

Global Enterprise Experience 2013

Team 37 Report



STARCH BAGS

Bagging Sustainability

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Executive Summary

Littering the world, plastic bags block sewer lines, drainage systems and water distribution pipes, provide breeding grounds for diseases such as malaria and dengue fever in developing countries. India is reportedly the worst affected country of plastic bag waste and therefore must urgently address this issue by finding an effective alternative. StarchBags aims to provide a biodegradable alternative to plastic bags that utilizes potatoes to create a substitute for harmful plastic. StarchBags will establish a production plant in the state of Uttar Pradesh, recruiting and training 100 local people to produce biodegradable bags. These local workers will be paid in both wages and shares for company performance, eventually leading to worker ownership. The bags will then be marketed and sold in Delhi, a city in high demand for an alternative to plastic bags. StarchBags is expected to make a profit of US\$67,623 with 40% community ownership within three years.

Problem

Plastic bag waste has become an increasingly detrimental problem in third world countries. Made from high-density polyethylene, plastic bags are durable, and waterproof, making them a dangerous threat to not only the environment but to the health of mankind. Littering the world, plastic bags block sewer lines, drainage systems and water distribution pipes, providing breeding grounds for diseases such as malaria and dengue fever in developing countries.



As one of the biggest plastics consumers in the world, India is reportedly the worst affected country of plastic bag waste (Gits, 2013). The situation is so bad that two Supreme Court justices have declared India's plastic bags as a more serious threat to future generations than is posed by nuclear weapons. To protect both their people and environment, India must urgently address plastic bag waste by finding an effective alternative; biodegradable bags. The substitution of biodegradable bags will not only solve the abundant problems caused by plastic bags, it will also work towards preserving the environment and ensuring sustainability for future generations.

Business Concept

The extent, in which plastic bags are damaging the environment around the world, raised the idea of making StarchBags: biodegradable bags made from potato starch.



StarchBags aims to provide a biodegradable alternative to plastic bags that utilizes potatoes to create a substitute for harmful plastic. Its focus will initially be on India, the largest consumers of plastic bags. The farming state of Uttar Pradesh is the largest producer of potato in India with a 34.05% share, making it a suitable market for the production of biodegradable bags. StarchBags initial target market will be India's capital, Delhi, who generates 574 metric tonnes of plastic waste each day. StarchBags aim is to not only to provide jobs for Uttar Pradesh, India's poorest city, but empower this community to foster sustainable practices and therefore protect their environment for future generations.

The Product:

In order to make these biodegradable bags, first the starch must be extracted from the potato by blending the potato down into a pulp and then strained, leaving a thick lumpy mixture. Once strained, vinegar, vegetable glycerine and water are added and brought to the boil. The last step is to pour the gooey substance out onto a sheet of aluminium foil and placing it in an oven at 150 degrees to set for two hours. A key feature of these biodegradable bags is that the potato starch plastic is thermally expandable for a month after production. That is, it can stretch and immediately regain its form. During that month, the material will be reusable and won't be necessary to recycle or dispose of, avoiding additional costs.



Goal/Objectives

- Provide an alternative bag that will not have the same grave effects plastic bags do.
- Primarily work towards solving the problem of environmental pollution caused by plastic bags, currently threatening the environment and those living within it, encouraging sustainable practices.
- Provide employment opportunities to communities in need, empowering them and giving them the ownership of preserving their environment for future generations.
- Reduce the amount of plastic bag use in Delhi by 8% within 3 years.

Value Proposition

The following three aspects explain the value biodegradable bags will bring to India.

Social Value: StarchBags will provide Uttar Pradesh with a sense of ownership. Instead of asking for donations, Uttar Pradesh will be able to earn themselves shares in the company, leading to community ownership and as a community will be able to slowly work themselves out of poverty with a product that preserves their environment for future generations.

Environmental Value: The introduction of biodegradable bags will drastically improve India's abundant pollution problems caused by plastic bags. It help prevent the spread of disease and preserve the environment and ensuring sustainability for future generations.

Economic Value: The employment of local people, StarchBags will provide a source of income to the people of Uttar Pradesh, which will therefore raise their standard of living. Paying local workers in both wages and shares for company performance will lead to worker ownership and empower the community of Uttar Pradesh, increasing their Gross National Income.

Market Analysis

Demand for Biodegradable Bags

Millions of plastic bags are still widely used in Delhi every week (PTI, 2013). Delhi Government has declared the need to steer the people of Delhi away from plastic bag consumption. (BBC News, 2012) A recent study by the South Asian Network for Development (SANDEE, 2013) concludes a blanket ban may not be the best possible solution to the plastic bag issue as there is a need for bags or something similar to bring goods back and forth. The core problem is everyone needs a bag to carry things, therefore increasing the need for something biodegradable and environmentally friendly that could largely replace plastic bag and apply in daily use. This

possesses an opportunity for StarchBags, as there is evidently consumer demand for a carry bag that will not harm the environment.

Target Market

Delhi is the capital of India, and is the centre of commercial industries. Delhi generates 583 metric tonnes of plastic waste annually, generated mainly by plastic bags, despite a ban on their use by the city government in 2009. Approximately 400 plastic bag manufacturing units are still operating in the city (IANS, 202). It is clear that there is an ever growing need to address the main source of harmful plastic waste; plastic bags. Evidently previous solutions, through a government enforced ban on plastic bags, has proved to be unsuccessful as it ignores how and why consumers use plastic shopping bags in their daily lives. This therefore presents a vast consumer demand in Delhi for an alternative to plastic bags, StarchBags has just that. StarchBags must also recognise the importance in targeting the immense amounts of companies that supply plastic bags on a daily basis. They must target local shopkeepers, vendors, wholesalers, and retailers, encouraging them to stop the sale, storage and use of plastic bags, rather using biodegradable bags as an alternative carry bag for supply the of any goods.



Competitors

Reusable Bags are StarchBag's largest competitors, as they too are an alternative to plastic bags. They are made from fabric such as canvas that is more durable than disposable plastic bags, allowing multiple uses. Although they are more durable than StarchBags, they however are not biodegradable and therefore will not directly address the issue of harmful plastic waste, StarchBags will, rather just contribute to India's landfills.

Impact of Biodegradable Bags in India

Sustainability is important as the choices we pursue and actions that we make today will affect future generations. The world needs to make sound decisions at present, in order to avoid limiting the choices of generations to come. Biodegradable bags create the basis for an environmentally sustainable alternative to current plastic bags, as with the presence of oxygen; they break down into molecules such as carbon dioxide, water and methane, as opposed to plastic bags that do not decompose at all. The impact of biodegradable bags will support the sustainability of India by not only preventing the blockage of drainage systems but more importantly, hindering breeding grounds for fatal diseases.

The implementation of biodegradable bags will further educate the people of India and its future generations. They will learn the importance of using environmentally sustainable products in order to preserve their environment for current and future generations to develop and flourish in a prosperous environment.

Future Orientation

After the successful adoption of biodegradable bags in Delhi, our future plans involve expanding the sale of StarchBags into other majorly effected countries. These future expansion plans for StarchBags will be gradual to ensure maximum adoption. StarchBags will first expand the business model into other large cities in India like Mumbai and Bangalore, as they have a high per capita usage of plastic bags. Its success in India will give the reassurance for it to be further produced in countries like Thailand, Indonesia and Ethiopia. India will therefore lead the world in

preserving the environment and creating a sustainable future, through biodegradable bags. An increasing consumer demand for sustainable products sees an opportunity to use the same starch method for not just plastic bags but other plastic goods in the future. These may include food packaging and plastic bottles in their future operations to further build a sustainable world.

Risk/Barriers

The biggest challenges this project will face include the following:

- To convince the people of Uttar Pradesh to agree to work. In order to build a good relationship, we will need to develop a sound understanding of their culture, through ensuring Uttar Pradesh's cultural norms are incorporated into the workplace, such as allowing time to celebrate religious festivals.
- The problem facing the acceptance of biodegradable bags will be the price. If the bags cost more than traditional plastic bags it will not achieve the objective and therefore will not be widely adopted

Business Strategy

Overall Strategy

The overall business strategy is to establish a production plant for biodegradable bags in the state of Uttar Pradesh, the largest producers of potatoes in India. The aim is to recruit and train 100 local people to produce biodegradable bags. These local workers will be paid in both wages and shares for company performance, eventually leading to worker ownership. This will empower the state of Uttar Pradesh as they will be given the resources to protect the future of India's environment and people. The bags will then be marketed and sold in Delhi, a city in high demand for an alternative to plastic bags, ensuring a viable market.

Marketing

The marketing of StarchBags will be a combination of push and pull strategies. A "push" promotional strategy makes use of a company's trade promotion activities to create consumer demand for a product. This will be done through:

- Education around the impact plastic bags has on India's wider environment, targeting wholesalers and retailers through localised seminars and events. They will therefore go on to promote the use of biodegradable bags throughout their operations.
- Create incentive schemes for retailers and wholesalers that make replacing plastic bags with biodegradable bags, worth their while.

A "pull" strategy is one that requires advertising and consumer promotion to build up consumer demand for a product. This will be done through:

- Raising the awareness of the environmental damage plastic bags are causing, by exposing the consequences on India's environment, especially the effect it has on their cows, as they are the most sacred animal in the Hinduism religion. Focusing advertising on the danger to sacred cows will motivate consumers to demand biodegradable bags.
- Create 'Clean up days', in which the community is encouraged to clean up plastic waste in their area by collecting the plastic bags in the streets. They will be able to exchange the plastic bags they collect for biodegradable bags.

Partnerships and Alliances.

To further help the promotion of StarchBags, partnerships and alliances with governmental and non-governmental organizations will be beneficial.

The Indian Government would be the foremost alliance in which StarchBags would seek, especially that of the health department of the New Delhi Municipal Council. Through their campaigns against plastic bags they would be able to recommend our product as a friendly alternative for the environment. Also partnerships with National Government Organisations, who are dedicated to fighting against the use of plastic bags such as UNICEF and ManavUtthanManch, would be beneficial for both parties as, whilst promoting StarchBags products, they will be encouraging sustainable behaviour, working towards diminishing plastic bag use.

Financial Analysis

The following financial analysis shows the projected profitability of StarchBags. The figures are based on the following assumptions:

- Currently in Delhi, 370,000 plastic carry bags are sold each day (World Resource, 2008). StarchBags will aim to replace 3% of these plastic bags sales with biodegradable bags in the first year. This percentage is expected to increase by a further 5% for the second year and 8% in the third year. This will be a result of increased awareness for the product coupled with intensive education around the issue.
- Factory Lease will be based on local lease rates (\$US) in Uttar Pradesh
- With Uttar Pradesh's annual per capita income of just US\$521 StarchBags will look to pay their workers double the average income to generate an incentive for local workers.
- Machinery will cost \$39,000 in the initial set up of the factory with it increasing by a further \$3,000 per 10,000 units
- Revenue will be US\$0.50 per unit sold

Table 1: Estimated costs for three year time frame

Cost	Year 1	Year 2	Year 3
Raw Materials (\$0.20 per unit)	80,880	134,800	215,680
Distribution Cost (\$0.05 per unit)	20,220	33,700	53,920
Factory Lease	31,200	312,00	312,00
Operating Costs	120,000	190,000	250,000
Machinery	39,000	45,000	57,000
Capital Expenditure	100,000	0	0
Payroll	104,200	122,956	133,376
Total Expenses	495,300	557,656	731,176

Table 2: Estimated profitability for over first three years

	Year 1	Year 2	Year 3
Revenue	303,330	505500	808800
Expenses	495,300	557,656	731,176
Profit (Loss)	(\$191,970)	(\$52,156)	\$67,624
Community Shares	15%	25%	40%

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