JCN ENTERPRISES LIMITED

Business Plan to Establish an Eco-Friendly Packaging Plant

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1 EXECUTIVE SUMMARY

JCN Enterprises Limited, a newly established company based in Dar es Salaam, Tanzania, aims to become a leading provider of sustainable packaging solutions in East Africa. Founded in 2023, the company focuses on general trading, investment, and production activities, with a primary emphasis on the packaging subsector. The company's authorized share capital is TZS 100 million, divided into 10,000 shares of TZS 10,000 each, with the majority ownership held by Tanzanians. The principal shareholders, Rozalie Romanus, Venance Nzohaibona, and Ladislaus

Baraka, bring a wealth of experience and ecosystem influence, which is crucial for navigating the business environment in Tanzania.

1.1 Project Overview

JCN Enterprises Limited has secured 8,000 square meters (two acres) of land in the Kigamboni District of Dar es Salaam to develop a state-of-the-art packaging production facility. The facility will manufacture polypropylene (PP) bags, carton boxes, and paper pulp egg trays through an eco-friendly, zero-waste production process. This venture leverages the growing demand for packaging materials driven by agricultural production and industrial activities in the region.

The production facility is strategically positioned to serve the Tanzanian market and neighbouring countries. The company's eco-friendly focus aligns with Tanzania's regulatory landscape, particularly the ban on single-use plastic carrier bags, which boosts demand for sustainable packaging solutions. JCN aims to capture significant market share by offering high-quality, durable, and recyclable packaging products.

1.2 Environmental Sustainability and Green Finance

The business is deeply committed to environmental sustainability. The production processes for PP bags, carton boxes, and paper pulp egg trays are designed to minimize waste and reduce environmental impact. The company utilizes recycled materials wherever possible, contributing to a circular economy and significantly reducing the carbon footprint.

- **PP Woven Bags:** Made from durable and bio-decomposable polypropylene, these bags support sustainable practices by being easy to decompose with minimal negative impact to the environment.
- **Carton Boxes:** Produced from corrugated cardboard primarily made from recycled paper, these boxes are fully recyclable and embody the principles of a zero-waste process. The little waste produced from the production process is passed on to the pulp egg tray plant as raw material.
- **Pulp Egg Trays:** Manufactured using biodegradable materials derived from recycled paper and cardboard waste, these trays are compostable, promoting zero waste by returning nutrients to the environment when disposed of properly.

This strong focus on eco-friendly practices makes JCN Enterprises Limited an ideal candidate for green finance. The company's operations align perfectly with the goals of green finance, which aims to support projects that provide environmental benefits and promote sustainable development.

The total investment required for the project is **USD 6.5 million (TZS 17.558 Billion),** which will be financed through a mix of long-term valued **USD 4.552 million (TZS 12.291 billion)** and **equity of USD 1.950 million (5.267 billions).** The funds will cover the construction of the factory, procurement of machinery, and initial working capital. The investment will be made within 10years starting from FY2025.

Investment and Financial Viability

The project's financial structure includes:

Total costs	Total costs (TZS)	Debt (TZS)	Equity (TZS)
Carton boxes and Paper pulp eggs trays Project			
Landed plant property (Civil works construction)	4,600,217,759	3,220,152,431	1,380,065,328
Plant and machineries	4,200,000,000	2,940,000,000	1,260,000,000
		-	-
Polyethylene woven bags Project			
Landed plant property (Civil works construction)	5,170,217,759	3,619,152,431	1,551,065,328
Plant and machineries	3,588,300,000	2,511,810,000	1,076,490,000
Grand total	17,558,735,518	12,291,114,863	5,267,620,655
Contribution	100%	70%	30%

Key financial indicators suggest strong viability:

- **Net Present Value (NPV):** TZS 17 million
- **Internal Rate of Return (IRR):** 35%
- **Debt Service Coverage Ratio (DSCR):** 4.11 times
- **Return on Asset (ROA):** 15.3%
- **Return on Equity (ROE):** 37.4%

The financial indicators of JCN Enterprises Limited strongly suggest the project's viability and potential for substantial returns. The Net Present Value (NPV) of TZS 17 million indicates a positive return on investment, affirming that the projected cash inflows exceed the initial investment when discounted at the weighted average cost of capital. The Internal Rate of Return (IRR) of 35% far exceeds the typical cost of capital, underscoring the project's high profitability potential. The Debt Service Coverage Ratio (DSCR) of 4.11 demonstrates that the company can comfortably meet its debt obligations with its operating income, indicating robust financial health.

Furthermore, an average Return on Assets (ROA) of 15.3% and Return on Equity (ROE) of 37.4% reflect efficient asset utilization and high returns on shareholders' equity, respectively. The average net profit margin of 13% suggests that the company is effectively managing its costs to generate significant profits. These financial indicators, coupled with the company's strategic positioning and commitment to eco-friendly practices, position JCN Enterprises Limited for sustained growth and make it an attractive prospect for green finance investments.

2 INTRODUCTION

JCN Enterprises Limited is a newly established company based in Dar es Salaam Tanzania with aim of undertaking general trading, investment and production

business activities mainly looking to engage in packaging subsector. The founders of the company intend to engage in environmentally sustainable production of Polypropylene Bags, Catton boxes as well as pulp egg trays. The authorised share capital of the company is TZS 100 million, divided into 10,000 shares of TZS 10,000 each. The company is majority owned by Tanzanians as per table below.

Table 1: Shareholding Structure

S/n	Name of Shareholder	Number of shares	Percentage Ownership
1	Venance Sylvester	3,500	35%
2	Rosalie Roanus	3,500	35%
3	Ladislaus Baraka	500	5%
4	Un-allotted	2,500	25%
	Total	**10,000**	**100%**

Rosalie Romanus is a Tanzanian national and the principal shareholder of the company. The shareholder has invested in the meat processing, trade and ranch business. With over 20 years of business management experience, starting in 2002 in the Lake Zone region of Tanzania, he is a self-taught businessman. The other shareholders Venance has been in commercial cattle farming and both himself and Ladislaus, bring a mix of public and private sector development and corporate experience. This combination of corporate and business expertise positions the company for a successful launch and business growth. Additionally, all shareholders possess significant political influence, which is crucial for navigating business regulations in Tanzania. The company's shareholding structure includes an unallocated 25% stake, left for future shareholders. By keeping 25% of shares unallotted, the company maintains the ability to adapt to future opportunities and challenges, ensuring long-term growth and stability.

The company’s vision is to be a leading provider of sustainable packaging solutions in East Africa, committed to innovation, quality, and environmental stewardship. While the mission is to deliver high-quality, eco-friendly packaging products that meet the diverse needs of our customers while fostering sustainable practices and contributing to the economic growth of Tanzania. We aim to achieve this through innovative production methods, strategic investments, and a commitment to excellence and social responsibility.

2.1 The Project.

The company has secured land in the Kigamboni District of Dar es Salaam, spanning an area of 8,000sqm, to develop a packaging production facility. This venture aims to manufacture polypropylene packaging bags (locally known as "mifuko ya Viroba"), carton boxes, and paper pulp egg trays through a zero-waste production process. By leveraging the growing demand for packaging materials, driven by burgeoning agricultural production and industrial activities in the region, the project seeks to deliver substantial financial returns while adhering to environmental sustainability principles.

Figure 1:PP Woven Bags

Figure 2:Carton Box

Figure 3:Pulp Egg Tray

i) **Manufacture of PP Woven Bags:** The production of PP woven bags involves a sustainable weaving process, where threads are interlaced on a loom through a warp and weft. This technique minimizes waste by ensuring that all raw materials are fully utilized. The polypropylene used is selected for its durability and recyclability, contributing to the bags' reputation as the toughest in the industry. Ideal for packing a variety of commodities such as fertilizers, animal feed, and seeds, these bags support sustainable practices by being reusable and reducing the need for single-use packaging options.

ii) **Manufacture of Carton Boxes:** Carton boxes are produced from corrugated cardboard made primarily from recycled paper, embodying the principles of a zero-waste process. The production cycle includes pulping, pressing, and forming sheets into corrugated configurations, all performed with environmental conservation in mind. Innovations in adhesives and processing reduce emissions and waste, while the lightweight yet robust design of the boxes ensures efficiency in transportation and material use. Their complete recyclability further enhances their environmental credentials, making them a staple in eco-friendly packaging solutions.

iii) **Manufacture of Paper Pulp Egg Trays:** The manufacturing of paper pulp egg trays is a paradigm of eco-friendly production, utilizing biodegradable materials derived from recycled paper and cardboard. The process transforms paper waste into a slurry, which is then moulded into trays and dried using energy-efficient methods. These trays are not only biodegradable but also compostable, promoting zero waste by returning nutrients to the environment when disposed of properly. Their structural design provides excellent protection and ventilation for eggs, ensuring product safety while optimizing material use and reducing environmental impact.

2.2 Capital Investment

The capital investment required for establishment of the project is USD 6,500,000 brokendown in two phase as per tableble 2 below; the amount is required for construction of the factory building, machinery purchase, and fixtures, pre operation expenses and initial working capital. The proposed plant will have installed capacity of producing 40,000 PP bags per day (12 million PP bags per year-300 days), 1,200 Carton boxes per hour (5,760,000 boxes per year-300days) and 6,000 Pulp Egg trays per hour (28,800,000 egg trays per year-300days).

Table 2: Project financing structure for Polyethylene woven bags Project

Description Civil works for Polyethylene woven bags Project		
Details	Raw materials	Labour costs
	Amount (TZS)	Amount (TZS)
Preliminaries	61,570,000	15,392,500
Factory building	1,369,649,880	342,412,470
Administration building	1,175,481,150	293,870,288
Conference and dinning hall	408,921,677	102,230,419
Fence	164,551,500	41,137,875
Other services (electricity and water)	500,000,000	125,000,000
Generator	540,000,000	30,000,000
Sub-Total	4,220,174,207	950,043,552
Grand Total - Civil work		5,170,217,759
Description- Plant and machineries	Amount (TZS)	
PP Rafia Plant and machineries	2,913,300,000	
Laminating plant	405,000,000	
Blow film plant	143,100,000	
Sub-Total	3,461,400,000	
Grand Total	8,631,617,759	

Working capital requirement will be as below:

- The Polyethylene woven bags Project will require at least TZS 2 billion for purchase of polyethylene rafia granules, calcium carbonate, printing materials and other operational expenses.
- The carton Boxes and Paper pulp eggs trays Project will require at least TZS 2 billion for import of paper roll, used boxed and trays together with other operational expenses.
- Therefore, total working capital requirement will be TZS 4 billions for the two projects.

Table 2: Project financing structure for for carton boxes and Paper pulp eggs trays

Description Civil works for carton boxes and Paper pulp eggs trays Project		
Details	Raw materials	Labour costs
	Amount (TZS)	Amount (TZS)
Preliminaries	61,570,000	15,392,500
Factory building	1,369,649,880	342,412,470
Administration building	1,175,481,150	293,870,288
Conference and dinning hall	408,921,677	102,230,419
Fence	164,551,500	41,137,875
Other services (electricity and water)	500,000,000	125,000,000
Sub-Total	3,680,174,207	920,043,552
Grand Total - Civil work		4,600,217,759
Description- Plant and machineries	Amount (TZS)	
Carton Box machineries and equipment	2,800,000,000	
Paper Pulp Egg Trays	1,400,000,000	
Sub-Total	4,200,000,000	
Grand Total	8,800,217,759	

Therefore, total planned project costs will be TZS 21,431,835,518 which will cover working capital, carton boxes and paper pulp eggs trays plus ppolyethylene woven bags Project.

2.3 Security Arrangement

Primary source of repayment of the loan will be from cash flow from business operations, while secondary source of repayment shall be recovery from realization of Collaterals pledged as security to secure the loans. Collateral includes company's Landed Properties, Machinery and Debentures for both present and future assets current valued at TZS 8.2 billion with Forced Sale Value of TZS 6.8 billion.

Table 3: Collateral Breakdown

Property Name	Market Value (TZS)	Discount rate	Forced Sale Value (FSV)
Landed plant property, Office and Admin buildings	9,200,435,518	75%	6,900,326,638
Machinery	8,231,400,000	75%	6,173,550,000
PASS guarantee	10,800,000,000	75%	8,100,000,000
Total Value	**28,231,835,518**	**80%**	**22,585,468,414**

Considering the total debt of USD 1,930,000, equivalent to TZS 5,267,620,655 at an exchange rate of USD/TZS 2,700, the overall collateral coverage is 1.28 times. This is above the allowable regulatory threshold of 1.25 times.

3 INDUSTRY ANALYSIS

The Government of Tanzania conceives industrialization as the main catalyst to transform the economy, generate sustainable growth and reduce poverty. In order for Tanzania to become a semi-industrialized country, the contribution of manufacturing to the national economy must reach a minimum of 40% of the GDP by 2030. Foreign Direct Investments (FDIs) are expected to provide the capital for the desired industrial development. Therefore, the industrialization policy will favour this new project for JCN.

The package manufacturing industry in Tanzania is considered a supporting industry, that is, manufacturers of packages are subcontractors for producers or sellers of consumer products and commodities. The main packaging materials being used in Tanzania are paper/box, plastic, metal, and glass. Other materials such as wood, PP Foam and Jute, play no significant part in the package manufacturing industry since "package manufacturer" means, at the basis, converting raw materials into packaging forms. Packaging industries have several functions to fulfil, namely protecting, preserving, transporting, and marketing products, as well as providing product information. Quality of a product depends significantly on good packaging. In addition to performing these functions, packaging also has to adhere to further demands in the form of logistical requirements, legislation, environmental, considerations and safety requirements.

In the efforts of protection of environment against non-biodegradable plastic waste/pollution, Tanzania, through the Office of the Vice President, enforced a total ban of single-use plastic carrier bags. On 17th May 2019, the Environment Management (**Prohibition of Plastic Carrier Bags**) Regulations, 2019 were gazetted under Government Notice No. 394 of 2019 to legally enforce the ban, which came into force on 1st June 2019. The ban applies to usage, supply, sale,

manufacturing, importation, storage, and exportation of plastic carrier bags by companies/industries and individuals, including citizens and non-citizens in Tanzania Mainland.

The plastic carrier-bags referred to under the law includes any plastic film-made bag with or without handles or supports/gussets regardless of their thickness **EXCEPT** plastic or plastic packaging for medical services, industrial products, construction industry, agricultural sector, food processing or sanitary and waste management.
The later are legally exempted on condition that the packaging meets the quality standards prescribed by the Tanzania Bureau of Standards and are managed and disposed of in accordance with the Environmental Management.

3.1 PP Woven Bags

PP woven bags have been the most used. PP oriented strips are becoming increasingly popular in Tanzania and have caught the eye of many end users for their requirement of packing materials. They have become popular on account of their inertness towards chemical, moisture & excellent resistance towards rotting & fungus attack. They are non-toxic. Lighter in weight & have more advantages than conventional bags.

PP Woven bags ideally suitable for Building Materials, Cement, fertilizers, Urea, Potash, plastic, polymers, plastic pellets, etc. They can carry upto 1,500kg capacity depending on volume of the goods.
Food grains: Rice, Wheat, Pulses, Tea, Coffee, Beans, Peanuts, Sand, Sugar.
Chemicals: Pigments, Dyestuffs, oxides, barytes, alumina, hydrates, ores, gypsum, feldspar, mica, Lime, limestone,
Main producers of PP Woven bags in Tanzania are spread in all of the country, ranging from northern, southern, and eastern zone. There are no players in the western and central zone of Tanzania covering regions of Dodoma, Singida, Tabora, and Kigoma.

Table 4: Major PP Woven bags producers of Tanzania.

S/n	Producer
1	Azam Poly Sacks
2	East African Polysacks
3	Hill Packaging
4	Tansack Ltd
5	Hasho Packaging
6	Techpack Tanzania Limited
7	A to Z Textiles Industries.
8	Fresho Packaging
9	Victoria Packaging Industries
10	Tukuyu Packing
11	Raffia Bags Ltd
12	Pee Pee (T) Ltd

3.2 Corrugated Paper Box

The global corrugated boxes market size reached US$ 203.7 Billion in 2023. Looking forward, IMARC Group expects the market to reach US$ 247.9 Billion by

2032, exhibiting a growth rate (CAGR) of 2.1% during 2024-2032. The significant expansion in the e-commerce industry, the rising demand for sustainable packaging solutions, and the increasing utilization of corrugated boxes for customization and branding applications in several industries are some of the major factors propelling the market.

Technical Aspect: Corrugated boxes are a type of packaging commonly used in the shipping and storage industry. They are made from a versatile material called corrugated cardboard, which consists of three layers of paper, two flat liner boards on the outside, and a wavy fluted layer in the middle. This unique construction provides strength, rigidity, and protection to the boxes. The fluted layer in corrugated boxes acts as a cushioning agent, absorbing shocks and impacts during handling and transportation, making them highly suitable for packaging delicate and fragile items, such as glassware, electronics, or ceramics, providing a protective barrier against potential damage. Additionally, they are available in various shapes and sizes, from standard rectangular cartons to custom-designed packaging solutions. They can also be easily customized to meet specific requirements, allowing for efficient utilization of space and optimization of product protection.

Market Driver: The market is primarily driven by the expanding food and beverage (F&B) industry. In addition, the escalating demand for corrugated boxes for storing, protecting, transporting, and promoting products is contributing to the market growth. In line with this, the several benefits of corrugated solutions such as strong, lightweight, cost-effective, and excellent protection during logistics are influencing the market growth. Moreover, several advancements in packaging design and printing technology allow the creation of attractive and functional corrugated boxes, representing another major growth-inducing factor. Besides this, the rising consumer awareness regarding environmental issues associated with non-biodegradable and plastic-based packaging materials is accelerating the adoption of recyclable corrugated boxes. Furthermore, the rising research and development (R&D) activities to improve the sustainable properties, chemical resistance, and dimensional stability of corrugated boxes is creating a positive market outlook.

Leading producers of corrugated paper boxes in Tanzania include:

i) **Twiga Paper Products Ltd**: Established in 1965, Twiga Paper Products Ltd is one of the largest and most reliable automated corrugated box manufacturing plants in Tanzania. They produce a wide range of corrugated boxes and packaging materials, serving various industrial segments including food and beverages, construction, and pharmaceuticals . They are based in Dar es Salaam, the produce 4 products mainly 2 Ply corrugated for wrapping, 3 Ply corrugated for light industry good, 5 Ply corrugated for heavy duty industry products and the Honey comb partition for fragile products like glasses.

ii) **Nampak Tanzania Limited**: Known for their wide range of packaging solutions, Nampak Tanzania Limited is a prominent player in the packaging industry, offering high-quality corrugated boxes .

iii) **Creative Packaging Limited**: Located in Changombe, Dar es Salaam, Creative Packaging Limited produces packaging boxes, rolls, and films,

serving industries such as handicraft, food, beverages, and pharmaceuticals .

iv) **Modern Flexible Packaging Ltd**: Also based in Dar es Salaam, Modern Flexible Packaging Ltd specializes in various types of corrugated cartons, including food packaging and industrial heavy-duty packaging.

v) **Mufindi Paper Mills Ltd**: This company produces garment boxes, corrugated boxes, and various other packaging solutions, known for their adherence to global quality standards and timely delivery .

vi) **Tanzania Packaging Industry**: Located in Dar es Salaam, this company is recognized for its high-quality corrugated boxes and serves a diverse range of industries with customized packaging solutions .

vii) **Hanspaul Group**: Established in 1965, Hanspaul Group is a prominent leader in the manufacturing sector, including corrugated cardboard production. They offer a variety of packaging solutions, particularly focusing on high-quality corrugated boxes

These companies are well-established and known for their quality products and services in the corrugated paper box market in Tanzania.

3.2.1 Corrugated Boxes Market Trends/Drivers:

The significant expansion in the e-commerce industry: The rise of online shopping has led to an increased need for packaging materials, with corrugated boxes being a primary choice for shipping and delivering products to customers. The e-commerce sector relies heavily on these boxes due to their durability, versatility, cost-effectiveness, and the escalating demand for customized packaging solutions is contributing to the market growth. E-commerce companies understand the importance of branding and creating a unique unboxing experience that is possible with corrugated boxes as they can be easily customized with company logos, graphics, and designs, allowing businesses to enhance their brand identity and leave a lasting impression on customers. Furthermore, the e-commerce industry places a strong emphasis on product protection during shipping and corrugated boxes provide excellent cushioning and structural integrity, ensuring that products arrive safely at their destination.

3.2.2 The rising demand for sustainable packaging solutions

The increasing awareness and importance of environmental sustainability have led to a growing demand for eco-friendly packaging options leading to the widespread adoption of corrugated boxes. Moreover, corrugated boxes are made from renewable and recyclable materials, primarily paperboard derived from trees. As consumers and businesses become more conscious of their ecological footprint, they are seeking packaging solutions that minimize environmental impact. Besides this, corrugated boxes can be easily recycled after use, which helps conserve resources, reduce waste sent to landfills, and promote a more sustainable economy. Furthermore, the lightweight nature of corrugated boxes contributes to energy efficiency during transportation, requires less fuel, and generates fewer carbon emissions during shipping, which is also contributing to market growth.

The increasing product use for customization and branding applications in several industries: The growing customization and branding applications in various industries have driven the adoption of corrugated boxes. Businesses across sectors such as e-commerce, retail, food and beverage, and cosmetics are increasingly recognizing the value of packaging as a marketing tool. In addition, corrugated boxes can be easily customized with logos, graphics, and branding elements, allowing companies to create a distinct visual identity and enhance their brand recognition. This ability to customize packaging to specific products and brand aesthetics has made corrugated boxes a popular choice, enabling businesses to deliver a unique unboxing experience that resonates with consumers and reinforces their brand image.

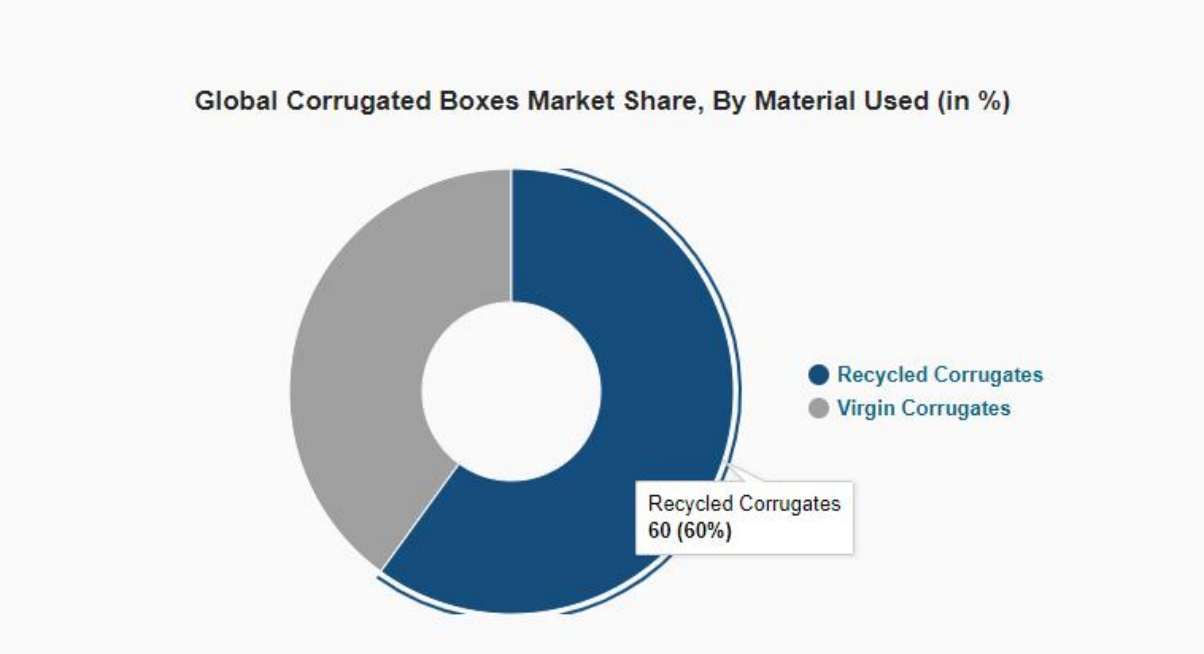


Figure 4: Corrugated Boxes breakdown by material used

3.2.3 Recycled corrugates dominate the market

The report has provided a detailed breakup and analysis of the market based on the material used. This includes recycled and virgin corrugates. According to the report, recycled corrugated boxes represented the largest segment. The increasing consumer awareness regarding environmental issues and the importance of minimizing carbon footprint is generating a favourable outlook for the market. In addition to that, corrugated boxes produced from recycled fibres offer several advantages, including durability, lightweight, and cost-effectiveness. As a result, they are widely utilized in packaging applications for cosmetics, consumer electronics, and fast-food products. Moreover, the implementation of several government policies and standards promoting the use of recycled materials and sustainable packaging practices led to the widespread adoption of recycled corrugated materials as businesses seek to comply with these regulations and meet sustainability targets. Besides, various technological advancements and manufacturing processes that ensure that recycled corrugated boxes possess the necessary strength, durability, and protective properties required for packaging various products represent another leading factor increasing the market share of these boxes.

3.3 Overview of Pulp Egg Tray Production

Pulp egg trays are an essential packaging material in the poultry industry, providing safe and efficient handling and transportation of eggs. They are made from recycled paper pulp, making them environmentally friendly and cost-effective. In Tanzania, the production of pulp egg trays is gaining traction due to the growing demand for sustainable packaging solutions.

Business Analysis

1. **Market Demand**:
    - The demand for pulp egg trays in Tanzania is driven by the growth of the poultry industry. Tanzania's poultry sector has been expanding due to increasing consumption of eggs and poultry meat as protein sources.
    - The rise in urbanization and changing dietary patterns have also contributed to the increased demand for eggs, thereby driving the need for more egg packaging solutions .

2. **Production Capacity**:
    - Companies involved in the production of pulp egg trays have the potential to scale up operations due to the relatively simple manufacturing process and availability of raw materials (recycled paper).
    - The initial investment in machinery and technology is manageable, and there are opportunities for local manufacturers to enter the market and meet the growing demand.

3. **Cost and Profitability**:
    - The production of pulp egg trays is cost-effective due to the use of recycled materials. This not only reduces raw material costs but also aligns with environmental sustainability goals.
    - Profit margins can be substantial, especially with efficient production processes and economies of scale. The ability to recycle wastepaper into valuable products contributes to profitability .

Potential and Demand Drivers

1. **Environmental Sustainability**:
    - The shift towards environmentally sustainable packaging is a significant driver for pulp egg tray production. Consumers and businesses are increasingly prioritizing eco-friendly products, creating a robust market for recycled paper pulp products.
    - Government policies and regulations promoting recycling and waste reduction further support the growth of this industry .
    -

2. **Poultry Industry Growth**:
    - The steady growth of the poultry industry in Tanzania is a primary demand driver. As egg production increases, so does the need for efficient and reliable packaging solutions to ensure eggs reach the market without damage.
    - Improved poultry farming practices and investments in the agricultural sector enhance the overall demand for egg trays .

3. **Urbanization and Population Growth**:
    - Tanzania's urbanization rate is increasing, leading to higher consumption of poultry products in urban areas. This urban demand necessitates better packaging solutions to maintain the quality and safety of eggs during transport.
    - Population growth also contributes to the rising demand for food products, including eggs, thus driving the need for more egg trays .

4. **Export Opportunities**:
    - There is potential for Tanzanian manufacturers to export pulp egg trays to neighboring countries of Burundi, Rwanda, Malawi, Uganda and Kenya where similar growth trends in poultry farming exist. This can open additional revenue streams and market expansion opportunities.
    - Regional trade agreements and improved logistics can facilitate cross-border trade of egg trays, enhancing the business potential for local producers.

4 RISK ANALYSIS

4.1 Industry Risk Analysis

1. **Threat of New Entrants (Medium):**

    - **Capital Requirements:** The initial investment of USD 2,100,000 is substantial, covering the construction of the factory, purchase of machinery, and initial working capital. The specialized nature of machinery for each product (e.g., weaving looms for PP woven bags, corrugation machines for carton boxes, and molding machines for egg trays) also adds to the entry barrier.
    - **Market Knowledge and Experience:** JCN's experience and understanding of local market dynamics, particularly in sustainable packaging, provide a competitive edge. This knowledge is essential for efficiently managing operations and meeting customer needs. New entrants would need significant time and resources to develop similar market insights.
    - **Regulatory and Environmental Compliance:** Compliance with Tanzania's environmental regulations, particularly the ban on single-use plastics, favors JCN's eco-friendly packaging solutions. This regulatory landscape can deter new entrants not equipped to meet these standards. Additionally, obtaining necessary permits and licenses can be a lengthy and complex process, further raising the barriers to entry.

2. **Bargaining Power of Suppliers (High):**

    - **Raw Material Dependence:** The production of PP woven bags depends on imported PP Raffia granules and Calcium Carbonate, primarily from the Middle East, Southeast Asia, and China. Similarly, recycled paper for carton boxes and egg trays must be sourced

reliably. The dependency on a few key suppliers for these critical materials increases the supplier's power.

- **Price Volatility and Exchange Rate Risks:** The reliance on imported materials exposes JCN to global price fluctuations and foreign exchange risks, impacting the cost structure. Price increases in raw materials can significantly affect profit margins.
- **Supply Chain Management:** Effective inventory management and maintaining sufficient raw material stock are essential to mitigate risks related to lead times and supply chain disruptions. JCN must establish strong relationships with multiple suppliers to diversify risk and ensure a stable supply chain.

3. **Bargaining Power of Buyers (High):**

   - **Customer Price Sensitivity:** Customers for all three products (e.g., agricultural sector for PP bags, e-commerce for carton boxes, and poultry farms for egg trays) are highly price sensitive. Maintaining competitive pricing while ensuring quality is vital. Buyers have numerous options and can easily switch suppliers if their price or quality expectations are not met.
   - **Quality and Consistency:** Ensuring consistent quality across all products is crucial. Any lapse can lead to loss of customers to competitors who can offer similar products at comparable prices. Long-term contracts with buyers can help secure consistent demand but require JCN to meet stringent quality and delivery standards.

4. **Threat of Substitutes (Medium to Low):**

   - **Alternative Materials:** While substitutes like jute bags for PP woven bags, plastic for carton boxes, and foam trays for egg trays exist, JCN's focus on sustainability gives it an edge. Eco-friendly products are increasingly favored due to regulatory and consumer preference shifts. For example, the rising consumer and legislative push towards reducing plastic use benefits JCN's biodegradable and recyclable product offerings.
   - **Unique Product Benefits:** The durability and reusability of PP woven bags, the recyclability of carton boxes, and the biodegradability of egg trays position them well against substitutes. The unique benefits of each product type, such as the lightweight and strong nature of PP bags, the protective cushioning of corrugated boxes, and the composability of egg trays, reduce the threat of substitution.

5. **Rivalry Among Existing Competitors (Medium to High):**

   - **Market Fragmentation:** The market for each product type is fragmented, with multiple small and medium-sized players. JCN must differentiate itself through quality, innovation, and customer service. A fragmented market means that no single competitor has a dominant market share, but competition is intense.
   - **Competitive Strategies:** Competitors employ various strategies, including pricing, product innovation, and customer relationships. JCN's ability to innovate and maintain competitive pricing will be key

to capturing market share. Investing in marketing and brand-building activities can help JCN to stand out in a crowded marketplace.

4.2 Business Risk Analysis

1. **Market Growth and Demand:**

    - **PP Woven Bags:** Increasing demand in agriculture (e.g., fertilizers, seeds) and construction (e.g., cement) industries. The agriculture sector's growth, driven by government initiatives and increasing agricultural productivity, boosts demand for durable packaging solutions. Additionally, the construction boom in Tanzania and neighboring countries drives demand for cement bags.
    - **Carton Boxes:** Growth driven by the e-commerce sector's need for durable and customizable packaging solutions. The rise in online shopping and home deliveries has significantly increased the need for corrugated packaging. Innovations in packaging design and the ability to customize for branding are key drivers.
    - **Egg Trays:** Rising demand for sustainable packaging in the poultry industry. Increasing poultry production and a shift towards environmentally friendly packaging options are driving demand for paper pulp egg trays.

2. **Competitive Advantage:**

    - **Location:** Proximity to key markets in Tanzania reduces distribution costs and improves delivery times. Being situated in Dar es Salaam provides strategic access to major transport routes and ports, facilitating efficient distribution both locally and for export.
    - **Eco-friendly Focus:** Emphasizing sustainable and eco-friendly production processes aligns with regulatory trends and consumer preferences. This focus not only meets current market demands but also positions JCN favorably for future regulatory changes and shifts in consumer behavior towards sustainability.
    - **Innovation:** Continuous innovation in product design and manufacturing processes to improve efficiency and meet customer needs. Investing in R&D to develop new products and improve existing ones can lead to greater market share and customer loyalty.

3. **Supply Risk:**

    - **Raw Material Availability:** Dependence on imported raw materials like PP Raffia granules and recycled paper poses supply risk. Effective supply chain management is essential to mitigate this risk. JCN must secure reliable supply contracts and consider maintaining buffer stocks to manage supply disruptions.
    - **Price and Exchange Rate Volatility:** Global market conditions and exchange rate fluctuations impact raw material costs, necessitating robust financial planning and risk mitigation strategies. Hedging strategies and forward contracts can be employed to manage financial risks associated with currency fluctuations.

4. **Production Risk:**

- **Power Supply:** Reliable power supply is crucial for uninterrupted production. Ongoing improvements in Tanzania's power infrastructure, such as new hydro-electric projects, are expected to mitigate this risk. JCN should also explore alternative energy sources, such as solar power, to ensure a stable and sustainable power supply.
- **Operational Efficiency:** Efficient production processes and energy management will reduce operational risks and costs. Implementing lean manufacturing techniques and continuous improvement programs can enhance productivity and reduce waste.

5. **Financial Risks:**

- **Funding and Capital Allocation:** Ensuring sufficient capital for initial setup and working capital is critical. Effective allocation of funds towards high-impact areas such as advanced machinery, skilled labor, and quality raw materials will enhance operational efficiency and output quality.
- **Loan Repayment:** The primary source of loan repayment will be business cash flow, supplemented by collateral if needed. Effective financial management and maintaining healthy cash flow will be crucial to meeting debt obligations.

5 TECHNICAL DESCRIPTION

5.1 Technical Know-how

JCN Enterprises Limited will utilize advanced, sustainable production techniques for manufacturing Polypropylene (PP) Bags, Carton Boxes, and Pulp Egg Trays. Each product involves specific technical processes that ensure environmental sustainability and high-quality output.

i) Polypropylene Bags

The production of PP woven bags involves weaving PP tapes on looms to create durable, reusable bags. The technical process includes extrusion, weaving, and cutting, followed by printing and finishing. This method ensures minimal waste and high recyclability.

ii) Carton Boxes

The manufacturing process for carton boxes involves corrugating paper sheets to create fluted structures, which are then laminated between liner boards. The process includes pulping, corrugating, and converting, ensuring robust and recyclable packaging solutions.

iii) Pulp Egg Trays

Paper pulp egg trays are produced using recycled paper materials. The process includes pulping, moulding, pressing, and drying. This eco-friendly method results in biodegradable and compostable trays that minimize environmental impact.

5.2 Proposed Plant Capacity

The machinery and technology is expected to be imported from LOHIA CORP LIMITED in India. The plant's capacity is defined by the machinery investment costs and market target:

- **PP Woven Bags**: 40,000 bags per day (12 million bags per year over 300 operational days)

Figure 5: PP Woven Bags Machine

- **Carton Boxes**: 1,200 boxes per hour, this machine dynamically creates fit-to-size boxes for each unique order using continuous fanfold corrugate and 3D scanning technology.

Figure 6: Carton Boxes Machine

- **Pulp Egg Trays**: 6000 egg trays per hour, this model uses a rotary type forming machine with 8 plates, each capable of producing 6 trays per cycle. It includes a six-layer drying system and requires a workshop space of approximately 700 m².

Figure 7: Egg Tray Pulp Machine

5.3 Production Program

The production program will run in two shifts to maximize output, with a detailed schedule ensuring efficient utilization of machinery and labour. The production calendar will account for maintenance periods to ensure uninterrupted operations.

5.4 Raw Materials and Utilities Requirements

Raw Materials:

- **PP Woven Bags**: PP Raffia granules, Calcium Carbonate, and ink for printing.
- **Carton Boxes**: Recycled paper, starch-based adhesives, and printing ink.
- **Pulp Egg Trays**: Recycled paper and water.

Utilities:

- **Electricity**: Required for machinery operation across all production lines.
- **Water**: Significant for pulp moulding and cleaning processes.
- **Compressed Air**: For automated machinery and control systems.
- **Steam**: Used in drying processes for egg trays and possibly in corrugation.

5.5 Manufacturing Process of Each Product

5.5.1 Polypropylene (PP) Woven Bags

Manufacturing Process:

The production of PP woven bags begins with the extrusion process, where polypropylene granules are melted and extruded into thin, flat tapes. These tapes are then stretched and cooled to enhance their tensile strength. Following this, the tapes are wound onto spools and transferred to weaving looms. On the looms, the tapes are woven into a fabric through an interlacing process known as warp and weft. The woven fabric is then cut into the desired sizes for bags. After cutting, the fabric pieces undergo printing, where company logos and product information are added using specialized printing machines. Finally, the cut and printed fabrics are sewn into bags, and additional components like handles and liners are added as needed. The finished bags are then subjected to quality control checks before being packaged for distribution.

Machinery Use:

- **Extrusion Line**: Melts and extrudes PP granules into tapes. This involves a hopper feeder, extruder barrel, screw, and die head.
- **Stretching Unit**: Stretches the tapes to enhance tensile strength.
- **Winding Machine**: Winds the stretched tapes onto spools.
- **Weaving Looms**: Interlaces tapes into woven fabric through warp and weft mechanisms.
- **Cutting Machines**: Cuts the woven fabric into specific sizes for bags.
- **Printing Machines**: Adds logos and information to the fabric using ink and printing plates.
- **Sewing and Finishing Equipment**: Assembles the cut fabric into bags, adds handles and liners.

5.5.2 Carton Boxes

Manufacturing Process:
The carton box production begins with the pulping process, where recycled paper is mixed with water and chemicals to break it down into a slurry. This slurry is then refined and cleaned to remove impurities. The cleaned pulp is formed into flat sheets and passed through corrugators, where they are shaped into fluted layers. These fluted layers are then laminated between liner boards to create the corrugated cardboard.
The cardboard sheets are cut and scored according to the required box dimensions using cutting and creasing machines. The cut sheets are then folded and glued to form the final box shape.
Printing machines are used to add branding and product information on the boxes. The finished boxes are inspected for quality and then stacked for shipment.

Machinery Use:

- **Pulping Machine**: Converts recycled paper into slurry through agitation and chemical treatment.
- **Corrugating Machine**: Forms fluted layers and laminates them between liner boards.
- **Cutting and Creasing Machines**: Cuts the cardboard sheets into required dimensions and scores them for folding.
- **Folding and Gluing Equipment**: Folds the cut sheets into box shapes and applies adhesive to secure them.
- **Printing Machines**: Prints branding and information on the boxes using ink and printing plates.

5.5.3 Pulp Egg Trays

Manufacturing Process:
The manufacturing of pulp egg trays starts with the pulping process, where recycled paper and water are mixed to create a slurry. This slurry is then refined and cleaned to remove contaminants. The cleaned pulp is pumped into moulding machines, where it is shaped into trays using Molds that create the individual compartments for eggs. Excess water is pressed out of the moulded trays to ensure they hold their shape. The trays are then dried using energy-efficient methods such as hot air or steam. After drying, the trays are trimmed to remove any excess material and undergo quality checks. The finished trays are then stacked and packed for distribution.

Machinery Use:

- **Pulping Machine**: Mixes recycled paper with water to create a slurry, involving a hydra-pulper and agitation system.
- **Moulding Machine**: Shapes the pulp into egg trays using Molds and suction mechanisms.
- **Pressing Machine**: Removes excess water from the moulded trays.
- **Drying Equipment**: Dries the trays using hot air or steam, ensuring structural integrity.
- **Trimming Machine**: Trims excess material from the trays, ensuring uniformity and quality.

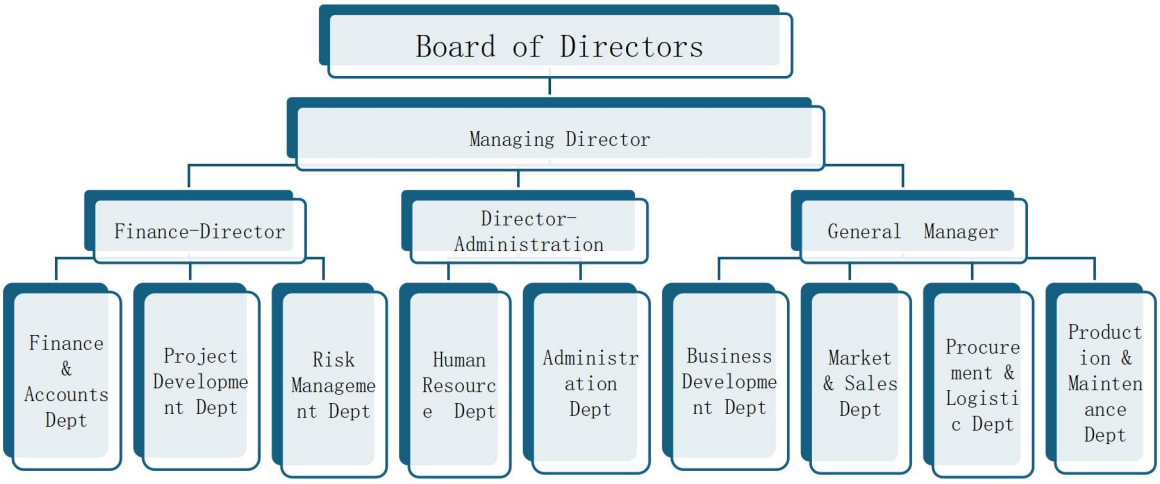
6 ORGANIZATION STRUCTURE

6.1 Organization Structure and Human Resource.

The envisaged plant operations and activities will be assigned to organizational units represented by the managerial staff, supervisors, and workforce to attain the objectives of the plant. The activities include planning, directing, coordinating, and controlling of the plant operations at the required level of quality and specified time. The organization structure will be staffed with eligible personnel with corresponding authority and responsibility for achievement of the goals and objectives of the firm. The highest body of the plant, the Board of Directors, is responsible for handling policy issues, approving strategic plan and follow up the activities of the Managing Director. The Managing Director is accountable to the Board of Directors. He is responsible for planning, executing, monitoring, and controlling the whole activities of the company. There are three-line departments under the Managing Director as follows:

- ✓ Department of Finance
- ✓ Department of Human Resource & Administration
- ✓ General Management Department

Organization Structure.



6.2 Labour requirements

- The technicians from the suppliers of the machinery will train and transfer technical knowledge to the local workforce that will be employed by the company. The company will recruit the experienced Project manager to oversee the plant implementation, operation, and production. He will be teaching the local workforce about the skills required at each stage of production. The qualified and experienced Tanzanians to work with the machinery will also be employed.
- The company will also arrange to get experienced people from other plastic products manufacturers who have experience in the similar business.

A total of 310 workers are required by the plant in the first 5years. The annual cost for the labour is TZS 255 million for the first year of operations.

- The company expect to recruit at least 180 local women and 120 local mean of different age structure. At least 10 foreigners are expected to be employed to develop skills and transfer knowledge to local staff. Table below illustrates:

Direct Employment	Male	Female
Foreigner	7	3
Tanzanian	120	180
Total	127	183

6.3 Assumptions

PP Woven Bags:

- Working days: 25 days/month, 12 months/year
- Shifts: 2 shifts/day, 8 hours/shift
- Plant capacity: 12,000,000 bags/year (40,000 bags per day)
- Annual consumption: 964,285.71 kg of PP granules and 115,714.29 kg of CaCO3
- Variable cost: PP granule TZS 4,500/kg, CaCO3 TZS 1,280/kg
- Revenue driver: Price of 100kg bag is TZS 820

Carton Boxes:

- Working days: 25 days/month, 12 months/year
- Shifts: 2 shifts/day, 8 hours/shift
- Plant capacity: 5,760,000 boxes/year (1,200 boxes per hour)
- Weight of 1 box: 0.50 kg
- Variable cost: Kraft paper TZS 816/box
- Revenue driver: Price per box TZS 2,338

Egg Trays:

- Working days: 25 days/month, 12 months/year
- Shifts: 2 shifts/day, 8 hours/shift
- Plant capacity: 288,000 batches/year (100 trays/batch) hourly production of 6,000 trays
- Variable cost: Recycled paper and water
- Revenue driver: Price per 100 trays TZS 25,000

6.4 Capital Expenditure

The total projected CAPEX requirement for JCN Enterprises Limited is estimated at USD 6,500,000 as investment cost and USD 4,000.000 as working capital. This will be financed through a mix of equity and debt, ensuring a balanced capital structure. Equity contributions, amounting to USD 1,950, 970, will focus on acquiring land and constructing essential infrastructure, including the main warehouse and other necessary buildings. This foundational investment will ensure robust support for the company's operations.

Debt financing will consist of a long-term loan of USD 4,500,000, earmarked for procuring, shipping, and setting up sophisticated machinery and equipment essential for establishing a fully automated production line. The integration of advanced technology is expected to significantly enhance operational efficiency and productivity, positioning JCN Enterprises Limited as a competitive player in the packaging manufacturing sector. For a detailed breakdown of capital expenditure, please refer to Annex 2: CAPEX.

6.5 Projected Income Statement

The income statement analysis indicates promising financial trends over the projected ten-year horizon. The revenue growth presents a positive pattern, with an increase from TZS 11.12 billion in year one to TZS 50.47 billion by year ten. This increment, while exhibiting a slightly decelerating rate, suggests that the company is likely to expand its market presence and sales while potentially benefiting from economies of scale.

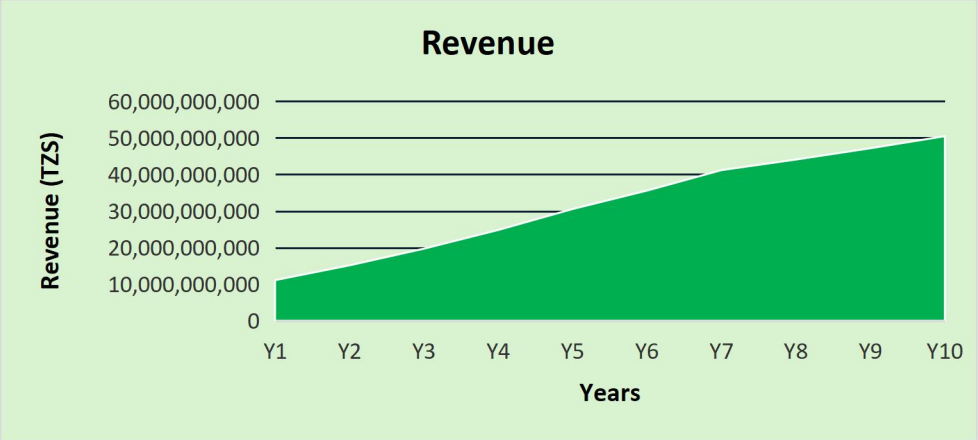


Figure 9: Revenue projections

The cost of production also escalates over the years, but at a decelerating rate, starting from TZS 6.09 billion in year one and moving to TZS 26.21 billion by year ten. The cost consistently remains at about 73% to 75% of the revenues, which indicates firm control over operational expenditures relative to the revenue increase.

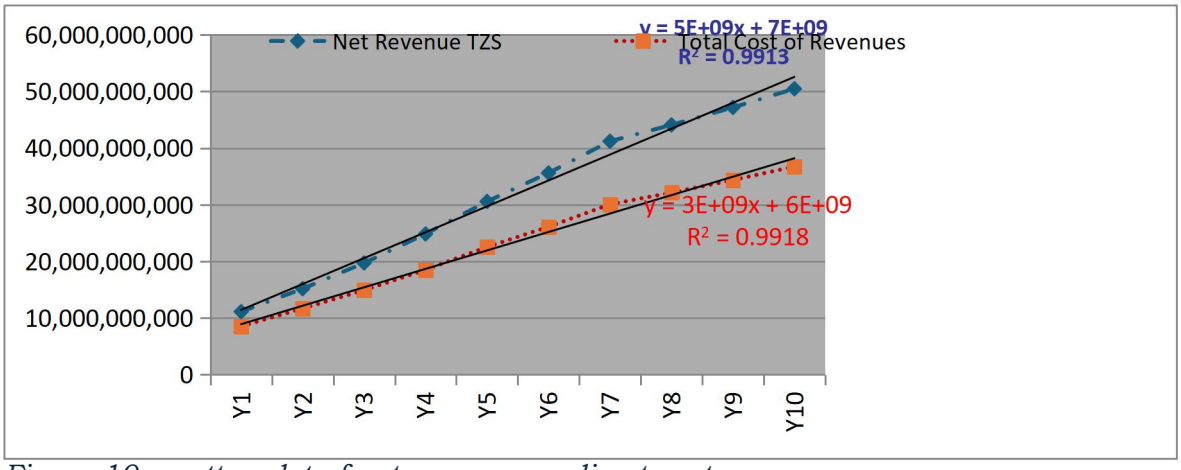


Figure 10: scatter plot of net revenue vs direct cost

The project's self-sustainability is apparent, with the company projected to generate robust net earnings. It starts with TZS 433.13 million in the first year of operation and exhibits an exponential increase to TZS 3.45 billion by the fifth year. This trend continues upwards, as evidenced by the net earnings percentage of revenues stabilizing at 14% from year five through year ten, which underscores the project's increasing profitability and potential for wealth creation.

Overall, the financial projections for JCN Enterprises Limited suggest that the business is on a strong footing to not only sustain itself within the ten-year projection but also to generate substantial returns, showcasing the viability and financial health of the operation.

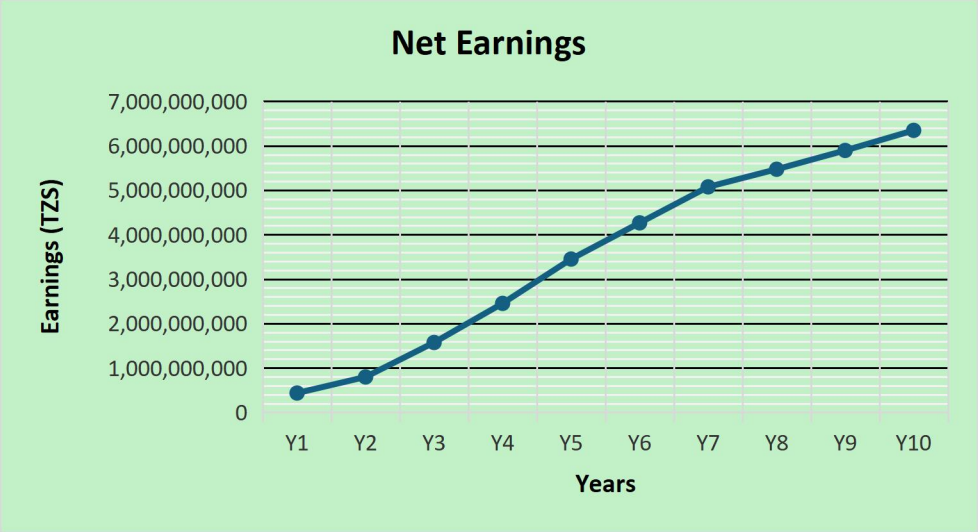


Figure 11: Net profit projected trend

6.5.1 Operating Expenses

JCN Enterprises Limited operates in a sector that necessitates substantial upfront investment in materials and robust management of operational expenses to realize profits. The financial analysis for the ten-year projection underscores that the majority of the company's costs are variable and tied directly to production levels, with materials such as PP granules, CaCO3, Kraft paper, and recycled paper constituting the bulk of these expenses. The model reveals a consistent cost of revenue at about 73-74% of the revenue, which is indicative of the company's ability to sustain its profit margins while scaling operations.

To support this growth, the company will need to ensure that critical operational inputs are readily available. This includes keeping a steady supply of raw materials and managing other operational expenses such as manpower, sales, and distribution. The stable increase in salary and maintenance expenses reflects a controlled expansion in workforce and asset management, while the rising interest expense signals a growing dependency on short-term financing. The financial data suggests the necessity for JCN Enterprises Limited to maintain a significant portion of the working capital to cover these variable and fixed costs efficiently, ensuring uninterrupted operations and the capacity to leverage opportunities for revenue generation. (See Annex 4: Operational Expenses of the financial model for reference)

6.5.2 Balance Sheet Management

The balance sheet forecast for JCN Enterprises Limited indicates a financial structure that becomes increasingly liquid over the projected ten-year period. The rate of growth in accounts receivable outpaces that of inventories, signalling that the company is extending more credit in relation to its sales, a move that could be tied to expanding customer demand and market reach. This trend suggests that JCN is effectively managing its liquidity to match the operational scale-up, with receivables turning over efficiently to support the company's cash flow needs.
As the company progresses through the decade, there is a discernible strategy to leverage short-term loans, likely used to bolster inventory levels in anticipation of heightened demand for the company's products. The phasing out of long-term debt by the seventh year into the projection accentuates the company's focus on managing more immediate financial obligations and reducing interest-bearing debt,

which can free up cash flow for more strategic uses. This balance sheet progression depicts a company that is not only expanding its operational capacity but is also astutely aligning its financial resources with its growth trajectory. (See Annex 12: Balance Sheet in the financial model)

"TZS" Balance Sheet	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
ASSETS										
CURRENT ASSETS										
Cash	-344,595,741	-1,021,164,154	-640,255,626	400,084,205	2,188,035,261	6,387,888,940	11,356,711,870	16,877,384,566	22,802,580,710	29,160,677,602
Accounts Receivable	2,779,800,000	1,819,376,640	2,365,821,360	2,979,853,395	3,668,257,391	4,272,823,356	4,944,054,095	5,290,137,881	5,660,447,533	6,056,678,860
Inventories	5,114,832,000	3,638,753,280	4,731,642,720	5,959,706,791	7,336,514,782	8,545,646,711	9,888,108,189	10,580,275,762	11,320,895,066	12,113,357,720
Other Current Assets	1,389,900,000	909,688,320	1,182,910,680	1,489,926,698	1,834,128,695	2,136,411,678	2,472,027,047	2,645,068,941	2,830,223,766	3,028,339,430
Total Current Assets	8,939,936,259	5,346,654,086	7,640,119,134	10,829,571,089	15,026,936,128	21,342,770,685	28,660,901,201	35,392,867,150	42,614,147,074	50,359,053,613
PROPERTY & EQUIPMENT	6,071,192,942	5,815,824,384	5,573,806,055	5,344,252,730	5,126,350,467	4,919,350,154	4,722,561,673	4,535,348,627	4,357,123,559	4,187,343,636
TOTAL ASSETS	15,011,129,201	11,162,478,470	13,213,925,189	16,173,823,819	20,153,286,595	26,262,120,839	33,383,462,874	39,928,215,777	46,971,270,634	54,546,397,249
LIABILITIES & SHAREHOLDERS' EQUITY										
CURRENT LIABILITIES										
Short Term Debt	342,496,478	366,400,426	391,977,651	419,345,281	448,628,646	479,961,846	513,488,370	549,361,751	587,746,269	628,817,703
Accounts Payable & Accrued Expen	5,114,832,000	3,638,753,280	4,731,642,720	5,959,706,791	7,336,514,782	8,545,646,711	9,888,108,189	10,580,275,762	11,320,895,066	12,113,357,720
Other Current Liab	2,779,800,000	1,819,376,640	2,365,821,360	2,979,853,395	3,668,257,391	4,272,823,356	4,944,054,095	5,290,137,881	5,660,447,533	6,056,678,860
Current portion of long term debt	0	0	0	0	0	0	0	0	0	0
Total Current Liabilities	8,237,128,478	5,824,530,346	7,489,441,731	9,358,905,467	11,453,400,818	13,298,431,913	15,345,650,654	16,419,775,395	17,569,088,867	18,798,854,283
LONG TERM DEBT (less current portion)	5,139,725,380	4,109,430,226	2,925,268,704	1,564,262,096	0	0	0	0	0	0
STOCKHOLDERS' EQUITY										
CommonStock	1,201,150,000	0	0	0	0	0	0	0	0	0
Preferred Stock	0	0	0	0	0	0	0	0	0	0
Retained Earnings	433,125,343	1,228,517,898	2,799,214,755	5,250,656,256	8,699,885,777	12,963,688,925	18,037,812,220	23,508,440,383	29,402,181,766	35,747,542,966
Total Equity	1,634,275,343	1,228,517,898	2,799,214,755	5,250,656,256	8,699,885,777	12,963,688,925	18,037,812,220	23,508,440,383	29,402,181,766	35,747,542,966
TOTAL LIABILITIES & EQUITY	15,011,129,201	11,162,478,470	13,213,925,189	16,173,823,819	20,153,286,595	26,262,120,839	33,383,462,874	39,928,215,777	46,971,270,634	54,546,397,249

Figure 12: Balance Sheet

6.5.3 Cashflow Analysis

The cash flow analysis for JCN Enterprises Limited reveals a strong financial position after the initial years, with a well-balanced capital structure showcasing a near-equal distribution of debt and equity. Despite the early need for substantial working capital, evidenced by a negative cash flow in the first two years, the project is forecasted to generate positive cash flows from the third year onward. This turnaround is supported by the working capital facility sought in this application, which is expected to effectively address initial cash flow shortages. The cash flow statements reflect an improving liquidity cycle, with changes in working capital suggesting that the company is unlikely to encounter liquidity issues over the projected ten-year period. Anticipated growth in cash flows to TZS 29.16 billion over a decade further underscores the project's financial viability and its capacity to sustain and expand operations without liquidity constraints. See Annex 13 for reference.

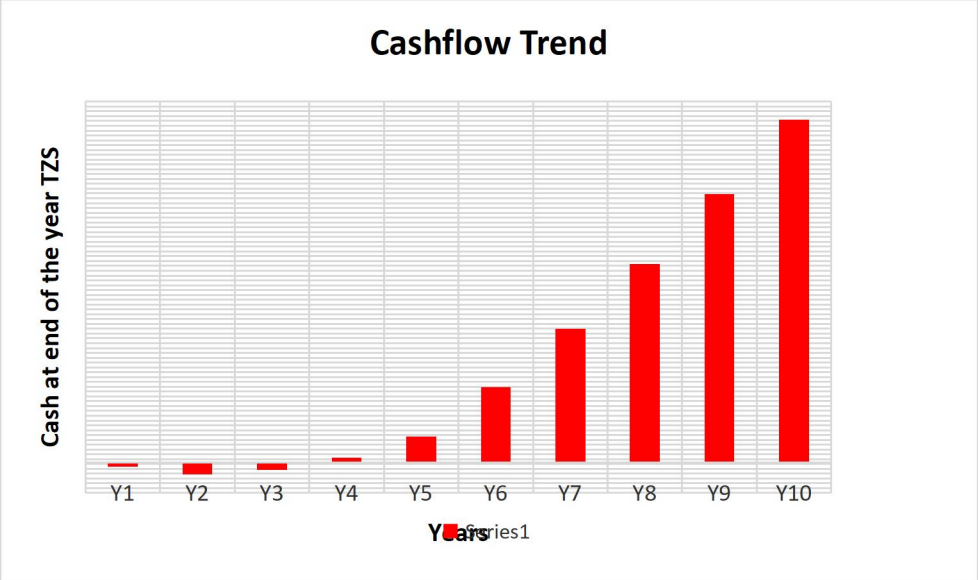


Figure 13: Cashflow growth trend

6.6 Project Viability

Table 5: Project Viability Indicators

Financial Metric	Results
NPV	TZS 17 million
Internal Rate of Return (IRR)	35%
DCSR	4.11 times
ROA	15.30%
ROE	37.40%

Evaluating the viability of JCN Enterprises Limited based on the provided summary of ratios and financials over a ten-year period:

6.6.1 Net Present Value (NPV)

The project presents an NPV of TZS 17,077,356,588, which is a positive indicator of profitability. An NPV greater than zero suggests that the projected cash flows generated by the project exceed the initial investment costs when discounted at the weighted average cost of capital (WACC). This supports the project's financial viability, indicating the company's ability to create value over the investment's lifetime.

6.6.2 Internal Rate of Return (IRR)

The internal rate of return (IRR) has cemented the investment decision for this project. For the project to be financially viable, the IRR should be greater than the cost of funding, which is assumed at 14%. The projected IRR is 35%, significantly higher than the cost of funding, indicating a strong return on investment.

6.6.3 Debt Service Coverage Ratio (DSCR)

The DSCR appears to be well-managed in the years it's applicable (Y3, Y4, Y5, Y7, Y8). With values ranging from 2.86 to 5.64, it signifies the company's capacity to service its debt with its operating income. In the years where DSCR is not applicable, it could be due to the absence of interest-bearing debt, as the total debt is reduced to zero by Y7.

6.6.4 Return on Assets (ROA) and Return on Equity (ROE)

The ROA starts at 2.9% in Y1 and increases to 21.6% by Y10. ROE begins at a high of 26.5% in Y1, reaching 127.9% in Y3, and eventually stabilizing at 21.6% in Y10. These ratios indicate the company's effectiveness in using its assets to generate profits and the return it generates on shareholders' equity. The trends reflect the company's growth and increasing profitability over time.

6.6.5 Debt to Capital Ratio

This ratio significantly decreases from 0.76 in Y1 to 0.00 from Y5 onwards, showing the company's strategy of reducing leverage over time, ending with no long-term debt. This conservative approach to debt management enhances the company's financial stability.

6.6.6 Profitability

The company maintains a steady gross profit margin around 26% and an increasing net earnings margin, which stabilizes at 14% from the fifth year onward. This consistency in profitability indicates sound operational management and the ability to sustain and improve profit margins over time.

6.6.7 Conclusion

Overall, JCN Enterprises Limited’s financial projections highlight a project with strong growth potential, substantial returns on investment, and manageable risks. The positive NPV, high IRR, solid DSCR, and healthy ROA and ROE ratios, coupled with a prudent approach to debt management and consistent profitability margins, position the company well for future success and underline the project's financial viability.