## TEAM 92

<table>
<thead>
<tr>
<th>NAME</th>
<th>COUNTRY</th>
<th>ENGLISH LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jadzia Michna-Konigstorfer</td>
<td>New Zealand</td>
<td>English 1st</td>
</tr>
<tr>
<td>Hayden Oliver Bell</td>
<td>New Zealand</td>
<td>English 1st</td>
</tr>
<tr>
<td>Lubna Ali Hamed Ali</td>
<td>Egypt</td>
<td>English 2nd</td>
</tr>
<tr>
<td>Bernadeta Cahya Kumala Putriastuti</td>
<td>Indonesia</td>
<td>English 2nd</td>
</tr>
<tr>
<td>Goodness John Ogunwale</td>
<td>Nigeria</td>
<td>English 2nd</td>
</tr>
<tr>
<td>Jean Bosco Bwerere</td>
<td>Rwanda</td>
<td>English 2nd</td>
</tr>
<tr>
<td>Sytse Brentjes</td>
<td>Netherlands</td>
<td>English 2nd</td>
</tr>
<tr>
<td>Walodja Sharjan</td>
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<td>English 2nd</td>
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</tbody>
</table>
Executive Summary:

Food loss and wastage have reached previously unimaginable levels worldwide. Figures indicate that approximately one third of all food produced is lost or wasted which is costing the global economy around a trillion dollars annually (Lemos, L., 2017). This also has detrimental effects on the environment as untouched organic materials in landfills creates copious amounts of greenhouse gas emissions (GHG) (Aprilia, A., 2013). According to research by The Economist Intelligence Unit the country of Indonesia is responsible for the second largest amount of food wasted out of 34 countries investigated, at nearly 300 kilograms per person. To mitigate this significant issue our company proposes to construct a standard organic fertilizer production plant centred on combating the current epidemic of food wastage by recycling and reusing it back into the food production cycle.

Our business Bio-GEE-Fertilizer will be located approximately half an hour away from the city of Jakarta and close to surrounding farming communities. We have been able to secure a lease for the land in a strategic location along with the option of a long term renewal with agreed terms and conditions. Jakarta on the Island of Java is the largest and capital city of Indonesia as well as being in the top 30 largest cities by population in the world, with current figures sitting on over 10 million inhabitants (worldatlas, 2018). Therefore making it the perfect location to set up our company and construct the fertilizer factory as it ensures a constant and stable supply of organic materials needed to run the business. Java is also the centre of agriculture in Indonesia which means that our main target group is being well catered to.

We are aware that there are several big and small scale fertilizer production companies scattered all around Indonesia and other parts of the world whose products are currently being sold in the market. What sets us apart from them is...
that we are engaging in the processing, packaging and retailing of an organically based product, whilst those products of our competitors are all based on chemicals. Our company is not just centred on making profits but providing our customers value for their money; we want to give people and businesses who patronize our organic fertilizer the opportunity to be part of its success. Which is why we are also offering a better deal than our competitors regarding product cost.

Our business seeks to (1) provide a way in which previously wasted organic materials are able to be reused (2) clean cities of unwanted litter, improving tourism (3) introducing a functional waste sorting system to it citizens (4) provide employment to individuals within a number of different roles thus generating income to the community. The venture itself would require an initial capital of $416,000NZD this would be met through a combination of bank loans and private investment. By our fourth year of being fully operational we expect to make a profit of $90,972NZD after tax.

**Business Overview:**

Bio-GEE-Fertilizer reduces otherwise unused organic materials in a country that is struggling with a current food wastage crisis. This will have positive effects for both the city itself, the farmers and the Indonesia economy as the island of Java produces the highest level of tea output, the second highest output of rice and the third highest output of cocoa in Indonesia. Meaning that fertilizer is in constant need to maintain crop cycles and bring nutrients back to the soil. One of the biggest problems here is the nonexistence of a comprehensive waste sorting system to segregate organic kitchen matter and inorganic recyclables which has led to the mistreatment and loss of valuable resources.

We provide an initiative to solve this and to produce a valuable output. The business model will have three key areas:

1. The set-up of central neighbourhood containers which are partially underground to save on space and visual appeal in which locals are able to empty their organic materials into. We also Establish close working relationships with the top 30 largest restaurants or motels (3 each per neighbourhood in which a container is situated) and a number of cattle farmers in the area.

2. The provision of jobs to employees who collect the containers and empty the contents onto their trucks, the individuals who sort the organic matter before it reaches the fertilizer production line, those who package the fertilizer in its final stage and those individual who work behind the scenes in managing all areas of operation.

3. We supply fertilizer to the local farmers in the area who need this material to maintain their soils and who gain a living from the.

**Business Objectives:**

The core of our business is to clean waste in the city of Java in Indonesia and gain profit from those organic materials. By creating fertilizer from organic waste and selling it cheaply our business will improve farmers crop outputs. This is due to plants having all the required nutrients they need to grow which in turn builds the agriculture industry on Java and has a positive impact on the environment at the same time. Our business will also provide jobs to a number of people and foster healthy lifestyles in Indonesia by promoting organic crops.

**Market Analysis:**

**COMPETITORS**

Our main competitors are five state owned enterprises, specifically Petrokimia Gresik, Pupuk Kujang, Pupuk Kalimantan Timur, Pupuk Iskandar Muda and Pupuk Sriwidjaja Palembang which now operate under the strategic holding company Pupuk Indonesia (Global Business Guide, 2014). The government has been a constant feature of the Indonesian fertilizer industry with the above companies required to sell certain fertilizers types at a capped price determined by the ruling power at the time and in return receive input subsidies. The subsidised fertilizer is supposed to be limited to the purchase of smallholder farms with plantations under 2 hectare only. In reality though leakages and inadequate monitoring systems have led to subsidised fertilizer making its way into the hands of non-smallholders. This limits the market and takes away vital products for these smaller operators. Our fertilizer wouldn’t have any government intervention, being able to trade with both small farms and larger plantations, whilst having a greater emphasis on the people of Indonesia as all fertilizer produced would go back to its citizens with none of the product exported. Farmers and people in the local community would also be more likely to purchase from us because we have created good working relationship with the locals, providing them with jobs, reducing the odours and waste in their cities as well as giving back to the environment they use to create a living from. As we are a locally based business it also means we are able to monitor closely where our product goes and to whom as well as supplying a cheaper than average price, putting us ahead of our competitors.
OPERATIONS

1. The Waste Collection

Organic waste materials will be collected by establishing partnerships with cattle businesses, hotels, restaurants, street food sellers, and households through neighbourhood committees (in Indonesia: Rukun Warga (RW)). This will be achieved by approaching certain large businesses in the area where our containers will be situated and handing out proposals to our future partners. There will be a total of 10 central containers set up in the neighbourhoods of Menteng, Kemang, Kebayoran Baru, Kebayoran Lama, Pantai Indah Kapuk, Tangerang, Kelapa Gading, Bogor, Glodok, Kunigan in which to drop waste. This will ensure a thorough dispersion of our presence across the whole of Jakarta (central, south, north, east, and west). The proposals will contain information regarding the type of materials that are appropriate to place in the containers with the top three largest motels or restaurants around these neighbourhood receiving personal bio-friendly trash receptacles to put their organic waste in. Every two days, our people will collect the build-up waste from these partners as well as the central containers before proceeding to deliver them to the fertilizer plant.

2. The Fertilizer Production System

1. 9m Belt Conveyor
2. Chain Crusher
3. 5m Belt Conveyor
4. Mixer
5. 9m Belt Conveyor
6. Organic Fertilizer Granulator
7. 10m Belt Conveyor
8. Screener
9. 12m Belt Conveyor
10. Silo
11. Packing Machine

It has a production capacity of 700 kg per hour. Inspections should be carried out daily regarding the technical condition of the equipment in order to reduce any losses.

MANUFACTURING

Bio-GEE-Fertilizer will be manufactured on a rented piece of land which is situated approximately 30 minutes away from the city of Jakarta, in a commercial factory built by our company. This is to avoid any unwanted and unpleasant smells impacting on the people and tourism within the city. Our business and the production of fertilizer will be run by a Mini Organic Fertilizer Production Line which Bio-GEE-Fertilizer will purchase from “Whirlston Fertilizer Machinery”. This includes a “Self-Propelled Compost Turner, High Moisture Fertilizer Crusher Machine, Horizontal Fertilizer Mixer, Double Roller Fertilizer Granulator, Fertilizer Screening Machine and Fertilizer Packager. The business will focus on producing a high quality product that works as a slow release fertilizer, delivering nutrients as it breaks down, improving the structure of the soil and increasing its ability to hold both water and further nutrients. We will have individuals working across a number of areas. Some in the factory, others transporting organic materials to the production line or finished products in the form of fertilizer bags to our customers. With management being responsible for controlling operation processes. Over the first four years of production manufacturing will increase moderately as we gain recognition and product demand increases.
STAFF
For staff, we will hire professionals to start up the company, manage core business roles and control the running of critical areas within the fertilizers production process. It will be important to employ individuals who have had a similar role before or experience in previous management positions. During our first year while the factory itself is still being constructed we will only require basic management staff to ensure the successful start-up of the business and that everything is in place to begin manufacturing. Once we are operational we will be able to hire further everyday working staff. These jobs, will require contacting employment agencies, with specific attention in hiring unemployed individuals who may not have had previous work experience or only a limited amount. This will grow local productivity and give individuals the chance to better their circumstances. The wages of these people, will be carefully examined to ensure that our employees can make an honest living. There will also be bonuses and increased salaried supplied to those individuals who prove themselves to be exceptionally high performers. With improved skills it is likely their output will increase and this should be rewarded.

QUALITY CONTROL
We will attach a testing facility to our factory. This testing facility will be an indoor and outdoor facility so we are capable of simulating climate around the growing season regardless of what the current conditions may be like. In this way we can test our products in practice and not just based on theory. Studies into the practical outcome of changing various fertilizers compounds within the basic recipe will allows us to optimize the product in the processing stage.

IMPLEMENTATION
Market Overview:

TARGET MARKET

Our target market is divided into two different customer analysis demographics on Java in Indonesia, these are:

- **Individual Farmers (Privately Owned Business):**
  - **Age:** 18 to 40
  - **Gender:** Males
  - **Income level:** lower C, Upper B
  - **Education level:** High school/graduates
  - **Occupation:** Farmers

- **Company Run (Plantation Business):**
  - **Age:** 18-40
  - **Gender:** Males
  - **Income level:** Upper B, upper A
  - **Education level:** University degree
  - **Occupation:** Business owners and innovators

There is a social enterprise called “Javara” which works with around 50,000 farmer in Indonesia that our company will be able to connect with in order to widen our range of partners.

STRATEGY

**Price:**
Our product have affordable price for farmers and is cheaper than chemical fertilizers. The average price of fertilizers in Indonesia is USD 0.35 / kg and our product will only cost farmers USD 0.21 / kg (Seputar Pertanian, 2018). Therefore, our product it will be competitive to other fertilizers in the market.

**Promotion:**
We will use advertising and waste sorting campaigns as the basis of our promotional strategy. The advertising will focus on the eco-friendly product and how this product will help the environment, clean cities and improve the welfare of people. We will also highlight that this product is cheaper compared to chemical fertilizers.

**Marketing Channels:**

PHYSICAL DISTRIBUTION

The product will be distributed directly to farmers as well as through an intermediary. The intermediaries would be Koperasi Tani (business organization for farmers) and farming shops. There will be a first time discount for retailers and wholesalers that purchase and distribute our product. This is to gain partners and to get our product greater exposure. A minimum purchase for intermediaries will be set in order for them to get this original discounted percentage on their purchase so that our business remains profitable. Our Partnership and Financial managers will work together to determine the individual sales price for customers. To attract intermediaries, we have to offer them attractive prices. Our company is also focused on providing them with a good service, distinguish ourselves in the delivery time and fee and providing them with a better product than our competitors. It is always a big challenge to get into a new field but if we would offer our customers an attractive discount and let them feel our service, they are more likely to buy from us rather than collaborating with competitors.

E-COMMERCE

The product can be purchased online through popular marketplaces in Indonesia such as Tokopedia, Bukalapak, and OLX. There is no registration fee to join as a new business and seller in those marketplaces. This will minimise customer related marketing costs and as the marketplace can be accessed from every city in Indonesia, it will also increase our product exposure and gain a greater distribution across more areas of the country. Working with search machines like Google and paying them an advertisement fee to show our company above others means people will find our company earlier than if they were just using marketplaces. As people/companies would find our business first and by easier means it would increase the likelihood of purchases as well as giving our business an image of credibility. This would however cost a proportion of money and would therefore have to be looked into by the Sales/Marketing Manager and Financial Manager in alliance with the company Accountant to see whether there is a point in the running of the business when this would be feasible. Bio-GEE-Fertilizer will also have a presence on social media, which will open a big field as nowadays almost everyone is active on platforms such as Facebook, Instagram etc. The advantage of social media is that we are not required to pay a fee to create a site or account. We could also create a website and place information about our company on there, including what we do, who we are, our goals and about our product.
OFFLINE SALES
Since not everyone has online capabilities or owns a device which will connect them with the world wide web, we will have to provide customers with the means to buy goods offline. A way to do this is by having a market stall where we could stay for free or at a minimum fee and sell our products directly from company vehicles. Especially in the first year it will be important to gain recognition from people and this may include creating flyers, putting ads in newspapers and magazines as well as personally approaching farmers on the Island of Java close to the city of Jakarta in order to create reliable customers. At the beginning people will not know who we are and why they should buy from us, so we have to show them our unique selling points and create trust with customers to gain market presences.

PROJECTED SALES
During 2018 construction Bio-GEE-Fertilizer will commence, therefore our company will make a substantial loss as we have no incoming revenue to cover the bank loan necessary to fund our venture. However within the first year of production we will make a profit. Production capacity during our first year will only be a fraction of the businesses operational capabilities being approximately 5 tonnes a day instead of our top capacity of 8.4 tonnes, rising over time. This is due to the fact that we are only just starting to get recognition and forming close working relationships with businesses and the wider community of Jakarta and in extension Java through our marketing channels, word of mouth and physical presence. It is also assumed that manufacturing would take place 12 hours a day and 330 days of the year. The remaining 35 days account for Indonesian public holidays and equipment maintenance or upkeep.

Financial Forecast:

1. Financial Analysis

<table>
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<tr>
<th>Particular</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
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<tbody>
<tr>
<td>Expected materials harvested (tonnes)</td>
<td>1650</td>
<td>1782</td>
<td>1925</td>
<td>2079</td>
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<tr>
<td>Number of 25 kg bags</td>
<td>66,000</td>
<td>71,280</td>
<td>77,000</td>
<td>83,160</td>
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<tr>
<td>Selling price (Per bag)</td>
<td>$7.60</td>
<td>$7.60</td>
<td>$7.60</td>
<td>$7.60</td>
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<tr>
<td><strong>Total Revenue</strong></td>
<td>$501,600</td>
<td>$541,728</td>
<td>$585,200</td>
<td>$632,016</td>
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<tr>
<td>Capital costs</td>
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<td></td>
<td></td>
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<tr>
<td>Company registration Fee</td>
<td>$300</td>
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<td>-</td>
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<td>Property, Plant and Equipment (Note 1)</td>
<td>$242,364</td>
<td>-</td>
<td>$28,000</td>
<td>$11,000</td>
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<tr>
<td>Utility Infrastructure</td>
<td>$5000</td>
<td>-</td>
<td>-</td>
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<td>Website creation</td>
<td>$600</td>
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<tr>
<td><strong>Total Capital Costs</strong></td>
<td>$(248,264)</td>
<td>$(28,000)</td>
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<tr>
<td>Fixed Costs</td>
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<tr>
<td>Maintenance Cost</td>
<td>$16,500</td>
<td>$18,000</td>
<td>$20,000</td>
<td>$22,000</td>
<td>$24,000</td>
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<tr>
<td>Utility Cost (Electricity &amp; Water)</td>
<td>$18,000</td>
<td>$20,500</td>
<td>$22,000</td>
<td>$23,500</td>
<td>$25,000</td>
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<td>Administrative expenses</td>
<td>$31,500</td>
<td>$33,000</td>
<td>$35,000</td>
<td>$35,000</td>
<td>$36,000</td>
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<td>Bin Collection</td>
<td>$28,200</td>
<td>$30,600</td>
<td>$33,000</td>
<td>$33,000</td>
<td>$35,400</td>
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<td>Factory Wages (6 staff)</td>
<td>$19,480</td>
<td>$21,500</td>
<td>$22,750</td>
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<td>Managers Salary</td>
<td>$52,500</td>
<td>$163,000</td>
<td>$172,000</td>
<td>$184,000</td>
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<td>Rent</td>
<td>$13,000</td>
<td>$26,000</td>
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<tr>
<td>Interest on loan</td>
<td>$7,000</td>
<td>$15,000</td>
<td>$16,000</td>
<td>$16,000</td>
<td>$16,500</td>
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<tr>
<td><strong>Total Fixed Costs</strong></td>
<td>$(138,500)</td>
<td>$(323,180)</td>
<td>$(343,100)</td>
<td>$(362,250)</td>
<td>$(384,100)</td>
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</table>
2. Property, Plant and Equipment:

| High capacity bio-fertilizer machine | $41,864 |
| Shipping of machine                 | $2,000  |
| Building infrastructure             | $78,000 |
| Vehicles                            | $120,000|
| Service tools                       | $500    |
| Bins for waste collection           | $4,000  |
| **Total**                           | **$246,364** |

Additional Information:
An additional vehicle costing $28,000 will be added to the fleet in 2020. Second mixer purchased for $11,000 in 2021.

Future Outlook:

By the end of the sixth forecasted year we will have made a significant impact on the citizens of Jakarta and local farmers across the Island of Java. We will also have a stable and good working relationship with partners and the communities that supply us with our materials alongside a broad and consistent customer base. This proposal does not take into consideration exporting to other countries because the basis of this company is established on creating a sustainable market presence in Indonesia and with its people. As they are the ones in need of the waste regulations and fertilizer we are producing. After approaching full production capacity at the end of 2023 the company would look into the further expansion within Indonesia through the setup of a secondary fertilizer factory on the Island of Sumatra as this is where the second highest level of agriculture occurs in Indonesia. This would progressively work to improve Indonesia’s global image by removing its title as being responsible for the second highest food waste in the world.
References:


