FEASIBILITY STUDY FOR FRUITS AND VEGETABLES PRODUCTION

Tomato Farming Business Plan

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CHAPTER 1

EXECUTIVE SUMMARY

1.1. The Problem

Nigeria is simultaneously the world's 13th largest tomato producer and the world's largest importer of tomato paste. Although approximately 200,000 Nigerian farmers grow over 1.5 million metric tons of tomatoes every year, half of their harvest is lost before reaching the market, and the remaining 50% is subject to significant downward pressure on price due to common gluts in the markets and the perishable nature of the crop. Farmers, who are among Nigeria's most financially vulnerable population, bear the burden of both these post-harvest losses and this price uncertainty. Smallholder tomato farmers lack access to a consistent, large market for their produce, rendering them unable to consistently make a profit and dis-incentivized to increase their yields or change their farming practices. As a result, domestic supply cannot meet local demand for fresh tomatoes, which exceeds 2 million metric tons or $2.5 billion annually. The country supplements local demand for fresh tomatoes with $360 million (over 300,000 metric tons) of imported tomato paste annually.

Nigeria is t he most populous country in Africa and the seventh most populous in the world – its population is expected to grow from 170 million today to over 440 million by 2050. This has grave implications for the country's food security situation, given that it is heavily dependent on food imports. If global food prices were to spike and drive up the price of imports, as they did in 2007-2008, Nigeria would struggle to feed its population.

1.2. The Opportunity

A well-located, commercial tomato processing operation focused on continuous production rather than absorbing seasonal harvest gluts can increase incomes over five times for participating smallholder farmers, who comprise 75% of Nigeria's workforce. The Nigerian Federal Ministry of Agriculture and Rural Development has made a commitment to improve farm-to-processor links in the tomato value chain, but no business

has yet developed a viable, sustainable model to competitively aggregate, process, package and sell tomato paste domestically. Our model links farmers directly to paste production, simultaneously reducing poverty for small holder farmers, who are among the country's most vulnerable population, and decreasing Nigeria's dependence on an imported food product that is a dietary staple in Nigerian cuisine

1.3. Mission

Tomato Jos is an agricultural production company that believes in the power of farming and processing local food products for local consumption. Our mission is to make tomato production a sustainable, profitable business for Nigerian farmers.

1.4. Value proposition

Value to farmers: we give farmers the tools and the incentive to sell a greater proportion of an increased tomato yield at a consistent, fair price. Value to consumers: we provide consumers with access to domestic tomato paste that matches the quality of imported products at a lower cost.

1.5. Theory of change

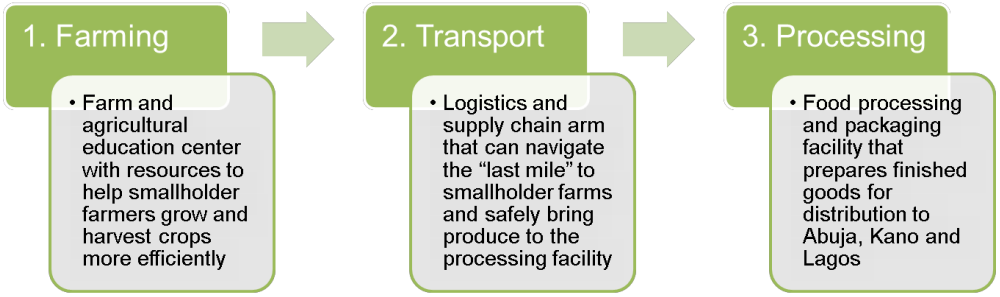
If we can connect Nigerian farmers to domestic consumers of processed tomato products, we will improve the lives and incomes of smallholder farmers, provide more non-farming job opportunities for the increasingly urban population, and increase the stability and sustainability of the food supply in Nigeria.

1.6. Solution

Substantially improving the livelihood of smallholder tomato farmers requires moving multiple metrics simultaneously. Farmers must be able to sell more of their product, by increasing yields and reducing post-harvest losses; they must be able to capture a greater amount of the value of their harvest; and they must be less vulnerable to seasonal price

fluctuations. To make this possible, Tomato Jos embeds farmers' production within a supportive, self-contained agribusiness ecosystem focused on local production, processing, distribution, and farming practice improvement.

At scale, Tomato Jos will operate three business lines: (1) Farm and agricultural center with farmer education and bundled inputs to help smallholder farmers grow and harvest crops more efficiently;; (2) Logistics and supply chain support to navigate the "last mile" to smallholder farms and safely bring produce to the processing facility; and (3) Food processing and packaging facility that prepares finished goods for distribution in Nigeria.



As the business attains profitability, Tomato Jos will consider options to reinvest a portion of profits into expanded agricultural support programs for farmers in the surrounding community. Through investment in the community, we hope to further align farmer outcomes with the success of our venture and improve the lives of smallholder farmers and the competitive landscape for local agriculture, translating into future returns for the business.

1.7. Social Return on Investment

Tomato Jos will have a large positive impact on Nigeria's agribusiness sector, the social fabric, and overall economy by ultimately achieving the following:

- Increase revenues from tomato sales five times for participating smallholder farmers by year five.
- Create a demonstration farm that actively spreads agricultural best practices to the surrounding community.

- Provide a consistent market for approximately 1,000 farmers within our network by year five.
- Link farmers to markets and strengthen value chains through logistics systems that are able to navigate the "last mile" to smallholder farms.
- Improve access to the appropriate quantities of fair-priced inputs such as fertilizers and high-yielding seeds through bundling and pooled procurement.
- Reduce financial risk from volatile crop prices by offering forward purchasing agreements.

1.8. Financials

Tomato Jos follows a low margin, high volume base of the pyramid model where profit is driven by both scale and technological innovation to control costs. We project that Tomato Jos will become profitable within three years of launch following investment focused on expanding the farmer network, our nucleus farm and expanding tomato paste processing capacity. Over this period we anticipate that Tomato Jos will undergo two key capital raises: a $500,000 in seed equity in the first quarter of year two to fund our Nigerian nucleus farm expansion, launch the Dami system and begin processing tomato paste. Following the successful scale-up a $3,000,000 growth equity subscription in quarter one of year four is required to fund expansion of the business model. Once Tomato Jos reaches scale we believe that profit margins will approach 15%.

1.9. Management Team

Our four founding members have over 10 years of combined work experience in Africa, with professional and educational backgrounds that span agribusiness, logistics and supply chain management, consulting, finance, marketing and business development, investment management and nonprofits.

***Mira Mehta**, CEO:* Two years' investment management experience, four years at Clinton Health Access Initiative (CHAI) solving HIV-related operational and supply chain problems in Nigeria.

***Nike Lawrence**, COO:* Five years' investment banking research, one year at Acumen Fund building agriculture and healthcare pipelines and portfolios in Liberia, Sierra Leone, and Ghana.

***Shane Kiernan**, CFO:* Three years' investment banking / management experience, two years at CHAI assisting national governments to secure financial resources for national health systems.

***Jared Westheim**, CTO:* Three years' healthcare consulting experience, three years at CHAI and Technoserve implementing international development and agribusiness projects in Africa.

CHAPTER 2

INTRODUCTION

In Nigeria many farmers complain of having to borrow at 100% interest rates from local lenders to buy seeds and fertiliser. And once the tomatoes have been harvested, local producers have limited access to consumers in cities such as Lagos and Abuja. Furthermore, with labour and raw inputs scarce, mechanisation often
limited and weather patterns increasingly unpredictable, small-scale farmers like Kutumbi can struggle just to break even.

Tomato Jos wants to change the lives of smallholder farmers like Kutumbi by improving access to education around best practices, increasing access to high-quality inputs, and enabling access to end consumers. Farmers selected to work with Tomato Jos receive seeds, fertiliser and other resources on interest-free credit. They are trained by agronomy managers who help monitor the progress of their tomato field and Tomato Jos buys their produce at market price, thereby securing tomatoes for its processing plant.

Farmers like Kutumbi previously yielded 7 metrics tonnes of Tomatoes per hectare that could sell for around $1000 at the local market. Now farmers utilizing the Tomato Jos

model can increase their yield to 26 metric tonnes per hectare reaping more than $5000 from selling to Tomato Jos for tomato paste processing.

“This is still a new thing," says Kutumbi cautiously, "I hope it will work because if it does, it will help me, my family, and our community. Things could be much better than before," he continues, "and maybe if my children see farming can be profitable, they will even want to stay and be farmers too!"

CHAPTER 3

Operational Summary

3.1. Organizational Structure

Tomato Jos plans to operate as a for-profit entity.

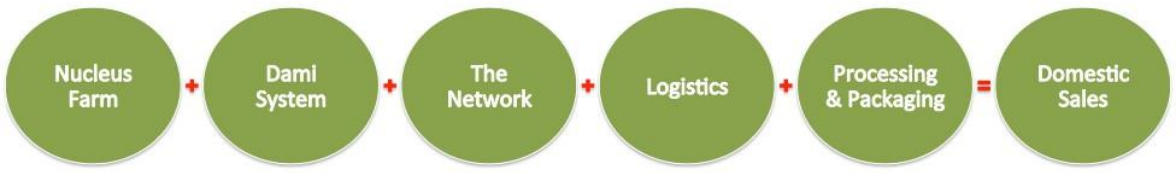
3.2. Value Proposition

Operating a vertically integrated tomato processing business enables end-to-end control and allows Tomato Jos to add value both to farmers on the upstream side and end customers downstream.

Value to farmers: we give farmers the tools and the incentive to sell a greater proportion of an increased tomato yield at a consistent, fair price.

Value to consumers: we provide consumers with access to domestic tomato paste that matches the quality of imported products at a lower cost.

3.3. S Business Model



How Tomato Jos Generates Revenue

At scale, Tomato Jos will generate revenue by manufacturing tomato paste, branding and packaging it, and selling it directly to two major supermarket chains, Shoprite and Spar, and indirectly to open-air markets through regional distributors. Approximately 55% of the tomatoes used for paste production will originate from farmland directly operated by Tomato Jos ("the nucleus farm" or "the nucleus estate"), while the remaining 45% will be purchased from smallholder farmers ("the network") operating within a 20mile radius of our production facility ("the factory").

The profitability of our company depends on our ability to run the factory at minimum capacity over the course of the tomato harvesting season - because tomatoes are fragile and spoil within 1-2 days of harvesting, a constant supply of tomatoes must be delivered to the factory every day. We believe that the best way to generate this constant supply of high-quality tomatoes while remaining asset light is through a "nucleus estate" contract farming model. The nucleus estate contract farming model is common for tomato processing facilities in the US and China, the two leading countries for tomato paste production, and the characteristics of this model are defined by the Food and Agriculture Organization of the United Nations (FAO) as follows:

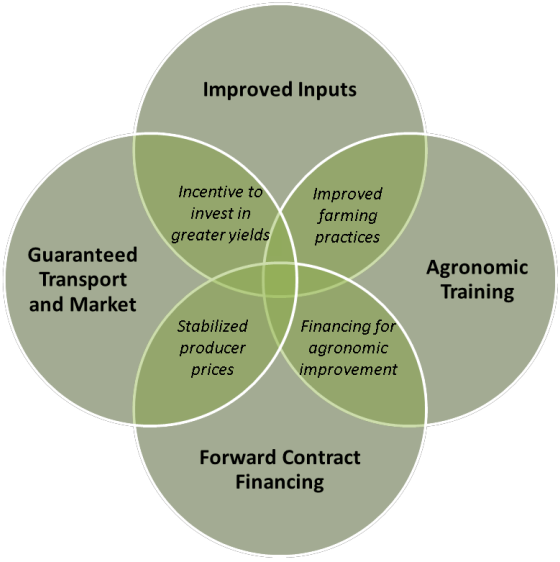
- Involves a centralized processor and/or packer buying from a large number of small farmers
- Vertically coordinated with quota allocation and tight quality control
- The sponsor also manages a central estate or plantation
- The central estate is usually used to guarantee throughput for the processing plant and is sometimes used for research as well
- Involves a significant provision of material and management inputs

The Nucleus Farm

In its first year of operation, Tomato Jos will establish a 3 hectare nucleus farm in order to prove that tomato yields in Nigeria can be improved from 7 MT/Ha to 30 MT/Ha over the course of one year, solely by using high quality seeds and fertilizer, and by making basic improvements in farming techniques. In order to comply with government regulations,

which have barred the use of genetically modified (GM) seeds, Tomato Jos will source only hybrid seeds, which are created through farm-based cross-pollination of two different plants rather than the lab-based genetic modification.of a single plant's DNA.

At scale, Tomato Jos plans to operate a nucleus estate with a 10 hectare "best practices" greenhouse and a 500 hectare open-air farm that yield 150 MT/Ha and 75 MT/Ha, respectively. These facilities will be used to guarantee a minimum throughput for the factory, train farmers in the network on farming best practices, and conduct ongoing research on tomato harvesting.



The Network

In year two, Tomato Jos will recruit its first cohort of farmers into the network, which will comprise 60 hectares. By year five, the company will work with a network of farmers operating on 1,000 hectares. Although formal market surveys have not been conducted, primary information gathered from farms, villages, markets and distributors during the team's visit to Nigeria in March 2014 suggests that our principal customers are smallholder farmers who grow for the market. The average smallholder tomato farm size in Nigeria ranges from 1-2 hectares. A few large-scale farmers plant from 10 to 200 hectares of tomatoes, leaving the overall average tomato field size at 1.5 hectares.

For our first farmer cohort, we will rely upon our existing local partners on the ground, a cooperative of mid-sized vegetable farmers, to refer us to smallholder farmers whom we can interview and vet in the first year as we set up the nucleus farm. As we scale, we expect though that our greatest product champions and advocates will be the farmers in our

network. A successful Tomato Jos network farmer who has been using Tomato Jos inputs and best practice methods will be able to demonstrate within his own social network the financial and labor benefit associated with our model. For our most successful and enthusiastic farmers we will have them hold field days at which all farmers in the village and the community can be invited. At these field days the appropriate Tomato Jos agronomy manager will be invited to speak at the field days and explain how our partnership works.

Following up on these leads is the role of our agronomy managers who are vital to the continued expansion of our network farmer model. It is the agronomy managers who are responsible for applying the Tomato Jos evaluation criteria to prospective farmers to determine their suitability to work with Tomato Jos. Other engagement mediums (advertising, radio, billboards, print, social, local sponsorship, etc) will be evaluated on a case-by-case basis to determine the suitability of each mode of communication.

The Dami System for Continuous Improvement

Tomato Jos will offer a complete bundle of services called a "Dami" (which means "bundle" in Hausa, one of the main languages spoken in Nigeria) to help all farmers in the network achieve a yield of 30 MT/Ha. In general, all of the farming inputs and capital equipment that Tomato Jos sells to farmers in the network will be sold without making a profit; that is, we will sell these items to farmers at our own purchase price. The Dami consists of four main components:

1. **Improved Inputs:** Sell high quality seeds, fertilizer and pesticides at our purchase price, in bundled packages so that farmers can easily determine how much of each item to use.
2. **Training Support:** Educate farmers on tomato-farming best practices through NGOdeveloped curricula and hands-on training at the nucleus farm.
3. **Forward Contract Financing:** Specify a price in advance of the growing season for delivery of a specified quantity of tomatoes, reducing farmers' exposure to seasonal price fluctuations and guaranteeing a market for increased yields.

4. **Guaranteed Market and Transport for Produce:** Establish a processor on-site that will absorb all surplus production at a reliable price and manage transport from farm to factory.

Once farmers in the network are able to achieve a yield of at least 30 MT/Ha consistently over three harvesting cycles, they will be classified as "bronze level" farmers. Tomato Jos will support its bronze farmers to make further gains in yield by selling them highquality drip irrigation systems at our own purchase price.

In the US, where open-air farming is the main technique used to grow paste tomatoes, drip irrigation systems have been known to increase yields by a factor of 50%. As such, farmers in the network who are able to achieve a yield of at least 45 MT/Ha consistently over three harvesting cycles will be classified as "silver level" farmers. Tomato Jos will support its silver farmers to make further gains in yield by selling them the materials needed to build a greenhouse at our own purchase price.

Farmers in the network who are able to achieve a yield of at least 80 MT/Ha consistently over three harvesting cycles will be classified as "gold level" farmers. As the most advanced and motivated farmers within the network, and also (by default) as the farmers with the longest relationship with our company, the gold farmers will be eligible to participate in the Tomato Jos paste franchise program. This program enables the gold farmers to procure low-volume paste production equipment and produce tomato paste for resale to Tomato Jos, which will package, brand and sell this paste alongside the paste produced in the factory.

In this way, over a period of three to five years, Tomato Jos will transform the most dedicated and motivated farmers into entrepreneurs who create non-farm jobs in their communities and are able to capture a larger portion of the tomato value chain by selling paste rather than tomatoes.

Transporting Tomatoes from the Network to the Factory

To transport the tomatoes from our network farmers and the nucleus farm to the processing facility we will use a fleet of leased trucks. A typical tomato truck holds 22 M/T of tomatoes, which is about 300,000 tomatoes. We anticipate a need for one truck in year one and scaling to 20 trucks by year 5. An additional benefit to leasing the vehicles is the benefit of a maintenance program and the not requiring the capital expenditure and depreciation associated with owning the vehicles.

Running the Tomato Paste Processing Facility

The tomato paste processing facility enables Tomato Jos to transform highly perishable, raw tomatoes into long-lasting, higher-value tomato paste, and as such it will always play a large role in the ongoing operations of the company. During the paste production season, which is expected to reach 6 months by year five, the factory will run continuous production to minimize tomato wastage and maximize power efficiency. The biggest cost associated with running the factory is power, for two main reasons. First, the "hot break" equipment used in the critical evaporation stage of processing requires constant nearboiling temperatures. Second, Nigeria's unreliable national power grid will require Tomato Jos to run the plant with diesel rather than electricity up to 75% of the time.

Tomato Jos has opted to invest in medium-capacity infrastructure for the factory for three major reasons. First, the overall capital outlay is much smaller for medium-capacity equipment than for full-scale equipment; second, the modular approach allows us to scale manufacturing capacity in sync with the growth of the nucleus farm and network; and third, in order for Tomato Jos to work closely with golden farmers to set up satellite processing facilities, our company needs to have a clear understanding of equipment that the golden farmers will use. Staffing requirements will vary based on whether or not the factory is producing paste. Year-round staff requirements include a plant manager, engineers to maintain and service the equipment, and a skeleton crew of 5 to 8 additional workers. During paste production season, the employee requirement increases significantly for both skilled and unskilled labor, from 8 and 10 to 18 and 75, respectively.

Marketing Paste in Domestic Channels

Lastly, Tomato Jos will secure an end market for our local brand of tomato paste. Our approach will be two-pronged: first we will ensure the offtake of our packaged output to large retail centers, and second our traditional marketing efforts will drive consumer purchases of our unique product.

1. **Get Tomato Jos products on shelves.** Initially, we plan to sell Tomato Jos products to both large supermarket chains and traditional open air markets. The two largest supermarket chains in Nigeria are Shoprite and SPAR, which is the world's largest food retailer. Both Shoprite and SPAR are large enough that they contract and purchase local food products directly from local manufactures without going through a distributor. Tomato Jos will use its fleet of trucks to deliver products directly to the supermarkets, thereby preserving margin for us and the supermarkets.

While we expect that our initial placement with these supermarkets will be on a trial basis, once we demonstrate consumer demand, we intend to secure long-term, yearround delivery contracts with each of these chains for each of their 16 locations throughout the country (as of 2013).

Despite any success that we have with Shoprite and SPAR, we plan to diversify our distribution channels to traditional open air markets because only 5% of food in Nigeria is retailed through supermarkets. Tomato Jos' fleet will transport our product to centralized, large open air market distributors based in Abuja and Lagos. From there, these distributors will ensure that our product makes it to the largest open air markets in the largest cities in the country. While the price for fresh vegetables fluctuate in the open air markets, the price for our product and other packaged goods in the market remain fixed. The largest driver of costs to be successful in placing our product on retail shelves will be

the transportation costs, namely the diesel, required to truck our product to the various supermarket chain outlets.

Our current product (70g sachets of tomato paste) is the most commonly purchased size of tomato paste in Nigeria's retail market. However, over time, we plan to extend our distribution model into the food services industry, supplying larger drums of tomato paste to the food services market (i.e. restaurants and hotels).

2. **Drive consumer purchases.** We will drive consumer purchase by promoting a brand that is high quality and uniquely Nigerian. Our branding strategy will be to target the lower-, middle-, and upper-income market segments as they all purchase and use tomato paste for everyday meals.

Tomato Jos will rely on very frequent traditional marketing methods, such as radio advertisements, billboards, and taste tests on-site in supermarkets to drive first time trial of our product. We also plan to get state and federal level government endorsement of our product as a product that is 100% made and packaged in Nigeria. We will encourage repeat trial of the product by linking purchase of the product directly to the farmers in our program via advertisements and social media.

The social media portion of our branding strategy will involve launching pages on Facebook, Twitter, etc. and sharing stories of our farmers on a regular basis.

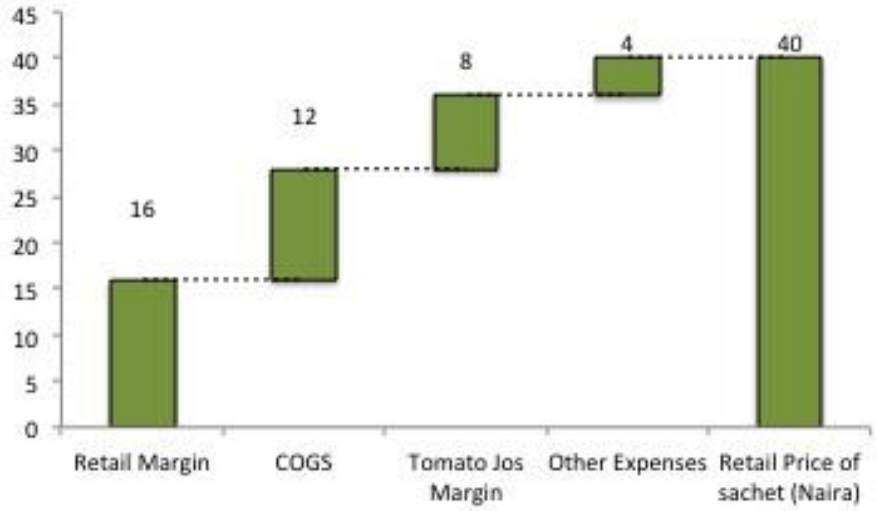
The largest cost driver for this piece of our operations will be the traditional marketing spend on advertising space as we plan to flood the market with our unique positioning early and often.

3.4. Profit formula (Unit Economics)

Tomato Jos expects to produce over 6 million 70 gram sachets of tomato paste in year two and over 100 million sachets in year five. From our primary research in Nigeria, we know

that these 70 gram sachets are the most popular size with consumers and sell in the market for 40-50 Naira per sachet.

Using this retail-selling price as a starting point we work backward to assume that the retail margin is 40% of the selling price. Our COGS represent 30% of the cost with our margin and other expenses accounting for the remaining 30%.



3.5. Measuring results

We measure our success in terms of financial returns, agricultural output as well as social impact achieved, and will continually measure our progress in these areas. Management will be held accountable to specific financial, agricultural and social indicators, and their performance will be evaluated regularly.

Our Farmer performance record (annex 8) provides the ability to track detailed agricultural and social metrics, which will be reported to investors, partners and other stakeholders on a regular basis. Tomato Jos will provide social value to our partner farmers in several ways. In the first three years of operations we will focus on improving yield per hectare and reporting impact in the following key areas:

Increase in crop cycle income

Our most readily quantifiable social impact is the increase in the Gross Margin achieved by farmers. This is the difference between the Gross Farm Income (GFI) and the total variable cost (TVC). Tomato Jos will use this technique to track and determine the cost and return associated with tomato production for our farmers. It is mathematically expressed as; GM = GFI – TVC

Where;

GM = Gross Margin (Naira/Ha)

GFI = Gross Farm Income (Naira)

TVC = Total Variable Costs (Naira/Ha)

And

NFI = GM – FC

Where;

NFI = Net Farm Income (Naira/Ha)

TFC = Fixed Cost (Naira/Ha)

Other financial metrics we will track include:

Gross Ratio: is the total cost of production divided by the gross revenue. A less than 1 ratio is desirable for our farmers. The lower the ratio the higher the return per naira invested.

Operation Ratio: is the total variable cost divided by gross income. It shows the proportion of the gross income that goes to pay for the operating costs. The lower the ratio the higher the return on investment.

Return on capital investment: is the gross Margin divided by total variable cost.

Increase in tomato yield per hectare - Knowledge component

Assuming the majority of the farmers in our network produce 26,000 M/T per hectare in year 5, the financial benefit from our farmers to the economy is over $100 million per annum. Our farmers producing 26,000 tons at a net income of $4000 per year achieve this

figure. By year five, the social impact of Tomato Jos, based solely on this metric, could be as much as $5000 per farmer per year.

In tandem with yield increases Tomato Jos agronomy managers improve physical accessibility by farmers to improved inputs (seed, chemicals, fertilizer) by providing free delivery of all the raw material. We will measure improved tomato yield per hectare by tracking the total amount of produce harvested for grading. By 2016, we forecast that Tomato Jos will achieve 70 M/T per hectare in our greenhouses.

Decrease post harvest losses

Estimates suggest that Nigeria loses 40-60% of its tomato production after harvest. These post-harvest losses are decreases in the amount of agricultural produce that actually reaches markets in a salable condition. These losses may occur before transport due to many causes, including suboptimal application of fertilizer, inappropriate irrigation, diseases, water loss, and poor ventilation of products. During transport, other losses frequently occur, including mechanical injury, temperature changes, and contamination.

By improving both farmer transport of produce, increasing the availability of market, and improving farming practices, Tomato Jos plans to substantially decrease the percentage of tomatoes that are lost after harvest.

Other metrics

We will use the pilot test findings to build out our metrics further and set specific targets. Additional key indicators for measuring financial returns and social impact will likely include:

- *Sales* – Scale of outreach
- *Number of farmers* – Size of farmer network and its value as a barrier to entry
- *Average crop cycle days* – Capturing improvements to the length of the harvest cycle
  - *Farmer satisfaction* – Ability to meet or exceed farmers expectations
- *Increased employmen*t – Increasing employment is another key social impact for Tomato Jos particularly among the young.

CHAPTER 4

Market Analysis

In Nigeria, the market opportunity for producing tomato paste for domestic consumption alone is immense. Despite being sub-Saharan Africa's largest producer of tomatoes, the country spends over $360 million annually to import over 300,000 metric tons of tomato paste. Tomato paste has become highly integrated into the Nigerian diet. Household consumers often choose to buy paste over tomatoes, since ease of transport, low costs of production, and less wastage for the product allow it to be offered at a lower market price. The regional opportunity is even larger. In 2011, Sub-Saharan Africa imported 550,000 metric tons of tomato paste, and, for seven years' prior, consumption had been growing at 13% annually. Capturing portions of the tomato paste market domestically and regionally could offer large returns.

Annually, 40-60% of Nigeria's tomato harvest is wasted. Without domestic manufacturers buying, processing, and thus preserving tomatoes that otherwise quickly rot, farmers have no market for their produce. Excess farm production already exists that could be profitably absorbed by a processing business.

Nigeria's government has made a commitment to produce more of its finished and raw agricultural products domestically, and plans to cut imports by more than $10 billion annually. In the past, Nigeria's commitments to increasing domestic production have translated into its government actively protecting infant industries and by increasing availability of Central Bank financing.

4.1. Industry analysis

Agriculture in Nigeria

Agriculture comprises approximately 40% of Nigeria's GDP. Nigeria has the greatest area allocated to arable crops production across the entire region. There are 84 million hectares of arable land but only 40% is cultivated. Nigeria also has 263 billion cubic meters of water – with two of the largest rivers in Africa. The agricultural sector is the largest sector of the State's economy, employing over 70% of the adult labour force. The agriculture sector has a large impact on many aspects of development, from the dietary and caloric needs of the population to the state's industrialization efforts and the overall quality of life of the people. At the same time, agricultural production and productivity depend largely on the quality of land and sustainable practices. Consequently, there is a need to make agriculture economically viable by seeking a balance between efficient and productive agricultural enterprise and environmental protection and sustainability.

Nigeria produces 1.7 million metric tons of tomatoes annually. These tomatoes are grown in two seasons, which correspond to the country's rainfall. Despite the country's large overall production, smallholders, who are the majority of Nigeria's farmers and farm less than 2 hectares, get extremely low yields year after year. While the average yield in North America is 494 metric tons per ha, Nigerian farmers average only 7 metric tons per ha.

During the dry season, which spans from January to April, tomatoes tend to be plentiful; during the wet season, which stretches from April to September fewer tomatoes are grown. The boom and bust of Nigeria's tomato production corresponds to severe price fluctuations: the price that farmers are able to command for their tomato crop varies seasonally from 600 to 3000 Naira per 36 KG basket.

Low yields are at least partially caused by these seasonal pricing fluctuations. Since farmers receive the lowest market price during periods when production reaches its peak, they have

reduced incentive to increase their yields, since the market cannot absorb the temporary produce glut. Advanced pricing guarantees, which would disregard fluctuating market prices, could incentivize smallholder farmers to produce more crops than they currently do.

Farming practices also tend to be suboptimal. In many cases, smallholder farmers cannot afford or do not have access to improved inputs. This may particularly be the case for seed, which has few domestic Nigerian producers. Fertilizers on the market may often be fake or unlabeled. In other cases, improved inputs are not adequately applied, since technical knowledge of agronomy best practices is often unavailable.

Competition

There are currently no large-scale domestic producers of tomato paste in Nigeria. In the Kadawa valley region to the North, Dangote Holdings, Ltd, has made plans to develop a large-scale tomato paste processing facility. Dangote's facility announced that it would launch in November of last year with a total capacity of 400,000 MT/year, but so far it has remained unopened. It is unclear whether regional conflict has slowed construction or whether internal analysis found the low yields of smallholder farmers would be able to economically support such a large-scale manufacturer.

Competition will most likely come from other tomato farmers and imported products. Although over 200,000 farmers may produce tomatoes throughout Nigeria, raw tomato products tend to be more expensive than paste in Nigeria due to high costs and wastage rates from bringing raw produce to market. Since raw paste and tomatoes are substitutable goods, in local markets, paste and tomatoes will compete.

Market analysis conducted during the team's trip to Nigeria in March 2014 revealed that multiple tomato paste brands exist within Nigeria, most of which originate in China. Major companies involved in this space include Olam, which produces Tasty Tom, Chi Ltd, which produces Peppe Terra, Noclink Ventures, which produces Taima, Tomavita, and

Tomato Fun, and Watanmal, which produces Gino and Pomo tomato paste. These multiple brands target Nigerian consumers without segmenting the market, and make little to no effort to differentiate themselves. Some brands such as Tasty Tom are packaged for individual consumption in Nigeria after being bulk imported from foreign markets. Within the retail market, 70-gram servings of tomato paste are the most popular size - they are packaged in either small cans or sachets and sold for 40-50 naira throughout the country. Imported tomato paste is widely distributed by all supermarkets and open air markets, most small, private markets, and some non-food retailers.

Pricing

A major strategy of Tomato Jos is to offer the fairest market prices to our farmers to ensure a high volume quality inputs for the factory and drive down the cost of production. The marginal cost of paying above-market prices for tomatoes produced in our network is lower than the marginal cost of running the paste factory below capacity, thus providing us with a continued incentive to pay a fair price for our raw material. Tomato Jos will strive to keep its gross margin at the minimum required to cover costs of the raw inputs, operating costs and overhead, and to show a reasonable profit. However, an effort will be made to accumulate sufficient reserves to permit Tomato Jos to continue to expand and allow more farmers access to our economies of scale and to end consumers. Operating costs will be kept to a minimum.

Selling prices will be based on market information about the price levels of competitors and prevailing retail operating margins. Working closely with our key partners (Shoprite & Spar) we aim to develop long term supply agreements to align our production forecast with retailers' respective growth strategies.

4.2. Our competitive edge

Our competitive edge lies in our vertically integrated value chain that offers the most advanced inputs with the support and training to maximise the full potential of our network farmer's small holding and offers access to guaranteed pricing. This places Tomato Jos in a uniquely unoccupied territory in Nigeria.

Key competitive advantages:

1. **Reduced Input costs:** Tomato Jos acts as a bulk purchaser of inputs on behalf of our smallholder farmers, realizing a significant discount in purchase price of cultivation inputs and passing 100% of those cost savings along to the farmer

   ***Why is this sustainable*:** While a competitor can replicate these savings, the trust and goodwill built with our community of farmers over these years are not easily replicable.
2. **Vertical integration:** One stop shop for farmers and training to optimize inputs
3. **Local Nigerian brand**: government and consumer support
4. **Skills acquisition for farmer:** from farmer to businessman

As a result, we will appeal to the target markets of many of our competitors while offering services superior to each of the components of the value chain.

4.3. Risk Analysis

Security

There is a high threat from terrorism in Nigeria. Boko Haram is an Islamist extremist group in Nigeria that aspires to establish Islamic law in Nigeria, to destabilise the Nigerian government and to remove western influence from the country. Boko Haram regularly mounts attacks in northern Nigeria. The majority of attacks occur in the northeast, particularly in Borno and Yobe states where Boko Haram has based its operations. There have, however, been a number of Boko Haram-related attacks in other Nigerian states.

To mitigate the threat associated with terrorism we plan to operate in a state deemed by the US State Department to be at low risk of insurgency. Additionally, we will work closely with foreign offices and security companies to compile a weekly risk assessment report that captures alerts on changing threats to safety and security of personnel, critical infrastructure, supply lines and transportation routes. Finally, we will work with best practice private security companies to secure our operational assets and, more importantly, protect our staff.

Political

In February 2015 Nigeria will hold presidential and legislative elections. The elections represent both an opportunity and a threat to Tomato Jos. There are many threats associated with the election that could materialize and threaten the stability of the country. If elections are contested and disputed, there could be a rise in insurgent activity, creating a threat to life and property. Tomato Jos will be operating the pilot project at the time of the elections and will continually monitor the threat associated with the political risk (see security risk above).

Newly elected State Governors are keen to promote their region and may be able to offer tax breaks or reduced rent for companies bringing employment to their state. Postelection, state governors will be keen to deliver on election promises so positioning Tomato Jos as public-private partnership to boost employment could yield advantages.

Corruption

Tomato Jos believes that competitive advantages gained from corruption are spurious and unsustainable. We categorise corruption risk by:

1. Informal payments — improper payments by businesses in Africa can arise due to significant levels of "red tape," particularly relating to business permits, licenses and the import of goods.
2. Use of intermediaries — agents, brokers and facilitators are used to "assist" with negotiations. Fees paid to these intermediaries are often non-distinct and might be used to disguise bribes.

3. Petty corruption — petty corruption can be found in areas such as identity checks, speeding or payload tickets or other such cloaked offences.

We acknowledge that operating in Nigeria we face significant operational challenges to overcome corrupt practices. To that effect, Tomato Jos has developed an anti-corruption program designed to mitigate the impact of corruption on our business:

1. Conduct a risk assessment program
2. Implement anti-corruption policies and controls
3. Implement anti-corruption financial controls
4. Conduct anti-corruption compliance training
5. Monitor the program
6. Re-assess risk and modify program

Operational

Production resources: Operating in rural areas of Nigeria poses many operational challenges, from an irregular electrical supply with frequent service interruptions, to the risk that our supply chain could be interrupted due to poor infrastructure causing truck breakdowns. Having a consistent power supply is vital for processing operations. We will invest in sufficient redundancy capacity through diesel generators that will enable that plant to run for one entire batch on back-up power before requiring refueling. We attempt to mitigate supply chain risk by leasing our transportation equipment with appropriate maintenance contracts put in place.

Environmental: Droughts may occur during the optimal planting season for tomatoes, exposing Tomato Jos to the risks and the challenges of securing sufficient water for crop irrigation and processing at the factory. To offset the effects of drought, Tomato Jos will reduce the reliance on annual rains at the nucleus farm by constructing bore holes with a capacity sufficient for growing and processing operations. In addition, in year 2 we will build a fresh water holding tank that is capable of storing 10 million meters3 of rainwater.

Additionally, as one component of evaluating a farmer's suitability to join the Tomato Jos farmer network, the agronomy manager will determine all water sources available to the farmer and using a scale rate each farmers drought risk.

Financial

Farmer counterparty risk: Tomato Jos places considerable amount of trust in its network of farmers. Because our farmers receive all inputs on credit, Tomato Jos goes through an intensive farmer evaluation process to rank farmers on their suitability for inclusion to our network. We believe that this is important to establish trust with our farmers in order for them to produce high yieldng, high-quality tomatoes and become our greatest advocates and marketing tools for further network expansion. Tomato Jos is looking to mitigate this risk by partnering with local microfinance institutions such as ACCION to roll-out or credit scheme.

Pricing risk: Tomato Jos covers pricing risk by agreeing with farmers on a set riskweighted average price in advance of the growing season. By offering one set price, Tomato Jos can plan processing production and also manage price volatility of our most important production input.

CHAPTER 5

Strategy for Growth

Tomato Jos is launching with the concept of scale at the outset. Our nucleus farm and networked outgrower model is designed with a view to expand across Nigeria and reach hundreds of thousands of farmers.

Phase 0: Concept Development and Market Research. Jan - May 2014

The purpose of Phase 0 is to prove the various parts of the Tomato Jos value proposition (to farmers and to consumers), to raise funds for Phase 1, and to lay the groundwork for operations in Nigeria.

To date, we have secured $2,000 grant funding from the Harvard Business School Social Enterprise Initiative which we used to visit Nigeria in March 2014:

Business Environment Context. We met with the following experts in Abuja to gain insight on agribusiness in Nigeria: Doug Climan, Economic Officer for the U.S. State Department in Nigeria; Paul Lubeck, a northern Nigeria expert at the University of California, Santa Cruz; and Zannat Ferdous, a senior Market Analyst with Propcom Maikarfi, a DFID funded NGO that aims to reduce poverty in Nigeria by enabling rural markets to work better for the poor.

Cultivation. We conducted nine 1-hour in-person interviews with nine large-scale (10100 Ha) and smallholder (0.1-2 Ha) farmers based in Plateau state, Nigeria, the region with the most suitable climate for vegetable farming. All interviews took place at the farms, revealing valuable information about best practices and typical farming techniques. We also visited the local agricultural services and training center and spoke to the head agronomist about the equipment rental services and hands-on technical assistance available for smallholder farmers and the particularities of the region's growing conditions.

Processing. We toured a dairy processing plant and corn processing facility located in Plateau and met with the heads of operations for each. We spoke at length about processing challenges, such as hiring and training techniques for staff, assessing the tradeoffs around mechanization, and access to electricity and other forms of infrastructure. We have also interviewed technical leads from the two largest domestic tomato paste processing companies in the United States.

Marketing: We conducted six interviews at three open air markets in multiple Nigerian cities, where the lower- and middle-classes purchase their produce, and three high-end

supermarkets. These conversations revealed consumer preferences; pricing and margin trends for raw tomatoes and tomato paste; and product transportation costs and challenges.

Phase 1: Establish Nucleus Farm. Jun 2014 - May 2015

The purpose of Phase 1 is twofold: (1) prove that we can effectively "feed" the factory by establishing a nucleus farm that grows high-quality paste tomatoes at a yield of 30 MT/Ha; and (2) conduct intensive outreach to identify motivated tomato farmers and lay the groundwork for our outgrower network.

Phase 2: Develop Farmer Network and Paste Factory. Jun 2015 - May 2017 The purpose of Phase 2 is to put our model into action by scaling the nucleus farm, constructing a tomato paste manufacturing facility, and building out the farmer network using the Dami system to provide a constant source of tomatoes for paste.

Phase 3: Scale for Growth. Jun 2017 - May 2019

As the strongest farmers in our network begin to see substantial increases in their yields and graduate to gold-level performance levels, Tomato Jos will continue to scale the model by rapidly increasing the size of the network to include more farmers.

CHAPTER 6

Management Summary

6.1. Management team

Mira Mehta:

Mira graduated from Brown University in 2006. She worked in asset management at BlackRock for two years, and then moved to Nigeria to work for the Clinton Health Access Initiative (CHAI). She spent two years working with the Ministry of Health HIV/AIDS Division, the US Government, and various UN organizations to forecast and import HIV commodities and accelerate new drug approvals at NAFDAC. Mira then moved into a regional role, working to strengthen the relationship between diagnostic suppliers (Roche, Abbott, and BD) and Ministries of Health in over 12 African countries, and scaling up HIV diagnostic services across the continent. She has strong operational experience with the supply chain for HIV products, and also helped to set up and operate national sample transportation systems for infant HIV testing in multiple African countries.

Mira is currently a second-year student at Harvard Business School, pursuing an MBA. She would like to return to Nigeria to work in the agribusiness, basic materials, or healthcare industries. Her goal is run a company or a business line that supports economic growth, helps diversify Nigeria's economy away from oil and gas, and provides a source of skilled labor to the workforce.

Nike Lawrence:

Nike is a Liberian national who is pursuing an operational role in West Africa's agribusiness sector upon graduating from Harvard Business School in Spring of 2014. She received her undergraduate degree in Operations Research / Industrial Engineering from Princeton University and launched her career in research at Morgan Stanley where she remained for nearly 5 years. Subsequently, she moved to Accra, Ghana where she built the agriculture and healthcare pipelines and portfolios for Acumen Fund West Africa, covering Liberia, Sierra Leone, and Ghana. She spent this past summer working in Cote d'Ivoire with Entrepreneurial Solutions Partners, a post-conflict private sector development firm specializing in competitiveness advisory for governments and investments in SMEs. Her focus was on advising a defunct cassava processing and export

company on how to restart their operations. She is looking forward to returning to the continent and contributing to the income generation and poverty alleviation that can be achieved through an integrated approach to agribusiness.

Shane Kiernan:

Shane received his undergraduate degree in Business and Legal Studies from University College Dublin in 2004 and went on to graduate with a Masters degree in Real Estate Investment from Cass Business School, London in 2005. He worked as an investment banker in London where he worked in Debt Capital Markets for Deutsche Bank and Real Estate Private Equity for BlackRock. Shane brings entrepreneurial experience to the team having established in 2008 a Dublin-based business called DealHunter that enabled consumers in Southern Ireland to buy products from Northern Ireland more cheaply. After selling DealHunter in 2010 he moved to Kenya to work for the Clinton Health Access Initiative where he spent two years assisting national governments to secure financial resources for national health systems on three continents. With the benefit of a Fulbright scholarship Shane is currently pursuing a Masters in Health Policy & Management at the Harvard School of Public Health and graduates in May 2014. Shane is looking forward to returning to Africa to pursue entrepreneurial opportunities with a transformative social impact.

Jared Westheim:

Jared Westheim is an international development professional with six years of experience working on projects in healthcare, new technology, and agribusiness in the developing and developed world. After three years as a healthcare consultant advising hospitals and health systems on financial turnaround and the clinical impacts of health reform for the Advisory Board Company, Jared began work in Rwanda on a variety of projects, including agribusiness evaluation and project management as a volunteer consultant for Technoserve.

In September 2011, Jared joined Clinton Health Access Initiative in Zimbabwe, where he undertook a project to introduce new laboratory technologies, modernize treatment guidelines, and organize health sector procurement and financing. Since then, Jared has helped analyze procurement reform on behalf of an international aid bilateral and planned new joint venture with manufacturers in Africa to improve access to processed nutritional products for mothers and children. Jared continues to work for CHAI to develop its internal communications and knowledge sharing strategy. He graduated from Dartmouth College in 2008, summa cum laude with high honors.

6.2. Personnel Plan

The following hires are identified as key postions to be filled within the first 18 months of operation.

6.3.1. Director of Agronomy (DA)

The DA is key appointment to the Tomato Jos team and should be hired within the first 90 days of trading. In the pilot phase though we intend utilizing the services of consultant The DA will be a qualified agronomist and will be responsible for determining the agricultural best practices determining how the soils, pesticides, fertilizers, and seeds come together to make Tomato Jos farmers more productive. Prior to the recruitment of a permanent DA we rely on the input of consultant agronomists introduced to us via our advisors.

6.3.2. Agronomy Managers (AMs)

The AMs are hired to work as middlemen between the farmers and the Director of Agronomy. The AMs explain the needs of the Farmers to the DA, and the findings of the DA to the Farmers. The AMs are crucial to articulate to the Tomato Jos farmer network how to achieve the greatest return on investment and yield the largest harvest with the least amount of capital. We anticipate one AM will be needed per hundred hectares.

6.3.3. Finance Manager (FM)

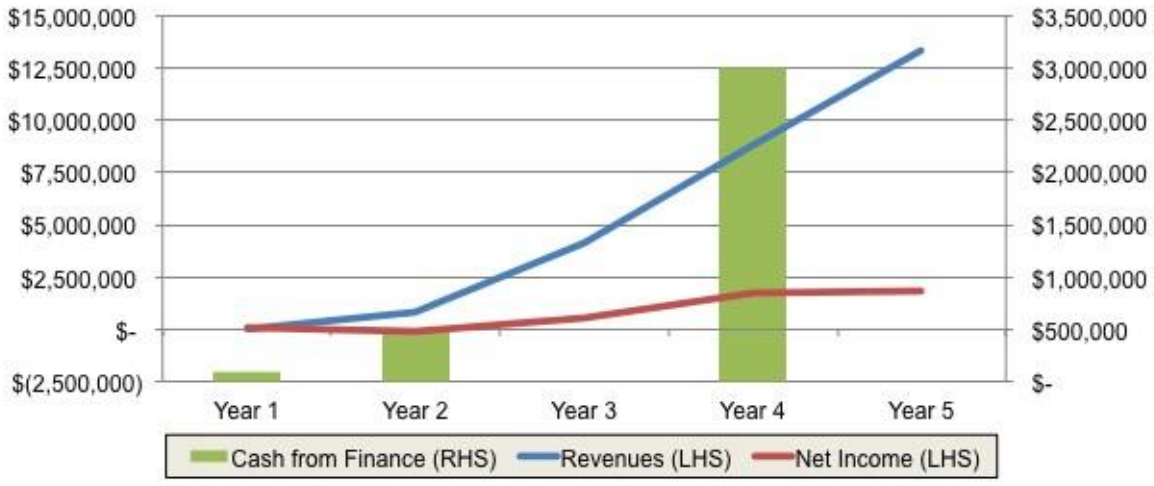
The FM is another key FTE hire in the Tomato Jos FTE team. The FM will work with Executive team to prepare financial statements and local tax returns. The finance manager will be experienced in preparing anticorruption policy and procedures guidelines.

CHAPTER 7

Financial Plan

7.1. Revenues

In the first year of our pilot operation our objective is to sell all the tomatoes that we produce in local markets and to a small number of established retail partners in Jos and Abuja. We have conservatively estimated an average tomato yield of 17 metrics tonnes per hectare that we can sell at an average price of $288 per tonne giving us over $14,000 in the first year.



Following the successful demonstration of our agricultural capabilities we expect a consistent scale-up in revenues from $800,000 million in year 2 to $13 million in year 5.

By that time we expect to be selling processing nearly 100 million sachets of tomato paste per annum.

7.2. Expenses

In the first year our largest expense is personnel, with salaries and benefits estimated to be around $49,000. This expense is in relation to the hiring costs associated with recruiting a full-time Agronomist. After the completion of the pilot phase the largest ongoing cost is projected to be the raw inputs (seeds, fertilizer and agrochemicals) utilized by the farmer network and the nucleus farm.

Following the successful equity subscription in year two we will expand our nucleus farm through land rental and greenhouse construction, commission the first phase of our tomato paste processing factory and rollout our farmer network engagement strategy. This capital acquisition program is expected to cost $0.5 million and will be financed through the second capital raise and also from cashflow from normal operations.

Our wage projections reflect our focus on building a very lean, highly skilled team. With the exception of the Agronomist and farm labor the Founders will cover all of the roles before the seed round is raised, during which time they will not earn salaries. After raising the seed round, founders will draw a salary of $5,000 per person per month (until Tomato Jos is cashflow positive, at which point it may increase), and additional hires will be made in the Agronomy and Marketing departments.

7.3. Net surplus

Despite a minimal loss in years one and two, we will be fiscally sound and selfsustaining once we reach scale following the investment program in year 2. (see appendix 8.4)

7.4. Quarterly statement of income

Tomato Jos exhibits seasonality in expenses and income in accordance with the growing cycles and the prevailing market fluctuation in prices. The planting season begins in

September and harvesting ends in July, thus our largest expenses will be incurred in the first and second fiscal quarters (see Appendix 8.4).

Once processing capacity is established revenues we anticipate to reveue distribution to stabilize with the bulk of revenues realized in the second and third quarters.

7.5. Annual cash flow statement

The Annual cash flow statement attached in Appendix 8.4.

7.6. Capital Requirements

Tomato Jos's funding strategy is based on three key capital inflows:

1. $100,000 of prize winnings and small grant funds from Harvard and other personal sources in Q1 Year 1
2. $500,000 of seed stage equity secured in Q1 Year 2 to establish the proof of concept nucleus pilot farm and begin. In this phase we expect to raise through development financing organizations such as DIFID, USAID, CIDA and also angel investors.
3. $3,000,000 of growth equity secured in Q1 Year 4 to scale processing capacity significantly. In this phase we expect to raise finance through private equity investors and/or through an investment by a strategic partner.

Pro Forma five-year annual cash flows for Tomato Jos

	Y1	Y2	Y3	Y4	Y5
Net Income	$ (46,608)	$ (142,330)	$ 508,729	$ 1,116,170	$ 2,037,242
Add Depreciation	$ -	$ 52,911	$ 73,883	$ 108,078	$ 134,494
Changes in Working Capital	$ -	$ -	$ -	$ -	$ -
Cash from Operations	$ (46,608)	$ (89,418)	$ 582,612	$ 1,224,247	$ 2,171,737
Purchase of Assets	$ (6,987)	$ (548,702)	$ (78,602)	$ (2,503,133)	$ (332,448)
Cash from Investing	$ (6,987)	$ (548,702)	$ (78,602)	$ (2,503,133)	$ (332,448)
Equity Subscriptions	$ 100,000	$ 500,000	$ -	$ 3,000,000	$ -
Cash from Finance	$ 100,000	$ 500,000	$ -	$ 3,000,000	$ -
Net Cash Flow	$ 46,405	$ (138,121)	$ 504,010	$ 1,721,115	$ 1,839,289
Beginning Cash	$ -	$ 46,405	$ (91,716)	$ 412,294	$ 2,133,408
Change in Cash Position	$ 46,405	$ (138,121)	$ 504,010	$ 1,721,115	$ 1,839,289
Ending Cash	$ 46,405	$ (91,716)	$ 412,294	$ 2,133,408	$ 3,972,698