF DEP'N POI	1,339,740	1,406,727	1,477,064	1,550,917	1,628,463
3. Depreciation	2,880,411	2,880,411	2,880,411	2,880,411	2,880,411
4. POI amortization	439,522	439,522	439,522	439,522	439,522
E. TOTAL OPERATING COSTS	4,659,674	4,726,661	4,796,997	4,870,850	4,948,396
F. OPERATING PROFIT (C-E)	16,622,566	17,619,691	18,666,673	19,766,003	20,920,300
G. INTEREST	99,481	99,481	99,481	99,481	99,481
H. PROFIT BEFORE TAX (F-G)	16,523,085	17,520,210	18,567,191	19,666,522	20,820,819
I. Corporate Tax (30% of Gross Sales)	7,758,442	8,146,364	8,553,682	8,981,366	9,430,434
K. NET PROFIT (H-I)	**8,764,644**	**9,373,847**	**10,013,510**	**10,685,156**	**11,390,384**
Net Profit Margin	**33.9%**	**34.5%**	**35.1%**	**35.7%**	**36.2%**

It can be observed from Table 74 above that, minimum net profit margin for medical research equipment plant is 33.9% and maximum value is 36.2% with an average of 35.1% growing at 0.6% from year to year. Actually, this business depends mostly on demand capacity. If demand can be well managed, returns can always be increased.

3) Medical Research (Specialized) Equipment Plant Cash Flow Projections

The projected cash flows for the respective five years for medical research equipment plant are shown in Table 75 below.

Table 75: Projected Cash Flows Statement for Medical Research Equipment Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
Cash in Flow						
A: Beginning Cash Balance		**4,320,617**	**13,089,157**	**22,466,899**	**32,484,305**	**43,173,357**
B: Cash Receipts						
1. Cash Sales		25,861,472	27,154,545	28,512,273	29,937,886	31,434,781
2. Equity	4,359,578					
3. Loan	33,160,374					
Total Cash Receipts	37,519,952	25,861,472	27,154,545	28,512,273	29,937,886	31,434,781
Cash Available for Use (A+B)	**37,519,952**	**30,182,089**	**40,243,702**	**50,979,172**	**62,422,192**	**74,608,138**
C: Cash Payments						
1. Total Investment	33,199,335					
2. Total Direct Operating Costs		4,579,232	4,808,193	5,048,603	5,301,033	5,566,085
3. Total Indirect Operating Costs		1,339,740	1,406,727	1,477,064	1,550,917	1,628,463
4.Taxes		7,758,442	8,146,364	8,553,682	8,981,366	9,430,434
Total Cash Payments	33,199,335	13,677,414	14,361,284	15,079,349	15,833,316	16,624,982
D: Minimum Cash Balance						
Total Cash Needed (C+D)	33,199,335	13,677,414	14,361,284	15,079,349	15,833,316	16,624,982
Cash Surplus/Deficit (A+B)-(C+D)	4,320,617	16,504,675	25,882,418	35,899,824	46,588,876	57,983,156
E: Financing						
Principal		3,316,037	3,316,037	3,316,037	3,316,037	3,316,037
Interest		99,481	99,481	99,481	99,481	99,481
Total Financing Effects -(Principal +Interest)		-3,415,518	-3,415,518	-3,415,518	-3,415,518	-3,415,518
F: Ending Cash Balance (A+B+E-C)	**4,320,617**	**13,089,157**	**22,466,899**	**32,484,305**	**43,173,357**	**54,567,638**

4) Medical Research (Specialized) Equipment Plant Balance sheet

The projected balance sheet for medical research equipment plant is as shown in Table 76 below:

Table 76: Projected Balance Sheet for Medical Research Equipment Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
1. ASSETS						
1.1 CURRENT ASSETS						
1. Cash	4,320,617	13,089,157	22,466,899	32,484,305	43,173,357	54,567,638
Total Current Assets (A)	4,320,617	13,089,157	22,466,899	32,484,305	43,173,357	54,567,638
Land	38,961	38,961	38,961	38,961	38,961	38,961
Water systems	297,835	297,835	297,835	297,835	297,835	297,835
Buildings	4,402,540	4,402,540	4,402,540	4,402,540	4,402,540	4,402,540
Plant Machineries and necessary supports	21,213,695	21,213,695	21,213,695	21,213,695	21,213,695	21,213,695
Equipment, Trucks, Working gears and accessories	594,805	594,805	594,805	594,805	594,805	594,805
Furniture and Fixtures	51,948	51,948	51,948	51,948	51,948	51,948
Computers, Office support devices and other ICT based equipment	191,342	191,342	191,342	191,342	191,342	191,342
Solar power installation	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056
Surveillance system for security purposes	649,351	649,351	649,351	649,351	649,351	649,351
Others	86,580	86,580	86,580	86,580	86,580	86,580
Total Fixed Assets	28,804,114	28,804,114	28,804,114	28,804,114	28,804,114	28,804,114
1. Less Accumulated Depreciation	0	2,880,411	5,760,823	8,641,234	11,521,646	14,402,057
2. Book Value of Fixed Assets (B)	28,804,114	25,923,702	23,043,291	20,162,880	17,282,468	14,402,057
1.3 PREPATORY EXPENSES						
1. Business Plan Ownership and Preparation	2,880,411	2,880,411	2,880,411	2,880,411	2,880,411	2,880,411
2. Promotional Expenses	15,174	15,174	15,174	15,174	15,174	15,174
3. Other -Preparations	59,430	59,430	59,430	59,430	59,430	59,430
Total Preparatory Expenses	2,955,015	2,955,015	2,955,015	2,955,015	2,955,015	2,955,015
Less Amortization		439,522	879,044	1,318,566	1,758,088	2,197,610
Net book Value of Prepaid Expenses (C)	2,955,015	2,515,493	2,075,971	1,636,449	1,196,927	757,405
TOTAL ASSETS (A+B+C)	36,079,746	41,528,352	47,586,162	54,283,634	61,652,752	69,727,099
2 LIABILITIES AND EQUITY						
2.1 CURRENT LIABILITIES						
1. Accounts Payable (Interests)		994,811	895,330	795,849	696,368	596,887
2. Loan	33,160,374	27,409,319	24,192,763	20,976,207	17,759,651	14,543,094
Total Current Liabilities (D)	33,160,374	28,404,131	25,088,093	21,772,056	18,456,019	15,139,981
2.2 LONG TERM LIABILITIES						
1. Fixed Investment Loan						
Total Long-Term Liabilities (E)						
TOTAL LIABILITIES	33,160,374					
3. EQUITY						
1. Owners' Equity	4,359,578	4,359,578	4,359,578	4,359,578	4,359,578	4,359,578
2. Retained Earnings			8,764,644	18,138,490	28,152,000	38,837,156
3. Current Profit		8,764,644	9,373,847	10,013,510	10,685,156	11,390,384
4. Total Equity (F)	4,359,578	13,124,222	22,498,068	32,511,578	43,196,734	54,587,118
TOTAL LIABILITIES & EQUITY (D+E+F)	37,519,952	41,528,352	47,586,162	54,283,634	61,652,752	69,727,099

5) Summary of Financials for Medical Research (Specialized) Equipment Plant

The summary of all financial information on Medical Research (Specialized) Equipment Plant is presented in Table 77 shown below.

Table 77: Summary of Financial Information for Medical Research Equipment Plant (US$)

ITEM	2023	2024	2025	2026	2027
Sales	25,861,472	27,154,545	28,512,273	29,937,886	31,434,781
Costs	9,238,906	9,534,854	9,845,600	10,171,884	10,514,481
Operating profit	16,622,566	17,619,691	18,666,673	19,766,003	20,920,300
Net profit	8,764,644	9,373,847	10,013,510	10,685,156	11,390,384
Cash balance	13,089,157	22,466,899	32,484,305	43,173,357	54,567,638
Return on Investment (%)	21.11	19.70	18.45	17.33	16.34
Net profit Margin	33.9%	34.5%	35.1%	35.7%	36.2%

Recouping Period (Years)	10
Average Return on Investment (%)	18.6
Average Net profit Margin (%)	35.1

7.2.5 Therapeutic Devices Plant Financials

Furthermore, with regards to therapeutic devices plant, total financial investment requirement is **US$21,509,969.8** of which, **US$2,505,779.0** is equity financing and the remaining **US$19,004,190.8** is loan or investment financing. Furthermore, of the US$ **19,004,190.8**, US$ **16,456,275.6** will be used to finance acquiring of fixed assets and the remaining **US$ 2,473,311.5** will be spent for working capital purposes. Breakdown of the investment plan for the cement business is presented in Table 78 below.

1) Therapeutic Devices Manufacturing Plant Investment Plan

Investment plan for the therapeutic devices plant is as presented in Table 78 shown below.

Table 78: Investment Plan for Therapeutic Devices Plant (US$)

ITEM		Total	Equity	Loan
Land		32,467.5	32,467.5	0.0
Water systems		297,835.5	0	297,835.5
Buildings		4,186,089.5	0	4,186,089.5
Plant Machineries and necessary supports		9,121,268.3	0	9,121,268.3
Equipment, Trucks, Working gears and accessories		594,805.2	0	594,805.2
Furniture and Fixtures		51,948.1	0	51,948.1
Computers, Office support devices and other ICT based equipment		191,342.0	0	191,342.0
Solar power installation		1,277,056.3	0	1,277,056.3
Surveillance system for security purposes		649,350.6	0	649,350.6
Others		86,580.1	0	86,580.1
Total Fixed Asset		**16,488,743.1**	**32,467.5**	**16,456,275.6**
B. PRE-OPERATING INVESTMENT				
1. Proposal document preparation, ownership, administration, financial engineering and other facilitations		1,648,874.3	1,648,874.3	0.0
2. Financial engineering, development, administration and execution			0.0	0.0
3. Local Government contribution and participation		824,437.2	824,437.2	0.0
4. Promotion costs		15,174.30	0	15,174.3
5. Other-Preparations (Training and visits)		59,429.50	0	59,429.5
Total Pre-Operating Investment (POI)		2,547,915.3	0	74,603.8
C. TOTAL INVESTMENT (A+B)		19,036,658.4	0	16,530,879.4
D. WORKING OPERATING COST				
DIRECT OPERATING COST				
1. Raw materials	2,473,311.5	2,473,311.5	0	2,473,311.5
Working Capital Required (X)		2,473,311.5	0	2,473,311.5
INDIRECT OPERATING COSTS				
1. Salaries	907,013.0			
2. Administrative Expenses	350,649.4			
Total Indirect Cost	1,257,662.3			
Total Investment Required		**21,509,969.8**	**2,505,779.0**	**19,004,190.8**
EQUITY SHARE (%)		**100%**	**12%**	**88%**

2) Therapeutic Devices Income Statement

The projected five-years income statement for the **Therapeutic Devices plant** may be depicted in the Table below.

Table 79: Projected Five-Years Income Statement for the Therapeutic Devices Plant (US$)

ITEM	2023	2024	2025	2026	2027
Planned Level of Sales (Units)					
Physiotherapy machine	240	264	290	319	351
Phototherapy machine	240	264	290	319	351
Electromagnetic wave physiotherapy machine	240	264	290	319	351
Nebulizer machine	240	264	290	319	351
Gait training machine	240	264	290	319	351
Transcranial magnetic stimulation machine	240	264	290	319	351
Infrared laser device	240	264	290	319	351
Microwave diathermy therapeutic machine	240	264	290	319	351
Planned Level of Sales (US$)					
Physiotherapy machine	99,740	109,714	120,686	132,754	146,030
Phototherapy machine	12,467,532	13,714,286	15,085,714	16,594,286	18,253,714
Electromagnetic wave physiotherapy machine	831,169	914,286	1,005,714	1,106,286	1,216,914
Nebulizer machine	9,974	10,971	12,069	13,275	14,603
Gait training machine	3,490,909	3,840,000	4,224,000	4,646,400	5,111,040
Transcranial magnetic stimulation machine	581,818	640,000	704,000	774,400	851,840
Infrared laser device	540,260	594,286	653,714	719,086	790,994
Microwave diathermy therapeutic machine	207,792	228,571	251,429	276,571	304,229
Total Sales (US$)	**18,229,195**	**20,052,114**	**22,057,326**	**24,263,058**	**26,689,364**
B. DIRECT OPERATING COST					
1. Raw Materials Costs	2,473,311	2,596,977	2,726,826	2,863,167	3,006,326
2. Overheads	182,292	191,407	200,977	211,026	221,577
Total Direct Operating Costs	2,655,603	2,788,384	2,927,803	3,074,193	3,227,903
C. GROSS PROFIT (A-B)	15,573,591	17,263,731	19,129,523	21,188,865	23,461,462
D. INDIRECT OPERATING COSTS					
1. Salaries	907,013	952,364	999,982	1,049,981	1,102,480
2. Administrative Expenses	350,649	385,714	385,714	385,714	385,714
TOT IND. OPE. COST BEF DEP'N POI	1,257,662	1,338,078	1,385,696	1,435,695	1,488,194
3. Depreciation	1,648,874	1,648,874	1,648,874	1,648,874	1,648,874
4. POI amortization	254,792	254,792	254,792	254,792	254,792
E. TOTAL OPERATING COSTS	3,161,328	3,241,744	3,289,362	3,339,361	3,391,860
F. OPERATING PROFIT (C-E)	12,412,263	14,021,987	15,840,161	17,849,504	20,069,601
G. INTEREST	57,013	57,013	57,013	57,013	57,013
H. PROFIT BEFORE TAX (F-G)	12,355,251	13,964,974	15,783,148	17,792,492	20,012,589
I. Corporate Tax (30% of Gross Sales)	5,468,758	6,015,634	6,617,198	7,278,917	8,006,809
K. NET PROFIT (H-I)	**6,886,492**	**7,949,340**	**9,165,951**	**10,513,574**	**12,005,780**
Net Profit Margin	**37.8%**	**39.6%**	**41.6%**	**43.3%**	**45.0%**

It can be seen from Table 79 above that, minimum net profit margin for the therapeutic devices plant is 37.8% and the maximum value is 45.0% with an average of 41.5% growing at 1.8% from year to year.

3) Therapeutic Devices Manufacturing Plant Cash Flow Projections

The projected cash flows for the respective five years for therapeutic devices plant are shown in Table 80 below.

Table 80: Projected Cash Flows Statement for the Therapeutic Devices Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
Cash in Flow						
A: Beginning Cash Balance		**2,473,311**	**9,363,050**	**17,315,637**	**26,484,835**	**37,001,656**
B: Cash Receipts						
1. Cash Sales		18,229,195	20,052,114	22,057,326	24,263,058	26,689,364
2. Equity	2,505,779					
3. Loan	19,004,191					
Total Cash Receipts	21,509,970	18,229,195	20,052,114	22,057,326	24,263,058	26,689,364

ITEMS	2022	2023	2024	2025	2026	2027
Cash Available for Use (A+B)	**21,509,970**	**20,702,506**	**29,415,165**	**39,372,963**	**50,747,893**	**63,691,020**
C: Cash Payments						
1. Total Investment	19,036,658					
2. Total Direct Operating Costs		2,655,603	2,788,384	2,927,803	3,074,193	3,227,903
3. Total Indirect Operating Costs		1,257,662	1,338,078	1,385,696	1,435,695	1,488,194
4.Taxes		5,468,758	6,015,634	6,617,198	7,278,917	8,006,809
Total Cash Payments	19,036,658	9,382,024	10,142,096	10,930,697	11,788,806	12,722,906
D: Minimum Cash Balance						
Total Cash Needed (C+D)	19,036,658	9,382,024	10,142,096	10,930,697	11,788,806	12,722,906
Cash Surplus/Deficit (A+B)-(C+D)	2,473,311	11,320,482	19,273,069	28,442,266	38,959,087	50,968,114
E: Financing						
Principal		1,900,419	1,900,419	1,900,419	1,900,419	1,900,419
Interest		57,013	57,013	57,013	57,013	57,013
Total Financing Effects - (Principal + Interest)		-1,957,432	-1,957,432	-1,957,432	-1,957,432	-1,957,432
F: Ending Cash Balance (A+B+E-C)	**2,473,311**	**9,363,050**	**17,315,637**	**26,484,835**	**37,001,656**	**49,010,682**

4) Therapeutic Devices Plant Balance sheet

The projected balance sheet for therapeutic devices plant is as shown in Table 81 below:

Table 81: Projected Balance Sheet for Therapeutic Devices Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
1. ASSETS						
1.1 CURRENT ASSETS						
1. Cash	2,473,311	9,363,050	17,315,637	26,484,835	37,001,656	49,010,682
Total Current Assets (A)	2,473,311	9,363,050	17,315,637	26,484,835	37,001,656	49,010,682
Land	32,468	32,468	32,468	32,468	32,468	32,468
Water systems	297,835	297,835	297,835	297,835	297,835	297,835
Buildings	4,186,089	4,186,089	4,186,089	4,186,089	4,186,089	4,186,089
Plant Machineries and necessary supports	9,121,268	9,121,268	9,121,268	9,121,268	9,121,268	9,121,268
Equipment, Trucks, Working gears and accessories	594,805	594,805	594,805	594,805	594,805	594,805
Furniture and Fixtures	51,948	51,948	51,948	51,948	51,948	51,948
Computers, Office support devices and other ICT based equipment	191,342	191,342	191,342	191,342	191,342	191,342
Solar power installation	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056
Surveillance system for security purposes	649,351	649,351	649,351	649,351	649,351	649,351
Others	86,580	86,580	86,580	86,580	86,580	86,580
Total Fixed Assets	16,488,743	16,488,743	16,488,743	16,488,743	16,488,743	16,488,743
1. Less Accumulated Depreciation	0	1,648,874	3,297,749	4,946,623	6,595,497	8,244,372
2. Book Value of Fixed Assets (B)	16,488,743	14,839,869	13,190,994	11,542,120	9,893,246	8,244,372
1.3 PREPATORY EXPENSES						
1. Business Plan Ownership and Preparation	1,648,874	1,648,874	1,648,874	1,648,874	1,648,874	1,648,874
2. Promotional Expenses	15,174	15,174	15,174	15,174	15,174	15,174
3. Other -Preparations	59,430	59,430	59,430	59,430	59,430	59,430
Total Preparatory Expenses	1,723,478	1,723,478	1,723,478	1,723,478	1,723,478	1,723,478
Less Amortization		254,792	509,583	764,375	1,019,166	1,273,958
Net book Value of Prepaid Expenses (C)	1,723,478	1,468,687	1,213,895	959,104	704,312	449,520
TOTAL ASSETS (A+B+C)	20,685,533	25,671,606	31,720,527	38,986,058	47,599,214	57,704,574
2 LIABILITIES AND EQUITY						
2.1 CURRENT LIABILITIES						
1. Accounts Payable (Interests)		570,126	513,113	456,101	399,088	342,075
2. Loan	19,004,191	15,709,209	13,865,802	12,022,396	10,178,989	8,335,583
Total Current Liabilities (D)	19,004,191	16,279,335	14,378,916	12,478,496	10,578,077	8,677,658
2.2 LONG TERM LIABILITIES						
1. Fixed Investment Loan						
Total Long-Term Liabilities (E)						
TOTAL LIABILITIES	19,004,191					
3. EQUITY						
1. Owners' Equity	2,505,779	2,505,779	2,505,779	2,505,779	2,505,779	2,505,779
2. Retained Earnings			6,886,492	14,835,832	24,001,783	34,515,357
3. Current Profit		6,886,492	7,949,340	9,165,951	10,513,574	12,005,780
4. Total Equity (F)	2,505,779	9,392,271	17,341,611	26,507,562	37,021,136	49,026,916
TOTAL LIABILITIES & EQUITY (D+E+F)	21,509,970	25,671,606	31,720,527	38,986,058	47,599,214	57,704,574

5) Summary of Financials Therapeutic Devices Plant

The summary of all financial information on therapeutic devices plant is presented in Table 82 shown below.

Table 82: Summary of Financial Information for Therapeutic Devices Plant (US$)

ITEM	2023	2024	2025	2026	2027
Sales	18,229,195	20,052,114	22,057,326	24,263,058	26,689,364
Costs	5,816,932	6,030,127	6,217,165	6,413,554	6,619,763
Operating profit	12,412,263	14,021,987	15,840,161	17,849,504	20,069,601
Net profit	6,886,492	7,949,340	9,165,951	10,513,574	12,005,780
Cash balance	9,363,050	17,315,637	26,484,835	37,001,656	49,010,682
Return on Investment (%)	26.83	25.06	23.51	22.09	20.81
Net profit Margin	37.8%	39.6%	41.6%	43.3%	45.0%
Recouping Period (Years)	10				

Average Return on Investment (%)	23.7
Average Net profit Margin (%)	41.5

7.2.6 Packaging and Consumable Materials Plant Financials

Finally, with regards to packaging and consumable materials plant, total financial investment requirement is **US$ 16,841,803.6**of which, **US$1,815,966.2** is equity financing and the remaining **US$15,025,837.4** is loan or investment financing. Furthermore, of the **US$15,025,837.4**, **US$11,957,090.8** will be used to finance acquiring of fixed assets like machineries, buildings, vehicles, etc. and the remaining **US$ 2,994,142.8**will be spent for working capital purposes. Breakdown of the investment plan for the packaging and consumable materials plant is presented in Table 83 below.

1) Packaging and Consumables Materials Plant Investment Plan

Investment plan for the Packaging and Consumables Materials Plant is as presented in Table 83 shown below.

Table 83: Investment Plan for Packaging and Consumables Materials Plant (US$)

ITEM		Total	Equity	Loan
Land		19,480.5	19,480.5	0.0
Water systems		297,835.5	0	297,835.5
Buildings		3,969,639.2	0	3,969,639.2
Plant Machineries and necessary supports		4,838,533.8	0	4,838,533.8
Equipment, Trucks, Working gears and accessories		594,805.2	0	594,805.2
Furniture and Fixtures		51,948.1	0	51,948.1
Computers, Office support devices and other ICT based equipment		191,342.0	0	191,342.0
Solar power installation		1,277,056.3	0	1,277,056.3
Surveillance system for security purposes		649,350.6	0	649,350.6
Others		86,580.1	0	86,580.1
Total Fixed Asset		**11,976,571.3**	**19,480.5**	**11,957,090.8**
B. PRE-OPERATING INVESTMENT				
1. Proposal document preparation, ownership, administration, financial engineering and other facilitations		1,197,657.1	1,197,657.1	0.0
2. Financial engineering, development, administration and execution			0.0	0.0
3. Local Government contribution and participation		598,828.6	598,828.6	0.0
4. Promotion costs		15,174.30	0	15,174.3
5. Other-Preparations (Training and visits)		59,429.50	0	59,429.5
Total Pre-Operating Investment (POI)		1,871,089.5	0	74,603.8
C. TOTAL INVESTMENT (A+B)		13,847,660.8	0	12,031,694.6
D. WORKING OPERATING COST				
DIRECT OPERATING COST				
1. Raw materials	2,994,142.8	2,994,142.8	0	2,994,142.8
Working Capital Required (X)		2,994,142.8	0	2,994,142.8
INDIRECT OPERATING COSTS				
1. Salaries	852,987.0			
2. Administrative Expenses	516,883.1			
Total Indirect Cost	1,369,870.1			
Total Investment Required		**16,841,803.6**	**1,815,966.2**	**15,025,837.4**
EQUITY SHARE (%)		**100%**	**11%**	**89%**

2) Packaging and Consumables Materials Plant Income Statement

The projected five-years income statement for the packaging and consumable materials plant may be depicted in the Table below.

Table 84: Projected Five-Years Income Statement for Packaging and Consumables Materials Plant (US$)

ITEM	2023	2024	2025	2026	2027
Planned Level of Sales (Units)					
Syringes (5000 pieces set)	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
IV drips (50,000 pieces - set)	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
IV drip stand (pieces)	3,000,000	3,150,000	3,307,500	3,472,875	3,646,519
IV Bags (10,000 pieces - set)	1,000,000	1,050,000	1,102,500	1,157,625	1,215,506
IV cannula (piece)	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Disposable Gloves (piece)	2,000,000	2,100,000	2,205,000	2,315,250	2,431,013
Surgical gloves (piece)	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531
Glass bottles (piece)	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531
Plastic bottles (piece)	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531
PVC soft bags (piece)	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531

ITEM	2023	2024	2025	2026	2027
Non- PVC soft bags (piece)	5,000,000	5,250,000	5,512,500	5,788,125	6,077,531
Planned Level of Sales (US$)					
Syringes (5000 pieces)	19,480,519	20,454,545	21,477,273	22,551,136	23,678,693
IV drips (50,000 pieces)	32,467,532	34,090,909	35,795,455	37,585,227	39,464,489
IV drip stand (pieces)	19,480,519	20,454,545	21,477,273	22,551,136	23,678,693
IV Bags (10,000 pieces)	6,493,506	6,818,182	7,159,091	7,517,045	7,892,898
IV cannula (piece)	233,766	245,455	257,727	270,614	284,144
Disposable Gloves (piece)	84,416	88,636	93,068	97,722	102,608
Surgical gloves (piece)	568,182	596,591	626,420	657,741	690,629
Glass bottles (piece)	97,403	102,273	107,386	112,756	118,393
Plastic bottles (piece)	97,403	102,273	107,386	112,756	118,393
PVC soft bags (piece)	162,338	170,455	178,977	187,926	197,322
Non- PVC soft bags (piece)	162,338	170,455	178,977	187,926	197,322
Total Sales (US$)	**79,327,922**	**83,294,318**	**87,459,034**	**91,831,986**	**96,423,585**
B. DIRECT OPERATING COST					
1. Raw Materials Costs	2,994,143	3,143,850	3,301,042	3,466,095	3,639,399
2. Rejects expenses	1,189,919	1,249,415	1,311,886	1,377,480	1,446,354
3. Overheads (1% of sales contribution to run the head office)	793,279	832,943	874,590	918,320	964,236
Total Direct Operating Costs	4,977,341	5,226,208	5,487,518	5,761,894	6,049,989
C. GROSS PROFIT (A-B)	74,350,581	78,068,110	81,971,516	86,070,092	90,373,596
D. INDIRECT OPERATING COSTS					
1. Salaries	852,987	895,636	940,418	987,439	1,036,811
2. Administrative Expenses	516,883	542,727	569,864	598,357	628,275
TOT IND. OPE. COST BEF DEP'N POI	1,369,870	1,438,364	1,510,282	1,585,796	1,665,086
3. Depreciation	1,197,657	1,197,657	1,197,657	1,197,657	1,197,657
4. POI amortization	187,109	187,109	187,109	187,109	187,109
E. TOTAL OPERATING COSTS	2,754,636	2,823,130	2,895,048	2,970,562	3,049,852
F. OPERATING PROFIT (C-E)	71,595,945	75,244,981	79,076,468	83,099,530	87,323,744
G. INTEREST	45,078	45,078	45,078	45,078	45,078
H. PROFIT BEFORE TAX (F-G)	71,550,867	75,199,903	79,031,390	83,054,452	87,278,667
I. Corporate Tax (30% of Gross Sales)	23,798,377	24,988,295	26,237,710	27,549,596	28,927,076
K. NET PROFIT (H-I)	**47,752,491**	**50,211,608**	**52,793,680**	**55,504,856**	**58,351,591**
Net Profit Margin	**60.2%**	**60.3%**	**60.4%**	**60.4%**	**60.5%**

It can be seen from Table 84 above that, the minimum net profit margin for packaging and consumables materials plant is 60.2% and the maximum value is 60.5% with an average of 60.4% growing at 0.1% from year to year. Actually, this is the most profitable business among the six plants in the proposed industrial park.

3) Packaging and Consumables Materials Plant Cash Flow Projections

The projected cash flows for the respective five years for packaging and consumables materials plant are shown in Table 85 below.

Table 85: Projected Cash Flows Statement for the Packaging and Consumable Materials Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
Cash in Flow						
A: Beginning Cash Balance		**2,994,143**	**50,628,816**	**100,722,606**	**153,398,468**	**208,785,507**
B: Cash Receipts						
1. Cash Sales		79,327,922	83,294,318	87,459,034	91,831,986	96,423,585
2. Equity	1,815,966					
3. Loan	15,025,837					
Total Cash Receipts	16,841,804	79,327,922	83,294,318	87,459,034	91,831,986	96,423,585
Cash Available for Use (A+B)	**16,841,804**	**82,322,065**	**133,923,134**	**188,181,640**	**245,230,454**	**305,209,092**
C: Cash Payments						
1. Total Investment	13,847,661					
2. Total Direct Operating Costs		4,977,341	5,226,208	5,487,518	5,761,894	6,049,989

3. Total Indirect Operating Costs		1,369,870	1,438,364	1,510,282	1,585,796	1,665,086
4.Taxes		23,798,377	24,988,295	26,237,710	27,549,596	28,927,076
Total Cash Payments	13,847,661	30,145,588	31,652,867	33,235,510	34,897,286	36,642,150
D: Minimum Cash Balance						
Total Cash Needed (C+D)	13,847,661	30,145,588	31,652,867	33,235,510	34,897,286	36,642,150
Cash Surplus/Deficit (A+B)-(C+D)	2,994,143	52,176,477	102,270,267	154,946,130	210,333,168	268,566,942
E: Financing						
Principal		1,502,584	1,502,584	1,502,584	1,502,584	1,502,584
Interest		45,078	45,078	45,078	45,078	45,078
Total Financing Effects -(Principal +Interest)		-1,547,661	-1,547,661	-1,547,661	-1,547,661	-1,547,661
F: Ending Cash Balance (A+B+E-C)	**2,994,143**	**50,628,816**	**100,722,606**	**153,398,468**	**208,785,507**	**267,019,281**

4) Packaging and Consumables Materials Plant Balance sheet

The projected balance sheet for packaging and consumables materials plant is as shown in Table 86 below:

Table 86: Projected Balance Sheet for Packaging and Consumable Materials Plant (US$)

ITEMS	2022	2023	2024	2025	2026	2027
1. ASSETS						
1.1 CURRENT ASSETS						
1. Cash	2,994,143	50,628,816	100,722,606	153,398,468	208,785,507	267,019,281
Total Current Assets (A)	2,994,143	50,628,816	100,722,606	153,398,468	208,785,507	267,019,281
Land	19,481	19,481	19,481	19,481	19,481	19,481
Water systems	297,835	297,835	297,835	297,835	297,835	297,835
Buildings	3,969,639	3,969,639	3,969,639	3,969,639	3,969,639	3,969,639
Plant Machineries and necessary supports	4,838,534	4,838,534	4,838,534	4,838,534	4,838,534	4,838,534
Equipment, Trucks, Working gears and accessories	594,805	594,805	594,805	594,805	594,805	594,805
Furniture and Fixtures	51,948	51,948	51,948	51,948	51,948	51,948
Computers, Office support devices and other ICT based equipment	191,342	191,342	191,342	191,342	191,342	191,342
Solar power installation	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056	1,277,056
Surveillance system for security purposes	649,351	649,351	649,351	649,351	649,351	649,351
Others	86,580	86,580	86,580	86,580	86,580	86,580
Total Fixed Assets	11,976,571	11,976,571	11,976,571	11,976,571	11,976,571	11,976,571
1. Less Accumulated Depreciation	0	1,197,657	2,395,314	3,592,971	4,790,629	5,988,286
2. Book Value of Fixed Assets (B)	11,976,571	10,778,914	9,581,257	8,383,600	7,185,943	5,988,286
1.3 PREPATORY EXPENSES						
1. Business Plan Ownership and Preparation	1,197,657	1,197,657	1,197,657	1,197,657	1,197,657	1,197,657
2. Promotional Expenses	15,174	15,174	15,174	15,174	15,174	15,174
3. Other -Preparations	59,430	59,430	59,430	59,430	59,430	59,430
Total Preparatory Expenses	1,272,261	1,272,261	1,272,261	1,272,261	1,272,261	1,272,261
Less Amortization		187,109	374,218	561,327	748,436	935,545
Net book Value of Prepaid Expenses (C)	1,272,261	1,085,152	898,043	710,934	523,825	336,716
TOTAL ASSETS (A+B+C)	16,242,975	62,492,882	111,201,906	162,493,002	216,495,275	273,344,283
2 LIABILITIES AND EQUITY						
2.1 CURRENT LIABILITIES						
1. Accounts Payable (Interests)		450,775	405,698	360,620	315,543	270,465
2. Loan	15,025,837	12,473,650	11,016,144	9,558,638	8,101,131	6,643,625
Total Current Liabilities (D)	15,025,837	12,924,425	11,421,841	9,919,258	8,416,674	6,914,090
2.2 LONG TERM LIABILITIES						
1. Fixed Investment Loan						
Total Long-Term Liabilities (E)						
TOTAL LIABILITIES	15,025,837					
3. EQUITY						
1. Owners' Equity	1,815,966	1,815,966	1,815,966	1,815,966	1,815,966	1,815,966
2. Retained Earnings			47,752,491	97,964,098	150,757,779	206,262,635
3. Current Profit		47,752,491	50,211,608	52,793,680	55,504,856	58,351,591
4. Total Equity (F)	1,815,966	49,568,457	99,780,065	152,573,745	208,078,601	266,430,192
TOTAL LIABILITIES & EQUITY (D+E+F)	16,841,804	62,492,882	111,201,906	162,493,002	216,495,275	273,344,283

5) Summary of Financials for Packaging and Consumables Materials Plant

The summary of all financial information on packaging and consumables materials plant is presented in Table 87 shown below.

Table 87: Summary of Financial Information for Packaging and Consumables Materials Plant (US$)

ITEM	2007	2008	2009	2010	2011
Sales	79,327,922	83,294,318	87,459,034	91,831,986	96,423,585
Costs	7,731,977	8,049,338	8,382,566	8,732,456	9,099,841
Operating profit	71,595,945	75,244,981	79,076,468	83,099,530	87,323,744
Net profit	47,752,491	50,211,608	52,793,680	55,504,856	58,351,591
Cash balance	50,628,816	100,722,606	153,398,468	208,785,507	267,019,281
Return on Investment (%)	76.41	45.15	32.49	25.64	21.35
Net profit Margin	60.2%	60.3%	60.4%	60.4%	60.5%
Recouping Period (Years)	10				
Average Return on Investment (%)	40.2				
Average Net profit Margin (%)	60.4				

8.0 CONCLUSION AND RECOMMENDATIONS

This section provides an analysis on the viability of the industrial park project, other observations which need to be put into consideration and finally, the section ends by making some recommendations.

8.1 Viability of the Project

From the analysis of the financial statements, market study and the competition scanning presented in the foregoing sections, it can be concluded that, putting into operation all the six plants under the proposed industrial park at the minimum indicated activity levels is feasible. Additionally, the plants have more returns if production is escalated to higher levels, where in fact, the market is expected to support and there are more future prospects. Other anticipated advantages to emerge if the industrial park is actualized are as follows:

a) The project will create employment to some technical as well as non-technical people. The level of employment is expected to grow as the business expands. Analysis shows that, minimum employment will be 360 people at the operations commencement.
b) The government will earn revenues out of the business in terms of taxes on the one hand, but will also save a lot of taxpayers' money on the other hand through acquiring all the pharmaceuticals and medical equipment locally.
c) There will be transfer of technology ostensibly because of the kind of production that will be engaged which requires high tech operations.
d) The business will create demand for the need of some raw materials which will be produced locally and thus results into multiplier effect.
e) Actualization of the project will make a huge contribution into the government agenda of industrializing the country not to mention abundant opportunities that will emerge in Mwanza and its nearby areas.
f) There is a possibility for the industrial park to expand into even bigger business in future once the market in the Eastern and Central Africa is conquered.

8.2 Some Observations

While the project has no problem with regards to its viability as shown by financial, market and environmental scanning, it is important to have a look on the following:

a) For the industrial park to be beneficial to the country, it is important for all the proposed factories to be introduced. Otherwise, there will be still high dependence on pharmaceuticals and medical equipment from foreign markets.
b) The entire business depends on the ability of the industrial park to create adequate demand for its products. Thus, it is of high importance to have a strong marketing team that can create awareness on the presence of Park, its plants and all its products that will be offered. The team should be good in lobbying techniques and customer relationship creation to secure any opportunity that could emerge in the market.
c) Existence of the industrial park in Misungwi will make Mwanza a unique city in the region because other huge businesses will also find their way to Mwanza once the part is established. These will create extra demand for the products that will come from the industrial park.

8.3 Recommendations

Based on the financial analysis, marketing study and environmental scanning, the following are recommended:

a) Actualize the industrial part project by establishing the six plants, namely; pharmaceutical plant, imaging equipment plant, non – imaging medical equipment plant, medical research equipment plant, therapeutic devices plant and the packaging and consumables materials plant;
b) In order to fast track the project and start realizing the benefits as early as possible, it is highly recommended to follow the project implementation road map as shown under the chapter of the project implementation plan;
c) For optimal operation of the project, it is recommended to install the capacity of machineries as indicated in Table19 (planned capacity for pharmaceutical plant), Table 21 (planned capacity for imaging equipment plant), Table 23 (planned capacity for non – imaging medical equipment plant), Table 25 (planned capacity for medical research equipment plant), Table 27 (planned capacity for therapeutic devices plant) and Table 29 (planned capacity for the packaging and consumables materials plant);

d) Start the business with aggressive marketing campaign to create high level of awareness on the existence of the industrial park not only in Tanzania but also, in the Eastern and Central region of Africa.
e) It is recommended to capitalize on high quality of products strategy, offering of attractive prices, excellent and affordable after sale services and exercising of notable level of customer care with relationship ostensibly because; these are the factors which give the envisaged industrial park competitive advantage and make it to be distinguished from other manufacturers or suppliers;
f) Finally, it is recommended to fast-track implementation of the project, because other countries in the region might pick up this bright idea. In fact, the country that will manage to start implementation of the project is likely to discourage others due to fear of stiff competition.

SECTION TWO: BUSINESS PLAN FOR MANUFACTURING OF ELECTRICAL ENGINEERING PRODUCTS AND ICT DEVICES AT THE INDUSTRIAL PARK

Executive Summary

Under the umbrella of Misungwi Integrated Industrial Park, the collaboration of Infosys (IPS) Tanzania Ltd, SE Holdings Ltd and Misungwi District Council Led by Charles Muhangwa Kitwanga also plan to invest to invest in the manufacturing of other industrial products such as**: Electrical Engineering Products and devices**, as part of **Misungwi Integrated Industrial park** to establish a strong foothold in an integrated production facilities in the industrial park for production and marketing, distribution and sales of a niche technological products, machines and devices. This planned **Electrical Engineering Products and devices**, as part of **Misungwi Integrated Industrial Park** is also organized under seven key investment partners, led by: Charles Muhangwa Kitwanga, the Land Lord at Misungwi, Infosys (IPS) Tanzania Ltd; SE Holdings Ltd, LaRoucci International, ESSB Swabury KG, Lubango Charles Kitwanga and Misungwi District Council. The proposed ownership in terms of shares and responsibilities are as presented in Table 1 below.

Table 1: Ownership Arrangements and Roles of Key Investment Partners

S/N	Shareholder	Responsibility	Shares (%)
1.	Charles Muhangwa Kitwanga	Provider of land measuring at least 200 acres to locate the entire Industrial Park investments also mobilize additional funds to invest	35
2	Infosys (IPS) Tanzania Ltd	Provider of Electronic Engineering and ICT Investments	5
3	SE Holdings Ltd.	(i) Developer and implementer of the proposed project. (ii) Project conceptualization with detailed information, business planning, operations and literary rights (iii) To be entrusted with day-to-day management of the project. (iv) Provider of facilitations to include management-based trainings. (v) Will form part of the management team. (vi) Provider of expertise in engineering of finances.	30
4	ESSB Swabury KG	Project mobilization and financial engineering	10
5	Lubango Charles Kitwanga	Provider of technology& technical know-how	20
Total			**100**

There is a potential market demand of over 180 million East African populations with low production capacity of present suppliers, while the market is growing at a rate of 22% annually. Africa at large is the least developed continent regarding the technological products especially ICT sector, the same trend is viewed in the pharmaceutical,

agricultural processing and food products with East Africa is no exception. Due to widespread poverty and lagging economic development, East Africa, along with most of Africa, has fallen far behind the majority of countries in the world in the development of its ICT sector.

Charles Muhangwa Kitwanga and partners future success in taking advantage of this boom market is evidenced by its recent studies on the market growth in sales and profitability. Sales are projected to grow from the first quarter of Year 1 production in total of US$ 1,280,000,000.00 to US$1,800,000,000.00 by the end of the first year of production, marketing and sales and to exceed US$ 14 Billion by the end of the third year of operations. A similar growth pattern will cause before tax profits to rise significantly by the end of Year 1 and continue increasing through the end of Year 3. These results will be achieved without large additions to fixed assets. A relatively small banking facility will be needed in the form of a line of credit of US$1,500,000,000.00 up to US$ 2,000,000,000.00 to support the necessary growth in current assets, half of which will represent prime corporate receivables.

1.1 Objectives

While working to develop **Misungwi Integrated Industrial Park**'s image as the premier industrial parks for manufacturers of pharmaceutical, electrical engineering products with ICT devices, Agro-processing technology and food machines products with the latest cutting-edge technology, the measurable objectives are:

1. Fostering industrialization, social, and an inclusive economic growth through entrepreneurial incubation for appropriate and high technologies products
2. Stimulates demand for domestic products while addressing lack of innovative capacity, unemployment, and limited private investment
3. Complete investment in Misungwi integrated industrial park to make park technological products compatible with at least five of the most popular first-tier operating systems (by end of 2022), and at least three others within one year.
4. Through networking and partnering with researchers, operating system developers, technology manufacturers, and other industry players, arrange at least five banners/links on a reciprocal basis with key market-related websites.

1.2 Mission

Misungwi Integrated Industrial Park's mission is to develop cutting-edge technological products with ICT solutions by making products, appliance and equipment, due to the fast pace of technology, with demand pressure to get to products to the market quickly. Charles Muhangwa Kitwanga and Partners through this industrial park will achieve this by maintaining a small "think tank" style technical team, outsourcing the manufacturing, and keeping a marketing offering which caters to the more demanding electrical engineering and technological product with ICT requirements, leaving the simpler high-volume and price-sensitive market needs to the competition.

1.3 Keys to Success

The demand and growth potential are so overwhelming that success in selling electrical engineering and technological products with ICT equipment and devices is virtually assured provided a few key aspects are kept in mind:

1. There is no problem in contract manufacturing the devices, provided a ready fund for investment in in the technology industrial park, plants, machines, stock of components is available. Careful planning in ordering sensitive components is essential, and sufficient financing must be in place to support long infrastructure, equipment, plant, machines and inventory periods.
2. Avoid time-consuming inquiries originating from outside the chosen market targets. Everyone is interested in Technology. It is important to weed through the inquiries and respond to those that fall within sales and marketing parameters (needs between 100 and several thousand units, designed for use with high-ticket sophisticated equipment).

3. Move quickly to build brand awareness for cutting-edge reliability. The market needs for electrical engineering and technology products, equipment and devices is potentially so large that more competitors can be expected. It will be more difficult to build an image later.

2.0 Company Summary

Misungwi Integrated Industrial Park's is to be solely owned by One Individual Mr. Charles Muhangwa Kitwanga in partnership with three institutions namely Infosys (IPS) Tanzania Ltd, SE Holdings Ltd and Misungwi District Council. Infosys (IPS) Tanzania Ltd among the group members have been in the high-tech business since its establishment. To capitalize on the growing demand for the technological products and ICT devices, the company has conceptualizing to partner with other stakeholders in shifting from offering consulting services to the designing, development and manufacturing of the electrical engineering products, technology hardware and software. Its first prototype is expected to be vastly popular with its clients and the company soon will start shipping the improved version of its device. The company positions itself as a developer of high-end devices and selectively targets automation, telecommunications companies, as well as smaller industrial automation and instrumentation companies that have strong demand for the high-technological products and devices performance.

2.1 Company History

Infosys (IPS) Tanzania Ltd.'s was solely service-based for several years, but as the market for electrical engineering, technological products and systems began to appear, Infosys (IPS) Tanzania Ltd is shifting its emphasis from consulting to the development and manufacturing of technological products with hardware and software. This explains why the past performance table does not show inventory or accounts receivable in previous years. Consulting revenue dropped significantly, as Infosys (IPS) Tanzania Ltd.'s activities and began to change towards producing its first product line through Misungwi Integrated industrial park which is planned to begin production in the year 2023. Since then, earnings will be increased dramatically to nearly US$ 1,800,000,000 in 2024 and grow to over US$ 2,000,000,000.00 in the first quarter of 2025.

2.2 Company Ownership

Mr. Charles Muhangwa Kitwanga as founding director together with others incorporated Infosys (IPS) Tanzania Ltd as a company limited by shares in the year 1993. SE Holdings Limited was also registered in Tanzania in the year 2012, and Misungwi District Council is one of the seven districts of the Mwanza Region of Tanzania. The two Infosys and SE Holdings Ltd are not publicly traded at the time of this writing. Misungwi District Council is a Public Institution.

2.3 Company Locations and Facilities

Misungwi Integrated Industrial Park is to be located at Plot No. 126, 123, 890, 099 and 087 all located at Mawe Matatu area of Misungwi District Council. All manufacturing plants, factories and machines are to be purchased from reputable plant manufacturers.

2.4 Products

Misungwi Integrated Industrial park's products are to be off-the-shelf ready platforms containing the entire necessary infrastructure for technological item production so that appliance makers can immediately focus just on their own specific product applications.

3.0 Product Description

Misungwi Integrated Industrial park's is to occupy an important segment of the "technological products and system market. Technological system is any system that is physically incorporated into a product that performs a dedicated function or specific application. Electrical and electronic engineering is to design and develop the consumer goods and the systems used by machines and equipment in industrial applications, from mobile communication and computing through to aerospace Consumer examples include kitchen appliances and home entertainment systems, whereas commercial examples are point-of-sale terminals, industrial process controls, etc. The button you press which toggles back and forth between total miles travelled and the trip mileage is an example of the many technological systems found in new cars. ICT is the term that refers to technologies related to the Internet, wireless networks and cell phones, as well as the latest software developments

Misungwi Integrated Industrial parks will focus on among other electrical engineering products, specializes in the segment of the technological system market that relates to technology and ICT devices. One example is the mobile phones, the mobile network infrastructure, TV sets, power supply units, wireless routers, maritime radars, sensors, odometer as an ultra-simple technological system and much more. However, one can imagine a company with a large fleet of vehicles wanting accurate, up-to-date information concerning mileage for purposes of scheduling servicing, or checking routing distances. The Technological device that would be needed here would require technological product with ICT inputs. The "net" in this case would be a small, simple, closed net that would be comprised of the technological devices (called "smart" devices) connected to the vehicles' odometer (satellites) and one central terminal (the server) located at company headquarters. There is a whole array of means to connect the satellites and the server. A wire would obviously be inappropriate here. A digital radio wave would be the likely choice. Each individual odometer device would have a discrete identifier, and would communicate to the server. Each would have the potential to communicate to and from anywhere on in the world. However, in our example, it being a closed system, the rest of the world would not be permitted to gain access to these identifiers.

Misungwi Integrated Industrial parks will make these technological products and devices. The basic device (here called product wrasse), about the size of a credit card, is comprised of:

1. A central processing unit (CPU). This is a very powerful chip supplied by Technology Manufacturer 1 which represents the computing brain.
2. FLASH chip. This is memory capacity that does not die when power is turned off.
3. SDRAM chip. Normal memory capacity.
4. A Controller. This governs the data flow from the satellites to the server.
5. Misungwi Integrated Industrial Park's proprietary product.
6. Other elements like voltage regulators, electrical conduits to connect chips and external hook-ups.

The Product Wrasse, described above, would be bought by original equipment manufacturers (OEMs) to incorporate into their appliance (such as an odometer). The unit might also be bought by an "integrator" who takes a basic odometer, plus the product Wrasse, and adds some software to end up with a "smart" odometer which the market integrator then tries to sell to companies with fleets of vehicles that might have good need for this specialized product. Misungwi Integrated Industrial parks would configure the product wrasse so that it is compatible with the operating system used in the appliance, and would build in whatever FLASH and SDRAM capacity are needed for the designed purpose of the smart odometer.

Misungwi Integrated Industrial park's third product is an add-on to the basic product wrasse and is called the product damselfish. Going back to the odometer example: If the company with the fleet of vehicles would like to be able, once a certain mileage had been reached, to tell the driver: "Time for an oil change," then the technological device would need to have audio capability. Some applications might even need a video screen and a keyboard (like an ATM) for user interface. These capabilities are available through product damselfish.

3.1 Competitive Comparison

The client who wants to benefit from the trend toward product category one their products, typically outsource their needs. This allows the client to concentrate on the design and application of their specific appliance without having to worry about the product category one aspect. Outsourcing this part saves the client in development costs, and more importantly, saves time in getting the appliance to the market.

3.2 Sales Literature

The global power electronics market size is projected to grow from USD 35.1 billion in 2020 to USD 44.2 billion by 2025, at a CAGR of 4.7%. The increasing focus on the use of renewable power sources across the globe, growing adoption of power electronics in the manufacturing of electric vehicles, and increasing use of power electronics in consumer electronics are the major factors driving the growth of the market. The increasing use of GaN & SiC products in various applications and growing industrialization in developing economies are projected to create lucrative opportunities for the players operating in the market during the forecast period

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High power efficiency requirements from various applications drive the demand for power modules. Government initiatives to increase the adoption of EV/HEV, rising electrification in the automotive industry, inclined trends of clean energy generation (renewable energy generation), increasing number of charging stations, increasing industrialization, growing adoption of intelligent modules in consumer appliances, and industrial automation & Industry 4.0 are the major factors driving the growth of the modules segment. Modules are used in various applications, such as motor control and drives; hybrid-electric solutions for construction, commercial, and agricultural vehicles; solutions for solar energy systems; uninterruptible power supply (UPS); room air conditioners; high frequency & switching applications; dc/dc converters; auxiliary inverters; hybrid electrical vehicles; and inductive heating & welding.

The automotive vertical is expected to dominate this market in the coming years owing to the increasing focus on hybrid electric vehicles (HEVs) and EVs and increasing demand for cars and other passenger vehicles in developing regions. Also, increasing concerns regarding environmental pollution and sustainable growth have increased government support in several countries to boost the production of electric vehicles, supported by incentives. This is expected to develop and expand the charging infrastructure and provide opportunities for the market. China is one of the largest markets for electric vehicles, and it has scaled up the production by implementing new policies and subsidies aimed at automobiles, particularly new energy vehicles. In May 2020, the government announced the extension of NEV subsidies and tax policies by about 2 years, along with high capital investment for battery charging infrastructure by about USD 38 million. Such efforts are expected to boost the automobile market of the country and drive the market for power electronics.

APAC is likely to grow at the highest CAGR for the global power electronics industry from 2020–2025. APAC is expected to continue to hold the largest market size and expected to be the fastest-growing region in the power electronics market owing to the rapid development of consumer electronics products, which drives power IC market. Consumer electronics, industrial, and automotive are among important verticals in the APAC market

Renewable energy generation is one of the key revenue pockets for the market in APAC. Governments in multiple countries of the region are motivating the shift towards renewable energy generation, mainly photovoltaics' or solar, in the form of various offers and subsidies. Fast-track adoption of electric vehicles across the region is also a prime factor driving the power electronics market growth. Various countries in APAC have set targets to increase the adoption of electric vehicles to reduce pollution levels. For instance, China raised its 2025 sales target for electrified cars; the country wants about 25% of new cars sold by 2025 to be electrified. The Japanese government has aimed to have all new cars sold in Japan to be electric or hybrid vehicles by 2050. Likewise, the Korean Government is aiming to achieve electrification of 33% of new vehicles by 2030. All these factors expected to drive the growth of the power electronics market in APAC.

3.3 Sourcing

The chips and other basic building blocks to be used in manufacturing and assembling products at Misungwi Integrated Industrial Park are to be purchased from a number of large distributors. Sourcing is not a problem, but order scheduling must be given careful attention. Shortages can occur, making it necessary to order well in advance and to stockpile in order to make certain that a sale does not outstrip production

3.4 Technology

Technology is moving at a rapid pace. Tanzania is one of the countries in the Sub-Sahara Africa, which characterized by massive deficit in science and technology. The main reason behind technology deficit in the country is a limited

innovation capacity. The innovation capacity is low due to a number of factors including inadequate of innovation drivers such as poor quality and quantity of human capital, inadequate of R&D institutions and infrastructure and poor political will. Although there is inferiority of the country's economy and innovation inputs, there is a huge possibility for Tanzania to advance in science and technology in a near future with the three main reasons that push the lead investment promoter and partners to believe in the potential for Tanzania to increase its capacity of innovation output in a near future:

(i) The first factor is to improve access for Foreign Direct Investments or financing to address inadequate of funds required to finance R&D and technology production activities.

(ii) Second, is to groom the quality and quantity of human capital in adoption of technology transfer for Tanzania to advance technologically.

(iii) Third is applying technology transfer approach as a strategy to cover the gap of technology deficit in the country, and this is the main concern of this planned investment by investing in the integrated industrial park at Misungwi, in Mwanza, Tanzania

The annual population growth rate in the countries studied in this report is 2%–3% – well above the global rate of 1%. Youth (15-to-24-year-old age group) comprise 18%–20% of the population in all 11 countries. Given the magnitude of the African population, this translates into a rapidly growing labor pool that will require employment opportunities. Tanzania's low level of human development has improved somewhat in recent years. The country has the lowest level of income inequality within the SADC and little unemployment (just 3.5%) but its poverty rate is the highest among SADC countries with viable national innovation systems. In 2012, Tanzania also occupied the second-lowest rank for the Knowledge Economy Index and Knowledge Index among the viable national innovation systems in the SADC region.

Fundamentally, there three main ways the country can opt to advance technologically: first, based on generating own technologies through creativity, discovering and invention. However, capability of the country to enrich the indigenous technologies depend much on the effectiveness of various innovation inputs including availability of knowledgeable population, availability of fund, policies and institutional arrangement: secondly, the country can advance technologically through technology sharing with the source: and the third approach is through both sharing and generating own technologies simultaneously. However, Tanzania is neither effective on developing indigenous technologies nor transfer of knowledge and technology, as the result the country has been characterized by the technology deficit. Despite the fact that the Sub Sahara African countries including Tanzania are technologically backward in comparison with the rest, and despite the fact that innovation inputs are very inferior to the extent of jeopardizing innovation activities in the country, and despite the fact that it is on the advantage of developing countries to access and share globally available technologies, transfer strategy is limitedly applied in Tanzania.

This proposal and business plan intends to be qualified and registered by the Tanzania Authorities to raise fund from foreign direct investors and or financiers for investment in the applicability of technology transfer approach as the strategy to enhance technology advancement in Tanzania.

Market Analysis Summary

The Tanzanian economy relies on agriculture, which accounts for 23% of GDP and 65% of the labor force. Gold also contributes to a sizable portion of exports (35%). The financial sector is growing rapidly, with 41 commercial banks and seven mobile money service players. About 65% of the population has access to formal financial services and products. Tech sector is growing rapidly The United Republic of Tanzania has a small ICT sector that contributed 1.5% to GDP in 2018 and was worth an estimated US$ 843 million 136 that year. ICT has been one of the fastest-growing sectors in the country, expanding 9.1% in 2019–2020. Government incentives and policies starting from Development Vision 2025 targets tech sector and one of the objectives of Development Vision 2025 is upgrading the Tanzanian tech sector. The key initiatives of the plan include skill development, capability building and creating a knowledge society in the country.

Tanzania Imports of Electrical, electronic equipment was US$ 509.64 Million during 2018, according to the United Nations COMTRADE database on international trade. Tanzania Imports of Electrical, electronic equipment - data, historical chart and statistics - was last updated on June of 2021.

Because innovation has a great role to play in productivity growth, it should form part of the solution to these general problems. Innovation is basically an interactive venture, requiring reliable information and communication technologies (ICT) facilities. Through the rapid spread of ICTs and ever decreasing prices for communication, markets and production become more integrated in different sectors, making innovation much easier. Tanzania has taken major steps forward in creating policy and legislative structures to anchor growth and development of ICT. The government's national ICT Policy, launched in 2003, articulates a range of focus areas that will aid optimal use of ICT in the country. Moreover, Tanzania's economic development blueprint, 'Vision 2025,' recognizes the ICT sector as a key accelerator for all national development efforts. According to the strategic plan, broad-based application of ICT in both the public and private sectors is crucial for fostering economic growth, peace and stability and improving the quality of life. The Tanzania Development Vision 2025 calls upon Tanzania to transform from a low productivity agricultural economy to semi-industrialized. The vision stipulates that "the new opportunities which the ICT are opening can be harnessed to meet the goals of the vision"

4.1 Market Segmentation

The global ICT landscape is changing at an unprecedented pace, primarily due to the adoption and proliferation of innovative applications and devices. Innovative technology trends such as Mobility, Cloud, Analytics, and social media are creating agile enterprises and enhancing customer experience resulting in unique value chains and business models. Increased Internet, broadband, and mobile penetration is enabling the growth of the ICT market across the globe. The customer demand for anywhere and anytime access to content and products coupled with enterprise need for agility is driving the ICT market. With close to 7 billion mobile subscribers and 3 billion Internet subscribers, the ICT market presents a huge opportunity for technology marketers.

The ICT industry has been an integral part of all leading sectors including BFSI, Healthcare, Oil and Gas, Aerospace and Defense, and Transportation and Logistics, among other industries. Emerging technologies, niche solutions, newer applied areas, and cross vertical implementation are few areas of interest in the ICT market. In terms of regional adoption, North America has been a mature market for ICT, while Asia-Pacific has been the ground for the R&D of several low-cost technologies.

Several market researches reports, along with quantitative analyses, identify potential investment opportunities in the Information and Technology industry. These reports identify market application gaps, need for new product development, high potential geographic regions and countries, and emerging technologies, The reports offer sustained competitive advantage through analysis of unmet needs and detailed competition mapping in high-potential growth in Tanzania, East Africa and SADC region.

Tanzania has a promising economic environment as well as a promising ICT sector investment, the following are some of the opportunities available for investors. The country has experienced economic growth that averages 6% to 7% every year over the past 10 years Creation of the National ICT Backbone (NICTBB) Gateway to Eastern, Southern and Central Africa Tanzania's economy has experienced a lot of growth over the last decade, the stable economic environment has led to growth throughout the sectors including the ICT Sector. One of the big investments made by the government in the country's ICT sector is the creation of the NICTBB, this is a network which links all the government's district and regional headquarters. The development of the NICTBB led to an 80% drop in bandwidth costs. There has also been some expansion of towers which has increased mobile usage, research suggests that Tanzania's mobile usage could reach that of Kenya's within the next seven years. Despite these strides, the ICT sector remains largely untapped. Another benefit of investing in Tanzania comes from its strategic geographic location which would give investors access to trade with countries in Eastern, Southern and Central Africa in order for Misungwi Integrated Industrial Park to have commercial investment confidence key segment to invest are targeted on the following ICT sub sectors:

- Technology investment and economic impact
- Establishment of ICT village hubs
- Hardware manufacturing, assembly and repairs.
- Technology adoption among small and medium-sized enterprises (SME)
- Enterprise application software (ERP, CRM, and SCM)
- Artificial Intelligence and Big Data outlook
- Enterprise hardware
- Enterprise mobility and mobile device management
- Industry ICT spending and forecast growth rates
- Internet of things and block chain trends
- Technology adoption trends by vertical market
- Grey-market dynamics
- CIO investment strategies
- The monetization of data
- Mobile money trends
- Office Automation, this includes laser printers, faxes, feature phones, etc.
- Consumer, these includes video games, portable games, CD players, and high-end audio-visual equipment.
- Communications, these includes network hubs, routers, switches, telephone infrastructure equipment.
- Automotive
- Military
- Other

4.2 Target Market Segment Strategy

Misungwi Integrated Industrial park's plans to concentrate on the Establishment of ICT village hubs; and hardware manufacturing, assembly, telecommunications segment of the market as well as the industrial automation and testing and instrumentation segments as these sectors are most likely to have more demanding requirements which are suited to the investment's premier, cutting-edge of technology architecture. These sectors are most likely to be installing the ICT products and devices into high-ticket item instruments and appliances, thus making these clients less price-sensitive in relation to the high-volume consumer (MP3 players, Palm Pilots, etc.).

4.2.1 Market Needs

In recent years, the ICT sector in Africa has continued to grow, a trend that is likely to continue. Of late, mobile technologies and services have generated 1.7 million direct jobs (both formal and informal), contributed to US$144 billion of economic value (8.5 percent of the GDP of sub-Saharan Africa), and contributed $15.6 billion to the public sector through taxation. Digitization has also resolved information asymmetry problems in the financial system and labor market, thus increasing efficiency, certainty, and security in an environment where information flow is critical for economic growth and job creation.

Failure to recognize and capitalize on 4IR opportunities, conversely, will impose considerable risks on African stakeholders: Without attempts to move beyond existing models of innovation, entrepreneurship, and digital growth on the continent, African businesses risk falling further behind, exacerbating the global "digital divide" and lowering their global competitiveness. Going beyond the existing models requires discipline in governance to allow an endogenous innovative environment. At the same time, institutions must protect the market through consumer protection laws and regulations that encourage competition.

- **Fighting poverty and inequality**

The spread of digital technologies can empower the poor with access to information, job opportunities, and services that improve their standard of living. AI, the Internet of Things (IoT), and block chain can enhance opportunities for data gathering and analysis for more targeted and effective poverty reduction strategies. Already, we have witnessed the transformational power of formal financial services through mobile phones, such as M-Pesa, reaching the underserved, including women, who are important drivers for sustainable poverty eradication. These financial services allow households to save in secure instruments to enlarge their asset base and escape cycles of poverty.

4.2.2 Market Trends

The market trend is to add technology to just about everything, leading eventually to a view of the future well-expressed. Digitization has impacted economic growth through inclusive finance, enabling the unbanked to enter formality through retail electronic payments platforms and virtual savings and credit supply technological platforms. More broadly, digitization is enabling entrepreneurs and businesses to rethink business models that are more impactful, sustainable, and connected to other sectors of the economy. For example, with fintech, digitization has gone beyond the financial sector to affect the real sector and households, transforming product designs and business models across market segments. Businesses are able to design products and trade online, and individuals are able to operate financial services and payments for shopping and investments. The government is also migrating to online platforms to conveniently provide public services.

- **Reinventing labor, skills, and production**

By 2030, Africa's potential workforce will be among the world's largest, and so, paired with the needed infrastructure and skills for innovation and technology use, the 4IR represents a massive opportunity for growth. Indeed, the 4IR is dramatically changing global systems of labor and production, requiring that job seekers cultivate the skills and capabilities necessary for adapting rapidly to the needs of African firms and automation more broadly. Already, Africa's working population is becoming better educated and prepared to seize the opportunities provided by the 4IR: For example, the share of workers with at least a secondary education is set to increase from 36 percent in 2010 to 52 percent in 2030

4.2.3 Market Growth

The market for electrical, electronic and ICT products in Tanzania is projected to US$3.5 billion in the first year of production and is expected to grow to US$ 9 billion by 2025. These amounts to a 22% annual growth rate, a 22% growth rate comes to an additional 40 million annually. The total unit sales projected for Misungwi Integrated Industrial parks in the third year will amount to only US$ 5.5 Billion of that. In the absence of more specific market data, we have projected market growth at 22% for every segment of the technology market, although it is likely that some segments will grow faster than 22% annually and others perhaps less.

4.3 Industry Analysis

The industry encompassing electrical, electronic and ICT products such as microprocessors, the operating systems housed in them, the makers of components used to build them, and the people developing software to make special applications possible is quickly mushrooming into one of the world's largest industries. To be successful in marketing the technology products and device it is essential to understand the patterns and major players in the industry.

4.3.1 Competition and Buying Patterns

Currently, demand for the technology product products and devices outstrips supply. With the trend of adding values to almost any appliance, demand will continue to grow. The variety of offered platforms and configurations of such devices lead to the market fragmentation where no incumbent company holds a major market share. For low-end devices, pricing is one of the major factors. However, for high-end devices, such as the products planned to be manufactured and supplied by Misungwi Integrated Industrial Park, high technical specification and flexibility with major operation systems are more important.

4.3.2 Main Competitors

The main competitors for Misungwi Integrated Industrial park's products are listed in the section on competitive comparison. The listed competition is unlikely to even come close to satisfying a small portion of the demand for the planned technology products and devices indicated by market research. Obviously, much of the technology products and devices will be done by internal engineering. First, its engineers have to examine hardware and software options, which, given the number to choose from, could take months. After months of evaluation, our engineers will spend over uS$250,000 on a leading real-time operating system (plus another $100,000-$200,000 buying and building hardware), more months will pass building, debugging, and integrating the operating system with the software. More time is to be spent writing the application. An engineer (who is an expert in the chosen operating system) will need to be hired, and each year another $150,000 will need to be spent in O/S upgrades and software. Keeping up with protocols and standards will also take time away from development efforts. In the end, hundreds of thousands of dollars can easily have been spent just on the task of adding technology products and devices to the product internally.

4.3.3 Industry Participants

Technological advances in the computer and electronics industries are moving at a rapid pace. The companies that design and produce the devices that keep people connected are some of the world's most profitable and biggest by market value. These companies produce a broad range of advanced hardware and equipment, ranging from personal computers and mobile phones to printers and networking tools. Some of them manufacture home appliances like refrigerators, washing machines, and microwaves. In terms of their capabilities, all of these devices can be called tech hardware because they are light years ahead of earlier products and are packed with the latest technology. There are several major components in the industry: -

(i) Dell is a holding company that, through its subsidiaries, provides information technology (IT) hardware, software, and service solutions. It produces laptops, desktops, tablets, workstations, servers, monitors, printers, gateways, software, and storage. Dell also provides cloud management, networking and security, and other end-user computing offerings.

(ii) Sony is a Japan-based multinational conglomerate that develops, designs, and manufactures electronic equipment, instruments, personal computers, home audio and entertainment systems, devices, game consoles, mobile phones, and software. The company also has a semiconductor solutions segment that produces image sensors and camera modules.

(iii) Panasonic is a Japan-based multinational electronics manufacturer. The company develops and manufactures home appliances, such as refrigerators and washing machines, car navigation systems, digital devices, computer peripherals, telecommunications, industrial equipment, lighting fixtures and electric lamps, and various electronic parts.

(iv) HP is a multinational IT company that provides personal computing and other access devices, imaging and printing products, as well as related technologies, solutions, and services. The company offers commercial and consumer desktop and notebook personal computers, workstations, commercial hardware and mobility devices, printer hardware and supplies, scanning devices, and more.

(v) Lenovo is a Hong Kong-based multinational technology company that develops and manufactures various technology products and services. It produces personal computers, workstations, servers, storage, smart televisions, and mobile products such as smartphones, tablets, and applications. The company also provides Internet and IT services.

(vi) LG is a South Korea-based multinational electronics company that manufactures digital display equipment and home appliances. Its products include flat panel televisions, A/V products, personal computers, washing machines, air conditioners, refrigerators, LED lighting, and telecommunications equipment such as smart phones and tablets.

(vii) Cisco is a multinational technology company that designs and manufactures products related to the communications and IT industry, and related services. Its products include infrastructure platforms, applications, security, and more. These products are designed for transporting data, voice, and video.

Contract manufacturers have become key actors in the electronics market. Brand companies outsource close to 75% of their production to contract. Although contract manufacturing plays a significant role in the production process, the profit margins for contract manufacturers are low, while the large profit margins are reserved for brand companies. One strategy is to increase the margins for contract manufacturers with regards to assembly and component manufacturing to minimise their risks is to develop a long-term partnership with the brand companies.

4.3.4 Distribution Patterns

There are large established distributors of technological hardware, microprocessor chips, and other components. It is possible that one, or all, of these distributors may consider offering a products and device soon with a few limited configurations. However, the main distribution channel for technology products and devices' products is direct.

Strategy and Implementation Summary

Misungwi Integrated Park's marketing strategy will be to concentrate on the large telecommunication sector of the market, as well as the smaller industrial automation, and the instrumentation sectors. In keeping with technology's trim organizational structure, growth in sales will be closely keyed to success in its partnering relationships with technology manufacturer (its main component maker), developers of operating systems, as well as with suitable. It will be necessary to augment sales staff. This "push" marketing will be supported by some "pull" marketing in the form of advertising in specialized trade publications. At the moment supplying product products and devices is a sellers' market, however, with demand projected to outstrip supply, more makers of these devices are likely to spring up. It is important to leverage its present ground-floor position in the supply of technology products and devices by building a market image that will make it difficult for later entrants to make in-roads into target market sectors.

5.1 Competitive Edge

Misungwi Integrated Industrial Park's competitive edge stems from the high technical specifications of its products. The Park will produce top-of-the-line technology product and devices that can work with all the major operating systems available in the market. Further, Misungwi Integrated Industrial Park will develop a very favourable partnership with technology manufacturer who not only provides the chips but is also interested in promoting Misungwi Integrated Industrial Park's products.

5.2 Marketing Strategy

Misungwi Integrated Industrial Park's will concentrate on the more demanding sectors of the market and, in doing so, build an image for the highest cutting-edge technology among the various makers of technology product and devices Pricing on the high side is consistent with that image, and alignment with technology manufacturer (the premier CPU maker), and the first-tier developers of operating systems will further enlarge that image. In addition, an investment should be made in image-bolstering advertising in targeted trade publications serving the chosen market segments.

5.2.1 Positioning Statement

Misungwi Integrated Industrial Park's positioning statement is to stay on the cutting edge of technology product and device by constantly improving its products ahead of the competition with such features as the product for technology manufacturer's product. Misungwi Integrated Industrial Park's will target customers in the demanding telecommunications, industrial automation, and instrumentation sectors rather than to market-segment a narrower field with lower technology products and devices requirements which tend to be more price-sensitive.

5.2.2 Pricing Strategy

For projection purposes, pricing has to be based on production costs at 40% of sales price, which is in line with the for the first quarter 2023. This pricing scheme seems to put Misungwi Integrated Industrial Park's products on the high end of the ball park with the competition, which is consistent with the image Misungwi Integrated Industrial Park's wants to build for its products. Misungwi Integrated Industrial Park's technology and devices are to be perceived as "all-the-same" commodities, with price being the only deciding feature. In line with Misungwi Integrated Industrial Park's positioning statement, Misungwi Integrated Industrial Park's market sectors are the more demanding ones (telecommunications, industrial automation, and instrumentation). These customers are to be installed at Misungwi Integrated Industrial Park's with sophisticated, expensive equipment, and are more likely to make a choice based on which technology product and device has the highest technical specifications and flexibility in respect to operating system compatibility, choices in configuration, etc., rather than price.

5.2.3 Promotion Strategy

Misungwi Integrated Industrial Park's will have sales positions in the personnel plan, Misungwi Integrated Industrial Park's promotion strategy will stress "partnering" as its main means of getting the word out concerning its products. The importance of partnering with major industry players

(i) **Partnering with Technology Manufacturer**

Technology manufacturer have large sales force and is the industry leader with its CPU chips. All of Misungwi Integrated Industrial Park's products contain this chip, which is a good foundation for technology manufacturer wanting to promote Misungwi Integrated Industrial Park's products wherever possible over other technology and devices that use chip. Misungwi Integrated Industrial Park will work directly with several direct-sales people from technology manufacturer who are referring high volume fortune customers.

(ii) **Partnering with Real Time Operating System (RTOS) Developers**

As mentioned elsewhere in this plan, compatibility with existing operating systems is key to technology product and device sales. The following is a list of most of the first- and second-tier operating systems:

Partnering with Market Integrators

Market Integrators are heavy users of technology product and devices. Hundreds of these market integrators have sprung up who have developed software, and attached hardware designed to address problems, or save time and money for a specific industry. Most of them utilize technology products and devices as part of their value-added offering. Special instrumentation or monitoring devices which attach to hospital beds that can sense wet sheets or patient body temperature are good examples. These devices all require satellites units located at each bed have a technology product and or device. Considering the number of hospital beds alone, it is easy to see why the VARs represent prime customers for product and or devices. These market integrators may first hear about Misungwi Integrated Industrial Park's products through one of the operating system developers or via a search through the Web. In addition, Misungwi Integrated Industrial Park's plans to get out a direct mailing to a list of 300 VARs.

5.2.4 Distribution Strategy

There are no immediate plans to wholesale Misungwi Integrated Industrial Park's products and devices. There might be opportunities to distribute some technology products and devices to one of the major component wholesalers, but

this could only be possible in limited configurations. All sales are expected to be direct sales. This should be qualified as many major customers out-source their manufacturing.

5.2.5 Marketing Programs

The most important element in Misungwi Integrated Industrial Park's marketing game plan is to complete programming of its products to be compatible with the top tier with the brand companies as the 'face' of products are the only ones that might suffer from competitive disadvantages through awareness-raising campaigns. However, due to their transfer of know-how and manufacturing coordination to contract manufacturers, they do not have enough impact on the manufacturing process.

Misungwi Integrated Industrial Park completion is planned for the end of May 2022. As soon as this has been done, partnering activity with those operating systems developers can begin in earnest. Informational releases via email to operating system sales forces containing data specifications should be encouraged. Opportunities to speak at operating system developers' sales meetings should be sought. This will be coordinated by the new sales manager position. In conjunction with the above activities, a direct mailing to market integrators should be undertaken. An up-to-date list of market integrators can be obtained through Software Manufacturer. A budget of US$100,000 has been provided for in the cash flow projections. Since many first impressions of Misungwi Integrated Industrial Park's products are to be made by a visit to its website, it is important to give Misungwi Integrated Industrial Park's website a face lift. The Cyber Design Group as well as other professional website designers will be considered.

To help increase awareness of and build the desired image for Misungwi Integrated Industrial Park's products, advertising should be done in targeted trade publications. A media specialist should be consulted to help in selection. In keeping with Misungwi Integrated Industrial Park's positioning statement, trade publications which reach electrical, electronics, telecommunication, industrial automation, and testing and instrumentation sectors of the market should be favoured. It is important to provide an adequate budget to make certain of attracting notice. A media specialist can examine the "noise level" (the number of competing ads) to suggest how much needs to be spent to break through the noise level and be heard

5.3 Sales Strategy

The general sales strategy is to concentrate efforts on those sectors of the more demanding 32-bit microprocessor market that have volume needs of 100 to several thousand. Despite the dramatic increase in visits to Misungwi Integrated Industrial Park's website, a more proactive policy needs to be taken by directly approaching heavy users of Product and devices. Calls must be made on selected market integrators who fit the parameters set by Misungwi Integrated Industrial Park's marketing strategy. Referrals from Misungwi Integrated Industrial Park's partnering program (operating system partners, technology manufacturer, and other industry players) will be stressed. Misungwi Integrated Industrial Park plans to add a sales manager as well as other sales personnel

5.3.1 Sales Forecast

Over 400 units of Misungwi Integrated Industrial Park's first-generation product and devices are projected for sale in the first quarter of 2023 without any dedicated sales staff other than the investors and an administrative assistant. In keeping with Misungwi Integrated Industrial Park's need to stay on the cutting edge of technology, a faster, smarter, smaller improved product is now ready which should easily succeed in reaching the company's sales goal of 1040 units by the end of the year, increasing to 3000 and 9000 in the second and third year respectively. This is not an unrealistic achievement considering the market demand for this product, as evidenced by Misungwi Integrated Industrial Park's actual sales growth in the past year and the growth in visits to Misungwi Integrated Industrial Park's website which will grow. With sales prices set at 2.5 times variable costs, gross profits are expected to reach nearly US$ 3 billion in the first year and nearly $9 Billion in the third year. The sales projections forecast three Misungwi Integrated Industrial Park's products and devices, made up of a main product.

Sales Forecast			
Unit Sales			
Electrical Product	1,040	3,000	10,000
Electronic Product	1,040	3,000	10,000
Telecommunication Product	1,040	3,000	10,000
Other	38	0	0
Total Unit Sales	3,158	9,000	30,000

Unit Prices	2023	2024	2025
Electrical Product	$412.00	$412.00	$412.00
Electronic Product	$610.00	$610.00	$610.00
Telecommunication Product	$457.00	$457.00	$457.00
Other	$1,995.00	$1,995.00	$1,995.00
Sales			
Electrical Product	$428,480	$1,236,000	$4,120,000
Electronic Product	$634,400	$1,830,000	$6,100,000
Telecommunication Product	$475,280	$1,371,000	$4,570,000
Other	$75,810	$0	$0
Total Sales	$1,613,970	$4,437,000	$14,790,000

Direct Unit Costs	2023	2024	2025
Electrical Product	$165.85	$165.85	$165.85
Electronic Product	$244.35	$244.35	$244.35
Telecommunication Product	$183.85	$183.85	$183.85
Other	$630.00	$630.00	$630.00
Direct Cost of Sales			
Electrical product	$172,484	$497,550	$1,658,500
Electronic Product	$254,124	$733,050	$2,443,500
Telecommunication Product	$191,204	$551,550	$1,838,500
Other	$23,940	$0	$0
Subtotal Direct Cost of Sales	$641,752	$1,782,150	$5,940,500

5.3.2 Sales Programs

The most important sales program is the program based on "partnering" (see the section on Promotion Strategy). By constantly being in touch with the activities of technology manufacturer, and the operating system developers, and by developing relationships with their extensive sales teams, referrals can be expected to market integrator and who fit the parameters set in the marketing strategy. Once a solid sales prospect has been identified in this manner, more specific action can be taken directly with the prospect. This action would include more technical discussions between Misungwi Integrated Industrial Parks. Starter Kits" can be arranged which make it very easy for the prospect to integrate hardware and software between the technology devices and the appliance. Once a starter kit has been sold, telephone follow-up is necessary to convert the original opening into a substantial sale of 100 or more units.

5.4 Strategic Alliances

As already explained strategic alliances between Misungwi Integrated Industrial Parks, technology manufacturer, and the top tier operating system developers are essential to success in selling large quantities of enabling devices. Partnering leads to referrals which can be filtered as to needs, and many referrals can be expected to transform into completed sales.

Management Summary

The management of Misungwi Integrated Industrial Parks is led by the lead partner Mr. Charles Muhangwa Kitwanga, the owner/founder, who has extensive technical experience in consulting to the industry. A profitable track record indicates the presence of business acumen. Important additions to sales and marketing staff should round out the needs of the company to achieve the projected goals set by the sales and marketing strategy.

6.1 Organizational Structure

Misungwi Integrated Industrial Parks plans to increase the number of employees to five in the second year and to ten by the third year. Half of these with be sales staff reporting to a sales manager who reports to the Lubango Kitwanga the Director of Marketing. Two relatively low-level technicians will be included to deal with repairs and testing of returns.

Rather than depend completely on outside consultants for software engineering, an engineer will be hired by 2022. The technicians will report to Charles Muhangwa Kitwanga, but there will be a good deal of interaction with the administration manager as well as with the sales manager. The software engineer will, like the outside consultants, report directly to Mr. Charles Muhangwa Kitwanga.

6.2 Management Team

The major members of the management team are Mr. Charles Muhangwa Kitwanga, lead partner, owner of the land and founder, his administrative assistant, Mr. Lubango Charles Kitwanga, and two independent consultant-engineers, who, as is common in the industry, prefer to remain independent rather than become full-time employees. This team will be augmented by a sales manager who will coordinate the activities of those responding to telephone and website inquiries with direct sales efforts to marketing integrators and referred through the partnering program, and a full-time software engineer.

6.3 Management Team Gaps

It is vital that a more proactive approach to selling be initiated to take full advantage of the partnering program which leverages the connections with operating system developers. There are huge number of dedicated marketing which certainly justifies a dedicated sales person. The number of original equipment manufacturers is also high enough to warrant employing someone with experience in dealing with large operations, equipment's and machines. A sales

manager should first be employed to oversee these sales efforts and to coordinate the involvement of media specialists and ad agency work

6.4 Personnel Plan

The lead partner, founder and owner of the land, Mr. Charles Muhangwa Kitwanga, during his years spent as a consultant to the industry, has many contacts among software and hardware engineers. He has utilized them on a contractual basis for much of the software engineering during the development of Misungwi Integrated Industrial Parks electrical, electronics and ICT's product line. He will still use them and their cost can be seen on the income statement under the heading "Contract Consultants" rather than in the Personnel Plan.

Sales Manager

The primary duties of the sales manager will be to coordinate the activity of media people to make certain the correct amount of advertising is spent in the most suitable trade publications and that the campaign adequately meets the goals of Misungwi Integrated Industrial Park's positioning statement. The sales manager should be engaged as soon as possible. A starting salary of $60,000 is budgeted with increases to reward sales growth.

Sales Staff

Reporting to the sales manager will be salespersons who will work primarily via telephone and email. One to concentrate on marketing integrators and another to concentrate on operation, equipment and machines. One each will be added by the end of 2023 after the sales manager is in place. Starting salary projected at US$40,000 annually with increases connected to sales success.

Two more will be added in the third year.

Technicians

beginning in year 2022 two low-level technicians need to be added to deal with returns, repairs, testing, etc. Salary of each is projected at $45,000.

Software Engineer

Despite the excellent success that Misungwi Integrated Industrial Park's has had with independent consulting engineers, it will be advisable by 2022 to hire a permanent in-house software engineer at a salary of $80,000.

Personnel Plan			
President	$100,348	$100,000	$100,000
Sales Manager	$30,000	$75,000	$90,000
Office Manager	$25,500	$38,400	$38,400
Salesperson (VAR's)	$0	$50,000	$110,000
Salesperson (OEM's)	$0	$50,000	$110,000
Technicians	$0	$0	$90,000
In-house Software Engineer	$0	$0	$80,000
Other	$0	$0	$0
Total People	2	5	10
Total Payroll	$155,848	$313,400	$618,400

Financial Plan

Misungwi Integrated Industrial Park's dramatic growth in sales poses substantial financing needs for receivables as well as inventory. In 2023 and 2024 virtually all of this need can be supported by accumulated earnings. Misungwi

Integrated Industrial Park's will need a line of credit to provide cash in the first year until accounts receivables begin to turn over into cash. Projections indicate a need for a line of approximately $1,350,000 which could stretch to $1,600,000. As the receivables are projected to be high in the first year, and stem from prime quality customers, commercial banking lines of credit (or A/R factoring) should be easily obtainable supported by this current asset without a need for reliance on inventory.

SECTION THREE: AGRO-PROCESSING MACHINES MANUFACTURING INDUSTRIAL PARK

1.0 BACKGROUND

Tanzania has tremendous potential to support a thriving agribusiness sector. Agriculture is diverse and extensive, employing more than 80 percent of the population, and contributing about 28 percent of GDP and 30 percent of export earnings. A wide range of agricultural commodities are produced in Tanzania, including fiber (sisal, cotton), beverages (coffee, tea), sugar, grains (a diverse range of cereals and legumes), horticulture (temperate and tropical fruits, vegetables and flowers) and edible oils. Historically, Tanzania has sought to ensure robust growth in agriculture to meet basic nutritional needs, and to modernize the sector for increased productivity, employment, profitability and income. Government initiatives such as Tanzania's national development strategies MKUKUTA/MKUZA have emphasized the importance of small-scale agriculture, with a slow but steady shift to medium and large-scale farming. Sector growth issues revolve around productivity, with particular concern for increasing yields by smallholder farmers so that they can graduate to commercial farming. Government and private sector investment efforts have principally focused on supportive physical infrastructure, water and irrigation infrastructure, financial services and incentives to invest in agriculture, knowledge and information management, mechanization, trade and export development services and, now more than ever, value-addition activities. Past efforts in the sector have resolved only some of these challenges, e.g., increased production has not been seen across all crops. There have been some successes and some stagnation. The post-harvest value-addition effort has unfortunately received less attention than the others. Today, many products are still exported in raw form, processed in another country, and re-imported. Given the tremendous diversity of agriculture in Tanzania and the limited value addition sector, a focused effort to support post-harvest processing would facilitate economic growth, create jobs and reduce imports while increasing focus on exports.

This part of Misungwi Integrated Industrial park document proposes a new model for promoting the growth of competitive value-added through establishment of local manufacturing of agro-processing and food products machineries in Misungwi, Mwanza, Tanzania, and also seeks to identify potential products that will stimulates growth in other value chains. The proposed Misungwi Agro-processing machines park will provide a set of financial and non-financial services to high growth potential small holder's farmers and other players within the value chain, aiming to accelerate the growth of their small and medium enterprises and demonstrating product, process, and business model innovation across agricultural sector. The park through this section will complement existing efforts focused on farm-level and post-harvest improvements in value addition.

1.1 INTRODUCTION

The Consortium of Infosys (IPS) Tanzania Ltd, SE Holdings Ltd, ESSB KG, and Misungwi District Council, led by Mr. Charles Muhangwa Kitwanga identified a potential opportunity for the establishment of a metal Agro-processing machines manufacturing at the industrial park in Misungwi District. The Consortium took the opportunity with a view to develop a high-level business plan. A feasibility study was carried out, which indicated that at that stage it was not advisable to establish such a new industrial park in Misungwi.

Various opportunities were identified this important proposed section of Misungwi Integrated Industrial park, one of which is an agro-processing machinery manufacturing facility in Misungwi. A feasibility study to assess the viability of such an agro- processing machinery manufacturing facility was conducted. This business plan has been prepared based on the results of the feasibility study.

1.1.1 Intent and rationale

The agro-processing sector is crucial for economic diversification in Tanzania. It is a key sector with a high potential to impact the economy of the country. The sector aims to convert primary agricultural products into consumable commodities. The manufacturing of agro-processing machinery in Misungwi District could contribute to the Lake Zone's and the entire country's economy. Furthermore, the development of the local agro-processing sector could

provide an off-set market for local farmers' produce and encourage broad-based access to agriculture. The creation of linkages and marketing channels for emerging farmers should form part of initiatives to develop agro-processing activities in the entire country.

Due to agriculture's relative importance in Tanzania and the fact that most of the sector's produce currently leaves the domestic market of Tanzania to other nearby and distant foreign countries in an unprocessed form, there is the potential to develop local processing capacity. This will not only add value and generate local jobs in agro-processing, but also in the fabrication and maintenance of the machinery. Several studies of the farming outputs from different researchers, in particular, indicated that there could be a potential market for agro- processing machinery. This could support the establishment of a manufacturing enterprise for the fabrication of these products.

2.0 Opportunity and business description

The Industrial park will be established in Misungwi, to manufacture and sell agro-processing machinery mainly to small and medium-sized crop growers. The park could provide a solution to the post-harvest food processing mechanization needs of such farmers, and its products could contribute to food security and poverty alleviation. The initial four products that will be manufactured and sold at the industrial park are winnowers, threshers, de-hullers and peanut shelling machines. There is also a potential opportunity for other fabricated products, which could be manufactured in the same factory, with the same equipment. This would allow diversification of the products and markets of the enterprise

Ownership Arrangements and Roles of Key Investment Partners

S/N	Shareholder	Responsibility	Shares (%)
1.	Charles Muhangwa Kitwanga	Provider of land measuring at least 200 acres to locate the entire Industrial Park investments also mobilize additional funds to invest	40
2	Infosys (IPS) Tanzania Ltd	Provider of Electronic Engineering and ICT Investments	5
3	SE Holdings Ltd.	(vii) Developer and implementer of the proposed project. (viii) Project conceptualization with detailed information, business planning, operations and literary rights (ix) To be entrusted with day-to-day management of the project. (x) Provider of facilitations to include management-based trainings. (xi) Will form part of the management team. (xii) Provider of expertise in engineering of finances.	30
4	ESSB Swabury KG	Project mobilization and financial engineering	10
5	Lubango Charles Kitwanga	Provider of technology& technical know-how	15
Total			**100**

2.1 Business concept

Misungwi Integrated Industrial Park will also manufacture and sell agro-processing machinery mainly to small and

medium farmers. For these types of machinery, the customers (mainly small and medium-sized farmers) would consider cost, quality and ease of maintenance, when selecting products to buy. Therefore, the manufacturing of the machinery will be carried out based on design drawings, bills of materials and quality input materials.

In addition to the manufacturing of the four specific products, the factory could also fabricate other products made of sheet metal, using the same factory, staff and equipment. However, this will be phased in once the enterprise has been established.

The success of the agro-processing machineries at Misungwi Integrated Industrial Park will be measured by the revenues, profits, and jobs created by the developers, as well as their impact on farmers and other input providers as processors increase demand for raw materials. Within six years of production, the park is expected to achieve several measures of success.

2.2 Location

The Ago-Processing Machines Manufacturing Factory is to be located at the proposed Misungwi Integrated Industrial Park located at Plots No. 126, 123, 890, 099 and 087 all located at Mawe Matatu area of Misungwi District Council, Mwanza Region of Tanzania

3.0 The Market

Tanzania has experienced a steady economic development. Yet the poverty rate remains still high, and the efforts for poverty reduction have not seen significant improvement so far. The poverty in Tanzania largely stems from that of rural areas, and the growth in the agricultural sector, in which three quarters of the working population are engaged, is the key for poverty reduction. The Government of Tanzania (GOT) has set the policy for modernization and commercialization of agriculture; however, the progress has not been highly satisfactory. Looking at the manufacturing sector, most of the manufacturers are micro and small enterprises. Thus, raising the levels of micro, small and medium enterprises is significant to induce further development and attract both foreign and domestic investments in the sector. On the other hand, those enterprises have not had enough opportunities to gain financial supports and business development services such as advice on technological development and business management. In addition, the absence of proper human resource development system in the sector hampers the growth of the industry. Against this backdrop, the proposed Misungwi Integrated Industrial Park Agro-Processing Machineries manufacturing business plan aims at addressing the current situation of agro-industry by investing in the processing machines manufacturing using the local industrial human resource and foreign direct investment.

Food self-sufficiency in Tanzania has almost been achieved. However, the production is vulnerable to the weather largely due to its rain-fed agriculture system. Food deficiency is caused in the rural areas, because of the difference in their production yields and poorly developed infrastructure for agricultural marketing. Traditional export crops such as cashew nuts, tobacco, dried peas, coffee and cotton occupy top positions in the export items of agricultural products every year. Sesame shows a rapid increase in export due to global demands for sesame seed in recent years. The export of processed agricultural products from Tanzania includes by-products such as bran of wheat and maize, cake of cotton and soybean seed, and cotton lint, but these products are not highly value added ones.

Though there are some variations in import amount by year, it can be estimated that 1 million tons of wheat, 200,000 tons of palm oil and 100,000 tons of refined sugar are continuously imported annually in Tanzania. Other constant imported products are barley and malt for beer production. Rice is also imported occasionally, but not in every year. The import situations for major agricultural and processed agricultural products in neighbouring

countries are very much similar to those to Tanzania; namely wheat, vegetable oil such as palm oil and refined sugar occupy the high position in every year. Kenya and Mozambique import some amount of rice every year. Thus, it is apparent that the strategy to challenge the development of agricultural and processed agricultural products for Tanzania is to increase sugar and sunflower oil production as import substitutes and rice for export promotion to neighboring countries.

3.1 Agricultural Processing and Marketing (Value Chain Analysis of sample products)

3.1.1 Distinguishing features of Rice Value Chain

Agricultural Processing and Marketing (Value Chain Analysis of sample products) Distinguishing features of Rice Value Chain The per-capita consumption of milled rice in Tanzania exceeds 39.4kg per year, which is very high among African countries, but the rice mill industry is not well developed as yet. Commercial rice millers who buy paddy and sell milled rice are not well developed.

The distinguishing features of the rice value chain situation can be summarized as follows:

(i) Distribution cost of both paddy and milled rice is very high due to middlemen being actively involved,
(ii) Rice farmers normally sell their paddy individually and have little bargaining power with middlemen,
(iii) Most small scale rice mills are milling service providers, not commercial millers,
(iv) The majority of small rice mill machines are Chinese-made, one-pass type equipped with paddy husking and milling section in one body. Locally made rice mills are not available except for the ones converted from coffee mill machine, and
(v) Most rice consumers pay little attention to the quality of rice.

3.1.2 Distinguishing feature of Sunflower Oil Value Chain

Sunflower seed production for oil extraction is expanding at an explosive pace. The distinguishing features of the sunflower oil value chain situation can be summarized as follows:

(i) Middlemen for seed collection and oil distribution and processors encourage farmers for more production by supplying sunflower seed in advance,
(ii) Large scale oil mills are few but small scale oil mills are shooting up,
(iii) Large scale oil mills employ refining processes but small mills just make crude oil,
(iv) Some small scale oil mills have installed processing oil tanks for the de-acidification of fatty acids in the crude oil but are not commonly used yet.
(v) Small scale oil mills sell oil cake as a feed material at low prices because no solvent extraction devices are available, and
(vi) Crude sunflower oil is acceptable for human consumption if it is consumed immediately after the extraction, however it can be oxidized and may cause health hazard when time passes. That is the reason why internationally refining process is required for sunflower oil. The current TBS sunflower oil standard permits production and sale of crude sunflower oil as a tentative measure to protect the newly born infant industry, however, the industry should equip refining facilities to market the products in distant market. The establishment of an oil millers' cooperative to construct a large scale and modern oil refining plant is recommended.

3.1.3 Distinguishing feature of Hides & Skins and Dairy Products

Although Tanzania has maintained its position as Africa's second largest source of livestock which have a potential

to attract leather, meat and dairy processing industries. (NBS-2019/20). Tanzania has only nine (9) leather processing industries but only five (5) industries are currently operating. Of the five operating industries, three (3) converts raw hides and skins to tanned leather (Web blue) while two (2) process raw leather up to the final stage (Finished leather). The tanning ratio of raw hides and skins is only about 40% in Tanzania. The hides and skins value chain has a huge potential to generate income and employment opportunities. But it is constrained by many challenges such as inadequate public investment, lack of trained personnel, poor quality of hides and skins, limited value addition, lack of quality and modern processing machines, inadequate availability of raw materials for local factories due to exports in the raw form, high post-harvest losses and underutilization of the capacity of local factories. In order to effectively implement recently developed Tanzania Leather Sector Strategy for 2016-2020 and the Livestock Master Plan of 2017/18-2021/22, it is necessary to address the above challenges. It will be useful to monitor the performance of the strategy and the master plan continuously to ensure that its implementation is on track. Private sector investment has an important role to play in the hides and skins industry. The Government should create an enabling environment to encourage more private investments in leather processing industries and leather collection points/centers

Tanzania's dairy market has enormous growth potential, as Tanzanian culture and dairy is potentially a high-value product in an upcoming market. Demand for packaged milk is significantly higher than supply. The combined milk supply of the country's processing plants is less than 150,000 liters per day. Compared to neighboring Kenya, where 40% of milk is sold processed and packaged, Tanzania's formal dairy market is small, with only 5% sold packaged. The country also lags behind in terms of consumption. It averages 50 liters per year per person, compared to 90 liters in Kenya.
Most fresh milk is basically obtained from grazing cows, not from ranches. Because the grazing zones move around during the rainy season and dry season, it is difficult to collect fresh milk continuously. The distribution of fresh milk in simple plastic bags at ambient temperature is more common than those in sealed pouches which are pasteurized and kept in refrigerators.

3.2 Planned Products at the Integrated Industrial Park

The agro-processing machinery that will be manufactured by the Misungwi Integrated Industrial park are as follows:

(i) Complete rice milling plant that helps to detach hulls and bran's from paddy grains to produce polished, **Rice processing plants machine, rice mill equipment, parboiled rice mill plant, auto rice mill,** etc.
(ii) Complete Triple refinery plants and machines for sunflowers seeds processing
(iii) Complete processing plants and machines for adding values to hide and skins
(iv) Small, Medium and large scale **dairy processing plant**, machines and equipment's
(v) Peanut shelling machines (for the processing of groundnuts);
(vi) De-huller or cleaning machines (for the processing of soya beans and sunflower seeds);
(vii) Threshers (for the processing of maize and wheat); and
(viii) Winnowers (for the processing of maize and wheat)

Agro-processing machinery is frequently supplied together with other agricultural machinery. Commercial enterprises are often more focused on the larger and more commercialized farmers and ignore the emerging ones. The target market for this park will mainly be emerging or small holder farms that often have a unique need for smaller, cost-effective, reliable equipment. These farmers are frequently excluded from agro-processing, due to the unaffordability of larger machinery supplied by the major suppliers.

Some competitive advantages of the Misungwi Integrated Industrial Park are as follows:

(i) The focus on small and medium-sized farmers' needs;

(ii) The strategic location of the manufacturing plant relative to the farmers;
The close proximity to the raw material supply

3.2.1 Market prices

The selling prices for the respective products are to be determined by taking into account the current market prices (landing price of imported agro-processing machinery from China and India), as well as the production costs per product in Tanzania. An average mark-up of 30% is to be added to the production costs to arrive at the selling prices, while still ensuring that these prices will remain competitive when compared with the imported machinery.

3.2.2 Competition and competitive edge

The expected competitors for our products will mostly be importers and distributors, who import from China, India, South Africa, Brazil and the USA. These competitors are largely concentrated in the Dar es Salaam

4.0 Operations implementation plan

The plan for addressing all operations related implementation

Activities	Phase 2						Phase 3	
	M7	M8	M9	M10	M11	M12	M13-M132	
1. Secure Land								
2. Prepare the industrial warehouses and office building								
3. Request quotations for equipment and machinery								
4. Acquisition of equipment and machinery								
5. Delivery and commissioning of machinery, equipment and utilities								
6. Procurement of raw materials and trial runs								
7. Full production and sales								

5.0 FINANCIAL PLAN AND ECONOMICS OF THE BUSINESS

5.1 Costs

For any operation there are three types of costs that need to be taken into account, namely investment costs, direct operation costs and indirect operation costs. Investment costs are usually once-off costs incurred during the production facility setup or establishment phase for capital expenditure, pre-production expenses and working capital. Both direct and indirect operation costs are incurred only once production starts. Direct operation costs are linked to the number of agro-processing machines produced and sold (for example raw material costs), while indirect operation costs are incurred irrespective of the number of machines produced and sold (such as salaries).

5.2 Investment costs

The total investment costs for the establishment of the Agro-Processing Machines manufacturing will amount to US$ 180,000,000.00. Direct operation costs and indirect operation costs US$ 120,000,000.00.

The combined variable and fixed costs for the first three years are more than the revenue generated – hence the industrial park will have a negative profit. However the trend is reversed from the fourth to the tenth year, with marginal profits being realized. Therefore, the Agro-Processing Industrial park has the potential to become sustainably viable.

The balance sheet shows a positive net worth, which is an indication that the Agro-Processing Park would have

sufficient assets to meet its liabilities, both in short-term and long-term.

Total Investment funding of US$ 300,000,000.00 Three Hundred Million is required cover capital expenditure and working capital for the establishment and first year of operation, in the following amounts:

(i) US$ 180,000,000.00 Establishment (Year 0); and
(ii) US$ 120,000 000.00: Operation Year 1.

If the required investment funding could be secured for the first year, the business will have a positive cash flow from the outset. Therefore it is critical that the involved stakeholders make a long term commitment to fund the establishment and operations of the Agro-processing machines manufacturing business.

It will be the responsibility of the investment partners (or the lead partner) to motivate, on an annual basis to the applicable government departments, to enhance the environment that will enable to secure the amount of funding required for the continued operation of the Agro-processing machine manufacturing business.

6.0 Financial Considerations

The marketing research and tailored marketing strategy described in this business plan will result in sales revenue of US$ 2,426,760.00 in 2023, increasing to US$ 3,357, 2303.00 in 2025.

The cash flow for the proposed Agro-Processing Industrial Park shows adequate provisions for ongoing expenses to meet the needs of the industrial park as the business expands operations.

The purpose of this plan is to attain Investment funding in the amount of U$ 300,000,000.00 to purchase new equipment, construct industrial warehouses and buildings, create website, advertising, hire new employee, and purchase inventory.

7.0 Financial analysis

7.1 Financial ratios

When a discount rate of 1% is used:

(i) The net present value of the proposed investment would be US$ 320,000,000.00
(ii) The internal rate of return would be 10% and
(iii) The payback period would be 10 years

Because the net present value is positive and the internal rate of return is greater than the discount rate, the business could be financially feasible.

7.2 Sensitivity analysis

A sensitivity analysis to determine the impact on the Agro-Processing Industrial Park's profitability is carried out on different variables, namely:

(iv) Reduction of product selling prices;
(v) Reduction in sales volumes;
(vi) Increase in labor costs;
(vii) Increase in raw material costs; and
(viii) Increase in sheet metal and structural steel costs.

From this analysis it is found that a reduction in sales prices or volumes would have the largest negative impact on the profitability of the Agro-Processing Industrial Park. Therefore, the following actions have to be taken:

(i) Building and maintaining long term relationships with customers;
(ii) Liaising with the relevant government departments, regarding incentives to assist small farmers, agricultural

and food products processors to buy equipment; and

Projected Incomes Statement (US$)

	Year 1	Year 2	Year 3	Year 4	Year 5
Sales revenue	2, 426, 760	2 867 116	3 357 230	3 901 912	4 175 046
Gross profit	**(421 935)**	**(231 510)**	**(15 387)**	**229 099**	**451 275**
Taxable profit	**0**	**0**	**0**	**0**	**204 378**
Income(corporate) tax	0	0	0	0	57 226
Net profit	**421 935**	**231 510**	**15 387**	**229 099**	**394 049**

Projected Balance Sheet

	Establishment (Year 0)	Year 1	Year 2	Year 3	Year 4	Year 5
Total assets	4 400 000	4 692 056	4 698 990	4 712 505	4 956 430	5 129 522
Total liabilities	4 400 000	4 692 056	4 698 990	4 712 505	4 956 430	5 129 522
Net worth	**4 400 000**	**4 178 065**	**3 946 555**	**3 931 168**	**4 160 267**	**4 554 316**

Projected Cash flow statement

	Establishment (Year 0)	Year 1	Year 2	Year 3	Year 4	Year 5
Total cash inflow	4 400 000	2 718 947	2 874 190	3 370 895	3 916 898	4 183 360
Total cash outflow	4 360 359	2 735 143	2 538 692	2 819 480	3 131 236	4 224 614
Surplus (deficit)	**39 641**	**16 195**	**335 497**	**551 415**	**785 663**	**41 253**
Cumulative cash balance	**39 641**	**23 446**	**358 943**	**910 358**	**1 696 021**	**1 654 767**