



Global Enterprise Experience

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TEAM 59

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1. EXECUTIVE SUMMARY

Imagine you are relaxing on the beautiful shores of Fiji. You are currently soaking up the sun with a pina colada in your hand. You feel your skin burning so you decide to cool off in the ocean. As you dive under you get wrapped in a sea of rubbish, everything from plastic bottles, bags and pharmaceutical packaging. You feel claustrophobic and wonder how the marine life survive in such poor conditions.

We've come up with an idea that will aid in the reduction of water pollution. Clean water is essential for not only human kind, but for the thousands of species that live in the ocean. Many regulations and systems have been enforced to minimise pollution around the world, all working towards the same goal of making the planet cleaner and greener.

Our idea is to create biodegradable pharmaceutical packaging by utilising 'green plastic'. Green plastic is created by combining plant starch and soy protein, as an alternative to petroleum-based products. We plan to use sugarcane crops from the two-main islands in Fiji (Viti Levu and Vanualevu) to produce this environmentally sustainable product. The manufacture and disposal of green plastic involves environment-friendly processes.

Environmental sustainability is crucial in rescuing the world and reducing the risk of climate change. This highlights the importance of the United Nations Sustainable Development Goal of 'Climate Action'. If we can arrest and decrease the pollution and waste currently going into our waterways, we can play an effective part in limiting the detrimental damage caused to the planet.

2. BUSINESS OVERVIEW

2.1 ISSUE

1. Lack of awareness around product sustainability and environmental effects.
People seem to be uneducated and oblivious to the damaging impact their waste has on the environment. Biodegradable products are not easily accessible, making it difficult for people play a major part in reducing pollution, saving marine life, and reducing climate change.
2. Increasing rates of waste.
Levels of consumption are constantly rising and no one is questioning where the waste ends up. Uncontrollable mountains of waste cover the planet, harming its inhabitants and the environment. The rising greenhouse gas emissions are prompting the occurrence of climate change.
3. Rising medical supply consumption due to Covid 19.
Due to the current pandemic we are living in, the amount of medical waste produced every day is multiplying. With a world full of unsustainable medical packaging, consumers are unaware of the damage they are causing on the environment.

2.2 OBJECTIVES

How GreenSeace will solve these issues:

1. Educate the world on how they are impacting the planet with their uncontrollable consumption.
Show the public how they can help to reduce the occurrence of climate change through thinking and acting sustainably. By replacing petroleum-based plastic products with our biodegradable green plastics we will make it easy for people to play their part in saving the planet.
2. We will collaborate with environmental activists.
By working with global organisations with adjacent sustainable views we will be able to influence consumers on an international level. Having connections with well-known brands and corporations will give us a platform to advertise from, spreading the word of how important sustainable living is.
3. Make our products accessible.
We will ensure GreenSeace packaging is available and accessible to everyone. By implementing our product in medical outlets, we will give consumers the chance to make a positive impact on the environment. Our packaging will be affordable, making it possible for the world to play their part in reducing pollution and climate change.

3. PRODUCT OVERVIEW

3.1 PRODUCT DESIGN

GreenSeace utilises 'green plastic' to create biodegradable pharmaceutical packaging. This green plastic product is manufactured by combining soy protein and vegetable starch, utilizing fermented bacteria in plant residue. By replacing petroleum-based plastic, GreenSeace will contribute to the reduction in pollution, therefore, benefiting the environment. In addition, the packaging is biocompatible, can be completely degraded, and is safe and non-toxic. GreenSeace uses natural renewable resources to enable the sustainability of the product.

3.2 TECHNICAL DESIGN

GreenSeace utilises sugarcane crops from the two main islands in Fiji (Viti Levu and Vanualevu) to produce biodegradable plastic packaging. Sugarcane ethanol, or bagasse ethanol creates polyhydroxyalkanoates (PHA), polyesters produced in nature. It can replace petrochemical plastics to some extent and can be made by fermenting plant waste with fermentation bacteria. Because of its good biocompatibility, biodegradability and thermal processing properties, PHA can be used as both a biomedical material and a biodegradable packaging material. GreenSeace products can be decomposed by environmental microorganisms after being discarded, therefore becoming part of the carbon cycle in nature.

The degradation mechanism of GreenSeace plastic is as follows: Microorganisms secrete hydrolases in vitro and combine with the surface of the material, cutting off the polymer chain. This occurs through hydrolysis, generating small molecular weight compounds (organic acids, sugars, etc.) with molecular weight less than 500g/mol. The degraded products are then taken into the body of microorganisms. Through a variety of metabolic pathways, they are synthesized

into microbial bodies or converted into energy for microbial activities. These bodies are eventually converted into water and carbon dioxide.

3.3 PRODUCT CREATION

Biodegradable plastics are plastics that can be decomposed by the action of living organisms. Today, with global resources becoming increasingly tight, environmental problems caused by plastics are becoming progressively prominent, including water pollution. This increase therefore triggers market demand for bioplastics to grow. In the face of the current pandemic, human beings are facing the problem of environmental pollution caused by an increase in medical waste. GreenSeace can reduce this environmental burden and in the long-term limit the damage made to the planet.

Fiji will experience advantages from GreenSeace using their sugarcane crops for the production of their green plastic. Fiji has abundant sugar cane resources, even the bagasse left after the abstraction of the sugarcane plant can be used as protection for the environment. By using sugarcane to produce green degradable plastics, it is helpful to solve the local white pollution problem in Fiji. This will promote the comprehensive utilization of local agricultural resources and the leap-forward development of the biomass composite material industry. This has both significant economic and social significance.

4. MARKET ANALYSIS

4.1 TARGET MARKET

Our target market is a potential business partner and financier to support the development of our business proposal idea. We are aiming to attract and engage the multinational corporation Unilever. Unilever is ranked 167th on the Fortune 500 list and is one of the most experienced multinational companies. This corporation owns over 400 brands and sells their products in more than 190 countries. Unilever recognises the damaging affects pollution has on the world and how it is catalysing climate change. With aligned climate action goals, both Unilever and GreenSeace can collaborate to make a change and bring about positive influence on the environment.

Unilever has a goal to half their environmental footprint created in the making and use of their products by 2030. Their main focus is to reduce greenhouse gas, water and waste impacts throughout their supply chain, from sourcing raw materials to their manufacturing and operation processes. We would love to work alongside Unilever to play a part in tackling climate change and reduce the depletion of natural resources. Unilever aims to support multiple UN Sustainable Development Goals by helping consumers recycle more, using less water and energy within the production of their products, and making their manufacturing and distribution more eco-efficient.

By working together there will be benefits to both Unilever and GreenSeace. This product fits and aligns with Unilever's corporate aim of being an environmentally sustainable business. It will also compliment Unilever's existing brands as a new adjacent market. With the focus of this product being in the pharmaceutical market it will also enable Unilever to expand its existing client base.

Unilever will assist GreenSeace with financing this initiative, providing them a platform to develop the product and establish its market. This will be achieved by GreenSeace having access

to Unilever's Intellectual Property and being able to leverage off their marketing knowledge. GreenSeace will also have access to Unilever's established production, distribution and supply chain networks. For GreenSeace, aligning themselves with Unilever, which is a trusted international company will be beneficial in all aspects of introducing this new product.

4.2 TARGET CONSUMERS

The target consumers that we as GreenSeace focus on are manufacturers of pharmaceutical packaging. Our intention is to approach such production companies and reach out to them about the devastating effects plastic pharmaceutical packaging has on our environment today. Big pharmaceutical companies, for example Johnson & Johnson (J&J) or GlaxoSmithKline (GSK) are companies that we aim to reach.

Companies like these are partly responsible for an estimated 30,000 tons of pharmaceutical waste annually. This waste mostly consists of plastic that ends up on landfills or in the ocean with no intention of being recycled. It is left to pollute the earth. Targeting such big firms will have a drastic effect on these sort of numbers, decreasing pharmaceutical waste and thus helping us reducing the plastic soup.

Of course, we as GreenSeace understand that in order to reach such big players in the pharmaceutical world, we will first need to prove the worth of our product by proving it as successful on a smaller scale. Our idea is to reach out to pharmaceutical companies that are one step smaller than previously named firms as J&J and GSK. Bayer for example, the 17th biggest pharmaceutical company globally would be a perfect sized firm to approach.

Our eventual goal is to have our product substitute all other medicinal packaging that contains petroleum-based plastics. Every pharmaceutical company is one that we target, but we are realistic enough to start with smaller firms to prove our worth first. Eventually growing towards bigger players in the Pharmaceutical world.

4.3 ADVERTISING

GreenSeace will utilise shock advertising to illustrate to the public the harsh realities that our consumption is causing. This type of advertising creates huge impact on consumer purchases and brand image, as it deliberately startles its audience by violating norms for social values and personal ideals.



GreenSeace will include photos of polluted beaches, plastic filled oceans, and suffering wildlife. By making consumers aware of the damage they are causing, people will think twice before purchasing unsustainable products. These advertisements will be spread through media platforms such as newspapers, magazines, billboards, and social media sites.



4.4 CURRENT COMPETITORS

Several industry sectors are beginning to look at the utilisation of biodegradable, reusable, and recycled plastic products, including agriculture, food packaging and catering, personal care, and recreation. However, as far as we are aware there are no other services producing biodegradable pharmaceutical packaging. These alternative industries are focusing more on the development of reusable and recycled plastic products rather than biodegradable goods. By recycling plastic, companies can turn an item into raw materials which can be used again.

5. FINANCIALS

5.1 INITIAL INVESTMENT

For the financing of our project, we turned to an investor, Unilever Ventures, a private entity dedicated to projecting a future for small companies and projects seeking capital and financial support. Unilever focuses on seeking eco-friendly innovation, supporting and promoting over 300 brands. For GreenSeace, receiving this support would help us with the start of this project, focusing on packaging of biodegradable and environmentally friendly medical products based on PHB and Ethanol.

The project aims to produce around 50,000 KG (50 tones) of medical plastic packages at the initial stage and increase production as the demand increases overtime. PHB is a compound that generally sustains a production scale of more than 100,000 tons per year, the cost per KG drops from FJD \$11.03 to FJD \$8.36 per Kg. 1kg of PHB can have a cost of only FJD \$4.49 per KG. This means that the production of 50,000 KG of plastic packaging will incur low costs.

Our raw material (sugarcane) comes directly from the production mill. The sugarcane is produced in approximately 1.85 million tons in the region of Fiji including both Vanualevu and Vitilevu, the largest sugarcane producing areas. The Fiji Sugar Corporation has been one of the largest contributor towards Fiji's economy, hence their contribution in producing PBA from sugarcane will be one of the major executions of this project.

Demand is approximately 4 tons of sugar per month, combining 293m cubic of ethanol and 1.5 tons of PHB. 3kg of sugar is needed to produce 1kg of PHB which will be integrated with the waste plastics. Our targeted customer base is pharmaceutical companies based in Fiji and then expanding depending to a larger market.

5.2 FORECASTED SALES & COSTS

In the table that you can find below, we have calculated all the details about our financial operations, our income, costs and profit margins in the following years of our GreenSeace project. Given all these calculations, it can be seen that the use of sugar and ethanol is much cheaper and beneficial for production.

The estimate for our production and our costs versus income will increase in the following years progressively between 10% and 20%, in profits. Despite the initial loss in year 1 (the estimated cost) this might change depending on the start-up and its requirements.

Units	Year 1	Year 2	Year 3	Year 4	Year 5
Medical Plastic Package (\$FJD/Kg)	Retail Price	Retail Price	Retail Price	Retail Price	Retail Price
	\$32.00	\$35.00	\$37.50	\$40.00	\$42.50
Projected Sales					
Medical Plastic Package	Units/kg	Units/kg	Units/kg	Units/kg	Units/kg
	50,000	55,000	70,000	85,000	100,000
Revenue					
Medical Plastic Package Sales	Year 1	Year 2	Year 3	Year 4	Year 5
	\$ 1,600,000.00	\$ 1,925,000.00	\$ 2,625,000.00	\$ 3,400,000.00	\$ 4,250,000.00
Total Revenue	\$ 1,600,000.00	\$ 1,925,000.00	\$ 2,625,000.00	\$ 3,400,000.00	\$ 4,250,000.00
Expenditure					
Administration/Operational	Year 1	Year 2	Year 3	Year 4	Year 5
	\$ 30,000.00	\$ 37,250.00	\$ 47,250.00	\$ 62,250.00	\$ 75,000.00
Utility Bills	\$ 55,080.00	\$ 60,588.00	\$ 77,112.00	\$ 93,636.00	\$ 110,160.00
Marketing/ Advertising	\$ 2,000.00	\$ 2,500.00	\$ 2,750.00	\$ 3,000.00	\$ 3,000.00
Transportation	\$ 1,200.00	\$ 1,500.00	\$ 2,250.00	\$ 2,750.00	\$ 3,000.00
Raw Materials					
Waste Plastic Packages	Nil	Nil	Nil	Nil	Nil
Sugarcane	\$ 1,475,000.00	\$ 1,550,000.00	\$ 1,625,000.00	\$ 1,700,000.00	\$ 1,750,000.00
Labor	\$ 38,400.00	\$ 50,000.00	\$ 57,500.00	\$ 67,000.00	\$ 80,000.00
Total	\$ 1,601,680.00	\$ 1,701,838.00	\$ 1,811,862.00	\$ 1,928,636.00	\$ 2,021,160.00
Net Income	\$ (1,680.00)	\$ 223,162.00	\$ 813,138.00	\$ 1,471,364.00	\$ 2,228,840.00

6. FUTURE OUTLOOK

In the future, we plan to expand the variety of products GreenSeace supplies sustainable packaging to. We intend to expand our production line and begin manufacturing packaging for various products that currently maintain petroleum-based packaging. We will firstly focus on food packaging as this contributes largely to pollution around the world. By working together with food brands and supermarket chains, we will implement our biodegradable packaging. With reduced plastic bottles, bags and wrap being sold, there will be a huge impact on the amount of pollution being created.

Another future goal of GreenSeace is to make our product global. We will emphasise to the world how important sustainable living is and how we can make it easy. By showing the public how simple it is to make a difference, change will occur. These further developments will give GreenSeace a higher chance of achieving our goal. We will positively impact the environment and aid in the reduction of climate change.

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