2015 Global Enterprise Experience - Team 67

Clean Valley Organics

"Households in Nepal occupy 66% of the overall waste"

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CONTENTS

Executive Summary

"A survey conducted in 2012 found that the average [Nepalese] municipal solid waste generation was 317 grams per capita per day (ADB, 2013). Approximately 70% of this is organic waste, which could be composted instead of just thrown away on the sidewalks and into landfills" (United Nations, 2011).

Of the 500 tonnes of solid waste generated and collected in the Kathmandu valley everyday, 66 per cent is biodegradable.

Our business proposes a venture that addresses poor waste management widespread across Nepal specifically in the Kathmandu valley while simultaneously addressing the demand for quality organic fertiliser. The objective of our business venture is to produce high quality fertilizer out of a local abundant resource - organic waste from households. The fertilizer will be purchased by private farmers based in Kathmandu and its surrounding region to use on their crops and land. Our venture will cost requires $10,000 of seed capital and roughly 6 months of time to get production up to full scale.

Problem Statement

The population of Kathmandu Valley in Nepal is significantly increasing from the approximated 2.5 million inhabitants in 2011. This rapid and unforeseeable urbanization has made the capital city of Kathmandu vulnerable to incredibly poor waste management.

This waste, made up largely from household garbage, sits on roadsides, city rivers, in the open space, and in fields. Unlike many developed nations, where there are a multitude of systems in place to manage this waste, in Nepal, it is left to rot, emitting foul odours and posing significant health hazards to the city residents.

The issue of proper waste management became even more relevant with the recent earthquakes that occurred in Nepal on 25th April and 12th of May, 2015 killing more than 8,000 people and leaving many more injured and homeless. As a result of this tragedy, people living in below average conditions are at severe risk from these waste hazards, such as the risk for an epidemic.

While there are many factors that contribute to this issue, there is a fundamental lack of understanding amongst the local residents about proper waste management (Ghimire, H., 2008). Composting increases the efficiency of waste sortment and treatment. Other added benefits include reduction in the amount of methane that gets released into the atmosphere from landfills, and reduction in the risk for Dengue Fever.

This compost could be utilised for more than just efficient waste treatment. Nepal is mostly an agrarian society. The annual demand for fertilizers is usually in the range of 700,000-800,000 metric tonnes (MT).

The Food Security Atlas of Nepal stated that an estimate of ⅔ of paddy farmers in Nepal use fertiliser, and another ⅓ of wheat farmers also use fertilizer. Yet, there is growing concern over the lack of access to quality fertiliser. As well as the forced use of dangerous cheap chemical fertiliser alternatives.

This often leads to private sector companies importing and selling fertilizers that are often lower quality, but are sold at higher prices. Increased population and demand for food compels Nepalese farmers to use imported fertilizers regardless, without caring about the sustainability of agricultural productivity which depletes the nutrients from soil and decreases productivity of soil.

Growing awareness amongst farmers in regards to both the ecological and economical value of organic fertilizers has increased significantly. Despite these challenges, fertiliser usage has experienced a gradual increase in demand in recent decades, with the usage rising about 10% annually in most recent years.

Business Model

Our venture is based on a "win-win" idea, aiming to improve the quality of life for both Kathmandu farmers and the urban population. It proposes a solution for the management and upgrading of the urban organic waste treatment while also developing agribusiness in the Kathmandu region and allowing farmers to produce crops with an enriched compost, fertilizer mix, adding value to their produce.

Our venture ultimately aims to effectively ingrain the methods of composting for waste management across the entire nation. By doing so we will significantly cut down the economical, environmental, and societal costs associated with landfills, and other non-sustainable methods of waste management.

The local Nepalese citizens will be incentivized to collect their organic waste via composting with a voucher for discounted food from the private farmers we will provide our fertiliser to. We will also sell our organic fertilizer direct to consumers, ie. local farmers who want less expensive alternatives to chemical fertilizer.

Value Creation

Organic compost is considered a better fertiliser because unlike chemical fertilisers, which lead to a gradual decline in soil quality, compost maintains the fertility of the soil, prevents diseases and is not a hazard to health. It can be used in gardens, landscaping, horticulture, and agriculture.

Our venture acts according to three principles of corporate social responsibility:

- **Economical**: Clean Valley Organics will generate value from waste, and improve our farmer's profits. The materials used for building and running the plant are bought locally, and the products are sold to farmers in Kathmandu valley. Furthermore, local households will benefit from discounted food vouchers thus having access to organic produce from the farmers.
- **Social:** Clean Valley Organics provides safe working conditions and improves sanitary conditions in Kathmandu removing waste from streets. We will provide cheaper alternatives to chemical fertilizers thus encouraging farmers to save on their expenses.
- **Environmental:** Clean Valley Organics prevents anaerobic degradation which leads to methane emissions and prevents organic pollution of rivers and streets. We will demonstrate how recycling is sustainable and contribute to develop recycling culture in Nepal.

Management

One of the key elements in ensuring that a business venture is 'investment ready' is to establish a firm understanding of who will manage the company. Our business venture will employ two different methods of employment to recruit local managers and employees.

We will hire Nepal recruitment services, Landmark HR Consultancy, Manpower Agency and Gulf Overseas Consultant, which are government approved entities, to promote our job vacancies. These organisations will act as middlemen between us, and our potential employees. The agency will only recommend candidates that are applicable and adoptable to our business venture. This will save our business time, money and resources.

Our 10 initial employees will earn an average Nepalese salary of $85 USD, or 8,500 Nepalese rupee per month. This wage is well above the poverty line.

We will also allocate a spokesperson from higher management to talk in various locations around a given community, giving locals an insight into job requirements, policies, information and benefits we will provide for their life and their community.

The Process

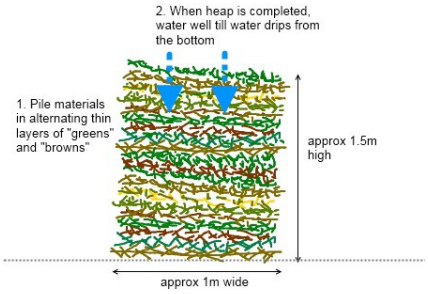
Processing

Clean Valley Organics uses a "hot-composting" method. This is a highly efficient method of composting that significantly decreases the production time necessary for the compost to fully mature into readily usable fertiliser. On average the "hot-composting" method usually requires around 18 days to create a viable fertiliser.

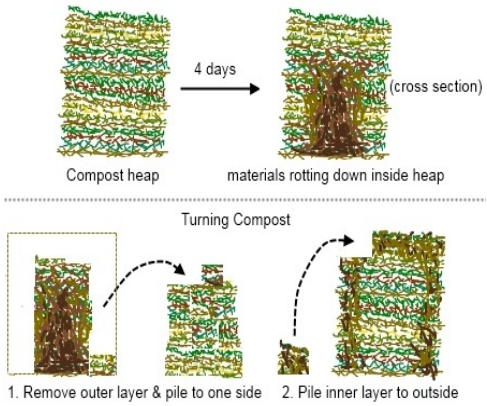
Virtually anything that was once living can be hot composted. This allows us to have a much wider variety of items that can be included in the compost pile. Even something as useless as roadkill could be included

using this method, it would just have to be placed very near the center of the compost pile in order to break down effectively. Using hot composting there is never a trace of original materials in the finished product which resembles a fine potting soil/hummus texture when finished.

Day 1:
The first day of operations requires our staff to collect the organic waste from the households in our target market. An average Kathmandu inhabitant produces 317 grams of waste per day. Our company will collect organic waste from 1,000 households daily by rotating neighbourhoods on each weekday. Which equals around 7 tons of organic waste per day, as the average household in our target market consists of 4.4 people.



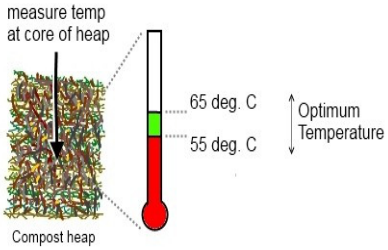
Day 4: The compost pile must be turned from outside to inside by hand-raking the mound.



Day 6 & 8: The pile will have reached its maximum temperature of roughly 55-65 degrees celsius. To measure this we will provide our workers with simple cooking thermometers. It will take continued effort of the team to constantly monitor the temperature and move the compost pile as needed.

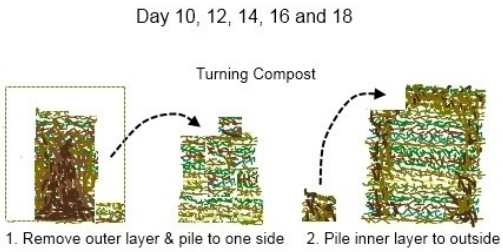
Days 6-18: At this point all that is needed to be done is for the managers to continuously move the compost around every 2nd day.

Day 18: A good way to determine whether or not the compost is ready for packaging, and has finished the maturation process is whether or not it is full of earth worms, eating away at the fresh nutrients.



Packaging/Distribution

At this stage of operations we will begin packaging our finished fertiliser using the same hamri bahini bags that were used in the organic waste collection process earlier on in the operations flow. It will then be sold to local farmers from Khokana, Lamatar and nurseries in the surrounding area. These areas comprise of families that are mostly dependent on agriculture, with a high need for quality fertiliser. Our compost will be delivered to farmers using our 2 distribution trucks.

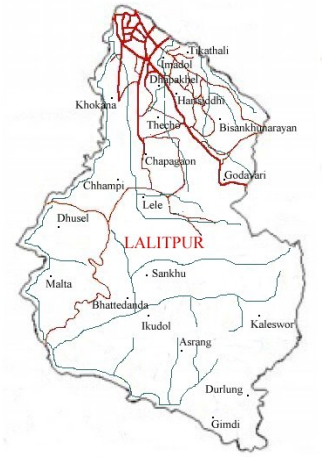


Pilot Region

For the pilot study, we will first establish alliance with 1,200 households from Mangalbazaar (Ward no. 18 of Lalitpur sub-metropolitan city). Given that tourism has continued to grow as a significant portion of the Nepalese economy, it is important to focus our efforts on improving the appearance of highly visited areas of the country, such as Mangalbazaar.The Lalitpur district alone generates around 75 tons of solid waste on a daily basis, 70% being organic. Households in Terai municipalities generate nearly 80% more waste than those in mountain region municipalities. (ADB, 2013)

Market Analysis

There has been a growing trend among Nepalese for organic products. An increase in purchasing power, education and awareness about the health and quality of organic foods has increased the demand for organically cultivated vegetables in urban areas.



Our sales will be driven by our local consumer demand, which is currently 12,000 tonnes of fertilizer per annum. The estimated demand for compost is predicted to increase to 20,000 tonnes per annum. The sales potential is enormous as demand increases; we could for example increase the price from 7 NRs/kg, which Nepalese people are currently paying, to a higher amount, i.e. 10 NRs/kg.

Target Market

Compared to institutional and commercial organic waste, **households occupy 66% of the overall waste**. Households in the Lalitpur district are our target market because they are responsible for the highest percentage of organic waste material in the nation.

We first plan to target agricultural districts in the Terai like Jhapa, Sunsari, Saptari, Morang because agricultural outputs are the highest in these districts (CBS Nepal, 2011). Starting from the east, we will then expand to other Terai districts. The Terai region is the most productive region of Nepal in terms of agricultural as well as industrial outputs. Making up about 50.3% of total population, Terai contributes about 47% of the total agricultural GDP of Nepal. The farmers in these areas also have significant demand for a low-priced organic soil fertilizer. Farmers are the largest body that will be able to easily and successfully use our natural fertilizer to ensure agricultural success.

Marketing Strategy

Our venture will focus our marketing efforts on radio advertising. Radio advertising is a low cost advertising medium that will be able to reach most households in Kathmandu. Many radio stations in Nepal will offer a 30-second advert for around 5 cents, or less than a cup of spiced Nepalese tea in a rural tea shop.

We will also utilise door-to-door marketing tactics to **I)** further introduce organic composting within households, **II)** increase farmers awareness of our natural fertilizer product. In order for this to be a successful marketing strategy, an employee will go around different areas in Kathmandu and explain, demonstrate and promote organic waste management.

Lastly, we will provide physical vouchers, in the form of circular bamboo tokens featuring our company name on them. These vouchers will be allocated to households in return for their organic compost waste. These vouchers entitle households to 25% discounted produce from participating farmers. This advertising strategy benefits both households and farmers. Households will reduce the amount of money spent on food and farmers will have in increase in sales; we act as the intermediary between the two parties.

Partnerships

Our first major partner is the Himalayan Bio-organic Agriculture Center- Nepal (HIMBOAC), which works for the benefit of farmers, consumers and the environment at large through promotion of rural development, and both the education of and training for farmers on organic and bio-dynamic farming. By being involved in the training programs provided by the organization, we can educate farmers about how our product will be a cheaper and more beneficial alternative to expensive and harmful chemical fertilizers. We do this by listing out negative aspects of chemical fertilizers such as soil acidification, infertility, pest-resistance, price, etc.

Hamri Bahini-The Green Angels, is a social enterprise initiative of Himalayan Climate Initiative, Nepal. Hamri Bahini Biodegradable Green Shopping Bags manufacture biodegradable bags at subsidized rates, also helping disadvantaged young Nepali women by providing them jobs. We will use Hamri Bahini bags to package our finished compost fertilizer, thus paying close attention to our core value of decreasing the amount of non-degradable waste in the Nepalese community.

SWOT Analysis

Strengths ● Environment friendly (sustainable management of solid waste in the city). Reducing pollution and unhealthy toxins in the air ● Cost effective as the operating cost is low. ● High quality organic fertilizers. ● Availability and access to local labor. ● Providing economic opportunity to community ● Helping families afford fresh produce ● Reducing organic waste	**Weakness** ● Purchasing costs of composting buckets and is ● Lack of managerial experience and expertise to run business venture ● Lack of interest and motivation from Nepalese people ● Competitor offering similar or better benefits for households ● Little public awareness of risky and detrimental issues surrounding organic waste management
Opportunities ● Increasing demand for organic fertilizers as farmers struggle with fertilizer scarcity.(Kathmandu, Bhaktapur and Lalitpur have an annual compost application potential of 1,585,950 tons) ● Governmental support toward environmental and agricultural ventures. (Government has taken initiation to mobilize private companies in the field of solid waste management, especially for the establishment of compost plant (Timilsina, 2001)	**Threats** ● Smuggling of chemical fertilizers from the border between India and Nepal where there are no check posts. ● Farmer's preferences to chemical fertilizers over organic fertilizers for quick and increased production. ● Continued political instability. ● Already established firms like Agro-Health BioTech Pvt Ltd.'s Bio-Mal, Biocomp exploiting the market need. ● Poor integration with the agricultural community ● Government subsidies for chemical fertiliser companies

Financial Analysis

We will finance our business with seed capital via a loan from local Nepalese banks. In order to fully cover expenses that will occur in the first financial year of the company we will borrow $5,000 with an interest rate of 5%. We also plan to seek another $5,000 in venture capital support from NGO's and American small business accelerator networks such as the Unreasonable Institute. We plan to complete repay our loan principal and interest off after the first year of operations.

From this amount of waste, our company will produce 3.5 tons of compost per day, which could be sold to local farmers at an extremely competitive price relative to chemical fertiliser of **$50 per ton**. The projected yearly revenue of our company to be starting at $52,500 and then scaling each year.

Our equipment will include:

- 30 rickshaws for waste collection
- 2 trucks for distribution
- Materials for compost processing, rakes, tarps, shovels

We based our decision to use rickshaws, not cars in order to avoid pollution and also to employ more people and thus enhance social benefit.

Balance Sheet	Description	Equity				
Assets		Year 1	Year 2	Year 3	Year 4	Year 5
Cash (Loan)		$10,000	$31,751	$88,476	$145,976	$283,476
Operating Overhead	rickshaws, trucks, processing equipment	$6,000	$6,000	$6,000	$6,000	$6,000
Labor	human capital	$10,024	$10,024	$10,024	$10,024	$10,024
Land	land for compost production	$30,000	$30,000	$30,000	$30,000	$30,000
Net Present Value		$56,024	$77,875	134,500	$192,000	$329,500
Projected Income Statement		Year 1	Year 2	Year 3	Year 4	Year 5
Sales (units) metric tons	3.5 tons of compost/day, $50 USD/ton	1,050 units	1,050 units	2,100 units	3,250 units	6,000 units
Cost of Goods Sold		$52,500	$52,500	$105,000	$162,500	$300,000
Marketing Expense	cost of running adverts on radio	$500	$500	$500	$500	$500
Expenses	labor, land, overhead (accounts for depreciation/repairs)	$46,024	$16,024	$16,024	$16,024	$16,024
Loan Repayment	calculates interest annually	$10,500	$4,225	0	0	0
Net Income		-$4,524	$31,751	$88,476	$145,976	$283,476

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