



# Investing in Biofuel Production for Clean Cooking

Prepared and presented by:

Chief Executive Officer

JV Biotech Enterprises Co Ltd

P.O.BOX 35091

Dar es Salaam

[info@jvbiotech.co.tz](mailto:info@jvbiotech.co.tz) or [kabegu@jvbiotech.co.tz](mailto:kabegu@jvbiotech.co.tz)

Presented for.

-----

-----

-----

-----

## Table of Contents

.....	1
0. EXECUTIVE SUMMARY .....	4
1. Company Overview .....	5
1.1. Mission and Vision.....	5
1.2. Who We Are.....	5
1.3. Our Core Values .....	6
2. BUSINESS DESCRIPTION.....	6
2.1. Historical Background for its establishment .....	6
2.2. Situational Analysis .....	7
2.3. Feedstock.....	8
2.4. Selected feedstock for our Micro-distillery.....	8
2.5. Problem to be Addressed .....	8
2.6. The Solution .....	9
2.7. Bio-ethanol Production Line.....	9
2.8. SWOT Analysis .....	11
3. PRODUCTS.....	13
3.1. Products (Denatured Ethyl Alcohol and ENA) .....	13
3.2. Key Products' Features and Benefits.....	13
3.3. Unique Selling Point (USP) .....	15
3.4. Competitor Analysis .....	17
4. MARKET ANALYSIS AND MARKET PLAN .....	18
4.1. Market Opportunity .....	18
4.2. Target Market (TAM, SAM, SOM) .....	18
4.3. Market Segmentation .....	19
4.4. Market Plan (7Ps) .....	20
5. MARKET AND SALE STRATEGY.....	23
5.1. Market Strategy .....	23
5.2. Sale Strategy.....	24
5.3. Business Model for Bioethanol Products .....	26
6. FINANCIAL PLAN.....	28
6.1. Total investment Required (CAPEX & OPEX) .....	28

6.2. Financial Analysis and Projection.....	28
(a). Depreciation Schedule .....	28
(b). Revenue and Pricing Model .....	29
(c). Sale Forecasting .....	29
(d). Cost of Goods Sold – COGs.....	29
(e). Income Statement.....	30
(f). Cash flow.....	31
(g). Balance Sheet .....	32
(h). Break even Analysis Year 1 .....	32
(i). NPV, MIRR and IRR .....	33
7. SUSTAINABILITY PLAN .....	33
7.1. Sales of Biofuel and ENA.....	33
7.2. Market Expansion for Broader Sustainability Impact.....	34
7.3. Strategic Partnership.....	34
8. POTENTIAL RISKS AND THEIR MITIGATION.....	34
9. MANAGEMENT TEAM .....	35
10. ANNEXES.....	36
a) Financial Analysis .....	36
b) Financial Projection.....	36

## 0. EXECUTIVE SUMMARY

**Management Team:** JV Biotech is led by experienced professionals with expertise in biofuel production, waste management, and sustainable business practices.

**Business Description:** JV Biotech is a Tanzanian startup company committed to producing bioethanol (biofuel) and Extra Neutral Alcohol (ENA) from biomass, especially cassava chips and molasses. We aim to provide a clean and sustainable alternative to traditional cooking fuels and industrial ethanol while promoting responsible clean cooking energy and agricultural value addition.

**Problem:** Millions of households (90%) in Tanzania rely on unclean cooking fuels like charcoal and firewood, contributing to deforestation, air pollution, and respiratory illnesses. Additionally, the Tanzania demand for over 19 million liters of high-quality ENA is often met by imports, creating an opportunity for domestic production.

### Solutions/Products:

- **Bioethanol:** We offer biofuel as a clean and efficient cooking fuel, reducing reliance on harmful alternatives and contributing to a healthier environment.
- **Extra Neutral Alcohol (ENA):** We produce high-quality ENA suitable for the food and beverage industry, offering a domestic alternative to imported products.

**Market & Market Size:** The Tanzanian bioethanol market is expected to reach \$41

million by 2027. Initially, we target the \$ 10.8 million market size.

**Target Customers:** We target both urban and rural; low- and mid-income households in Tanzania

**Channel of Distribution:** JV Biotech will utilize a multi-channel distribution strategy, partnering with existing distributors like Consumer Choice Limited, and Greenergy for bioethanol cook stoves and establishing new partnerships with retailers and wholesalers in target markets.

### Unique Selling Points (USPs):

- **Clean and Efficient Fuel:** Bioethanol offers a cleaner burning alternative to traditional cooking fuels, contributing to improved air quality and health benefits.
- **Domestically Produced:** We offers a high-quality, locally-sourced alternative to imported products, boosting the local economy and reducing reliance on foreign supplies.

### Competition:

- **Bioethanol:** While JVB is a new entrant, the Tanzanian bioethanol market has established players like Sugar factories
- **ENA:** The East African ENA market has existing regional producers like in Uganda Bukona Agro-industry Limited.

### Financial Projection

Year	2025	2026	2027	2028	2029
Revenues US\$	364,000.0	418,600.0	481,390.0	553,598.5	636,638.3
EBIT US\$	127,673.4	153,851.5	179,574.3	211,277.9	246,665.9
<b>Net Profit US\$</b>	<b>89,371.4</b>	<b>107,696.0</b>	<b>125,702.0</b>	<b>147,894.5</b>	<b>172,666.1</b>
<b>NET Margin US\$</b>	<b>24.6</b>	<b>25.7</b>	<b>26.1</b>	<b>26.7</b>	<b>27.1</b>

## 1. Company Overview

### 1.1. Mission and Vision

#### **Mission:**

Our mission is to passionately innovate and deliver exceptional products and services to our customers while upholding the highest standards of integrity. We are dedicated to satisfying our customers by offering innovative and cost-effective solutions that cater to their needs.

#### **Vision:**

We aspire to be a premier manufacturing and processing company that operates globally and serves as a valuable addition to all levels of the supply chain.

### 1.2. Who We Are

JV Biotech Enterprises Co Ltd is a versatile company in the food, agriculture and biotechnology sectors, offering agro-processing, agro-commodities trading, and agricultural consultancy services to a diverse range of clients. Its scope of operations encompasses farming, processing, trading, agricultural consultancy, and circular bio-economy.

It is an agro-industry with dynamic and multifaceted company operating within the food and agriculture sectors. Our diverse range of services spans agro-processing, agro-commodities trading, and agricultural consultancy, all tailored to meet the unique needs of our clients. Our commitment to a circular bio-economy sets us apart as a forward-thinking leader in the industry.

Our company is structured into four distinct divisions, each with a specific area of expertise:

**1. Cassava Processing:** This division is dedicated to the production of valuable products such as starch, animal feed, and cassava flour. We leverage the potential of cassava to create high-quality, market-ready goods.

**2. Agro-Imports and Exports:** Our skilled team in this division handles the trading of a wide variety of agro-commodities, including maize, rice, cassava, soybeans, fruits, and potatoes, along with related products. We facilitate the flow of agricultural products on both the local and international markets.

**3. Agro-Consultancy Services:** JV Biotech Enterprises Co Ltd offers tailored agricultural investment consultancy, comprehensive agricultural and business training, and expert agricultural project management services. We provide the knowledge and support necessary to enhance agricultural practices and business performance.

**4. Bio-based Development and Commercialization:** This division is at the forefront of innovation, focusing on the transformation of biomass and renewable materials into renewable products. Our emphasis is on the development of sustainable alternatives such as bio-ethanol and bio-plastics, contributing to a greener and eco-friendlier future.

### 1.3. Our Core Values

Our commitment to delivering the best results is guided by the following set of morals, which we adhere to in our work and daily conduct;

a) **INNOVATION**

Our utmost priority is to meet our customer's expectations by offering creative solutions and striving for continual improvement

b) **INTEGRITY**

Our commitment is to consistently deliver what we promise by always doing things in right way, at right time.

c) **PROFESSIONALISM**

Our commitment is to utilize our expertise and knowledge to consistently deliver high-quality products and service to our valued customers in a timely manner.

d) **ACCOUNTABILITY**

Our commitment is to utilize our expertise and knowledge to consistently deliver high-quality products and service to our valued customers in a timely manner.

## 2. BUSINESS DESCRIPTION

### 2.1. Historical Background for its establishment

JV Biotech Enterprises Co Ltd, established by the visionary minds of two biotechnologists, intentionally to use biotechnology skills in combination with other disciplines in creating valuable products has been on a transformative journey since its inception in 2016.

Starting with the revolutionary conversion of potato peels into eco-friendly bio-plastic bags, and then we expanded our horizons, engaging in diverse projects related to agribusiness, agro-processing, trading, environmental sustainability, circular economy initiatives, and projects combating climatic change.

As stewards of innovation, value creation, and sustainability, our portfolio evolved to produce cassava starch, bio-fertilizers,

and animal feed using cassava roots/chips. Now, our journey takes a crucial turn as we set our sights on harnessing bioethanol from agricultural wastes and surplus starchy crops such as cassava and molasses. The goal is clear: to provide clean cooking energy for million households and revolutionize the waste-to-energy industry.

The heart of our motivation lies in transforming the traditional cooking habits; that use of unclean cooking fuel: charcoal and firewood that prevalent in both rural and urban households, where charcoal and firewood are dominant sources of energy. Recognizing the alarming consequences of this reliance, our commitment deepened.

The sad narrative unfolds as our forests diminish, contributing to a cascade of climatic changes, including elevated greenhouse gas emissions, impacting temperature, rainfall variation, and biodiversity loss. The human toll is equally distressing, with respiratory-related diseases costing over thousands of lives due to air pollution. If we continue down this path, the calamity is projected to worsen, escalating to unthinkable proportions.

It is from this touching story that JV Biotech arises as a beacon of hope and change. We refuse to accept the impending catastrophe as inevitable. Instead, we present an initiative to rectify the situation, creating a better world for the current and future generations.

Our commitment is resolute; to replace the use of environmentally damaging fossil fuels like firewood and charcoal intentionally with clean, affordable, renewable, eco-friendly and efficiency energy – bio-ethanol

Our vision is clear—to transform Waste to Energy (WtE) using food and industrial wastes from streets and markets, along with industrial by-products such as molasses and surplus cassava, into the most valuable commodity of all: clean cooking energy - bioethanol. By doing so, we aim not only to address the imminent threat of climate change but also to bring about a positive change in the lives of those suffering from the consequences of climatic change.

JV Biotech's venture into bioethanol production as clean cooking energy is more than a business endeavor; it's a rallying cry for change. It's a commitment to turning the tide on environmental degradation, to fostering sustainability, and to creating a world where clean energy is not just an option but a necessity for a brighter and healthier future for every individual.

## 2.2. [Situational Analysis](#)

The current cooking habits of about 80 percent of Tanzania's households (10 million households) depend on unclean fuels such as firewood, charcoal, and crop residues as sources of cooking energy, leading to detrimental effects on the environment and public health. The extensive cutting of trees for charcoal and firewood results in deforestation and the release of harmful pollutants such as carbon monoxide, causing about 33,000 of deaths annually and contributing to rise in global temperature, changing precipitation patterns and food insecurity. Eventually, climate change is causing more intense and more frequent extreme weather events such as flooding and long-drought.

### 2.3. Feedstock

Bioethanol production utilizes a variety of plant-based materials abundant in fermentable sugars. Common feedstocks include corn, where starch is enzymatically converted; sugarcane, providing juice or molasses; and sugar beets, wheat, barley, and cassava, all contributing to their sugar or starch content. Energy crops like switchgrass and miscanthus offer cellulose for sugar conversion. The selection of feedstock depends on regional availability, cost, and technological advancements aimed at improving the sustainability of bioethanol production.

JV Biotech's feasibility study has identified cassava chips, molasses, and maize as the feedstocks for its micro-distillery. Cassava chips are prioritized due to their high yields, easy accessibility, and low cost. Molasses, a byproduct of sugar industries, particularly Bagamoyo Sugar, is the second choice. Maize will be used as needed, contingent on its availability and abundance.

### 2.4. Selected feedstock for our Micro-distillery

JV Biotech's strategic feedstock choices were driven by considerations of availability, accessibility, affordability, and efficiency. Our factory, conveniently located 15 km from Bagamoyo Sugar, ensures easy sourcing of molasses. Furthermore, our proximity to cassava farmers, coupled with our team's extensive experience in the cassava industry, makes cassava chips an accessible and viable feedstock. Additionally, JV Biotech owns a cassava processing factory, which may be one of the sources of cassava chips as feedstock. This feedstock selection aligns with our mission to produce bioethanol efficiently and sustainably. The strategic location of our factory near raw material sources ensures a streamlined supply chain, minimizing logistical challenges.

### 2.5. Problem to be Addressed

Our business looks at addressing the paralleled problems; air pollution, GHG emissions, Climate change and the Economy.

**Air pollution:** The prevalent cooking habits in Tanzania pose a significant challenge, with an astonishing 89.7% of the population relying on firewood (63.5%) and charcoal (26.2%) as their primary cooking fuels. Alarming statistics reveal that only a minimal 5.1% use LPG, 3% use electricity, and 2.2% opt for alternative clean energy sources. In urban areas, especially cities, towns, and urban centers, more than 80% of households opt to charcoal for cooking. This reliance on unclean cooking fuels has shown severe consequences, leading to an annual toll of 33,000 deaths due to illnesses associated with household air pollution. Hundreds of thousands of people suffer from chronic diseases as a result of inhaling harmful fumes emitted by these inefficient stoves and unclean energy sources.

**Climate Change:** Moreover, between 2015 and 2020, Tanzania experienced an annual loss of 470,000 hectares (1.16 million acres) of forest cover, primarily attributed to extensive firewood and charcoal use for cooking, contributing significantly to deforestation and climate change. The prevalent use of solid biomass cooking fuel, particularly for charcoal production, is causing extensive damage to local climate conditions and ecosystems.

**High Bioethanol Market Demand:** In Tanzania, there is high demand for bioethanol, with an estimated need exceeding 10.5 million liters per year (USD 10 millions). This demand spans across various industries, including food, beverage, and energy production.

## 2.6. The Solution

### What is JV Biotech going to offer?

Our solution involves establishing a micro-distillery utilizing cassava chips, molasses, and maize to produce bioethanol, a clean cooking fuel. With an initial capacity of processing 8 tons daily, producing 200–3,000 liters, we aim to reach over 1 million liters annually. By using organic/biomass materials as feedstock, we will contribute to lower greenhouse gas emissions, and combat deforestation and air pollution.

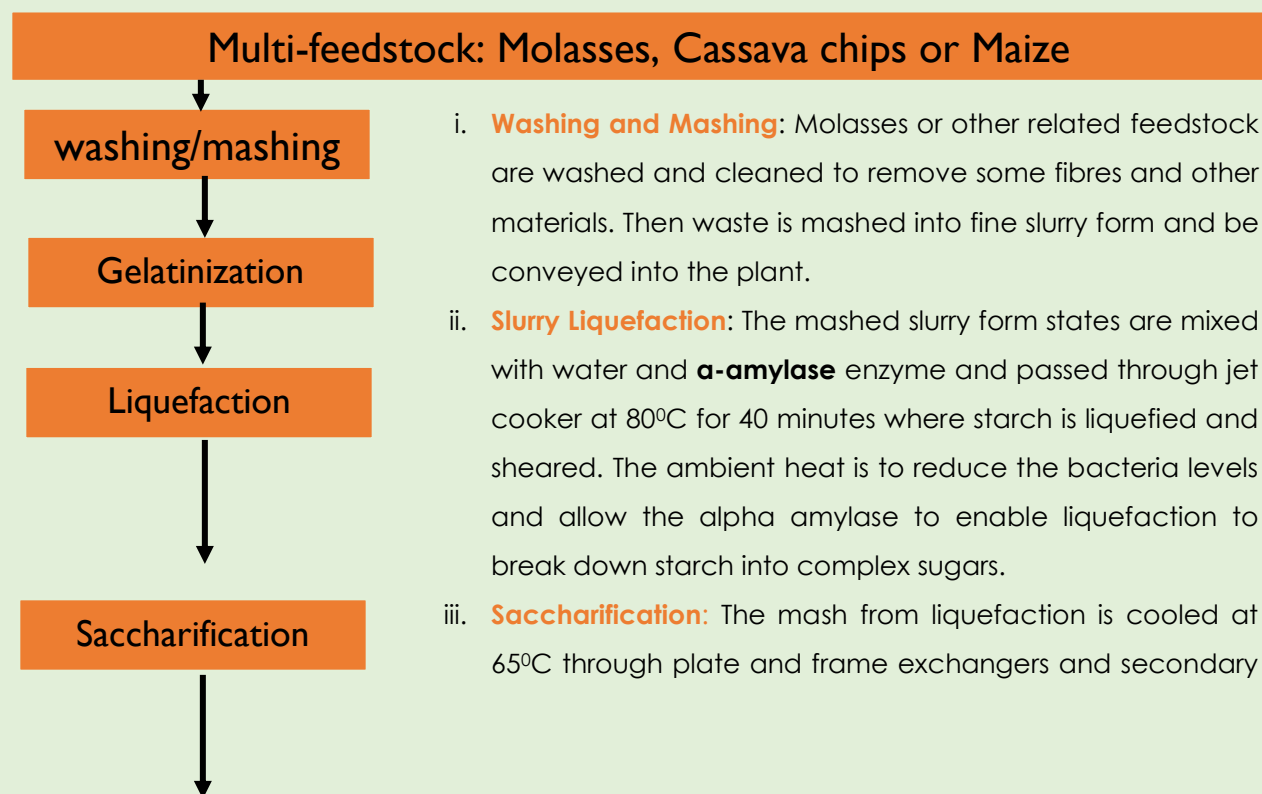
Primarily, our target is to produce and distribute 72,000 liters of bioethanol monthly through strategic collaborations with off-takers for the first years and in the next 5 years will reach a capacity of over 10.8 million liters per year. Additionally, our company can generate Extra Neutral Ethanol, which is beneficial for the food and beverage

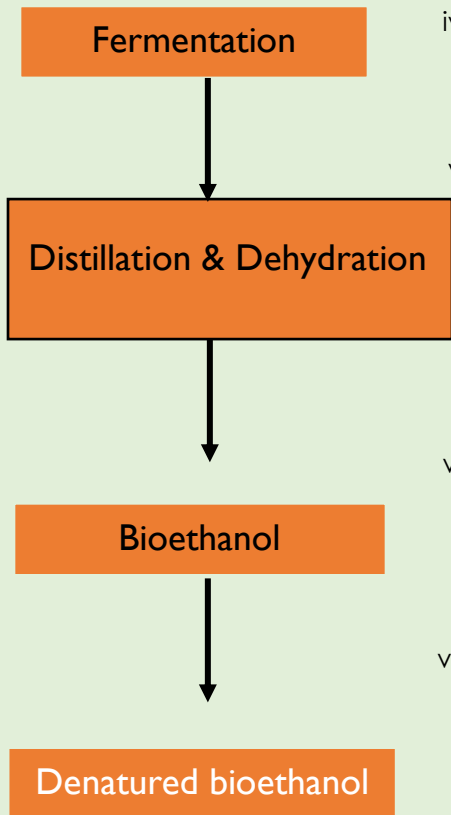
industries. Focusing on sustainable practices, we use cassava chips, and molasses to produce biofuel, addressing deforestation, air pollution, and greenhouse gas emissions, and ENA as food-grade alcohol to reduce the reliance of imported alcohol which is highly cost compared to domestically produced ENA

This biofuel, equivalent in cost to LPG, is a cleaner, smoke-free alternative that cooks two meals per use, reducing health risks, saving money, and promoting environmental well-being. Our solution not only meets the critical demand for clean cooking fuels but also contributes to lowering greenhouse gas emissions, and offers economic opportunities for youth, women, and smallholder farmers while addressing the adverse impacts of charcoal and firewood on health and the environment

## 2.7. Bio-ethanol Production Line

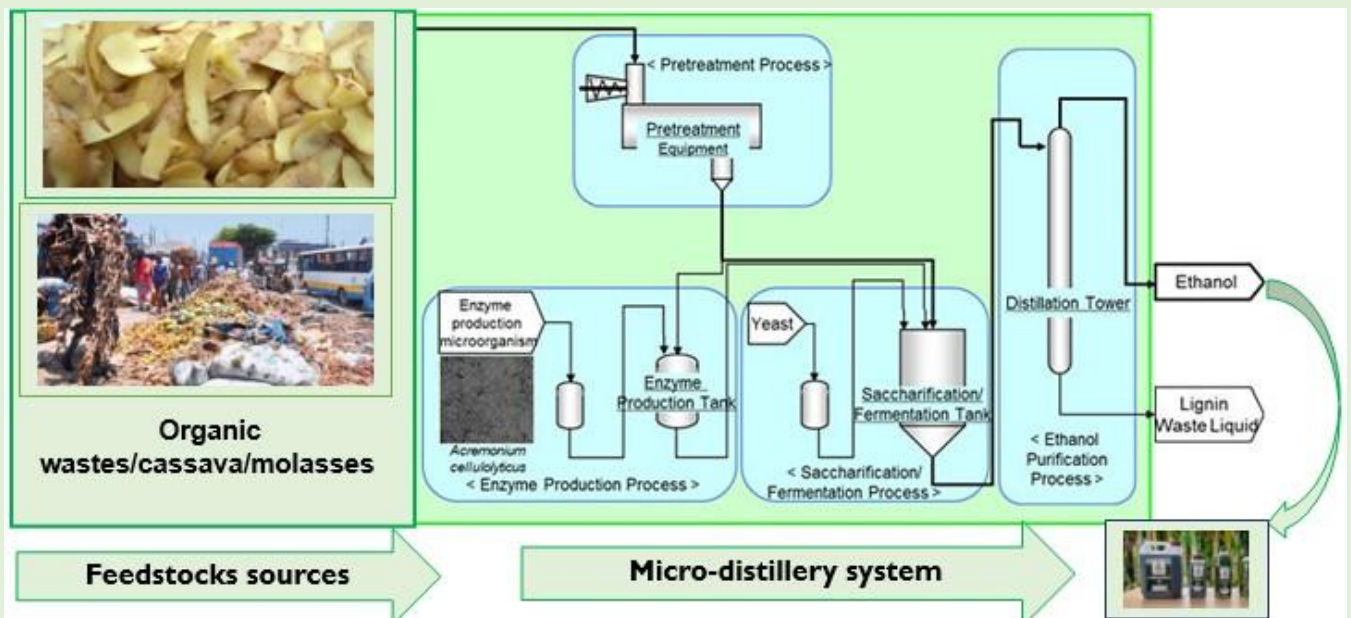
The process of producing bio-ethanol from multiple feedstock involves following important steps;





enzyme **gluco-amylase** is added to convert the complex sugars into fermentable sugars.

- iv. **Fermentation:** The yeast (**Saccharomyces Serviciae**) enzyme is added to the mash to ferment the simple sugars into ethanol at 35°C for 2 to 3 days before distillation.
- v. **Distillation:** The fermented mash has now 14% of ethanol plus other non-fermentable solids from the feedstock and enzymes. The mash is pumped into continuous flow, multi-column system (**distillation units**) where the ethanol is removed from solids and water. The ethanol leaves the top of the final column at 190°C.
- vi. **Dehydration:** The ethanol from the top column passes through a dehydration system where remaining water will be removed. The alcohol product at this stage is called pure/anhydrous.
- vii. **Denaturation:** Denatonium Benzoate at 10 to 20 mg/Kg is required to be added from the source of production, to avoid use as an alcoholic beverage for human consumption. (Bitrex) is the most bitter chemical compound known.



## Micro-distillery Model



### 2.8. SWOT Analysis

JV Biotech has undergone analysis of its Strengths, Weaknesses, Opportunities, and Threats to carry this biofuel project in a successful manner.

#### Strengths:

- **The production of both DEA and ENA:** This diversification mitigates risk and positions the company to capture opportunities in different segments of the market.
  - **Strategic partnership with off-takers:** JV Biotech has strategically partnered with off-takers in Tanzania especially CCL and Greenergy who are the largest distributors of bioethanol cookstoves in East Africa.
  - **Experienced team:** The company's founders have experience in biotechnology, biofuel, and the cassava industry, providing valuable insights and expertise for bioethanol production.
  - **Addressing critical needs:** JV Biotech's solution addresses air pollution, climate change, and the demand for clean cooking fuel, making it s
-

### Weaknesses:

- **Limited funding:** As a startup, JV Biotech may have limited access to funding for scaling up production, marketing, and research & development.

---

### Opportunities:

- **Growing demand for clean cooking fuel:** The increasing awareness of the health and environmental impacts of traditional cooking fuels creates a

significant market opportunity for bioethanol.

- **Government support for renewable energy:** Government initiatives promoting renewable energy sources can provide financial incentives and regulatory support for JV Biotech's

---

### Threats

- **Economic downturns:** Economic recessions can reduce consumer spending on non-essential items like clean cooking fuel, impacting JV Biotech's sales.

---

JV Biotech has conducted a SWOT analysis to identify its strengths, weaknesses, opportunities, and threats for achieving success in the bioethanol project. We recognize the need to address our weaknesses:

- **Scaling Up Production:** We will develop a strategic plan to increase production capacity gradually. This may involve forging partnerships, securing funding or exploring technological advancements to meet the growing market demand and enhance profitability.
- **Building Brand Awareness:** Targeted marketing and branding strategies will be implemented to effectively compete with competitors. Participating in exhibition events, collaborating with relevant organizations, and leveraging our team's expertise will build trust and recognition, strengthening our market presence.
- **Securing Funding for Growth:** We will explore diverse funding options, including grants, loans, and potential partnerships with investors who share our vision for clean energy solutions. This will fuel expansion, research, and development.

JV Biotech Bioethanol is positioned to capitalize on exciting opportunities in the bioethanol market:

- **Meeting the Clean Cooking Fuel Demand:** We will develop targeted marketing campaigns emphasizing the health and environmental benefits of bioethanol compared to traditional fuels. This will cater to the growing consumer demand for cleaner alternatives, expanding our market reach.
- **Leveraging Government Support:**  
  
Collaboration with relevant government agencies will allow us to benefit from initiatives promoting renewable energy. We will actively seek financial incentives and participate in research and development programs to accelerate our growth.

### 3. PRODUCTS

#### 3.1. Products (Denatured Ethyl Alcohol and ENA)

The company intends to produce two kinds of products.

**Denatured Ethyl Alcohol (DEA):** This is ethanol deliberately made unfit for drinking by adding unpleasant-tasting or toxic additives. While primarily used in industrial applications like cleaning and fuel production, it is crucial to remember that it is not safe for consumption due to these additives. This product will be designed to fit for the use as clean fuel for cooking.

**ENA (Extra Neutral Alcohol):** Highly purified ethanol with a neutral taste and odor, typically exceeding 95% alcohol content. ENA finds applications in various industries, including beverages (vodka, gin, etc.), food flavorings, cosmetics, pharmaceuticals, and even as an industrial solvent. Though purer than denatured alcohol, ENA is still not meant for consumption and can be harmful if ingested. The product will be specification for food industries.

#### 3.2. Key Products' Features and Benefits

##### a) Denatured Ethyl Alcohol (Bio-fuel) – For cooking:



#### Key Features:

- a) **Clean** – produces fewer pollutants and GHGs compared to traditional fuels
- b) **Renewable** – made from food waste or cassava or molasses.
- c) **Affordable** – It is a lower price than LPGs

#### Benefits:

1. **Safer** – reduced health risks associated
2. **Eco-friendly** – contributing to mitigate climate change and promote a greener
3. **Efficiency** – lower price more energy

Our Biofuel is clean cooking energy, emitting fewer pollutants and greenhouse gases, fostering a healthier environment, and aiding global climate efforts. It is produced from renewable sources (wastes, cassava, molasses), and it champions sustainability, reducing dependence on finite fuels. It's more than an energy choice; it's a circular bio-economy advocate.

Accessible at a lower cost than LPGs, our biofuel guarantees safer cooking by reducing health risks and indoor air pollution. Its eco-friendly nature contributes to climate action, ensuring a healthier atmosphere. With enhanced efficiency, it not only costs less but also offer more energy, optimizing cooking processes for a sustainable, cost-effective solution. Using our biofuel—a transformative step towards cleaner, sustainable, and efficient cooking energy.

#### Value Proposition

## b) Ethyl Alcohol – ENA for food industry purposes



### Key Features:

- a) **Sustainable:**
  - Utilizing renewable feedstock reducing reliance on fossil fuels.
- b) **Cost-effective:**
  - Potentially lower production costs due to the use of renewable feedstock.
- c) **Waste reduction:**
  - Reduce emission of GHGs

### Benefits:

1. **Reduced environmental impact:**
  - Lower greenhouse gas emissions
2. **Increased resource efficiency:**
  - Utilizes renewable materials as a valuable resource, promoting sustainability.
3. **Improved waste management:**
  - Offers a solution for waste disposal while creating a useful product.

*ENA is a compelling choice for those seeking both environmental and economic benefits. Produced from waste feedstock, our ENA significantly reduces reliance on fossil fuels and lowers greenhouse gas emissions. This not only benefits the environment but also promotes a circular economy by utilizing waste as a valuable resource.*

*Furthermore, using waste as a feedstock has the potential to lower production costs compared to traditional methods, making our ENA potentially more affordable. By choosing BECO's ENA, you contribute to responsible waste management by diverting waste from landfills and incineration.*

*Choose ENA and make a positive impact on the environment, potentially save costs, and support a sustainable future.*

**Value proposition**

### 3.3. Unique Selling Point (USP)

#### **For ENA – for food industry purposes!**

We, JV Biotech, stand out from the competition with a Unique Selling Proposition (USP) that combines **environmental responsibility** with **economic advantages**:

#### **ENA is a Sustainability Supporter:**

- **Reduced Environmental Impact:** Produced from renewable biomass (Cassava chips/molasses), our ENA boasts a significantly lower carbon footprint compared to traditional methods, minimizing greenhouse gas emissions and fostering a cleaner environment hence climate change mitigation.
- **Circular Economy Advocate:** We promote resource efficiency by utilizing renewable materials as valuable feedstock, contributing to a more sustainable ecosystem.

#### **Cost-Effectiveness Leader:**

- **Potentially Lower Costs:** Utilizing renewable as a feedstock has the potential to lower production costs compared to traditional methods, making our ENA potentially more affordable to our customers.
- **Resource Security:** By relying less on conventional feedstock, we mitigate dependence on fluctuating market prices and potential supply chain disruptions.

#### **Our differentiators:**

- **We focus on waste Reduction:** Choosing ENA contributes to responsible waste management by diverting waste from landfills and incineration.
- **We invest on Uncompromised Quality:** Our ENA adheres to the same stringent quality standards as conventionally produced ENA, ensuring suitability for various applications.

#### **In essence, choosing JV Biotech's ENA enables you to:**

- **Make a positive environmental impact:** Reduce the carbon footprint and support environmentally sustainable practices.
- **Gain access to potentially lower costs:** Enjoy competitive pricing while maintaining high-quality standards.
- **Contribute to a circular economy:** Participate in a system that minimizes waste and maximizes resource utilization.

**For Denatured Ethyl Alcohol – as clean cooking energy!**

**Biofuel: Clean, Sustainable, and Cost-Effective Cooking Solution for poor and middle-income households!**

Biofuel's unique selling proposition (USP) lies in its **triple focus on environmental responsibility, affordability, and improved cooking experience:**

**Clean and Sustainable:**

- **Reduced emissions:** Emits fewer pollutants and greenhouse gases compared to traditional fuels, promoting a healthier environment and supporting global climate efforts.
- **Renewable sources:** Produced from sustainable feedstock like cassava, and molasses, reducing dependence on finite fossil fuels and championing a circular bioeconomy.

**Affordable and Accessible:**

- **Lower cost than LPGs:** Offers a more economical alternative to conventional cooking fuels, making clean energy accessible to a wider population.

**Improved Cooking Experience:**

- **Safer cooking:** Reduces health risks and indoor air pollution compared to traditional methods.
- **Enhanced efficiency:** Provides more energy for less, optimizing cooking processes and offering a cost-effective solution.

**Overall, Biofuel presents a transformative step towards:**

- **Cleaner environment:** Contributing to a healthier atmosphere through reduced emissions.
- **Sustainable practices:** Promoting responsible resource use and circular economy principles.
- **Efficient and affordable cooking:** Providing a cost-effective and safer cooking experience for all.

### 3.4. Competitor Analysis

#### Competitor Analysis for JV Biotech Bioethanol Project

Competitor Type	Competitors	Strengths	Weaknesses	JVB Biofuel's Competitive Advantage
<b>Direct Competitors</b>	Established Bioethanol Producers (Biochem Company)	Larger production capacity Established distribution networks  Brand recognition	May be less agile and adaptable	Leverage local feedstock for potentially lower costs and reduced reliance on unsustainable practices  Focus on sustainability resonates with environmentally conscious consumers and investors
	Local Bioethanol Startups	Potentially lower production costs	Potentially less focused on sustainability	Address social needs like air pollution, waste management, and clean cooking fuel access
	Traditional Cooking Fuel Providers (charcoal, firewood, LPG)	Established market presence (traditional fuels)	Negative environmental and health impacts (traditional fuels)	Offer a sustainable and efficient alternative to traditional fuels
<b>Indirect Competitors</b>	Alternative Clean Cooking Solutions Providers (biogas, solar cookers, electric cookstoves)	Different benefits (e.g., portability of solar cookers)	Limitations in scalability, affordability, or cooking efficiency (alternative solutions)	Potentially cost-competitive with alternative solutions through strategic pricing and local feedstock utilization

#### 4. MARKET ANALYSIS AND MARKET PLAN

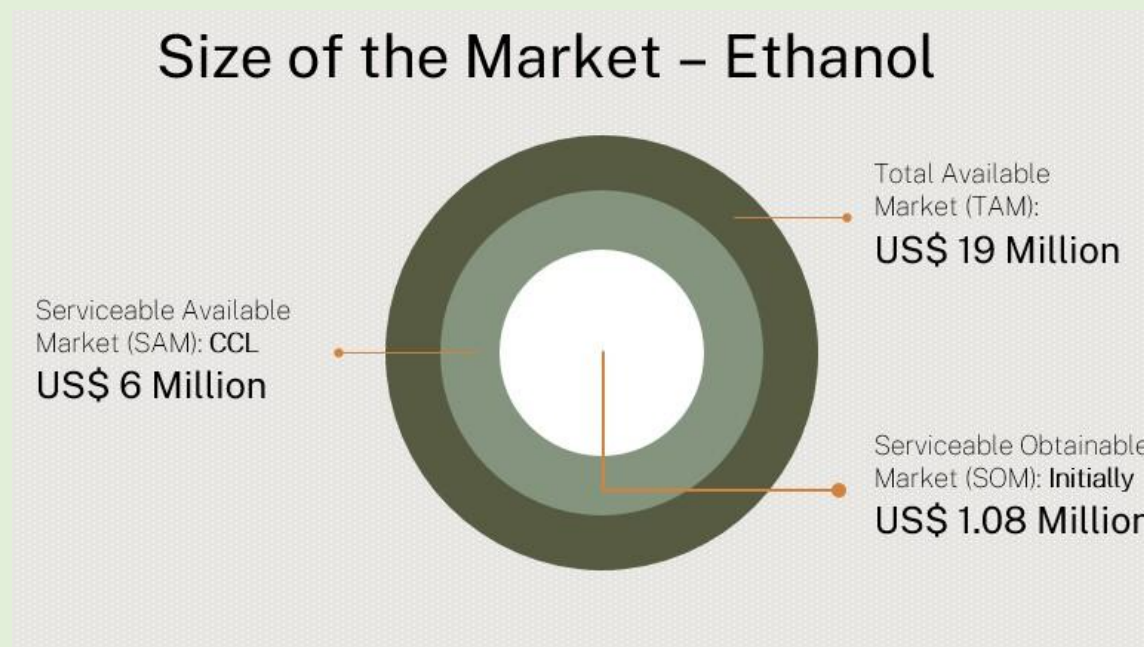
##### 4.1. Market Opportunity

Based on the feasibility study, market survey, and Trade Economy data, Tanzania presents a significant market opportunity for Un – denatured Alcohol as fuel and for food grade alcohol;

- **High import dependence:** Tanzania relies heavily on imported of alcohol, with annual import values exceeding US\$19 million and quantities reaching 27.8 million liters. This indicates a substantial market demand that JV Biotech can potentially target to capture.
- **Limited domestic production:** Tanzania's current alcohols exports are only a fraction of imports, highlighting the limited domestic production capacity and the potential for import substitution.
- **Growing demand:** The increasing demand for various industrial applications of alcohol, such as cleaning, degreasing, and fuel production, further strengthens the market potential.

##### 4.2. Target Market (TAM, SAM, SOM)

JV Biotech Target Market and market size illustrated below;



The total addressable market (TAM) for the product (ethanol) is estimated at **USD 19 million** annually. However, the **serviceable available market (SAM)**, which represents the market size that JV Biotech has already obtained (Already contracted with off-takers), the market can realistically reach, is currently estimated at **USD 10.8 million** annually.

JV Biotech has already established a strategic partnership with Consumer Choice Limited and Greenergy (off-takers), a significant player in the market, with annual demand exceeding **10.8 million liters** of product, equivalent to **USD 10.8 million** in revenue.

Recognizing the potential within the SAM, JV Biotech aims to capture at least **10%** of this market share (contracted market) for the first year, translating to approximately **USD 1.08 million** in annual revenue. This initial focus on a manageable segment allows for strategic market entry and gradual expansion within the broader of our target market.

#### 4.3. Market Segmentation

Our market segments depend on the type of products (Denatured Ethyl Alcohol – Biofuel or Extra Pure Alcohol – Food grade alcohol)

##### For Denatured Ethyl Alcohol – Biofuel (DEA)

Biofuel (DEA), as a clean cooking fuel option, can be segmented within the Tanzanian market based on following key factors:

#### 1. Geographic Location:

- **Urban areas (cities: Dar, Mwanza and Arusha):** Targeting households and small businesses in urban centers with better access to infrastructure and potentially higher generating income.
- **Peri-urban areas (towns):** Focusing on communities on the peripheries of urban centers, where access to conventional fuels like LPG might be limited but income-generating capacities may vary.
- **Rural areas (Off-grid communities):** Targeting households in remote rural areas with limited access to conventional fuels and potentially lower income. This segment requires subsidized consideration for affordability and distribution support.

#### 2. Socioeconomic Status:

- **Low-income households:** Offering Biofuel (DEA) as an affordable and accessible alternative to traditional cooking fuels like charcoal or firewood, which can be harmful to health and the environment.
- **Middle-income households:** Targeting consumers seeking cleaner and more efficient cooking options while considering affordability.

#### 3. Existing Cooking Practices:

- **Charcoal users:** Targeting households and businesses currently reliant on charcoal, highlighting the health and environmental benefits of switching to Bio-fuel
- **Firewood users:** Focusing on communities primarily using firewood for cooking, emphasizing the convenience, efficiency, and cleaner burning properties of Bio-fuel.
- **LPG users:** Targeting households already using LPG, potentially offering Bio-fuel as an affordable energy source or backup option in case of LPG shortages or price fluctuations.

### For ENA (Extra Pure Alcohol);

Our ENA, as a food-grade alcohol, can be segmented into the following categories based on its various applications within the food and beverage industry:

#### 1. By Application:

- **Beverage industry:**
  - **Primary target:** We target this segment that represents the **largest market share** for Extra Neutral Alcohol, catering to distilleries producing various alcoholic beverages like:
    - Vodka
    - Gin
    - Rum
    - Liqueurs
  - **Secondary target:** We look on craft breweries and smaller distilleries seeking high-quality, sustainable Extra Neutral Alcohol sources.
- **Food and flavoring industry:**
  - **We target,** Food and beverage manufacturers utilizing ENA in:
    - Flavorings and extracts for various food products.
    - Bakery applications.
    - Confectionery production.

#### 4.4. Market Plan (7Ps)

### Market Plan for Biofuel (DEA) and ENA using the 7Ps Framework

#### Product:

- **Biofuel (DEA):** Our Denatured Ethyl Alcohol produced from will be marketed as;
  - ✓ *a safer/clean.*
  - ✓ *cost-effective, and*
  - ✓ *renewable/sustainable cooking fuel alternative*
- **ENA:** Our Extra Neutral Alcohol produced from will **be marketed for food-grade applications in the beverage and food industries with;**
  - ✓ *Eco-friendly*
  - ✓ *Efficiency*
  - ✓ *Sustainable alcohol for food-grade industries applications.*

- Each product emphasizes and maintain;
  - ✓ high quality,
  - ✓ consistent standards, and
  - ✓ adherence to relevant regulations.

#### Price:

- **Biofuel (DEA):**
  - ✓ We will offer a competitive pricing strategy targeting affordability for various income segments, particularly low- and middle-income households in Tanzania.
  - ✓ The biofuel will be sold at an affordable price compared to another source of renewable fuel.
  - ✓ and subsidized model will be used to help low-income households to afford safer and eco-friendly fuel for cooking.
- **ENA:**
  - ✓ Price based on production costs and market competitiveness, potentially offering a slight cost advantage due to renewable-based production.
  - ✓ Competitive prices and discount will be offered to large off-takers and wholesalers
  - ✓ Will have distribution and logistics cut-off costs for the registered agency and distributors

#### Place:

- **Biofuel (DEA):**
  - ✓ **Distribution channels:** Partnership with cooks over sellers, distributors traditional retail outlets, mobile vendors, and collaborate with community-based organizations to reach more households
  - ✓ **Focus on:** Urban, peri-urban, and rural areas in Tanzania with limited access to conventional cooking fuels.
  - ✓ **Distribution agency:** The company will register distribution agents to reach more households in various focus areas
- **ENA:**
  - ✓ **Distribution channels:** Establish partnerships with food and beverage manufacturers, distributors, and potential export opportunities.
  - ✓ **Focus on the domestic** market in Tanzania and potential expansion to regional and international markets.

## Promotion:

- **Biofuel (DEA):**
  - **Marketing messages:** We use marketing messages to highlight.
    - health,
    - environmental benefits,
    - affordability, and safety compared to traditional cooking fuels.
  - **Promotional channels:** We will utilize local media, community outreach programs, partnerships with NGOs, and educational campaigns.
  - **Exhibition and Campaign:** Partnership with cook stove seller will.
    - **Outreach campaign**
    - **Attend exhibitions**
  - **Promotional materials:** We will use promotional materials such as;
    - **Banners, Brochures, Flayers**
- **ENA:**
  - **Marketing messages:** Emphasize sustainability, high quality, and suitability for various food and beverage applications.
  - **Promotional channels:** Trade shows, industry publications, online marketing, and potential partnerships with relevant associations.

## People:

- **JV Biotech:** We have and continue to build a skilled and dedicated team with expertise in production, marketing, distribution, and customer service following all SOPs.
- **Partnerships:** Collaborate with stakeholders like distributors, retailers, NGOs, and industry experts to leverage their networks and expertise.

## Process:

- **JV Biotech:** We will implement efficient and sustainable production processes utilizing renewable biomass to ensure consistent product quality and minimize environmental impact.
- **Customer service:** We will establish a responsive and efficient customer service system to address inquiries and provide support.

## Physical Evidence:

- **Packaging:** We will design attractive, informative, and user-friendly packaging for both Biofuel (DEA) and ENA, emphasizing brand identity and sustainability aspects.
- **Brand image:** Cultivate a positive brand image associated with sustainability, quality, and social responsibility.

## 5. MARKET AND SALE STRATEGY

### 5.1. Market Strategy

#### Market Strategy for Biofuel (DEA) and ENA.

#### JV Biotech recognizes how to enter this market;

#### Overall Objective:

- JV Biotech wants to be a leading provider of sustainable and high-quality Denatured Ethyl Alcohol (DEA) – Biofuel and Extra Neutral Alcohol (ENA) in Tanzania, with the potential to expand regionally in next 5 years.

#### Our Target Markets:

- **Biofuel (DEA):**
  - **Primary:** *Our primary targets are low- and middle-income households in Tanzania, particularly in urban, peri-urban, and rural areas with limited access (**usually uses charcoal and firewood**) to clean and affordable cooking fuels.*
  - **Secondary:** *The second targets are businesses in the food service industry seeking a **cleaner and more efficient cooking fuel alternative** such as catering, restaurants and hotels.*
- **ENA:**
  - **Primary:** We target food and beverage manufacturers in Tanzania.
  - **Secondary:** Potential export markets in neighboring countries and beyond, depending on production capacity and strategic considerations.

#### Competitive Advantage:

- **Sustainability:** We utilize cassava chips/molasses for production, reducing environmental impact and appealing to environmentally conscious consumers.
- **Cost-effectiveness:** Our products have the potential for competitive pricing due to lower production costs, which cut costs off and make more accessible to various segments
- **High quality:** We will maintain consistent quality standards to meet the demands of both clean cooking fuel and food-grade alcohol applications.

#### Marketing Strategy:

- **Biofuel (DEA):**
  - **Focus on education and awareness:** We will highlight the health, environmental, and economic benefits of Biofuel (DEA) compared to traditional cooking fuels.
  - **Utilize local marketing channels:** We will partner with local and social media, and community organizations, to reach our target audiences effectively.

- **Develop strategic partnerships:** We will collaborate with off-taker distributors, retailers, and potential fuel stove manufacturers to ensure wider availability and accessibility.
- **ENA:**
  - **Emphasize sustainability and quality:** We will position ENA as a responsible and high-quality choice for food and beverage producers.
  - **Participate in industry events and trade shows:** To increase brand visibility and establish connections with potential customers and partners.

#### **Distribution Strategy:**

- **Biofuel (DEA):**
  - **Leverage existing networks:** We Partner with distributors and create agency partnerships
  - **Establish partnerships with NGOs and community organizations:** Facilitate distribution in remote areas and leverage their networks for outreach.
- **ENA:**
  - **Partner with distributors and wholesalers:** Establish relationships with established distributors catering to the food and beverage industry.
  - **Direct sales to large manufacturers:** Build direct relationships with major food and beverage companies for bulk purchases.

#### 5.2. [Sale Strategy](#)

#### **Sales Strategy for Biofuel (DEA)and ENA**

##### **Overall Objective:**

- To achieve consistent sales growth for both Biofuel (DEA)and ENA, exceeding sales targets and establishing strong market presence in Tanzania with potential for regional and international expansion.

##### **Target Customers:**

- **Biofuel (DEA):**
  - **Primary:** Low- and middle-income households in Tanzania, particularly in urban, peri-urban, and rural areas.
  - **Secondary:** Businesses in the food service industry.
- **ENA:**
  - **Primary:** Food and beverage manufacturers in Tanzania.
  - **Secondary:** Potential export markets.

##### **Sales Channels:**

- **Direct sales:**

- **Biofuel (DEA):** Potential for direct sales to bulk purchasers like restaurants or fuel distributors.
- **ENA:** Direct sales to large food and beverage manufacturers.
- **Indirect sales:**
  - **Partnerships:** We will collaborate with distributors, wholesalers, and retailers to reach wider customer bases.
  - **Online sales:** We will explore establishing an online platform for ENA, particularly for export markets.

#### **Sales Force:**

- **Develop a dedicated sales team:** We train and equip the sales team with product knowledge, market insights, and effective sales techniques.
- **Consider outsourcing sales for specific segments:** We partner with local distributors or outsource sales representatives for efficient reach in rural areas or specific customer segments.

#### **Pricing Strategy:**

- **Biofuel (DEA):**
  - **Competitive pricing:** Ensure affordability for target segments, particularly low- and middle-income households.
  - **Monitor market dynamics and adjust pricing as needed:** Maintain competitiveness while ensuring sustainable business operations.
- **ENA:**
  - **Cost-plus pricing:** Set prices based on production costs and a reasonable profit margin.
  - **Consider offering competitive pricing:** Leverage potential cost advantages from renewable-based production to attract customers.

#### **Sales Promotion and Incentives:**

- **Develop targeted promotional campaigns:** We will utilize various channels to raise awareness and generate interest in Biofuel (DEA) and ENA.
- **Offer sales incentives:** Consider discounts, bundled deals, or loyalty programs to attract new customers and encourage repeat purchases.
- **Participate in trade shows and exhibition events:** Increase brand visibility and connect with potential customers and partners.

### 5.3. Business Model for Bioethanol Products

#### Business Model for Biofuel (DEA) and ENA

##### Value Proposition:

- **Biofuel (DEA):**

We provide a clean, sustainable, and affordable alternative to traditional cooking fuels like charcoal and firewood, improving health and environmental outcomes.

- **ENA:**

We offer high-quality, food-grade alcohol produced from renewable biomass, catering to the needs of the food and beverage industry while promoting sustainability.

##### Target Customers:

- **Biofuel (DEA):**

- **Primary:** Low- and middle-income households in Tanzania, particularly in urban, peri-urban, and rural areas.

- **ENA:**

- **Primary:** Food and beverage manufacturers in Tanzania.
- **Secondary:** Potential export markets in neighboring countries and beyond.

##### Revenue Streams:

- **Direct sales:** Selling Biofuel (DEA) and ENA
- **Indirect sales:** Selling to distributors, off-takers, wholesalers, and retailers

##### Cost Structure:

- **Production costs:** Raw materials (renewable biomass), processing costs, labor, and other manufacturing expenses.
- **Marketing and sales costs:** Advertising, promotions, sales team expenses, and distribution channel costs.
- **Research and development costs:** Ongoing research to improve production processes, product quality, and explore new markets.
- **Administrative costs:** General overhead expenses for running the business.

##### Key Resources:

- **Production facility:** Micro-distillery plant for the production of bioethanol.
- **Financial resource:** Partnerships with distributors, off-takers, wholesalers, and retailers to ensure product availability in target markets.
- **Operation team:** A skilled and dedicated team responsible for the production, marketing, and selling of the products.

##### Key Activities:

- **Sourcing of renewable biomass:** Acquiring suitable feedstock for production.
- **Product development:** Maintaining consistent production and high quality to meet industry standards and customer expectations.

- **Marketing and sales:** Implementing effective marketing campaigns, building brand awareness, and establishing strong sales channels to reach target customers.

#### Key Partnerships:

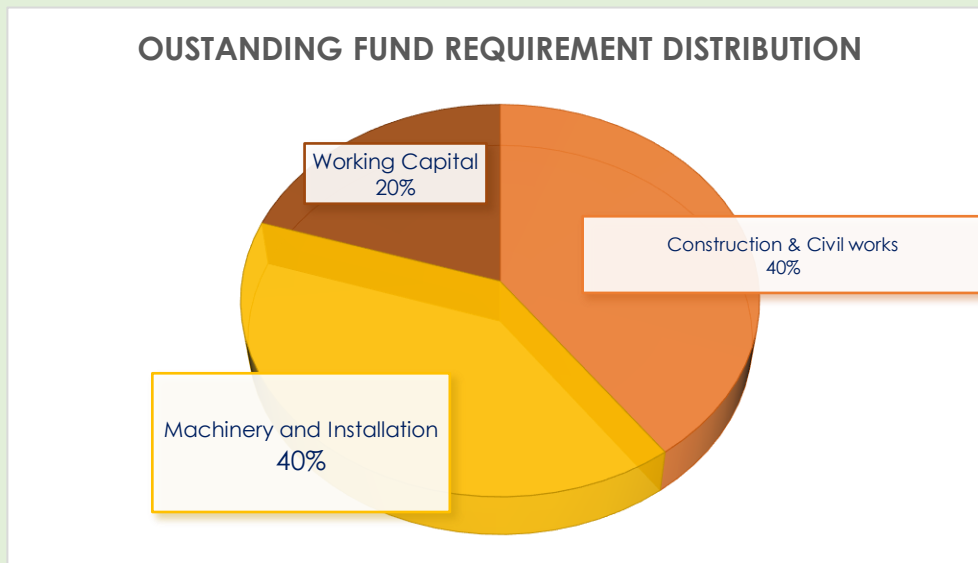
- **Distributors and Off-takers:** Collaborating with off-takers and distributors such as CCL to reach more customers.
- **Feedstock suppliers:** Partnering with feedstock suppliers such as Bagamoyo Sugars Ltd.
- **Potential future partnerships:** Exploring partnerships with research institutions or industry players for further sources of feedstock and product development and market expansion.

## 6. FINANCIAL PLAN

### 6.1. Total investment Required (CAPEX & OPEX)

The total investment needed to start the business is **\$300,000**. This amount includes:

- **Machinery and Expenditure: \$150,000** for building, machinery, and equipment.
- **Construction and Civil Works: \$ 100,000** for buildings
- **Working Capital: \$50,000** to cover operating expenses and the cost of goods sold for the first 12 months of operation
- **Already Secured: \$ 46,960** funded by TIB and UNIDO



### 6.2. Financial Analysis and Projection

#### (a). Depreciation Schedule

Depreciation Schedule	2025	2026	2027	2028	2029
Details (Amount in USD)					
Construction & Civil Works	100,000.0	98,000.00	96,040.00	94,119.20	92,236.82
Machinery + Installation	100,000.0	80,000.00	64,000.00	51,200.00	40,960.00
Equipment	-	-	-	-	-
Land	-	-	-	-	-
<b>Gross Fixed Asset</b>	<b>200,000.0</b>	<b>178,000.0</b>	<b>160,040.0</b>	<b>145,319.2</b>	<b>133,196.8</b>
Building	2,000.0	1,960.0	4,802.0	4,706.0	4,611.8
Machinery	20,000.0	16,000.0	12,800.0	10,240.0	8,192.0
Equipment	-	-	-	-	-
Land	-	-	-	-	-
<b>Annual Depreciation &amp; Amort</b>	<b>22,000.0</b>	<b>17,960.0</b>	<b>17,602.0</b>	<b>14,946.0</b>	<b>12,803.8</b>
<b>Net Asset</b>	<b>178,000.0</b>	<b>160,040.0</b>	<b>142,438.0</b>	<b>130,373.2</b>	<b>120,393.0</b>

(b). Revenue and Pricing Model

Revenue Model & Pricing					
Fuel ethanol					
Fuel ethanol/DEA	260,000.0	299,000.0	343,850.0	395,427.5	454,741.6
Price/L	1.0	1.0	1.0	1.0	1.0
<b>Total Ethanol in USD</b>	<b>260,000.0</b>	<b>299,000.0</b>	<b>343,850.0</b>	<b>395,427.5</b>	<b>454,741.6</b>
<b>Selling of residues</b>					
ENA	104,000.0	119,600.0	137,540.0	158,171.0	181,896.7
Price/L	1.0	1.0	1.0	1.0	1.0
<b>Total sales ENA</b>	<b>104,000.0</b>	<b>119,600.0</b>	<b>137,540.0</b>	<b>158,171.0</b>	<b>181,896.7</b>
<b>TOTAL SALES IN USD</b>	<b>364,000.0</b>	<b>418,600.0</b>	<b>481,390.0</b>	<b>553,598.5</b>	<b>636,638.3</b>

(c). Sale Forecasting

Sale Forecasting					
Details in USD	2025	2026	2027	2028	2029
DEA in Litre	260,000.0	299,000.0	343,850.0	395,427.5	454,741.6
DEA Price	1.0	1.0	1.0	1.0	1.0
Total Sales	260,000.0	299,000.0	343,850.0	395,427.5	454,741.6
ENA	104,000.0	119,600.0	137,540.0	158,171.0	181,896.7
Price/L	1	1	1	1	1
Total Sales	104,000.0	119,600.0	137,540.0	158,171.0	181,896.7
<b>TOTAL INCOME USD</b>	<b>364,000.0</b>	<b>418,600.0</b>	<b>481,390.0</b>	<b>553,598.5</b>	<b>636,638.3</b>

(d). Cost of Goods Sold – COGs

COGS in USD					
	2025	2026	2027	2028	2029
Service levy					
Total Income	364,000.0	418,600.0	481,390.0	553,598.5	636,638.3
% Income	0.003	0.003	0.003	0.003	0.003
Total	1,092.0	1,255.8	1,444.2	1,660.8	1,909.9
Raw materials costs					
Cassava chips/year in ton	720.0	828.0	952.2	1,095.0	1,259.3
Price/unit	75.0	75.0	75.0	75.0	75.0

Total	54,000.0	62,100.0	71,415.0	82,127.3	94,446.3
Molasses/year in ton	360.0	414.0	476.1	547.5	629.6
Price/unit	300.0	300.0	300.0	300.0	300.0
Total	108,000.0	124,200.0	142,830.0	164,254.5	188,892.7
Power and Electricity	41,868.0	48,148.2	55,370.4	63,676.0	73,227.4
Labour costs	1,490.4	1,937.5	2,518.8	3,274.4	4,256.7
Production facility expenses	596.2	775.0	1,007.5	1,309.8	1,702.7
Storage and packaging	3,640.0	4,186.0	4,813.9	5,536.0	6,366.4
Total	47,594.6	55,046.7	63,710.6	73,796.2	85,553.2
<b>Total</b>	<b>210,686.6</b>	<b>242,602.5</b>	<b>279,399.8</b>	<b>321,838.7</b>	<b>370,802.1</b>

(e). Income Statement

Income Statement					
Amount in USD	Y1	Y2	Y3	Y4	Y5
Revenue	364,000.0	418,600.0	481,390.0	553,598.5	636,638.3
Less Direct costs	210,686.6	242,602.5	279,399.8	321,838.7	370,802.1
Gross Profit	153,313.4	175,997.5	201,990.2	231,759.8	265,836.1
<b>Gross Margin</b>	<b>42.1</b>	<b>42.0</b>	<b>42.0</b>	<b>41.9</b>	<b>41.8</b>
Overhead Expenses	3,640.0	4,186.0	4,813.9	5,536.0	6,366.4
EBITDA	149,673.4	171,811.5	197,176.3	226,223.8	259,469.8
<b>EBITDA Margin</b>	<b>41.1</b>	<b>41.0</b>	<b>41.0</b>	<b>40.9</b>	<b>40.8</b>
Depreciation	22,000.0	17,960.0	17,602.0	14,946.0	12,803.8
<b>EBIT</b>	<b>127,673.4</b>	<b>153,851.5</b>	<b>179,574.3</b>	<b>211,277.9</b>	<b>246,665.9</b>
Profit Before Tax	127,673.4	153,851.5	179,574.3	211,277.9	246,665.9
Corporate Tax (30%)	38,302.0	46,155.4	53,872.3	63,383.4	73,999.8
Profit After Tax	89,371.4	107,696.0	125,702.0	147,894.5	172,666.1
<b>Net Profit</b>	<b>89,371.4</b>	<b>107,696.0</b>	<b>125,702.0</b>	<b>147,894.5</b>	<b>172,666.1</b>
<b>NET MARGIN</b>	<b>24.6</b>	<b>25.7</b>	<b>26.1</b>	<b>26.7</b>	<b>27.1</b>

(f). Cash flow

CASHFLOW IN USD					
Amount in USD	Y1	Y2	Y3	Y4	Y5
<b>Capital inflow</b>					
Shareholders Equity	250,000	-	-	-	-
Debit					
<b>Total Capital Inflow</b>	<b>250,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Operating inflow</b>					
EBIT	127,673	153,851	179,574	211,278	246,666
Depreciation	22,000	17,960	17,602	14,946	12,804
Inflow	149,673	171,811	197,176	226,224	259,470
<b>Total Inflow</b>	<b>399,673</b>	<b>171,811</b>	<b>197,176</b>	<b>226,224</b>	<b>259,470</b>
<b>Capital Outflow</b>					
Investment	250,000	-	-	-	-
<b>Total capital Outflow</b>	<b>250,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Operating Outflow</b>					
Taxation	38,302	46,155	53,872	63,383	74,000
<b>Total Operating Outflow</b>	<b>288,302</b>	<b>46,155</b>	<b>53,872</b>	<b>63,383</b>	<b>74,000</b>
Net Cash flow	111,371	125,656	143,304	162,840	185,470
Opening Balance	-	111,371	237,027	380,331	543,172
<b>Closing Balance</b>	<b>111,371</b>	<b>237,027</b>	<b>380,331</b>	<b>543,172</b>	<b>728,642</b>



(g). Balance Sheet

BALANCE SHEET					
Amount in USD	2025	2026	2027	2028	2029
<b>Non-Current Assets</b>					
Building	100,000.00	98,000.00	96,040.00	94,119.20	92,236.82
Machinery	100,000.00	80,000.00	64,000.00	51,200.00	40,960.00
Equipment	-	-	-	-	-
Working Capital for the first 12 m	50,000.00	-	-	-	-
<b>Total Non-Current Assets</b>	<b>250,000.00</b>	<b>178,000.00</b>	<b>160,040.00</b>	<b>145,319.20</b>	<b>133,196.82</b>
<b>Current Assets</b>					
Depreciation	- 22,000.00	- 17,960.00	- 17,602.00	- 14,945.96	- 12,803.84
Inventory		1,778,800.00	2,134,560.00	2,561,472.00	3,073,766.40
Cash and Bank Balance	111,371.41	125,656.03	143,304.02	162,840.46	185,469.99
<b>Total Current Assets</b>	<b>89,371.41</b>	<b>1,886,496.03</b>	<b>2,277,864.02</b>	<b>2,724,312.46</b>	<b>3,259,236.39</b>
<b>Total Assets</b>	<b>339,371.41</b>	<b>2,064,496.03</b>	<b>2,437,904.02</b>	<b>2,869,631.66</b>	<b>3,392,433.20</b>
<b>Liabilities</b>					
Operation expenses	210,686.56	242,602.53	279,399.79	321,838.70	370,802.13
Payable	128,684.85	1,821,893.50	2,158,504.23	2,547,792.96	3,021,631.08
<b>Total Current Liabilities</b>	<b>339,371.41</b>	<b>2,064,496.03</b>	<b>2,437,904.02</b>	<b>2,869,631.66</b>	<b>3,392,433.20</b>
Owner's Equity	250,000.00	4,795,310.00	4,795,310.00	4,795,310.00	4,795,310.00
<b>Net Worth</b>	<b>250,000.00</b>	<b>4,795,310.00</b>	<b>4,795,310.00</b>	<b>4,795,310.00</b>	<b>4,795,310.00</b>
<b>Equity and Liabilities</b>	<b>339,371.41</b>	<b>2,064,496.03</b>	<b>2,437,904.02</b>	<b>2,869,631.66</b>	<b>3,392,433.20</b>

(h). Break even Analysis Year 1

Gross Margin % of Sales	
Gross Margin % of Sales	60%
Operating Costs	76,360
<b>Yearly Breakeven Amount</b>	<b>126,917</b>

This Breakeven Analysis for Year 1 indicates that JV Biotech needs to reach **\$126,917** in sales in year 1 to break even, meaning their revenue covers all operating expenses (excluding cost of goods sold). This is based on a 60% gross margin and \$76,360 in operating costs.

This analysis helps to understand how much we need to sell to avoid making a loss in the first year

(i). NPV, MIRR and IRR

Year	Y1	Y2	Y3	Y4	Y5
Initial Outlay After Tax	-250,000.0	89,371.41	107,696.03	125,702.02	147,894.50
WACC					
1%	PV=	88,486.54	106,629.73	124,457.45	146,430.20
Risk Free rate					
2%					
	Sum of PV	<b>466,003.92</b>			
	Less Initial Outlay	<b>-250,000</b>	IRR=	28%	
	NPV	<b>216,003.92</b>	MIRR=	18%	

- **Return on Investment (ROI):** The Internal Rate of Return (IRR) is 8%, signifying an 8% annual return on the initial investment.
- **IRR and NPV:** The analysis show the Internal Rate of Return (IRR) at 8% and the Net Present Value (NPV) at \$358,861.63. These metrics indicate that the investment in Bioethanol is expected to be profitable over the five years.
- **Overall,** the analysis indicates that while JV Biotech requires a significant initial investment, it is expected to be profitable in the long run.

## 7. SUSTAINABILITY PLAN

JV Biotech is committed to creating a sustainable business through the production and distribution of biofuels and food-grade ENA. We achieve financial viability while promoting environmental and social responsibility.

### 7.1. Sales of Biofuel and ENA

Our core revenue stream comes from selling biofuels as a clean and healthy alternative to traditional cooking fuels. We target major Tanzanian cities like Dar es Salaam, Mwanza, Arusha, and Dodoma, aiming to reach over 1 million households in the first year. Our projections indicate sales exceeding 260,00 liters of biofuel and 104,000 liters of ENA, generating an estimated \$364,000 in revenue. We anticipate a consistent 15% annual growth rate, reaching a projected revenue of \$636,638.3 with a net profit exceeding \$172,666.1 within five years

## 7.2. Market Expansion for Broader Sustainability Impact.

JV Biotech recognizes the broader impact of its products and is committed to expanding its market reach for a wider sustainability impact. We have a three-phase plan for market expansion:

- **Phase 1:** We will focus on Dar es Salaam, leveraging our existing partnership with Consumer Choice Limited, a major off taker demanding over 1.08 million liters annually. Our goal is to increase this demand to 6 million liters annually.
- **Phase 2:** We aim to reach an additional 3 million households in the next few years, targeting rural areas heavily reliant on unsustainable cooking fuels.
- **Phase 3:** We will expand our market to regions like Mwanza, Singida, Dodoma, and Arusha, where widespread fossil fuel use contributes to environmental degradation.

## 7.3. Strategic Partnership

JV Biotech actively seeks partnerships and funding opportunities to achieve its sustainability goals. We have already collaborated with Consumer Choice Limited and Greenergy Limited and are actively looking to expand our network. We aim to collaborate with organizations dedicated to combating climate change and secure additional funding to expand operations into Eastern African countries like Rwanda, Burundi, Zambia, and the Democratic Republic of Congo

## 8. POTENTIAL RISKS AND THEIR MITIGATION

JV Biotech, a company dedicated to producing biofuels and food-grade ENA from renewable biomass, recognizes the crucial role of risk management in achieving its mission of building a sustainable future. While JVB's commitment to environmental and social responsibility is paramount, proactively identifying and mitigating potential risks is essential for ensuring long-term business viability and continued positive impact.

Risk	Description	Probability	Mitigation Measure
<b>Feedstock Availability (High)</b>	Difficulty securing a consistent and reliable supply of suitable renewable biomass to meet production needs.	<b>High</b>	<ul style="list-style-type: none"><li>* Develop diversified sourcing strategies (e.g., partnerships with waste management companies, establishing collection points).</li><li>* Explore alternative feedstock options if feasible.</li><li>* Implement efficient waste management practices to minimize waste and maximize utilization.</li></ul>
<b>Price Fluctuations (Mid)</b>	Fluctuations in the price of waste biomass or bioethanol can impact profitability.	<b>Mid</b>	<ul style="list-style-type: none"><li>* Secure long-term contracts with reliable suppliers to stabilize costs.</li></ul>

			<ul style="list-style-type: none"> <li>* Diversify customer base to reduce dependence on specific markets.</li> <li>* Continuously monitor market trends and adjust pricing strategies as needed.</li> </ul>
<b>Competition (Mid)</b>	Increased competition from established bioethanol producers or alternative clean cooking fuel options.	<b>Mid</b>	<ul style="list-style-type: none"> <li>* Focus on product differentiation (e.g., emphasize sustainability aspects, local sourcing).</li> <li>* Develop strong brand recognition and customer loyalty.</li> <li>* Continuously improving production efficiency and cost-effectiveness.</li> </ul>
<b>Operational Disruptions (Low)</b>	Production disruptions due to equipment failures, technical issues, or unforeseen events.	<b>Low</b>	<ul style="list-style-type: none"> <li>* Implement preventative maintenance programs for equipment.</li> <li>* Maintain a stock of critical spare parts.</li> <li>* Develop and practice emergency response protocols.</li> </ul>

## 9. MANAGEMENT TEAM

### o Key personnel/officers

SN	Name	Position	Key roles/experience
1	Victor Kabegu	CEO	For more than seven years, expertise in the Cassava Value Chain with an exemplary experience in Leadership, Resource Mobilization, Public relations & Marketing. He plays great roles in investment, assets acquisition, mobilization and networking
2	JACOB TITO	MD	With over seven years of experience in funding and business management, the company keeps financially afloat by securing numerous local and international funds and projects. He has unparalleled expertise in Project Management, Business Development and Operations.
3	FLORA WANNA	CFO	She is a professional finance who holds the position of financial controller at a company. With expertise in financial analysis, Accounting and Banking, she excels in managing the financial operations of the organization.
4	BAHATI JOSEPH	Accountant	She is a professional accountant with experience in Administration and Secretarial roles, responsible for managing all of the company's accounting and administrative duties.
5	ISACK NASHON	Production Manager	He is a food technologist for over 4 years he has been working as production ensuring safe working area, quality control, product finishing development and managing all factory operations.

6	NTWALE METHUSELAH	Business Development	He is responsible for identifying and pursuing new business opportunities, developing strategic partnerships, managing client relationships, conducting market research, and implementing growth strategies to expand the company's presence in the agricultural sectors.
7	PETER NTAMBI	IT & Marketing	He is responsible for managing website, social media accounting, digital marketing and he led the marketing and branding team in promoting our products and services
8	MHAJI JUMA	Production	He is a production supervisor at animal feed factory for over 4 years now.
9	Yahya Dumwe	Factory Management	For over 7 years he is a factory manager for production of starch, cassava flour and cassava chips. He also plays a key role in collecting raw materials or sourcing cassava roots.

o Board Members

SN	Name	Position	Experience
1	Prof. Antony Mshandete	President	He is a Vice-chairperson of the Nelson Mandela African Institution of Science and Technology (NM-AIST)
2.	Ms. Mercy Sila	Treasurer	He is a chairperson of the Tanzania Women Chamber of Commerce -TWCC
3.	Dr. Freddy Baijukya	Member/VP	Freddy Baijukya is an Agronomist -and leader of the East and Central Africa Hub of N2Africa project. Before that, he was the Principal Research Scientist in the Department of Research and Development, Ministry of Agriculture.
4.	Jacob Tito	Member	With over seven years of experience in funding and business management, the company keeps financially afloat by securing numerous local and international funds and projects. He has unparalleled expertise in Project Management, Business Development and Operations.
5.	Mr. Victor Kabegu	Secretary/member	For more than seven years, expertise in the Cassava Value Chain with an exemplar experience in Leadership, Resource Mobilization, Public Relationship & Marketing. He plays great roles in investment, assets acquisition, mobilization and networking.

## 10. ANNEXES

- a) Financial Analysis
- b) Financial Projection