

PYTECH LIMITED

FIVE YEARS STRATEGIC BUSINESS PLAN

2023 – 2027

PYRETHRUM EXTRACTION PLANT IN MBEYA THE UNITED REPUBLIC OF TANZANIA



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ACRONYMS

AMCOS	Agricultural Marketing Cooperative Societies
CPA	Certified Public Accountant
GAAP	General Accepted Accounting Principles
MFIs	Micro Finance Institutions
PAYE	Pay As You Earn
PCT	Pyrethrum Company of Tanzania
SACCOS	Savings & Credit Cooperative Societies
SDL	Skills Development Levy
TARI	Tanzania Agricultural Research Institute
TBK	Pyrethrum Board of Kenya
TPB	Tanzania Pyrethrum Board
URT	United Republic of Tanzania
US\$	United States Dollars
USA	United States of America
WCF	Workers' Compensation Fund

EXECUTIVE SUMMARY

Pytech Limited is a legal entity registered in the United Republic of Tanzania in June 2013 under the Companies Act 2002 with Registration Certificate No.100419. Based in Mbeya, the company's principal activity is processing and selling pyrethrum products.

Pytech Limited commenced processing of pyrethrum powder (grist) in 2021 all of its products are so far 100% sold to Horizon Sopyrwa – a Private Company based in Rwanda.

Pytech Limited management has prepared this business plan with the main purpose of making advancement of its pyrethrum processing by purchasing and installing a crude extraction machine worth \$1M. With this, the company will now be processing and exporting crude extract and stop exportation of grist. With an advanced processing plant, the company will manage to process 200 metric tons of dry pyrethrum flowers per month.

The Company Directors have enormous experience in Pyrethrum value chain business for more than 20 years now. The same Directors are running the Horizon Sopyrwa which is also engaged in pyrethrum production, processing and export since 2008.

The Company is seeking a bank loan financing of USD 2,200,000 to finance its advancement and scaling up of its pyrethrum processing. The bank loan of USD 2,200,000 will be split into USD 1,200,000 for purchase of crude extraction machine, and USD 1,000,000 meant for working capital to purchase dry pyrethrum flowers from farmers.

The planned advancement and scale up of pyrethrum processing is projected to generate revenue of USD 6,011,280 and a profit after tax of USD 615,152 in the 5th year of operations of this plan (i.e. FY 2027).

1.0 BUSINESS DESCRIPTION

1.1 Company Information and Legal Status

PYTECH LIMITED is a legal entity registered in the United Republic of Tanzania since June 2013 under the Companies Act 2002 with Registration Certificate No.100419 with its principal activity being processing and selling pyrethrum products.

The company is now investing and will run an extraction plant in Mbeya, Tanzania to produce and sell high quality crude pyrethrum and related products inside and outside Tanzania. The company is implementing the project with effect from January 2023. The first phase of the project commenced in 2022 with construction of buildings for extraction plant and offices.

1.1.1 Ownership

The company is owned by two shareholders who constitute the Board of Directors: Gabriel Bizimungu and Justin Cyubahiro. Each director is allotted 500 shares. The Company is managed by the Managing Director who leads the management team under the close guidance of the Board of Directors. Their positions and addresses are presented in table 1 below.

Table 1: Shareholding structure

S/N	Shareholder's name	Position & Address	Nationality	No. of shares	% Shareholding
1	Gabriel Bizimungu	Managing Director 21, Nyagatare Street, Kibagabaga, Kigali, Rwanda	Rwandan	500	50%
2	Justin Cyubahiro	Director Gasabo. Nepad Avenue No. 25, Kigali, Rwanda	Rwandan	500	50%
	Total			1,000	100%

1.1.2 Location

PYTECH LIMITED is located at Plot No. 10, Iyunga Industrial Area, Sisintila Street, Opposite Mbeya Breweries Ltd, Iyunga Ward, Mbeya District, Mbeya region, the United Republic of Tanzania.

1.1.3 Key Addresses

Pytech Limited

P.O.Box 739,
Mbeya, Tanzania

Auditors & Financial consultant:

MOSES AB & COMPANY
Certified Public Accountants in Public Practice
P.O.Box 2412
Mbeya, Tanzania
Phone: +255 754 010 057

Legal consultant:

Lawhome Solicitors.
P. O. Box 2755, Mbeya

Banker:

Name: Equity Bank
P.O. Box 2329
Mbeya, Tanzania, Tanzania
Nature of Account: Current Account

1.2 Product and Core Activities

The Company is registered in Tanzania to export, store, process, use and sell pyrethrum. The company is now investing and within 5 years of this strategic plan (2023-2027) will be able to run an extraction plant in Mbeya, the United

Republic of Tanzania to produce and sell high quality crude pyrethrum (crude extract) and related products inside and outside Tanzania.

1.3 Past performance of the Business

Pytech Limited commenced processing of pyrethrum powder (grist) in 2021 and the operational results were as indicated on the table 2 below:

Table 2: Past performance of the PYTECH Limited Business

Description	FY 2021	FY 2021	FY 2022	FY 2022
	Audited AFS TZS	Audited AFS USD equivalent	Management accounts TZS	Management accounts USD equivalent
Grist revenue	929,541,672	399,803	2,980,067,683	1,281,750
Direct costs (Cost of sales)				
Grist	927,766,876	399,040	2,787,060,622	1,198,736
Packaging materials	2,841,525	1,222	10,006,271	4,304
Shipping costs	80,116,708	34,459	260,310,648	111,962
Stock others	12,230,850	5,261	28,717,449	12,352
	1,022,955,959	439,981	3,086,094,991	1,327,353
Gross profit/(loss)	(93,414,287)	(40,178)	(106,027,308)	(45,603)
Administrative & operating exp.				
Administrative expenses	288,103,437	123,915	508,606,360	218,755
Repair & maintenance costs	109,356,848	47,035	89,925,305	38,678
Operating cost - Plant grinding	20,207,751	8,692	39,698,298	17,075
Depreciation	43,897,403	18,881	101,208,636	43,531
Amortization of software	5,054,765	2,174	12,131,437	5,218
Total admin & operating exp.	466,620,204	200,697	751,570,035	323,256
		-		
Profit / (loss) before tax	(560,034,491)	(240,875)	(857,597,342)	(368,859)

1.4 Experience and Skills of the Company Directors (Business Owners)

The Company Directors have enormous experience in Pyrethrum value chain business for more than 20 years now. The same Directors are running the Horizon Sopyrwa which is also engaged in pyrethrum production, processing and export since 2008.

Horizon Sopyrwa owns one of the three major pyrethrum refineries in the East African region. The company processes almost 5% of world production of pyrethrum pale extract. The quality of the pyrethrum pale extract is believed to be the best in the world and the preferred product by formulators in Europe and the USA. The company is among the world's top three producers of pyrethrum products. Such experience from Sopyrwa in Rwanda will be shared with Pytech Limited management and staff to enable to achieve its strategic objectives.

1.5 Objectives of the Business Plan

The main objective of this Business Plan is to establish a plant in Mbeya, Tanzania for the purpose of processing dry pyrethrum flower to get crude and pale pyrethrum extracts for local and export markets.

Furthermore, the company envisages accessing a commercial loan from the bank for financing the expansion of the business by procuring crude extract processing machines for drying flowers and extracting crude and pale pyrethrum extracts.

2.0 PYTECH STRATEGIC OUTLOOK

2.1 Long term Vision of the Company

To become a leading pyrethrum producer in the world by providing eco-friendly products and contributing to the economic development of the East African region.

2.2 Mission Statement

To create value to our stakeholders throughout the Pyrethrum supply chain by:

- ❖ Promoting pyrethrum growing as a cash crop by encouraging regions where this product is already being produced to increase areas under cultivation while encouraging regions with potential for pyrethrum cultivation but are currently not producing the product.
- ❖ Increasing the quality and quantity of pyrethrum through best agronomic practices and improved seeds by use of in-vitro laboratory and soil analysis programs.
- ❖ Improving our employees and farmer partners' skills through regular training.

2.3 Company Core Values

The core values of the company are as follows:

- ❖ **Dynamism:** We believe with determination it is possible to achieve our targets.
- ❖ **Optimism:** We believe the future is bright and thus, creating opportunities for us to exploit.
- ❖ **Honesty:** We deliver on our promises.
- ❖ **Teamwork:** We believe together we can achieve more. We therefore respect each other's individual traits in enabling us to succeed in our endeavors.
- ❖ **Commitment to stakeholders:** We endeavor to meet and exceed the expectations of our all stakeholders.

2.4 Company Strategic Choice

In the next five years (2023-2027) the company is embarking on expanding the pyrethrum production that has opted, among other things, to do the following approaches: -

- ❖ Increasing more field officers from three (3) to five (5) in order to sensitize more farmers to get into pyrethrum production.
- ❖ Engage more suppliers/agents in terms of increase in numbers but also in terms of capacitating them financially and become able to collect enough volumes within the acceptable quality requirements.
- ❖ Facilitating expansion of production to new areas that have potential for pyrethrum production. Some of them are Chunya District (Mwasengwa village), Makete and Ileje districts.
- ❖ Expand more demonstration farms with improved seeds from TARI for getting bumper harvests
- ❖ Continue providing improved seeds to farmers at no cost and close support from the field officers on application of best pyrethrum farming and handling practices.
- ❖ Loan advancing to farmers to enable them produce more and thereafter sells back to Pytech Limited.
- ❖ To be more creative on the incentive packages to the farmers. The manageable budget to recognize best farmers (with quality and high volume) of the year awards: items such as: Cattle, Boots, Bed sheets, Plastic sheets, hoes etc. By doing this, the level of awareness for significant pyrethrum production is expected.

For the above to be successfully implemented, the collaboration of all actors along the Pyrethrum value chain is of paramount importance. TARI to continue doing research of the best seed varieties present, Tanzania Pyrethrum Board to continue updating the farmer community the available opportunities in the production of pyrethrum, and the Pytech Limited Board and management to remain focused in attaining the set goals in the strategic Business plan (2023-2027).

3.0 MARKETING ASSESSMENT AND MARKETING PLAN

3.1 Pyrethrum Industrial Description

3.1.1 Pyrethrum in East Africa

The Pyrethrum history in East Africa can be traced back to the post-World-War II era, where for several political and economic reasons, Pyrethrum growing flourished in East Africa. English and American interests introduced pyrethrum cultivation to East Africa during World War II to replace flower production lost during fighting in China. As a result, Kenya and Tanzania became prime growing regions. MGK licensed extraction and refining technology to the Pyrethrum Board of Kenya (“PBK”), which became a leading producer of pyrethrum in East Africa. PBK’s headquarters and production facility is located in Nakuru, Kenya. PBK collects flowers from growers in several regions in Kenya.

Producers in East Africa succeeded in growing pyrethrum for several reasons. The pyrethrum plant thrives at high altitudes and in volcanic soil. There are many growing regions in East Africa with good combinations of altitude, rainfall and soil conditions. Additionally, the people living in many of these areas are not able to grow crops to sell for cash. Pyrethrum provides a cash crop that supplements subsistence farming. The cash earned from pyrethrum funds school uniforms, books, supplies and other essentials.

Governments in East Africa are renewing efforts to revive the ailing pyrethrum subsector in order to bring back the boom that had made the region the epicentre of global production.

With demand on the rise for the cash crop that is used in the production of organic insecticides, countries in East Africa are determined to revive pyrethrum farming and propel the subsector to the pinnacle of poverty eradication and economic growth.

The push to revive the subsector that was once a top foreign exchange earner is gaining traction as agrichemical manufacturers are increasingly gravitating toward products with low mammalian toxicity and zero-residue bio pesticides, particularly for horticulture and floriculture farming.

Moreover, the use of pyrethrum in the manufacture of medical care and personal care products is driving demand that is projected to accelerate by about 2% in the medium term, propelling consumption from 11,000 metric tons currently to 14,000 metric tons by 2025, according to market research by Index Box.

3.1.2 Pyrethrum in Tanzania

In 1938 Tanganyika (now Tanzania) started exporting pyrethrum flowers abroad. In 2006 MGK purchased controlling interest in TPPMCL, a company that extracted pyrethrum flowers in Tanzania. Most recently, the company’s name was changed to Pyrethrum Company of Tanzania (PCT). PCT in partnership with MGK (a majority shareholder of PCT) has undertaken a long-term project to improve the extraction facility in Tanzania, to coordinate the pyrethrum flower growers and the annual collection of flowers.

In Tanzania, pyrethrum flowers are grown in the southern and northern highlands which have the right altitudes and climate conditions for cultivation of this flower. Some of the regions include Mbeya, Njombe, Iringa, Arusha, Manyara, and Hai District in Kilimanjaro Region.

Pyrethrum is, therefore, a vital component to rural life in the countries and villages where pyrethrum is cultivated. PCT and MGK see this as an important factor in maintaining a sustainable and reliable supply of pyrethrum. Pyrethrum also gives farmers in remote villages' access to cash from a crop that is important to the developed world. By accessing this value chain, rural African villagers become important participants in a global market.

3.1.3 Pyrethrum in Rwanda

The pyrethrum crop which was introduced in Rwanda by Europeans in 1936, is a safe, organic pesticide alternative to harmful synthetic chemical pesticide currently used to control a wide range of insects. In 1963, the Rwandan government took interest in expanding the pyrethrum industry, and granted two hectares of land to each individual farmer in a belt around the Parc National Des Volcans (Volcano National Park) in northwestern Rwanda. Farmers were contracted to dedicate 40% of their land to cultivating pyrethrum, and the remaining 60% could be used at their own discretion.

In the 1970s, the government merged a "planters association", which was comprised of the pyrethrum cultivating farmers, with an industrial facility that could process the flowers for export as raw, pyrethrum extract, into a company called OPYRWA. Unfortunately, at the same time the global pyrethrum market suffered a downturn.

The rise of low-cost synthetic pesticides (Pyrethroids) in the 80s and 90s, their harmful effects not yet entirely known, turned the market's attention away from pyrethrum. The export of organic pyrethrum from Rwanda began to plummet. In an effort to add value to the product locally, OPYRWA began building a refinery to further process the raw pyrethrum extract into pure pyrethrene, which could be added to pesticide formulas without any further processing. This, they hoped, would drastically reduce the transportation costs of the operation, which given Rwanda's landlocked location, are significant.

When the 1994 Rwandan genocide occurred, it caused the entire industry and infrastructure to collapse. Farmers fled their lands, the factory was abandoned, and the new refinery was left unfinished while the country descended into chaos. The northwestern region, where OPYRWA was located, was especially hard hit, with refugees fleeing to the Congo, and the military mostly overtaking the area in their absence.

From 1994 to 2001, the northwest region of Rwanda was an area of instability and conflict. It wasn't until 2001 that the government focused on providing security and making a push towards privatization of industries as an engine for economic growth, decided to promote a resurgence of pyrethrum production by privatizing OPYRWA, renamed SOPYRWA.

When Horizon Group took over SOPYRWA in 2008, the refinery was running at only 6% of installed capacity, producing just 4 metric tons of extract. In just two years, the company was producing 15.8 metric tons of extract.

SOPYRWA is now focusing on re-building the 15,000+ network of small farmers and their families who are key to their supply chain. By re-engaging private cooperatives, which deal directly with the local farmers and serve

as collection points for dried pyrethrum, and offering farmers higher prices, immediate payment, and stronger high-yield seeds. At the same time, SOPYRWA is now developing additional value-added products for the local region through a venture with a UK-based industry partner.

With government backing, and an expansion of global partnerships, SOPYRWA appears poised for another big year. Yet Crockett adds that the growth has as much to do with what SOPYRWA and the Government of Rwanda has done, as with the global market demand itself. Demand still outpaces supply by about 4:1, and the trend towards organic (e.g. anti-synthetic pesticides) coupled with Kenya's collapsed pyrethrum sector puts Rwanda at a distinct advantage.

Given the ideal climate, both in terms of Rwanda's improving business environment and its actual soil conditions, the potential for Rwanda's pyrethrum production and refinement is vast.

One of just four major countries (Australia, Kenya, and Tanzania being the others) that grow pyrethrum, a flower refined into a highly demanded, natural, flower-based pesticide, Rwanda has been actively working to revive this once near-collapsed industry, and for good reason. With 70% to 80% of the pure active ingredients, Rwanda's rich volcanic soil has the potential to produce some of the world's best pyrethrum.

3.2 Market Assessment

Pyrethrum is one of the major export agricultural products in Tanzania yielding on average, about US\$ 2.04 Million per annum. According to Tanzania Pyrethrum Board, Tanzania supply about 11% of the world market. There is a potential to increase this market share to over 25%. Most of the pyrethrum produced is for the export market with the local market consuming less than 2% and the rest exported mainly to the USA, Europe and Japan

As a perennial crop the demand for pyrethrum has increased recently as many countries find that this Organic Insecticide is safer to use for controlling insects and yet environmentally friendly compared with synthetic insecticides. It is estimated that world demand for dry flowers is about 20,000 tons against a supply of only 12,000 tons. Due to their safety record, there is a growing demand for pyrethrum-based pesticides especially in Europe, Japan and the Far East. There is a ready market for pyrethrum extracts in the Southern African region and in South Africa in particular where processing facilities exist. According to the Tanzania Pyrethrum Board (TPB); Tanzania has the potential to produce over 9,000 tons of dried pyrethrum flowers per year. Currently, only about 2,500 tons of dried flowers and 40 tons of pyrethrum extract are produced annually. These demonstrate the potential market for pyrethrum and prospect to farmers to improve income through increased production.

Although the market for pyrethrum in Tanzania has been liberalized following economic reforms, Tanzania still exports over 99% of the dry pyrethrum powder and crude extract due to lack of refinery facilities. Currently, private and licensed buyers and companies are now undertaking pyrethrum marketing, processing and exportation of the products.

3.3 Some Potential uses of Pyrethrum

The pyrethrum is friendly to the environment than many synthetic insecticides. This makes it famous and popular. Its specific insecticidal properties known as pyrethrins have the following habits.

- ❖ A unique “Knock down” effect on insects,
- ❖ Unlike many synthetic insecticides, pyrethrums have unparalleled safety record when used,
- ❖ Pyrethrins are environmentally friendly. They have no harmful residues in the food chain,
- ❖ Few cases have been reported on insects building significant resistance to pyrethrum application,
- ❖ Have a repellent effect on insects.
- ❖ The pyrethrum powder (grist) can be used to control storage pests in cereals at the rate of 1kg into 100kg of maize or beans
- ❖ A pinch of grist can as well control stalk borers in field maize.
- ❖ Extracted grist (marc) is incorporated in manufacturing mosquito coils.

3.3 SWOT Analysis

Table 3: PYTECH Limited SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> ❖ Through existing networks of the Horizon Sopyrwa of Rwanda, Pytech Limited finds it easy to sail through the market. ❖ Pytech Limited is expected to draw from a long time and rich industry experience from Horizon Sopyrwa Rwanda management. ❖ Existence of, Horizon Sopyrwa in Rwanda which runs a state-of-the-art refinery plant in Rwanda guarantees a ready market for Pytech Limited products. ❖ Location of the factory being close to source of raw materials. ❖ Well organized pyrethrum suppliers (Pytech Limited’s Agents) who work closely with smallholder farmers from farm preparation to the harvesting seasons 	<ul style="list-style-type: none"> ❖ Newness to the Tanzanian operating environment may present a number of uncertainties. ❖ Lack of enough skilled labourers to match with expansion plan may affect the fulfillment of the set objectives. ❖ Irregular supply of flowers may mismatch with the installed capacity ❖ This crop demands labour intensive
Opportunities	Threats
<ul style="list-style-type: none"> ❖ Absence of adequate similar refinery facilities in Tanzania. ❖ The quantity of pyrethrum produce is less than the current demand in the market (Demand is bigger than supply). ❖ Existence of supportive government policies which encourage both local and foreign investors in the Pyrethrum sub sector. Production improvement by using Agronomists who will provide the agricultural best practices to smallholder farmers 	<ul style="list-style-type: none"> ❖ Unreliable power supply ❖ The existing competition from other emerged pyrethrum companies in Tanzania. There are now seven of them ❖ Possibility of poor harvest due to the climate change causing unreliable rainfall. ❖ Possibility of world market prices becoming volatile.

3.4 Competitive Analysis

Currently there are seven companies operating in Tanzania involved in buying of pyrethrum flowers. PYTECH Limited has become the second largest buyer of dry pyrethrum flowers in Tanzania. Other six companies, competitors of Pytech Limited in procuring the pyrethrum produce are: Pyrethrum Company of Tanzania (PCT), Tan Extract Ltd, Maua Pyrethrum Ltd, Shana Tech Ltd, Kati Investment Ltd and Dakabena Ltd. According to the Tanzania Pyrethrum Board (TPB) the status of the current level of existing competition among the pyrethrum companies operating in Tanzania is indicated on a table 4 below.

Table 4: Status of current level of competition and market share per each company by the year 2021/2022

Position	Pyrethrum buying company	Estimated current buying/processing capacity MT	Market share
1	Pyrethrum Company of Tanzania (PCT)	3,000	41.1%
2	Pytech Limited	2,000	27.4%
3	Maua Pyrethrum Ltd	500	6.9%
4	Tan Extract	300	4.1%
5- 7	Companies combined <ul style="list-style-type: none"> • Kati Investment Ltd • Shana Tech Ltd • Dakabena Ltd 	1,500	20.5%
	Total	7,300	100%

Source: Tanzania Pyrethrum Board (2022)

3.5 Pyrethrum Production prospects in Tanzania

According to the Africa-Press; Tanzania's production of pyrethrum is expected to dramatically increase to more than 9,000 tons in the year 2022/2023, after three industries increased their intake of such raw materials. The pyrethrum producers and other stakeholders have set that target of production. Through such initiative of the private sector, the government through the Ministry is committed to develop the production of pyrethrum through the Board and the Agriculture Research Institute (TARI), which have invested in research on quality pyrethrum seeds and ensure they are widely available and timely distributed to farmers.

3.6 Competitive Advantages

Comparatively, PYTECH LIMITED stands a chance to enjoy a wealth of experience from Horizon Sopyrwa which has been in the pyrethrum business for approximately fifty years. Over the years the parent company has established business connections both locally and internationally. The company has also attracted and developed unparalleled levels of expertise- including top industry consultants, from which the branch will draw.

The liquidity of the company of its ability to pay smallholders promptly marks the long-term mutual relationships with famers and suppliers /agents sustainably.

3.7 Marketing Strategies

A marketing strategy is a company's long-term plan of action that aims to promote its products and services, gain a competitive advantage, and meet their business goals.

Business success in a competitive environment requires a focused marketing Plan / strategy (either cost leadership strategy or product/market differentiation strategy). The marketing strategy provides a clear framework on the optimal mix of the key marketing elements (product, price, place (distribution) and promotion) in order to provide long-term profitability and sustainability (Kotler and Keller, 2006).

PYTECH LIMITED plans to brand and package its products through:

- Use of Information Education Communication (IEC) materials such as Posters, brochures, flyers and multi-media tools.
- The company will also engage target markets through sensitization campaigns and workshops to persuade them about the superiority of its products especially Pymarc.

3.7.1 Pricing

Pytech Limited has a single reliable customer, Horizon Sopyrwa who is a sister company based in Musanze District – Northern Region of Rwanda. Hence, 100% of the Pytech Limited's crude extract will be sold to Horizon Sopyrwa and elsewhere in the world. The pricing of the product will essentially be determined by cost of production plus transportation cost to the final destination with addition of a reasonable margin in order to arrive at a selling price.

The price of dry pyrethrum flowers, like of other crops, is competitive. Pytech Limited is one of the main buyers in Southern highlands as it is presented in 3.4 above. The company has set a mechanism by establishing buying and collection centers within the farming areas. The farmers sell pyrethrum flowers through agents where collections are made. The price paid to growers for dried flowers depends on the pyrethrin content measured during the purchasing.

The present prices for each weighed kilogram of dried flower has sharply increased from Tsh. 2,700/= (2021) to 3,500/= (2022) per kilogram. One of the reasons for increase in price is the existing competition among the pyrethrum companies of which the number has increased from 3 (2021) to 7 (2022) Essentially, all prices set forth are determined by costs of production plus transportation cost to the final destination with addition of a reasonable margin in order to arrive at a selling price.

3.7.2 Packaging

The crude extract will be packed in special drums which bear a United Nations mark for meeting the requirements of the international markets. The packaging is done two different categories, which include 25kgs and 200kgs.

3.7.3 Distribution

Currently we sell straight to our customer with the possibility of appointing distributors if the need arises. PYTECH LIMITED is expected to transport pyrethrum crude extract from Mbeya Tanzania through hired vehicles at an estimated cost of between USD 8,000 and 10,000 for a 20 to 25 tons' truck to transport crude pyrethrum from Mbeya Tanzania to Kigali Rwanda.

4.0 PRODUCTION AND OPERATIONAL PLAN

4.1 Location of the Business

PYTECH LIMITED is located at Plot No. 10, Iyunga Industrial Area, Sisintila Street, Opposite Mbeya Breweries Ltd, Iyunga Ward, Mbeya District, Mbeya region, the United Republic of Tanzania.

4.2 Production

The term "pyrethrum" refers to the powder made with the dried flowers of the chrysanthemum, whereas the term "pyrethrins" refer to the six insecticide components occurring naturally in the powder. These six pyrethrins constitute between 0.9% and 1.3% of the dried flowers

Ideal growing conditions are a semi-arid climate with cool winters, 1200 mm rainfall and a two- to three-month dry season. They tolerate temperatures as low as -12°C. Shaded areas should be avoided because lack of sunshine greatly diminishes pyrethrin concentrations

Ideally, the flowers should be harvested at full development and even between the fifth and ninth day following the beginning of flowering. The flowers at the centre of the plant contain more pyrethrins than those on the outside.

The drying method affects pyrethrin concentrations very little, according to Gnadinger *et al.* (1933). Commercially, the flowers are dried in aerated buildings, in the sun or on drying racks, until moisture content is about 10%.

The fineness of the crushed flowers influences the pyrethrum's efficiency as well as its longevity. The finer the powder the more efficient the pyrethrum will be against insects, but the more rapidly it will deteriorate. Part of the stems can be crushed with the flowers without really reducing the concentration of pyrethrins. Pyrethrins are highly unstable components. They are quickly altered by light and heat and decompose in air in a matter of days. They decompose almost immediately in alkaline mediums. Pyrethrin concentrations can be maintained for at least six months by keeping the crushed flowers in a freezer, at temperatures between -2°C and -5°C. At room temperature, freshly harvested flowers will keep for about 10 days in a hermetically sealed container. Dried flowers kept in hermetically sealed containers away from light will keep for several months. Submerging pyrethrum in mineral oil or sesame oil is another form of preservation.

4.3 Raw Materials supply

PYTECH LIMITED will borrow a leaf from Rwanda on maintaining good relationships with the pyrethrum growers (suppliers). Beyond the demonstration of Sopyrwa's fine quality pyrethrum and growing productivity is its impeccable practice of improving farmer's livelihoods. To give an example, in Rwanda, Sopyrwa has invested in research on best yielding varieties, donated 2.5 tons of new seeds to farmers and has availed farmers with 380 Tons of organic fertilizers not to mention facilitating farmers to acquire loans and providing them with iron sheets and mattresses for their households. Accruing from these inputs is a 380% increase in export revenues.

In Tanzania, the company is working with two agents of dry pyrethrum flowers. They have contracts with them and are currently looking forward to review the contracts and prices to accommodate any relevant changes that may have taken place in the industry. The company is also looking into extending to 2 more agents in order to cover a wider area in Mbeya’s growing localities. In this supply strategy, the company will not deal directly with growers but with contracted agents instead.

4.4 Experiences from other similar pyrethrum companies existing in Tanzania

The Pyrethrum Company of Tanzania (PCT) for over the last ten years, has been providing a range of incentives and support to pyrethrum growers including: prompt payment for produce delivered by farmers, the provision of extension support services, transport for produce to the processing plant in Mafinga, and the provision of planting materials to smallholder farmers at no cost. This company is the first largest buyer and processor of pyrethrum in Tanzania at the moment, with an estimated market share of 41.1%. Through this approach still the company has not been fulfilling its promises to the farmers at the optimal level. That is why the market share of Pytech Limited has been increasing as it now stands at 27.4%. More innovative strategies are suggested to be employed in operational model under section 4.5 below.

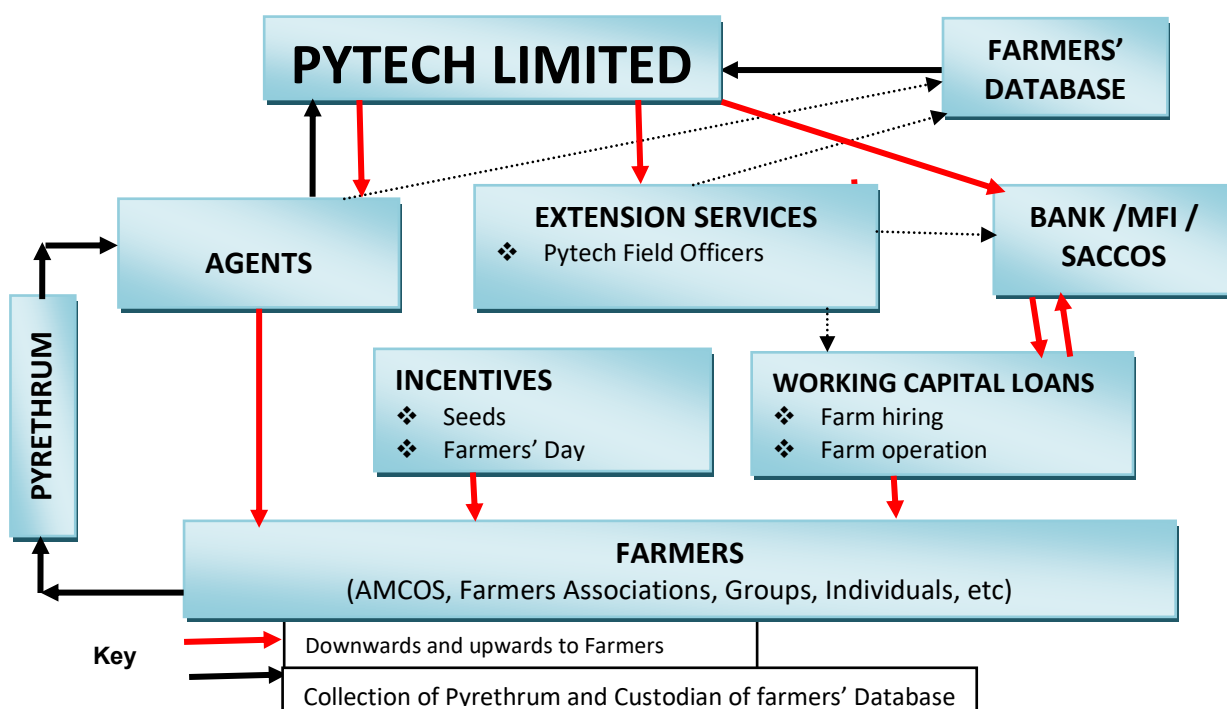
4.5 The Company Business Operational Model

The smallholder growers continue to face major challenges that limit their effective participation in the pyrethrum supply chain such as:

- ❖ Providing a consistent, high volume supply of homogeneous raw materials (i.e. dry pyrethrum flowers), and

This emphasizes the need for collective action and cooperation to aggregate produce on a scale required by the market when the processor wants it. Pytech Limited has proposed the new business model of operation which is expected to collect pyrethrum in a consistent manner with high volume supply of homogenous produce as presented in the figure 1 below.

Figure 1: Pytech Limited new operational model.



Source: Adopted from the field in consultation with Pytech Limited

Description of the operational model

Pytech Limited will reach farmers through Agents who will be collecting the pyrethrum produce from farmers on a commission basis. In order for the company to increase the production and collection of pyrethrums simultaneously; the component of agricultural extension services is compulsory. The model of operations is as presented below: -

(i) Extension Services

Initially, the company had two agronomists (field officers) who are based at famers' production areas that have been supporting farmers on Good Agricultural Practices. There were two of them located at Makete and Ileje Districts. It is now proposed in this plan document that the company will expand this unit by increasing the number of field officers from 2 to 5 in order to support pyrethrum production closely in the following areas: 1-Makete; 1- Ileje; 1-Mbeya Rural; 1- Njombe and 1-Garijembe. Among other things, these field officers will support the Pytech Limited on the following areas/activities: -

(A) Provide incentives to farmers

- ❖ Mobilize farmers into groups and individuals
- ❖ Make agreement (MoU) of the production of the pyrethrum
- ❖ Provide the pyrethrum seeds free (at Pytech costs)
- ❖ Organizing community events especially during and after harvest such as **Farmers' Day** where the best farmers will be recognized by some awards

It is expected that a good number of farmers will be attracted to join the Pytech in the production of pyrethrum.

(B) Provide Working Capital Loans to farmer groups and individuals

Under this approach the company will work either the Bank supporting agricultural practices or available Micro Finance Institution (MFI) or SACCOS within the proximity. The objective of this approach is for Pytech Limited to remain focused with production of pyrethrum and leave all financial management services under the financial institutions. Pytech will work with the financial service providers by signing the MoU where as Pytech will provide the guarantee fund scheme where farmer groups will be able to access working capital loan for farm hiring and meeting farm operational costs as follows:-

Type 1: Farm Hiring – The Company will enter into contract with the farmer(s) who will be willing to produce pyrethrum but they do not have own. They will be directed to work with available MFI by accessing loans to them after have met the loan process check-list as per the MFI rules and regulations. The loan will support them to access the farms for pyrethrum production. The loan amount will be deducted during harvesting season at the point of sale to the company.

Type 2: Farm Operation costs – The Company will enter into contract with farmer(s) who will be willing to produce pyrethrum in their own farms by accessing loans to them in order to produce pyrethrum. The loan amount will be deducted during harvesting season at the point of sale to the company.

(ii) Agents

The Company has been working with farmers at the point of purchase through Agents. These are companies/ individuals who are indigenous and live with farmers. This approach has proved to Pytech Limited to be effective especially by purchasing the quality produce from the farmers. The Company will continue working with these agents /suppliers (Rev. Obed Mwilenge – Mbeya; Kelvin-Garijembe; Alphonse-Ileje) by capacitating them in terms of financial support and training on proper way of handling the produce during the harvesting and transporting to the processing centre.

(iii) Farmers Database

The Company shall maintain the farmers database describing some important key aspects such as: Location (*Region, District, Division, Ward, Village and Hamlet*); Number of acres growing pyrethrum; Number of Kilograms of seeds provided by the company; Number of acres (size) to be used for pyrethrum production; Farm ownership (*Do the farmer own land or has hired land?*); Relationship with the Pytech Limited (*Is the farmer new or repeat customer?*); Amount of loan advanced and for what activities; Volume of pyrethrum

sold to the company after harvesting and so forth. Such database will assist the company to anticipate the expected volume of pyrethrum to be purchased per farmer per year.

(iv) Farmers

The Company will work with all categories of farmers. These may be in groups, AMCOS and individual farmers. The Agricultural Field Officers will establish the best methodologies of dealing with all types of farmers in order to optimize their participation in the pyrethrum value chain. Their obligation will be to supply their produce through their proximity Agents / suppliers.

(v) Pyrethrum purchases

The pyrethrum flowers will be purchased through the agents who will be responsible to transporting the consignment to the factory/ processing areas. During purchase and transportation all necessary quality requirement will be observed.

4.6 Expansion (Investment) Plan

The company is planning to install three main machines for value addition to pyrethrum before transporting it to Rwanda for further processing and packaging: these are crude extract machine; crude extract analyzer (HPLC Machine) and Dryer Machine for flowers. Table 2 below presents the cost of investment of the new expansion plan in terms of the machinery required.

Table 5: New machines for expansion plan

S/N	NAME OF THE MACHINE	Currency	QTY	UNIT COST	ESTIMATED COST (USD)	ESTIMATED COST (TZS)	PRODUCTION CAPACITY
	Machinery						
1	Crude Extract	USD	1	1,015,000	1,015,000	2,364,950,000	10T/per day
2	HPLC Machine (Crude Extract analyzer)	USD	1	70,000	70,000	161,350,000	-
3	Dryer Machine for Flowers	USD	1	90,000	90,000	209,700,000	10T/per day
	Sub total				1,175,000	2,736,000,000	

4.7 New adopted Pyrethrum processing flow

The new adoption for pyrethrum processing flow is as presented in the figure 2 below:

Figure 2: Pyrethrum Process Flow

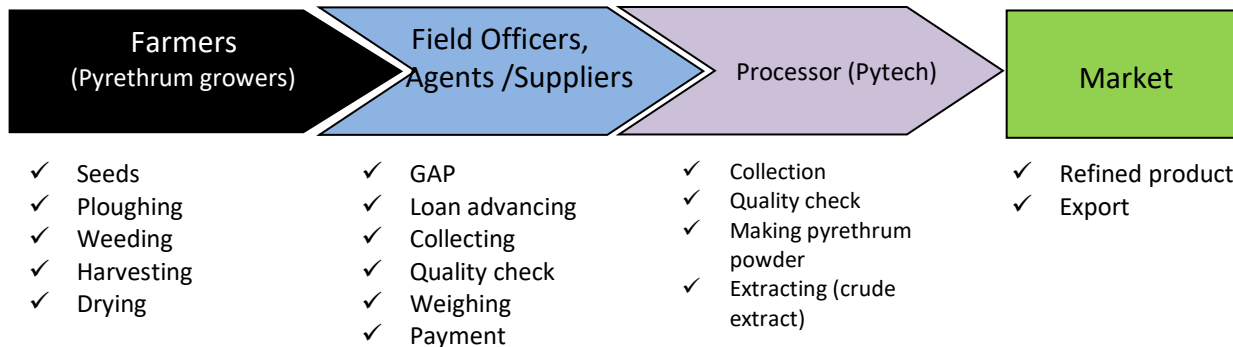


Figure 2 above depicts pyrethrum value chain to be adopted by Pytech Limited in Mbeya, the United Republic of Tanzania. There are three main interdependent stages. These are:

- i) Farmers cultivate land, grow pyrethrum and dry pyrethrum flowers;
- ii) Field Officers support farmers in Global Good Agricultural Practice (G.A,P), Loan advancing and quality check. Agents / Suppliers carryout purchases, weighing and effect payments; and
- iii) Processor (Pytech Limited) collects the dried flowers, checks quality, processing powder and extracting into crude form. The last stage (market) is done in Rwanda where further refinery of the product is done to meet the export market requirements.

4.8 Quality Check and Assurance

Pyrethrum processing calls for a large number of specialized technical and analytical functions. In this regard, PYTECH LIMITED will invest in well-equipped modern Laboratories which will be maintained and manned by experienced chemists and technicians. In addition, the company will make substantial investments in the development of appropriate machinery and other physical inputs with the overall objective of matching output with the world demand. The company will also draw from a long-term experience from the sister company, Horizon Sopyrwa operating in Rwanda which is already running a modern Pyrethrum extraction and refining plant.

Quality will be a priority at PYTECH LIMITED as it is at Horizon Sopyrwa and quality assurance tests will be conducted at all stages of processing. All flower deliveries from the fields will be inspected for quality, weighed, sampled and analysed for Pyrethrins content in her laboratories. They will then be stored under carbon dioxide or directly passed to the various processing stages according to requirements, e.g. manufacture of Powders or Extracts.

Every stage of processing will undergo a rigid control system. All factory inputs will routinely be analyzed for conformity with specifications. In-process control will employ methods of analysis such as Gas Liquid Chromatography, Thin Layer Chromatography, Ultra Violet and Infra-Red Spectrometry as well as HPLC.

Before release to a customer, PYTECH LIMITED laboratories will inspect all products by use of state-of-the-art analytical methods. Each shipment will be accompanied by an Analysis Certificate to testify compliance of the product with its specification as well as regulations of the receiving country or its specific use.

5.0 MANAGEMENT AND ORGANIZATIONAL PLAN

5.1 Ownership Board of Directors

PYTECH LIMITED is owned 100% by two shareholders as indicated below and it operates from Mainland Tanzania in Mbeya Region as presented in table 6 below.

Table 6: Ownership of PYTECH LIMITED

S/n	Names, addresses and description of subscribers	Nationality	Date of appointment	Number of shares taken
1	GABRIEL BIZIMUNGU 21, NYAGATARE STREET, KIBAGABAGA, KIGALI, RWANDA.	Rwandan	2013	500
2	JUSTIN CYUBAHIRO GASABO, NEPAD AVENUE NO. 25, KIGALI, RWANDA.	Rwandan	2013	500
	Total			1,000

5.2 Key Management Personnel

The key management staff is headed by the Managing Director who supervises day-to-day business operations. Under the managing Director four departments will be established and work under Managing Director which will constitute the Management teams as presented below describing their roles and responsibilities for each head of the department.

5.2.1 Managing Director

A Managing Director is a professional who provides inspiration, motivation, and guidance to leaders and managers in a company. This position is already filled by Marco B. Castro who is in charge of directing the company's operations to make sure it achieves its objectives effectively and efficiently. He provides inspiration, motivation, and guidance to leaders and managers in a company.

Managing Director controls and oversees all business operations, people and ventures. He is the highest-ranking manager in the organization and responsible for the overall success of the business.

5.2.1.1 Responsibilities

- ❖ Develop and execute the company's business strategies in order to attain the goals of the board and shareholders
- ❖ Provide strategic advice to the board and Chairperson so that they will have accurate view of the market and the company's future
- ❖ Prepare and implement comprehensive business plans to facilitate achievement by planning cost-effective operations and market development activities
- ❖ Ensure company policies and legal guidelines are communicated all the way from the top down in the company and that they are followed at all times

- ❖ Communicate and maintain trust relationships with shareholders, business partners and authorities
- ❖ Oversee the company's financial performance, investments and other business ventures
- ❖ Delegate responsibilities and supervise the work of executives providing guidance and motivation to drive maximum performance
- ❖ Read all submitted reports by lower rank managers to reward performance, prevent issues and resolve problems
- ❖ Act as the public speaker and public relations representative of the company in ways that strengthen its profile
- ❖ Analyze problematic situations and occurrences and provide solutions to ensure company survival and growth

5.2.2 Production Manager

This is vacant to be filled. A Production Manager is a professional who oversees the production process and coordinates all activities to ensure enough resources on hand. He/she plans workers' schedules, estimate costs and prepare budgets to ensure workflow meets required deadlines. He/she is responsible for the technical management, supervision and control of industrial production processes.

5.2.2.1 Responsibilities

- ❖ ensure that manufacturing processes run reliably and efficiently.
- ❖ planning and organising production schedules
- ❖ assessing project and resource requirements
- ❖ estimating, negotiating and agreeing budgets and timescales with clients and managers
- ❖ ensuring that health and safety regulations are met
- ❖ determining quality control standards
- ❖ overseeing production processes
- ❖ re-negotiating timescales or schedules as necessary
- ❖ selecting, ordering and purchasing materials
- ❖ organising the repair and routine maintenance of production equipment
- ❖ liaising with buyers and marketing and sales staff
- ❖ supervising and managing the work of junior staff
- ❖ organising relevant training sessions for betterment of the company performance.

5.2.2.2 Required knowledge and skills

The required qualification is such as a degree in Chemical Engineering or Advanced Diploma in Industrial production specific for processing with additional knowledge in business management, electrical, mechanical, process or production engineering.

5.2.3 Finance and Administration Manager

This post is already filled. Mr. Abel Nasasira, a Finance & administration manager who provides accounting support to the company /business including cost accounting and preparation of company's financial and other control reports.

5.2.3.1 Responsibilities

- ❖ Reports to the Managing Director

- ❖ Responsible for full cycle Accounts Payable and Accounts Receivable, including international wire transfers
- ❖ Collaborate in the definition of strategic business development plan with Management through financial modeling based on a strong understanding of company identity and vision
- ❖ Provide general administrative program support within the Managing Director's Office including meeting scheduling, travel arrangements, files maintenance, document coordination, budgeting, and administrative activities
- ❖ Review, collect, and analyze data for reports, presentations and correspondence
- ❖ Represent the Managing Director and Finance Office at meetings, functions, and coordinate external visits as needed
- ❖ Coordination, logistics, presentation preparation, records/response management, and support of sustainability practice-focused tours for the division
- ❖ Provide administrative support to the Managing Director's office and Finance when they are absent

5.2.4 Internal Auditor

This is a vacant post. An Internal Auditor is a professional who ensures organizations and companies have accurate accounting throughout the year. They ensure that other accounting teams follow proper procedures and that all accounts are updated and accurate. He/she is responsible for keeping their employer accountable regarding internal company procedures and industry rules. He/she duties include studying accounting records, preparing compliance reports and supervising company workflows.

5.2.4.1 Responsibilities

- ❖ Evaluate financial documents for accuracy and compliance with Pytech Limited regulations
- ❖ Identify the financial risk of the company and offer recommendations to reduce risk.
- ❖ Identify accounting and financial record-keeping processes that can be improved
- ❖ Determine ways to cut costs and improve profitability
- ❖ Assess the efficiency and productivity of internal staff and make recommendations for improvement
- ❖ Present findings to upper management in the form of reports and presentations

5.2.4.2 Required knowledge and skills

A minimum of a bachelor's degree in accounting or a related field with 3 years' experience in the similar position is required to work as an Internal Auditor. Other skills are such as:

- ❖ Strong communication skills to work with Accountants and other coworkers
- ❖ Excellent attention to detail to review large amounts of data and numbers
- ❖ Exceptional mathematical skills to verify entries
- ❖ Good critical-thinking skills to gather all of the available data and make informed decisions
- ❖ Excellent research skills to find all related information needed
- ❖ Proficiency in accounting software and spreadsheets

5.2.5 Accountant

This post is vacant. An Accountant helps businesses make critical financial decisions by collecting, tracking, and correcting the company's finances. The Accountant is responsible for financial audits, reconciling bank statements, and ensuring financial records are accurate throughout the year. Must have exceptional integrity as he/she oversees financial records, and he/she must have strong communication skills to present detailed information in a manner that's easy to understand.

5.2.5.1 Responsibilities

- ❖ Manage all accounting transactions
- ❖ Prepare budget forecasts
- ❖ Prepare financial statements in time
- ❖ Handle monthly, quarterly and annual closings
- ❖ Reconcile accounts payable and receivable
- ❖ Ensure timely bank payments
- ❖ Compute taxes and prepare tax returns
- ❖ Manage balance sheets and profit/loss statements
- ❖ Report on the company's financial health and liquidity
- ❖ Comply with financial policies and regulations of the company

5.2.5.2 Required knowledge and skills

- ❖ Should possess a Bachelor Degree in Accounting or related fields
- ❖ Should have a work experience as an Accountant
- ❖ Excellent knowledge of accounting regulations and procedures, including the Generally Accepted Accounting Principles (GAAP)
- ❖ Hands-on experience with accounting software like QuickBooks and related
- ❖ Experience with general ledger functions
- ❖ Strong attention to detail and good analytical skills
- ❖ Bachelor of Business in Accounting, Finance or relevant degree
- ❖ Additional certification (CPA) is a plus

5.2.4 Laboratory Supervisor

Laboratory supervisor is responsible for overseeing the day-to-day operations of a laboratory. Ensure that all testing and analysis is performed according to established protocols, and may also be involved in developing new methods or techniques for analyzing samples. This position is vacant at the moment.

5.2.4.1 Responsibilities

- ❖ Overseeing the operations of a laboratory.
- ❖ Supervising personnel and facilitating the collecting, analyzing, and interpreting of lab results.
- ❖ Setting the operating budget, hiring and scheduling support employees, and ensuring that all necessary equipment is on hand for lab research operations.
- ❖ Oversee quality assurance (QA) and institute practices to assure proper quality control (QC) within the lab.
- ❖ Perform responsibility of Laboratory Document Control.
- ❖ Manage laboratory purchase of inventory, storage and supplies usage.

5.2.4.2 Required knowledge and skills

- ❖ A Bachelor's degree in a science-related field, such as biology, chemistry or microbiology.
- ❖ Has a two-year associate's degree in a science-related field.
- ❖ Bachelor's in medical technology, chemical, physical, or biological science and 3 years training/experience in high complexity testing in the respective specialty
- ❖ Quality Management experience

5.2.5 Procurement Officer

The Procurement officer is responsible for evaluating suppliers, products, and services, negotiating contracts, and ensuring that approved purchases are cost-efficient and of high quality. This position is already filled by Mr. Desire Bayingana who has a Bachelor Degree in Engineering, University of Dar Es Salaam.

5.2.5.1 Responsibilities

- ❖ Overseeing and supervising employees and all activities of the purchasing department.
- ❖ Preparing plans for the purchase of equipment, services, and supplies.
- ❖ Following and enforcing the company's procurement policies and procedures.
- ❖ Reviewing, comparing, analyzing, and approving products and services to be purchased.
- ❖ Managing inventories and maintaining accurate purchase and pricing records.
- ❖ Maintaining and updating supplier information such as qualifications, delivery times, product ranges, etc.
- ❖ Maintaining good supplier relations and negotiating contracts.
- ❖ Researching and evaluating prospective suppliers.
- ❖ Preparing budgets, cost analyses, and reports.

5.2.6 Legal Officer

Legal Officer is a law professional responsible to make sure that company's business is adhering to law. Legal Officer gives legal advice and monitors all applicable legal aspects. This position is vacant at the moment.

5.2.6.1 Responsibilities

- ❖ Reports to the Managing Director of the Pytech limited
- ❖ Provide legal support and advice to upper management on relevant legal issues
- ❖ Ensure compliance with the internal controls, statutory regulations and other formalities
- ❖ Calculate and handle risks in business process and decision making
- ❖ Draft legal documents such as contracts, statements, agreements etc.
- ❖ Execute procedures for protecting patents, and trademarks of the company,
- ❖ Handle litigation
- ❖ Keeping up with current changes on all relevant areas of laws and contributing to the enhancement of the knowledge base of the company's legal function

5.2.6.2 Required knowledge and skills

- ❖ Bachelor's in Law or similar relevant field
- ❖ Previous working experience as a Legal Officer for 3 years
- ❖ In-depth knowledge of administrative law and procedures
- ❖ Good organisational, prioritisation and time-management skills
- ❖ Arbitration and mediation skills
- ❖ Excellent communication, presentation and interpersonal skills

5.2.7 Technical Adviser

Reports to the Managing Director of the Company. Technical advisor assists in developing and implementing program reviews. He / She renders his/her knowledge and skills to technicians in systems development. This position is vacant.

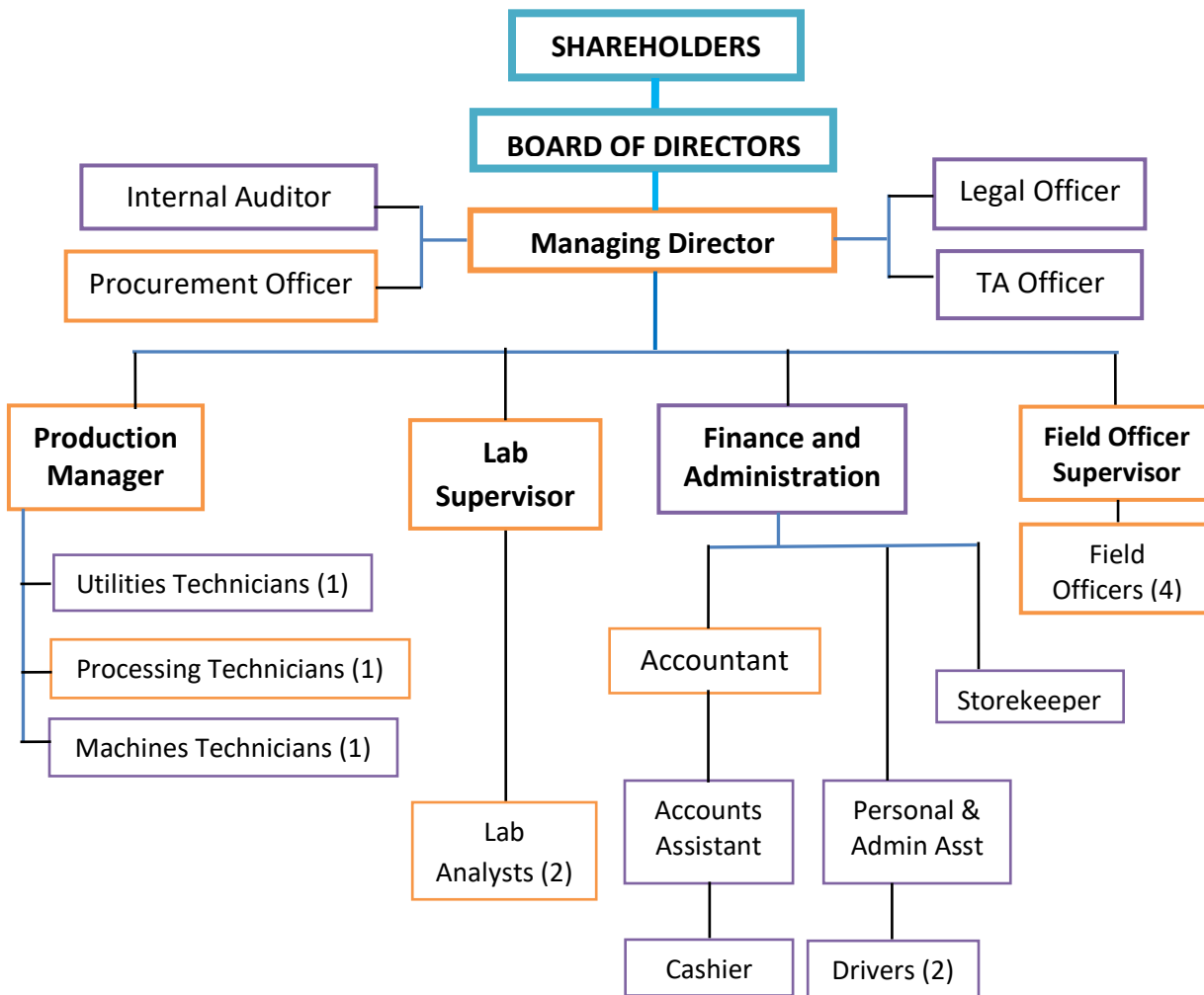
5.2.7.1 Responsibilities

- ❖ Providing assistance in developing and implementing program reviews.
- ❖ Advising and sharing your expertise with Technicians.
- ❖ Defining and developing applications for technical designs.
- ❖ Coordinating technical activities.
- ❖ Supporting team members in their programming activities.
- ❖ Researching and creating strategic management, operational, and financial plans.
- ❖ Manage and resolve administrative and technical problems.

5.2.7.2 Required knowledge and skills

- ❖ Bachelor's degree in computer science or a related field.
- ❖ Demonstrable experience in information technology or computer science.
- ❖ Strong knowledge of computer support techniques and procedures.
- ❖ Customer service experience.
- ❖ Superior leadership qualities.
- ❖ Ability to work with minimal supervision or guidance.

Figure 3: PYTECH LIMITED Organization structure



5.3 Supporting Staff

The following are the support staff to support the company in achieving its strategic objectives:

- ✓ Accounts Assistant
- ✓ Laboratory Analysts
- ✓ Personal & Administration Assistant
- ✓ Utilities Technicians
- ✓ Processing Technicians
- ✓ Machines Technicians
- ✓ Cashier
- ✓ Storekeeper
- ✓ Drivers

5.4 Remunerations and Statutory Deductions

The Company pays attractive and competitive packages to its employees. Employees gross salary payments are subject to PAYE, SDL and WCF. Head of department are always encouraged to recommend to the Board of Director employees that require additional skills for improving performance to attend short courses.

5.5 Manpower Requirement Plan

The staffing plan for Pytech Limited in the next 5 years is as presented in table 7 below.

Table 7: Manpower Requirement plan

No	Position	Status	Tenure	No	Needs				
					2023	2024	2025	2026	2027
Office of the Managing Director:									
1	Managing Director	Filled	Contract	1					
2	Internal Auditor	Vacant	Contract	1					
3	Legal Officer	Vacant	Contract	1					
4	Procurement Officer	Filled	Contract	1					
5	Technical Adviser Officer	Vacant	Contract	1					
Office of the Production:					1				
6	Production Manager	Vacant	Contract	1					
7	Utilities Technician	Vacant	Contract	1					
8	Processing Technician	Vacant	Contract	1					
9	Machines Technician	Vacant	Contract	1					
10	Field Officers	Filled	Contract	3					
Office of the Finance and Administration:									
11	Finance & Administrative Manager	Filled	Contract	1					
12	Accountant	Vacant	Contract	1					
13	Accounts Assistant	Vacant	Contract	1					
14	Personal and Admin Assistant	Vacant	Contract	1					
15	Cashier	Vacant	Contract	1					
16	Storekeeper	Filled	Contract	1					
17	Drivers	Vacant	Contract	2					
Office of the Laboratory:									
18	Laboratory Supervisor	Vacant	Contract	1					
19	Laboratory Analyst(s)	Filled	Contract	2					

6.0 FINANCIAL PLAN

6.1 Key Assumptions

6.1.1 Assumptions on revenue projections

- (i) Pytech will produce and sell grist (pyrethrum powder) for only two quarters of the year 2023 at a price of USD 2.30 per unit; thereafter, the company will embark on production and selling the pyrethrum crude extract with effect from July 2023;
- (ii) The company will secure two loans from bank, one for USD 1,200,000 for purchase of crude extract processing machinery and a second loan of USD 1,000,000 for working capital, specifically for purchase of dry pyrethrum flowers. The two loans will facilitate the company to commence production and selling of crude extract with effect from January 2024 onwards.
- (iii) The company's internal cash flow projections for 5 financial years from 2023 to 2027 indicate that a unit selling price of crude extract of at least USD 90/kg will make the funds from operations to meet the running expenses with effect from the year 2024.
- (iv) Pytech Limited has a reliable customer, Horizon Sopyrwa who is a sister company based in Musanze District- Northern Region, Rwanda. So far all of its products are 100% sold to Horizon Sopyrwa.

6.1.2 Assumptions on production volumes

- (i) Pytech Limited will be purchasing dry pyrethrum flowers for a period of 9 months in a year for the whole business plan period. There will be an annual increment of 10% of quantity purchased;

6.1.3 Assumptions on cost projections

- (i) Revenue and costs are presented in USD. All projected costs to be incurred in Tanzanian Shillings have been translated at an average exchange rate of TZS 2,325/USD
- (ii) Purchase price of dry pyrethrum flowers is projected to be at an average of TZS 3,983 (USD 1.713) throughout the 5 years plan period from FY 2023 to FY 2027;
- (iii) Key staff for the production department led by the Production manager, and other key senior staff, i.e Internal auditor, and Legal officer will be employed in the FY 2024 and the rest of staff will be employed in the FY 2025.
- (iv) The loan for working capital will be at an interest rate of 12% per annum for duration of 3years; and loan for purchase of crude extraction machinery will be for a period of 5 years at an interest of 13% per annum.
- (v) Depreciation expense will go up significantly from FY 2023 onwards, due to major capital expenditure in the FY 2023. The major capital expenditures include: factory & office buildings which will be completed and capitalized in early FY 2023; procurement of extraction machine for crude, HPLC machine, dryer machine, furniture & fittings and a staff van.

6.2 Revenue Projections

Table 8: Revenue Projections (2023-2027)

Revenue	FY2023 Q1	FY2023 Q2	FY2023 Q3	FY2023 Q4	FY2023 Total	FY2024	FY2025	FY2026	FY2027
Grist Sold - Kgs	225,000	75,000	300,000	550,000	1,150,000	-	-	-	-
Crude extract - Kgs	-	-	-	-	-	50,182	55,200	60,720	66,792
Average price per Kg	\$ 2.30	\$ 2.30	\$ 2.30	\$ 2.30	\$ 2.30	\$ 90.00	\$ 90.00	\$ 90.00	\$ 90.00
Total Revenue - USD	517,500	172,501	690,000	1,265,000	2,645,000	4,516,364	4,968,000	5,464,800	6,011,280

6.3 Projected Profits and Loss Statements

Table 9: Projected Profit and Loss Statements

PyTech Co Ltd	Projected PL 2023 - 2027								
Income Statement \$ in actual figures	FY2023 Q1	FY 2023 Q2	FY2023 Q3	FY2023 Q4	FY2023 Total	FY2024	FY2025	FY2026	FY2027
Revenue									
Gross Revenue	517,500	172,500	690,000	1,265,000	2,645,000	4,516,364	4,968,000	5,464,800	6,011,280
Net Revenue	517,500	172,500	690,000	1,265,000	2,645,000	4,516,364	4,968,000	5,464,800	6,011,280
COGS									
Pyrethrum Dry Flowers	(408,947)	(138,355)	(546,641)	(1,002,175)	(2,096,118)	(3,167,160)	(3,483,676)	(3,831,844)	(4,214,828)
Grinding	(3,497)	(1,635)	(6,540)	(7,530)	(19,202)	(22,339)	(24,573)	(27,030)	(29,733)
Extraction	-	-	-	-	-	(182,862)	(198,604)	(215,920)	(234,969)
Shipping to HS Ltd	(36,774)	(12,258)	(49,032)	(89,892)	(187,957)	(24,605)	(27,066)	(29,772)	(32,750)
Total COGS	(449,218)	(152,248)	(602,214)	(1,099,598)	(2,303,277)	(3,396,966)	(3,733,919)	(4,104,567)	(4,512,280)
Gross profit	68,282	20,252	87,786	165,402	341,723	1,119,398	1,234,081	1,360,233	1,499,000
Gross profit Margin %	13%	12%	13%	13%	13%	25%	25%	25%	25%
Operating expenses									
Payroll	(26,006)	(26,006)	(26,006)	(26,006)	(104,025)	(213,416)	(237,240)	(237,240)	(237,240)
Administration	(28,182)	(64,742)	(10,978)	(10,978)	(114,880)	(114,880)	(114,880)	(43,912)	(43,912)
Repair & Maintenance	(3,871)	(3,871)	(3,871)	(3,871)	(15,484)	(15,484)	(15,484)	(15,484)	(15,484)
Disbursements	(645)	(645)	(645)	(645)	(2,581)	(2,581)	(2,581)	(2,581)	(2,581)
Total OpEX	(58,705)	(95,264)	(41,500)	(41,500)	(236,970)	(346,361)	(370,185)	(299,217)	(299,217)
EBITDA	9,578	(75,012)	46,286	123,902	104,753	773,037	863,896	1,061,016	1,199,783
Depreciation & Amortization	(60,424)	(60,424)	(60,424)	(60,424)	(241,694)	(241,694)	(241,694)	(241,694)	(241,694)
EBIT	(50,846)	(135,435)	(14,138)	63,478	(136,941)	531,343	622,202	819,322	958,089
Interest expense - Loan 1 for Purchase Machine	(19,825)	(19,825)	(19,825)	(19,825)	(79,300)	(79,300)	(79,300)	(79,300)	(79,300)
Interest expense - Loan 2 for Working Capital	(15,417)	(15,417)	(15,417)	(15,417)	(61,667)	(61,667)	(61,667)	-	-
EBT	(86,088)	(170,677)	(49,379)	28,236	(277,908)	390,376	481,235	740,022	878,789
Tax 30%	-	-	0	(8,471)	0	(117,113)	(144,371)	(222,006)	(263,637)
Net Income	(86,088)	(170,677)	(49,379)	19,765	(277,908)	273,263	336,865	518,015	615,152
Net Income as % of Revenue	-17%	-99%	-7%	2%	-11%	6%	7%	9%	10%

6.4 Projected Cash Flow Statements

Table 10: Projected Cash Flow Statements

Pytech Co Ltd 5Years Cash flow budget					FY 2023 to FY 2027			
Figures in \$	FY 2023 [Q1]	FY 2023 [Q2]	FY 2023 [Q3]	FY 2023 [Q4]	FY 2024	FY 2025	FY 2026	FY 2027
Beginning Cash Balance	\$100,000	\$1,649,600	\$1,194,380	\$552,588	\$278,204	\$336,941	\$486,537	\$1,228,253
Cash Inflows (Income):								
Accts. Rec. Collections	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Loan Proceeds	\$2,200,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Equity	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sales & Receipts	\$517,500	\$172,500	\$690,000	\$1,265,000	\$4,516,364	\$4,968,000	\$5,464,800	\$6,011,280
Other:	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Cash Inflows	\$2,717,500	\$172,500	\$690,000	\$1,265,000	\$4,516,364	\$4,968,000	\$5,464,800	\$6,011,280
Available Cash Balance	\$2,817,500	\$1,822,100	\$1,884,380	\$1,817,588	\$4,794,567	\$5,304,941	\$5,951,337	\$7,239,533
Cash Outflows (Expenses):								
Inventory Purchases								
Pyrethrum dry flowers	\$436,185	\$145,899	\$575,397	\$1,053,230	\$3,167,160	\$3,483,676	\$3,831,844	\$4,214,828
Grinding	\$3,062	\$1,021	\$4,047	\$7,419	\$22,339	\$24,573	\$27,030	\$29,733
Extraction	\$0	\$0	\$0	\$0	\$182,862	\$198,604	\$215,920	\$234,969
Shipping to HS Ltd	\$37,093	\$12,364	\$49,032	\$89,892	\$24,605	\$27,066	\$29,772	\$32,750
Administration								
General Administration	\$28,427	\$11,073	\$10,978	\$10,978	\$114,880	\$114,880	\$43,912	\$43,912
Repair & Maintenance	\$3,905	\$3,905	\$3,871	\$3,871	\$15,484	\$15,484	\$15,484	\$15,484
Payroll	\$26,232	\$26,232	\$26,006	\$26,006	\$213,416	\$237,240	\$237,240	\$237,240
Disbursement Mission	\$651	\$651	\$645	\$651	\$2,581	\$2,581	\$2,581	\$2,581
Interest Exp for \$1.2M								
Purchase Machines	\$19,825	\$19,825	\$19,825	\$19,825	\$79,300	\$79,300	\$79,300	\$79,300
Interest Exp for 15M for Working Capital	\$15,417	\$15,417	\$15,417	\$15,417	\$61,667	\$61,667	\$0	\$0
Subtotal	\$570,795	\$236,387	\$705,219	\$1,227,289	\$3,884,293	\$4,245,070	\$4,483,084	\$4,890,797
Other Cash Out Flows:								
Capital Purchases								
Extraction Machine	\$203,000	\$203,000	\$456,750	\$152,250	-	-	-	-
Hplc Machine	\$70,000	\$0	\$0	\$0	-	-	-	-
Dryer Machine	\$45,000	\$45,000	\$0	\$0	-	-	-	-
Factory Building	\$130,653	\$0	\$0	\$0	-	-	-	-
Scales	\$0	\$0	\$9,978	\$0	-	-	-	-
Staff Van	\$0	\$0	\$10,753	\$10,753	-	-	-	-
Furnitures & Fittings	\$5,118	\$0	\$0	\$0	-	-	-	-
IT Equipments	\$0	\$0	\$5,759	\$5,759	-	-	-	-
Loan Principal \$1.2M for Purchase Machine	\$60,000	\$60,000	\$60,000	\$60,000	\$240,000	\$240,000	\$240,000	\$240,000
Loan Principal \$1M for Working Capital	\$83,333	\$83,333	\$83,333	\$83,333	\$333,333	\$333,333	\$0	\$0
Subtotal	\$597,104	\$391,333	\$626,573	\$312,095	\$573,333	\$573,333	\$240,000	\$240,000
Total Cash Outflows	\$1,167,900	\$627,720	\$1,331,792	\$1,539,384	\$4,457,626	\$4,818,404	\$4,723,084	\$5,130,797
Ending Cash Balance	\$1,649,600	\$1,194,380	\$552,588	\$278,204	\$336,941	\$486,537	\$1,228,253	\$2,108,736

6.5 Business Viability and Profitability

Table 11: Business viability analysis

Indicator description	Indicator value	Remarks
NPV	\$ 9,629	<p>The projected NPV of the Pytech's crude extract production project is \$ 9,629 which is reasonable.</p> <p>Net present value (NPV) is the difference between the present value of cash inflows and the present value of cash outflows over a period of time. NPV is used in capital budgeting and investment planning to analyze the profitability of a projected investment or project.</p> <p>In economic decision making:</p> <ul style="list-style-type: none"> • The higher the NPV the more beneficial the decision; • The company should choose any decision that has an NPV greater than 0 (zero).
Internal rate of Return (IRR)	12.63%	<p>The projected IRR of Pytech Limited's project is 12.63% which is reasonable, compared to the cost of capital (discount rate) of 12.5%.</p> <p>The internal rate of return is a discount rate that makes the net present value (NPV) of all cash flows from a particular project equal to zero.</p> <p>In economic decision making:</p> <ul style="list-style-type: none"> • The bigger the IRR the better • If IRR is above the discount rate, it is worth investing
Payback Period – Years	4 years	<p>Payback period for the Pytech Limited investment will be 4 years</p> <p>The Payback Period is the length of time between an initial investment and the recovery of the investment from its annual cash flow.</p>
Cost of capital (discount rate)	12.5%	The highest bank loan interest rate

7.0 FUNDING OF THE BUSINESS

7.1 Funding Requirements

The project requires a total funding of two million two hundred eighty-four thousand eight hundred sixty-five United States Dollars only. Out of which one million two hundred ninety-nine thousand eight hundred sixty-five United States Dollars are for the Capital expenditure (CAPEX) while the remaining nine hundred eighty-five thousand United States Dollars only are for working capital as presented below.

Description	USD
<u>Funding Requirements</u>	
Total CAPEX - USD	\$ 1,473,566
Working Capital for purchase of dry flowers - FY 2023	\$ 2,096,118
Total	\$ 3,569,684
<u>Financing</u>	
Loan	\$ 2,200,000
Internally generated funds	\$ 1,369,684
Total	\$ 3,569,684
<u>Loan use breakdown</u>	
Purchase of crude extraction machines	\$ 1,200,000
Working capital - purchase of dry flowers	\$ 1,000,000
	\$ 2,200,000

7.2 Funding Sources

Pytech Limited has made the arrangement of sources of these funds as follows:

Two million USD from financial institutions while the remaining USD two hundred eighty-four thousand eight hundred sixty-five only will be sourced from the internally generated funds.

Description	USD
Loan	\$ 2,200,000
Internally generated funds	\$ 1,369,684
Total	\$ 3,569,684

8.0 IMPLEMENTATION PLAN

8.1 Implementation plan with officials' responsibilities

S/N	Activity	Responsible	Year 1 (2023)												Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 5 (2027)
			J	F	M	A	M	J	J	A	S	O	N	D				
1.0	INVESTMENTS:																	
1.1	Loan Processing	MD/FM																
1.2	Procurement of Machines	Directors/MD/FM																
1.3	Installation of Machines	Directors/MD/FM																
2.0	PERSONNEL PLAN																	
2.1	Recruitment of new Staff	Directors//MD/FM																
3.0	EXTENSION SERVICES																	
3.1	Field Activities - Field Officers	MD																
3.2	Farm Inputs e.g. seeds etc.	MD																
4.0	IDENTIFICATION/FORMATION OF FARMER GROUPS, AMCOS etc.																	
4.1	Awareness and Sensitization	MD/Field Officers																
4.2	Farmer groups Formation and Registration	MD/Field Officers																
4.3	AMCOS and Farmer Associations Registration	MD/Field Officers																
5.0	FINANCING MODEL TO FARMERS' GROUPS																	
5.1	Advances to farmers (hiring and production)	MD/FM																
	PYRETHRUM HARVESTING AND PROCUREMENT																	
6.1	Pyrethrum Harvesting	MD/FM/Field Officers																
6.2	Pyrethrum Procurement	MD/FM/Field Officers																
7.0	PYRETHRUM PROCESSING & PACKAGING																	
7.1	Processing into Crude Oil Extract	MD/PM																

S/N	Activity	Responsible	Year 1 (2023)												Year 2 (2024)	Year 3 (2025)	Year 4 (2026)	Year 5 (2027)
			J	F	M	A	M	J	J	A	S	O	N	D				
8.0	MONITORING & EVALUATION																	
8.1	Monitoring of Activities	MD/FM																
8.2	Evaluation of performance and Results	MD/Directors																

Note: MD = Managing Director; FM = Finance Manager; PM = Production Manager

8.2 Strategic map of the implementation plan (balanced scorecard)

The balanced scorecard is a management system aimed at translating an organization's strategic goals into a set of organizational performance objectives that, in turn, are measured, monitored and changed if necessary to ensure that an organization's strategic goals are met.

It is a strategic management system that will "clarify, simplify and then operationalize the vision at the top of the organization," It shows how a company's mission statement and vision are operationalized to create value up to the employees. "The measures are designed to pull people toward the overall vision," It is good to understand that "Senior managers may know what the end result should be, but they cannot tell employees exactly how to achieve that result, if only because the conditions in which employees operate are constantly changing."

The balanced scorecard system aims to provide a more comprehensive view to stakeholders by complementing financial measures with additional metrics that gauge performance in areas such as customer satisfaction and product innovation.

The balanced scorecard approach examines performance from four perspectives.

- **Financial analysis**, which includes measures such as operating income, profitability and return on investment.
- **Customer analysis**, which looks at investment in customer service and retention.
- **Internal analysis**, which looks at how internal business processes are linked to strategic goals.
- **The learning and growth perspective** assess employee satisfaction and retention, as well as information system.

Pytech Limited will need to employ the balanced scorecard in implementing strategic business plan so as to utilize all available resources in achieving its vision strategically. Figure 4 below present the four-pronged balanced scorecard approach for translating strategic goals into a set of performance objectives.

Figure 4: Pytech Limited four prolonged balanced scorecard of implementation plan

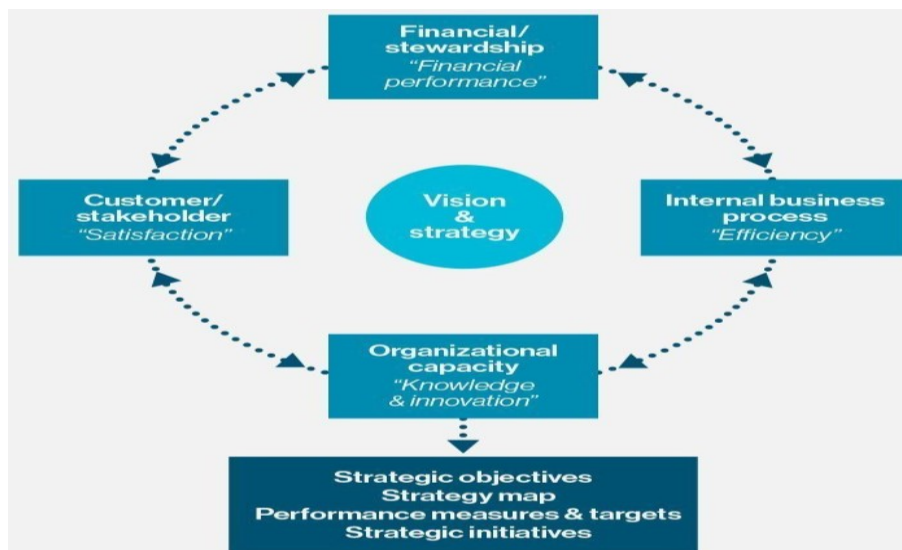


Table 12: Strategic Map of the implementation plan (Balanced scorecard)

	Strategy			
	Objectives	Goals (Measures)	Indicators (Targets)	Initiatives
Financial	Increase company revenue	Increase revenue by 49% in FY 2024 and by 10% per annum in subsequent years from 2025 to 2027	<ul style="list-style-type: none"> Sales reports Financial statements 	Optimal production of crude extract from Q3 of FY 2023
Customer	Exceeding the customer expectation rating	Annual increase of the value of sales of crude extract to a customer (Horizon Sopyrwa) by 49% in FY 2024 and by 10% per annum in subsequent years from 2025 to 2027	Value of invoices for each consignment sold to customer	Optimal production of crude extract for consistent supply to the customer from Q3 of FY 2023
Internal Business Processes	Increase quantity of pyrethrum flowers for processing into crude extract	Purchase of 1,800,000 Kgs of dry pyrethrum flowers in FY 2024 and by 10% per annum in subsequent years from 2025 to 2027	Quantity of Kgs of dried flowers purchased per year	Implement incentive system to both smallholder farmers and agents
		Procurement and installation of environmentally friendly crude extraction machine in Q2 of FY 2023 which recycles hexane and uses less steaming time and improves production capacity by 40% compare to currents systems used in Tanzania.	Quantity of crude extract produced per year	Timely securing of a bank loan to finance procurement of crude extraction machine
Learning & Growth	Have a well-trained team of agronomist	Agronomists to guide smallholder farmers on the application of agricultural best practices for supply of adequate quantities and high quality of dry pyrethrum flowers.	Quantity of Kgs of dried flowers with an average of 10% of moisture content purchased per year	On job training to the existing employees and additional of 2 more staff to have a total of 5
	Have a well-trained team of production staff	Produce and sell high quality crude extract inside and outside Tanzania.	Quantity of crude extract produced per year	Recruit highly qualified professional staff

8.0 SEASONALITY AND RISK ANALYSIS

8.1 Seasonality

This produce can last for a maximum of three years before cutting it down. Table 13 below presents the seasonality of the pyrethrum produce.

Table 13: Seasonality of the pyrethrum produce

Description	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Seeds preparation												
Land preparation												
Weeding												
Harvesting												
Sunflower Selling												

8.2 Risk analysis

Table 14 below presents the risk analysis of the Pytech Limited

Table 14: Risk Analysis for Pytech Limited

Risk type	Description of the risk	Scale of risks	Mitigation measure
Market risk	This risk is associated with market failure that the product might not get to the market.	Low	<ul style="list-style-type: none"> ✓ The Company has got a direct buyer from abroad who purchase direct from the Pytech Limited's offices in Mbeya ✓ The demand for pyrethrum is higher than the supply at the moment hence no market risk is expected to happen. ✓ Pytech Limited is going to add value to the product from pyrethrum powder form to crude extract.
Financial risk	Lack of capital and Working capital	Medium	<ul style="list-style-type: none"> ✓ The Company has enhanced good relationships with financial institutions such as commercial banks (Equity Bank) which has long relationship in businesswise, ✓ The Company is still under the support (technical and financial) of the Horizon Sopyrwa Company a sister company from Rwanda to make sure the Pytech Limited operates profitably. Therefore, the risk of fund management is very minimal, ✓ The Company shall develop a resource mobilization strategy targeting access to cost-effective financial support
Product supply risk	The failure to meet the projected volumes to be collected from smallholder farmers may cause business retardation.	High	<ul style="list-style-type: none"> ✓ The Company (Pytech Limited) will strengthen more arrangements with major Agents who buy direct from smallholder farmers in supporting them financially, but also the field officer to be employed with continue to guide farmers to apply the GAP to ensure reliability of raw materials supply.
Compliance risk	Business compliance with regulations and taxes	Low	<ul style="list-style-type: none"> ✓ The company complies to the laws and regulations of the limited companies by shares ✓ Building relationships with relevant regulatory authorities and agencies to remain updated on regulatory issues.
Quality of	Lack of close monitoring	High	<ul style="list-style-type: none"> ✓ The company works with local agents who come from the

Risk type	Description of the risk	Scale of risks	Mitigation measure
inputs	and guidance of farmer growers may develop disinterest of growing the pyrethrum that meets the market standards		community where the pyrethrum is grown. ✓ The introduction of agronomy department will take care of the pyrethrum growers on the Good Agricultural Practices in order to supply the produce with high quality which fetch lucrative business in the market

9.0 ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACTS

Pytech Limited has a massive impact on the development of the smallholder farmers and the surroundings as follows:

9.1 Local social impact of the business's products or services

- A healthier environment due to the application of good agricultural practices
- Improved quality of living standards (this is commercial crops which in turn improves life standard of smallholder farmers)
- Smallholder farmers receive agricultural extension services from the buying companies and the government through the board and research institutes.

9.2 Environmental impact

This crop has no environmental effects as it does not apply fertilization during cultivation. Hence, it is an environmentally friendly.

10.0 CONCLUSION

10.1 Conclusion

We conclude that for the company to meet market requirements, collective efforts are necessary to be enhanced by company board of directors, management, the agronomist/field officers employed by the company, and pyrethrum buying agents, while also rewarding individual farmers' efforts to achieve the required product quality. Smallholder farmers through their groups, AMCOS and Associations will have incentive to comply with best practice standards. By facilitating collective efforts strategies and by having transparent pricing structures, there will be greater trust and commitment by smallholder growers participating in the pyrethrum supply chain.