

Solid Waste Management with maximum efficiency

J Component - Project Report

MGT1022

Lean Startup Management

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TABLE OF CONTENTS

1. Abstract	03
2. Introduction.....	05
3. Factors which motivates you to start the business	07
4. Name, logo and tagline of the company.....	08
5. Details about the product/service details.....	09
6. CAD model of the product.....	11
7. Business type and location.....	13
8. Hierarchy and organisation structure.....	15
9. Targeted customers.....	17
10. Strategies for attracting customers.....	19
11. Operating plan.....	21
12. Financial planning and break even analysis.....	24
13. Future Scope.....	27
14s.	
References.....	29

1. ABSTRACT

India's rapid urbanization caused the country in facing a massive waste management challenge. About 377 million urban people residing in 7935 towns and cities generate 62 million tonnes of municipal solid waste per annum out of which only 43 million tonnes (MT) of the waste is collected, of which 11.9 MT is treated and the rest 31 MT is dumped in landfill sites. Marine litter (marine waste, garbage or debris), is every type of man-made solid waste which deliberately or accidentally pollutes rivers, lakes, seas and coastlines.

Marine litter is found in all the world's oceans and seas, even in remote areas. Marine solid waste can float on the sea surface or sink on the seafloor and some can be washed on sea coastlines (beach-litter). Marine litter can spread very easily to the coastline as a result of marine transport, tourism and uncontrolled discharge of municipal waste in illegal landfills. Marine litter has become a serious pollution problem in all regional seas, including the Mediterranean Sea and coastal waters and shores. The increasing use of plastic materials in the last decades, replacing wood, metal and leather, and their low biodegradability, has influenced substantially the spread of marine litter. Waterborne plastic waste poses a serious threat to marine biota. Seabirds, fish, marine reptiles and mammals can be damaged or killed by plastic debris, as well as plastic nets and fishing items. Ocean dumping, accidental container spillages, municipal litter washed into storm drains and wind-blown solid waste (paper, plastic, etc) from urban areas and waste landfills contribute to the marine litter. The continuous growth, in the amount of solid waste thrown away, and the slow rate of its degradation in water, are leading to a gradual increase in marine litter found at sea, on the sea floor and coastal shores. It is very difficult to estimate the amount and type of marine litter.

Though Solid Waste Management (SWM) is a basic service provided by the municipal authorities to keep the urban centers clean, almost all of them deposit solid waste at the dump-yards within or outside the city haphazardly. These effects being prolonged can create unsanitary conditions, and these conditions in turn can lead to pollution of the environment and to outbreaks of vector-borne disease—that is, diseases spread by rodents and insects. The tasks of solid-waste management present complex technical challenges. They also pose a wide variety of administrative, economic, and social problems that must be managed

and solved. Some preliminary studies estimate that over more than 7 million tonnes of marine litter reach all oceans and regional seas each year. Marine litter is an economic, environmental, human health and aesthetic problem posing a complex and multi-dimensional challenge to authorities and environmental groups. The greatest sources of marine litter are land-based activities, including: wastes released from dumpsites near the coast or river banks; the littering of beaches; tourism and recreational use of the coasts; fishing industry activities; and ship- breaking yards. Studies have shown that 80% of marine debris is plastic items. Plastic litter accumulate in the seas because of its slow biodegradability.

Creating a start-up with a very organized manner of every collecting every solid waste and processing everything possible with proper business formulae without causing much environmental effects would be an emerging trend in the country's progression. Moreover, this start-up would definitely make India's garbage into a profitable business.

2. INTRODUCTION

Ocean waste is a global problem with long-lasting and serious impacts on human health and living marine resources. Several attempts have been made to identify the sources of ocean waste at particular locations and to highlight solutions. In 2009, scientists from South Africa, the United States and the Netherlands collaborated on a study monitoring the abundance and spatial distribution of ocean waste through beach surveys of stranded plastics and other litter, at-sea sampling of ocean waste, and studies of seabirds and other marine organisms that accumulate plastics in their stomach.

Table 1: Most Common Debris Items. Source: Ocean Conservancy 2010.

Rank	Debris Item	Number
1	Cigarette/Cigarette filter	2,189,252
2	Bags (plastic)	1,126,774
3	Food wrappers / containers	943,233
4	Caps, lids	912,246
5	Plastic bottles	883,737
6	Cups, plates, forks, knives, spoons	512,517
7	Glass bottles	459,531
8	Beverage cans	457,631
9	Straws, stirrers	412,940
10	Paper bags	331,476
Top 10 debris items		8,229,332

The reasons for this pollution are the discharge of substantial amount of industrial effluents in the river, domestic wastes and other activities. The floating bodies on the river water will cause a severe problem to the environment and is a big risk to the future. These floating bodies do not dissolve easily in water. So these unwanted suspended objects will cut off the oxygen exchange between atmosphere and water, hence by the deficiency of oxygen in water, it directly affects the marine life. Also consuming these wastes will affect marine life. These floating bodies are responsible for carrying the harmful pathogens from one area to another area, by creating the pathogenic colonies causing the problems like Diarrhoea, cholera and other health diseases. So above criteria are responsible for unbalancing the ecological conditions of the nature. Hence in order to overcome these problems, our project aims at detecting floating wastes and cleaning them in an efficient way using infrared sensor. Plastic pollution involves the accumulation of plastic products in the environment that adversely affects wildlife, wildlife habitat and humans [4]. Living organisms, particularly marine animals, can also be affected through entanglement, direct ingestion of plastic waste, or through exposure to chemicals within plastics that cause interruptions in biological functions. Humans are also affected by plastic pollution, such as through the disruption of the thyroid hormone axis or hormone levels. We know that pollution is a human problem because it is a relatively recent development in the planet's history before the 19th century. As industrialization has spread around the globe, so the problem of pollution has spread with it.



3. FACTORS WHICH MOTIVATES YOU TO START THE BUSINESS

- The tasks of solid-waste management present complex technical challenges. They also pose a wide variety of administrative, economic, and social problems that must be managed and solved.
- It would make India's garbage into a profitable business.
- It is a very economically sound development strategy.
- Various health issues can be solved by creating a healthy environment.
- More organized waste disposal education to be provided to the citizens and brought into implementation.
- Creation of an eco-friendly environment.
- Creation of clean and hygienic environment since there would be not much dump yards to affect the surrounding area.
- Reduces all types of ocean waste.
- This practice is highly lucrative.
- Creates employment.
- Relatively easier way of disposing all types of wastes.

4. NAME, LOGO AND TAGLINE OF THE COMPANY



WASTRIX

WE WORK FOR EARTH

5. DETAILS ABOUT THE PRODUCT/SERVICE DETAILS :

Concept of our Product :

- Here we are with a design of a human piloted device which sails over the water body where it is deployed.
- WASTRIX can clean up all type of floating junk by swallowing it into itself.
- It does not need any kind of pump to suck in the waste, because the device runs in contrary direction to the water flow, using proper devices we are working upon.
- For cleaning up the oil spills in the water body where it is deployed , we will be introducing skimmers or absorbents, whichever will be efficient and economic(Absorbents - which would not be affected by water flow).

Working of our Product :

- WASTRIX is a light weighted vehicle that consists of a storage tray with a high volumetric capacity to store junk collected from the water bodies.
- Basically it is a device that sails on the water body opposite to the water flow, thereby eliminating the use of vacuum pump for the collection of junk.
- The device will be power by solar powered batteries and in case of turbulent flow, lithium powered batteries will be used.
- We will be introducing a skimmer to the device in order to clean up the oil spills.
- The alternative to skimmers on our device are the absorbents layer that will absorb the oil from water.
- After the storage tray gets filed completely, it will be called to the shore in order to dispose the collected waste and prepare it for the next trip.

Design Specifications :

1. Mouth of The Device

- Trapezoidal Opening helps in covering wider area.

2. Flapper

- A Flapper will be introduced to prevent the garbage from flowing back into the water

body. 3. Sheet Metal Body

- Lightweight aluminum body making it cost effective .

4. Equipped With Dual Battery Backup

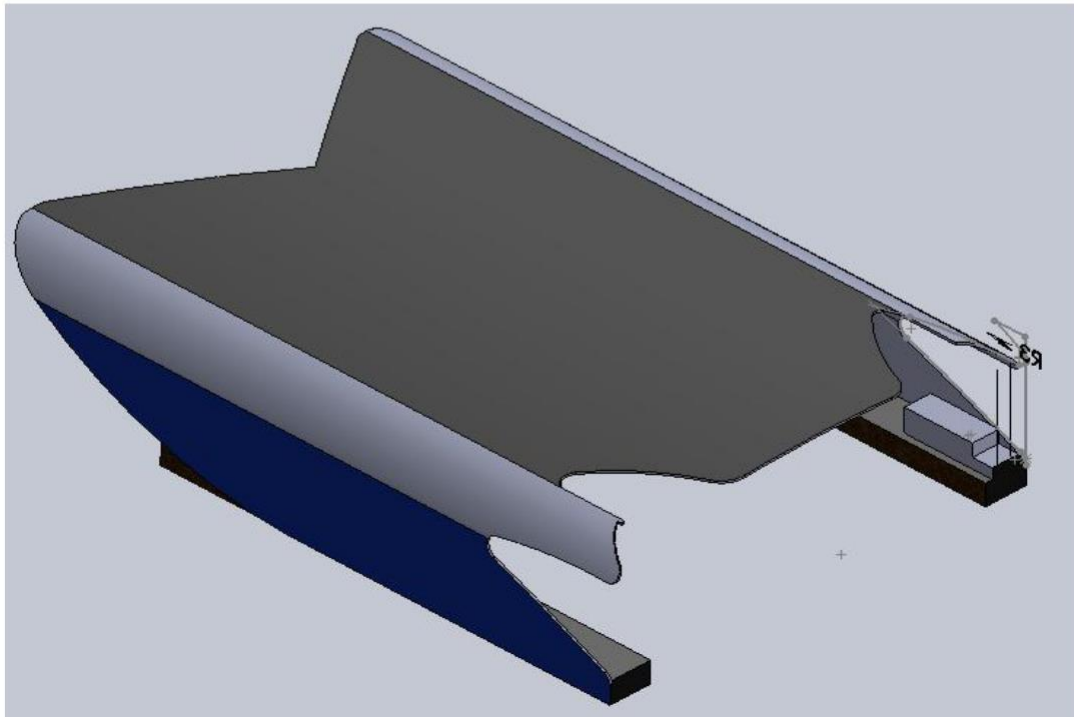
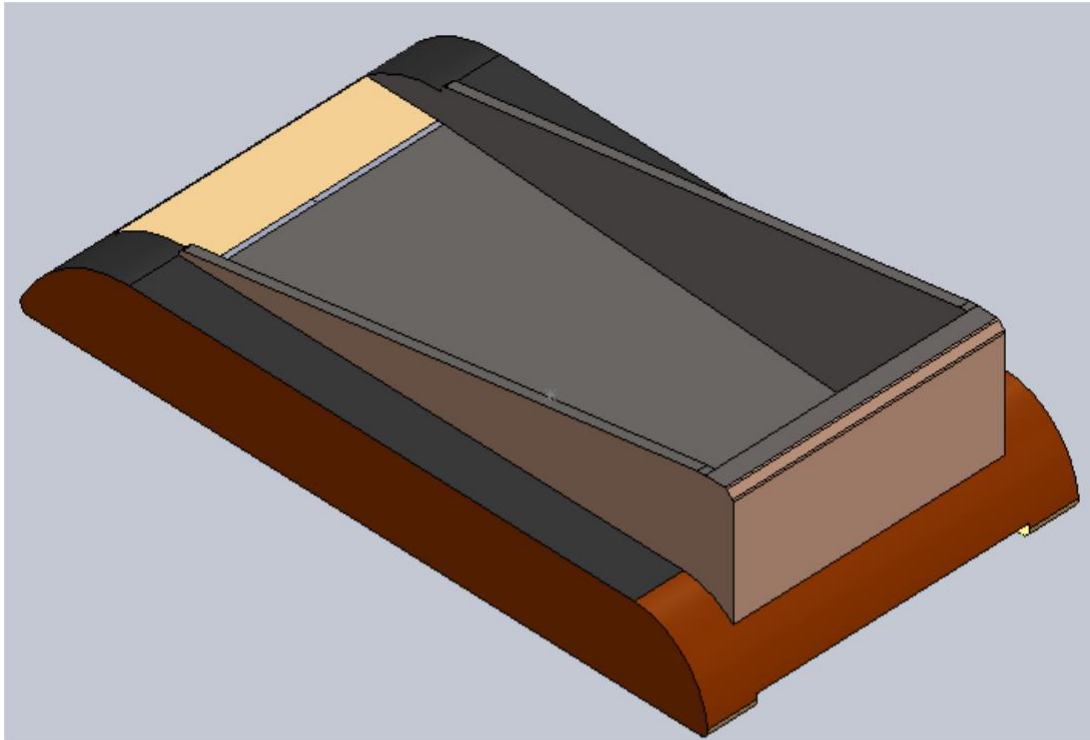
- Solar Powered Batteries can be used when the flow is laminar and steady and lithium metal air batteries when flow is turbulent. • Lithium metal-air batteries are also very lightweight

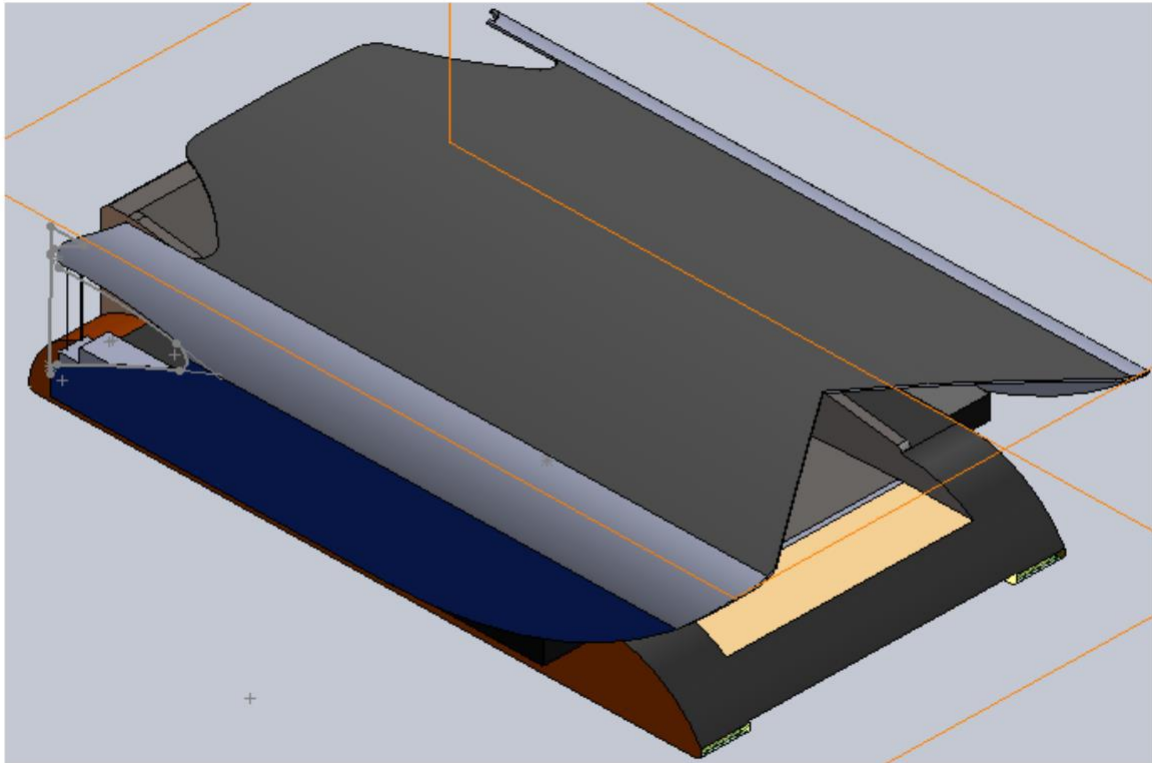
Details :

- Our product is better than existing products that work on the concept of cleaning water because there is no such device yet introduced that can collectively clean both solid wastes along with oil spillages.
- This product can also be industrialized for mass production, because of its simple design and operation.
- Also, the product can be scaled into various sizes depending upon the requirement which makes it unique and easily transportable.
- It can be deployed, serviced and maintained manually without any mechanical assistance.
- Sheet metal design and aluminium body makes it light in weight, durable and cost effective.

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6. CAD MODEL OF THE PRODUCT





7. BUSINESS TYPE AND LOCATION

A business entity is an organization that uses economic resources or inputs to provide goods or services to customers in exchange for money or other goods and services. This type of business will be a kind of Limited Liability Company (LLC). A hybrid form of partnership, the limited liability company (LLC), is gaining in popularity because it allows owners to take advantage of the benefits of both the corporation and partnership forms of business. The advantages of this business format are that profits and losses can be passed through to owners without taxation of the business itself while owners are shielded from personal liability.

Reasons to choose LLC:

- **Limited liability:** Your only risk is capital paid into the business. Business debts and other liabilities can't be squeezed out of your personal assets. Caution: If you personally guarantee a debt, you've forfeited your "limited liability."
- **Tax simplicity:** Profits and losses are reported and taxed on owners' individual returns. There's no separate business tax return, unless you have more than one member and choose to be taxed as a partnership. And there's no corporate "double taxation," in which both the business and the shareholders are taxed.
- **Flexible management:** A "member" (shareholder equivalent) can be a person, partnership or corporation. Members get a percentage of ownership. If your idea people can't manage their way out of a paper bag, you can hire management help. Smaller LLCs are usually member managed, but not always.
- **Flexible distribution:** Profits and losses don't have to be distributed in proportion to the money each person puts in.

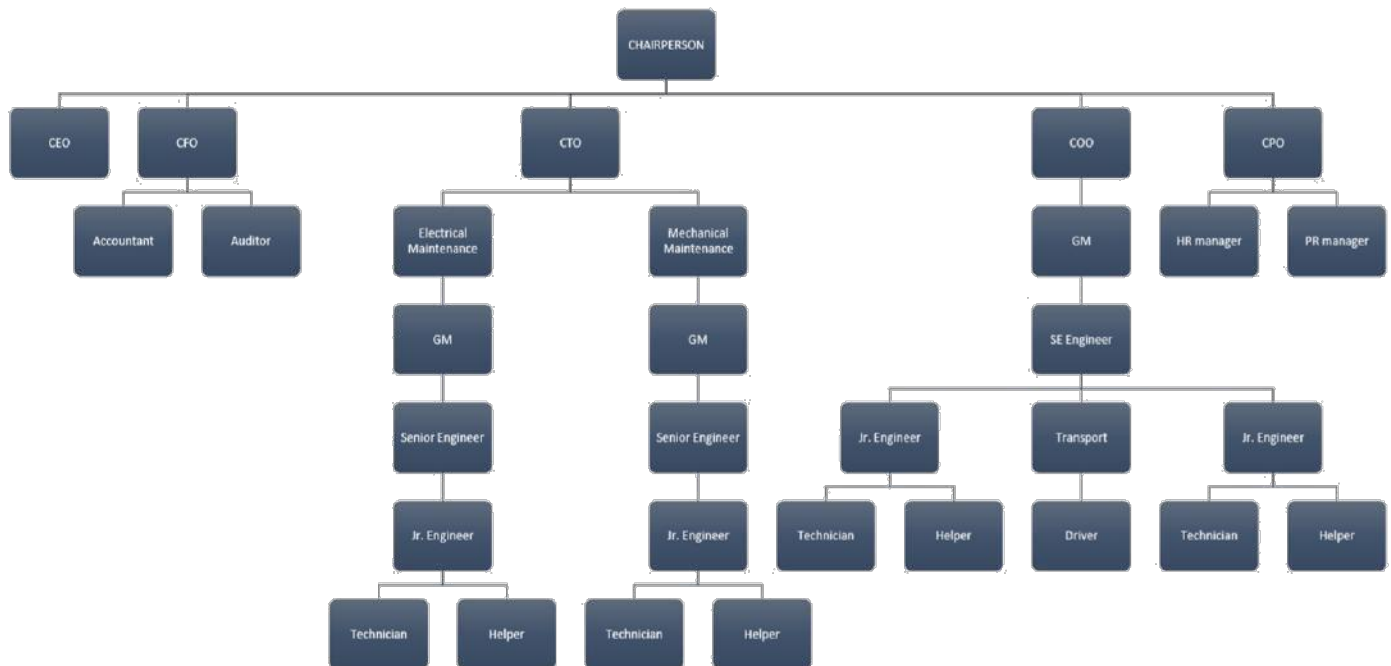
In our type of start-up which includes the support of the local municipal governing body, it can also be included as one of the owner member of the LLC as the input raw material will be provided by them and the end product also will be sold to them.

BUSINESS LOCATION :

- **Special Economic Zone (SEZ)** is a specifically delineated duty-free enclave and shall be deemed to be foreign territory for the purposes of trade operations and duties and tariffs.

- In other words, SEZ is a geographical region that has economic laws different from a country's typical economic laws. Usually the goal is to increase foreign investments.
- The prime objective was to enhance foreign investment and provide an internationally competitive and hassle free environment for exports.
- The idea was to promote exports from the country and realising the need that level playing field must be made available to the domestic enterprises and manufacturers to be competitive globally.

8. HIERARCHY AND ORGANIZATION STRUCTURE.



Management :

The management consists of Board of directors.

1. Chairman - A chairman is an executive elected by a company's board of directors who is responsible for presiding over board or committee meetings. A chairman often sets the agenda and has significant sway as to how the board votes. The chairman ensures that meetings run smoothly and remain orderly and works at achieving a consensus in board decisions. One of the major duties of a chairman is to maintain and implement corporate policy as established by the board.

2. CEO – The Chief Executive Officer, is the highest-ranking person in a company or other institution, ultimately responsible for taking managerial decisions. Responsible for connecting the business with the market, having the final say in budgeting, investment decisions and directing the company's strategies so that it achieves its objectives.

3. CFO - The Chief Financial Officer, also known as the Financial Director, is in charge of the economic and financial planning of the company. Deciding when and where to invest, assessing risks, all in order to increase the value of the company. Contributes financial knowledge, accounting and provides a general and analytical look at the business.

4. CTO - The Chief Technology Officer oversees the development and correct operation of information systems from the point of view of execution. Generally responsible for the technical teams and to implement new strategies to improve the final product.

5. COO - The Chief Operating Officer is in charge of the day-to-day administration and operation of the business. The COO reports directly to the Chief Executive Officer (CEO) and is considered his right hand.

Employees :

1. General Manager – Technical representative in Operations, Mechanical and Electrical Dept.

2. HR Manager

3. PR Manger

4. Auditor

5. Accountant

6. Senior Engineer

7. Junior Engineer

8. Technician

9. Driver and Helper

9. TARGETTED CUSTOMERS

The term Targeted Costumer is defined as the specific group of consumers who are the focus of a company's advertisements. This focus is communicated through media and the use of television, movies, audio, and print capabilities. The target consumer is similar to target market; however, the notable difference is the target consumer is a specific group within the target market. Target consumers have a large impact on a company's marketing and advertising plans. When companies design campaigns with messages to be conveyed in advertisements, they compose them specifically around the target consumer attributes. It is important to understand your target consumer, and the following criteria can act as a guide:

GOVERNMENT

Prime Minister Narendra Modi, during his poll campaign, had promised to integrate all ministries that look after water-related issues into one ministry -- the Jal Shakti Ministry. The BJP had also promised to provide clean drinking water to all households in the country. Water falls under the state list of the Constitution and participation of states is crucial to make the mission of providing clean drinking water a success.

So according to the above stated details related to the current governments missions, our product can be quite useful for the cleaning of water surface and can totally support our cause and hence can be presented to the government as a possible solution to the major problem of cleaning water surfaces.

NGOs (NON GOVERNMENTAL ORGANIZATIONS)

While water isn't the most popular topic among humanitarians and NGOs, it is undoubtedly an increasing, distressing concern. According to the reports, 780 million people worldwide do not have access to a clean water source, and an estimated 2.5 billion do not have access to improved sanitation.

These stats gravely contribute to 3.4 million people who die each year from waterborne diseases, which is one of the leading causes of death worldwide, as reported by the World Health Organization.

There are number of NGO,s that are already participating in this important process. We have shortlisted one such important NGO, with whom we want to collaborate with :

NAANDI COMMUNITY WATER SERVICES

Naandi's mission is to build alliances between state governments, corporates and civil society to create and implement innovative strategies for improving the quality of life of the underserved communities. In 2003, Naandi Foundation began its journey to provide safe

drinking water with a single mission to provide rural communities with access to safe, potable drinking water.

Naandi Community Water Services installs and operates water centers that reliably and cost-effectively address water contamination issues. A dedicated team of 585 people makes NCWS the largest and most experienced community water centre operator in India.

So, by offering them our services we can help them expand their business and also allows us to grow leaps and bounds in the market. This will be quite helpful in order to showcase our product on a small scale and gain publicity in order to expand our product in future.

10. STRATEGIES FOR ATTRACTING CUSTOMERS

Marketing strategy is basically planning all your actions in order to promote your brand, product or service in advance and monitor the results of such actions to understand what should be maintained and what can be improved. In addition, having a marketing strategy also means getting your product/service advertised to a potential customer in the best possible way. The most important thing in planning your marketing actions is that you can think of low cost and high-impact strategies that are creative and really focused on your business' persona. This strategic planning must be constantly and closely followed up on, to make sure the expected results for each action are positive, and mainly, to ensure that the necessary adjustments are made. Following are the different marketing strategies that we plan to use to promote our product: WASTRIX -

CAUSE MARKETING:

It is also called "cause-related marketing". Under this strategy, as more and more customers are integrating their social responsibility with their purchasing decision, a brand tries to prove itself to be socially responsible as it makes it more likely to attract customers and establish brand awareness and loyalty. Wastrix is a product that has the potential to be a major contributor in keeping our water bodies clean and as a result, have a positive impact on the environment.

DIGITAL MARKETING:

Digital marketing is used to describe the strategy of promoting brands or products through electronic media. It basically advocates the use of various digital devices and technologies to deliver marketing messages to customers. Examples of these digital devices are smartphones, computers, tablets and similar mobile devices, and some of the electronic methods are text messaging, instant messaging, and podcasts. It also includes advertising content distributed or released using digital technology, such as electronic billboards and posters. Communication is also another important factor in marketing, and going digital will allow the brand to establish more than one contact point to communicate with its target customers. One major factor in succeeding in digital marketing is SEO (Search Engine Optimization). You need SEO techniques in your posts, so that your page appears in the top places of search engines such as Google. Work your keywords well in your texts, test titles that catch the attention of users, write full content and really educate your audience.

SOCIAL MEDIA MARKETING:

Out of the several internet marketing strategies used by businesses these days, social media marketing or SMM, is seen by many businesses to provide the most effective results. Research showed that over 25% of businesses look to SMM for customer retention and loyalty. Certainly, social media is considered to be the best platform for businesses to create

and maintain brand awareness, as well as bring attention to a new product or service that businesses will be introducing or launching.

Social media marketing includes:

- Email marketing
- Blogging
- Platforms like Instagram, Facebook, etc
- Video channels like YouTube

PR MARKETING:

The PR in PR Marketing stands for Public Relations. In the context of marketing, it entails the business developing and cultivating a relationship with the media or the press to create brand awareness in the market. This relationship will then allow the business to make use of the news or the business press, for example, to talk positively about the company, its products and services, and the reasons why consumers should also buy from them.

EVENT MARKETING:

Event marketing involves the development and execution of a promotional campaign that revolves around, or is closely linked to a special occasion or event. The themed activities entail face-to-face or in-person engagement and interaction, turning customers into active participants in the campaign.

This marketing strategy is useful in attracting customers, building brand awareness and lasting relationships. In a study conducted by the Event Marketing Institute, 50% of the people that attend and participate in an event marketing activity end up making a purchase during the event.

11. OPERATING PLAN

The operations section of your business plan is where you explain the company's objectives, goals, procedures, and timeline. An operations plan is helpful for investors, but it's also helpful for the company and employees because it pushes you to think about tactics and deadlines.

Goals and Objectives :

The key to an operations plan is having a clear objective and goal everyone is focused on completing. In order to create an efficient operational objective, think SMART:

• Specific – Be clear on what you want employees to achieve. • Measurable – Be able to quantify the goal in order to track progress. • Attainable & Realistic – It's great to be ambitious but make sure you aren't setting your team up for failure. Create a goal that everyone is motivated to complete with the resources available. • Timely – Provide a deadline so everyone has a date they are working towards.

The major objective of our business plan is to sell the product to customers with the objective of water body surface cleaning.

Department Objectives :

- Strategic Objective : To sell the product to customers with the objective of water body surface cleaning.
- Manufacturing department operational Objective : To increase the efficient manufacturing of raw materials required.
- IT department operational objective : To develop a better control mobile app for the device to operate.
- Product Development operational Objective : To develop the design and system of the device.
- Marketing department operational objective : To increase the number of customers interested in the product.
- Sales department operational objective : To increase the sales of the product considering the Break Even Analysis.

Production Process :

1. Suppliers : Supplier will provide the raw material like the steel and skimmer system required for the device.
2. Equipment & Technology : All the departments will have required equipments like testing facility for Quality Dept., app developing software for Technology team, software licenses for website analytical tools for marketing team, headsets, phone systems or virtual phone system technology for sales team.
3. Cost – This includes the budget for each dept.

Location : Vishakhapatnam (SEZ) is the location for the business plan.

Work hours : 9am to 5pm work schedule for the employees. May extend as per the requirement.

Personnel : Section in charge is responsible for making sure department tasks are completed.

Timeline :

Creating a timeline with milestones is important for your new business. It keeps everyone focused and is a good tracking method for efficiency.

Our milestones :

1. Hiring After the company reaches its yearly sales target, the next year target will be greater. So, new efficient employees need to be hired for the task.
2. Production Milestones Production milestones keep business on track. These milestones act as "checkpoints" for your overall department objectives. For this purpose, the Break Even Analysis is referred.

Our other production milestones :

- Design phase
- Product prototype phase
- Testing
- Product launch
- Version release

3. Market Milestones :

- Market milestones are important for tracking efficiency and understanding whether your operations plan is working. For instance, a possible market milestone could be reaching a certain amount of clients or customers after a new product or service is released.
- Few other milestones to consider :
- Gain a certain amount of clients by a certain time
- Signing partnerships
- Running a competitive analysis
- Performing a price change evaluation

4. Financial Milestones

Financial milestones are important for tracking business performance. In addition, in startups, it's common that financial milestones are calculated for 12 months.

Few financial milestones :

- Funding events

- Revenue and profit goals
- Transaction goals

12. FINANCIAL PLANNING AND BREAK EVEN ANALYSIS :

Financial planning is the task of determining how a business will afford to achieve its strategic goals and objectives. Usually, a company creates a Financial Plan immediately after the vision and objectives have been set. The Financial Plan describes each of the activities, resources, equipment and materials that are needed to achieve these objectives, as well as the timeframes involved.

The Financial Planning activity involves the following tasks:

- Assess the business environment
- Confirm the business vision and objectives
- Identify the types of resources needed to achieve these objectives
- Quantify the amount of resource (labour, equipment, materials)
- Calculate the total cost of each type of resource
- Summarize the costs to create a budget
- Identify any risks and issues with the budget set.

Performing Financial Planning is critical to the success of any organization. It provides the Business Plan with rigor, by confirming that the objectives set are achievable from a financial point of view.

Initial expenditure :

A project's initial costs are those that are incurred during the design and construction process. They can include any of the following: Construction costs, including improvements to existing facilities, Equipment and vehicle purchases, Equipment required for project operation. For our business considering all the above criteria we round it about to 45000 rupees (including raw material and labour costs).

Running expenses

An operational expenditure is an ongoing cost for running a product, business, or system. For our business considering employees salary and miscellaneous charges it comes to 45000 rupees.

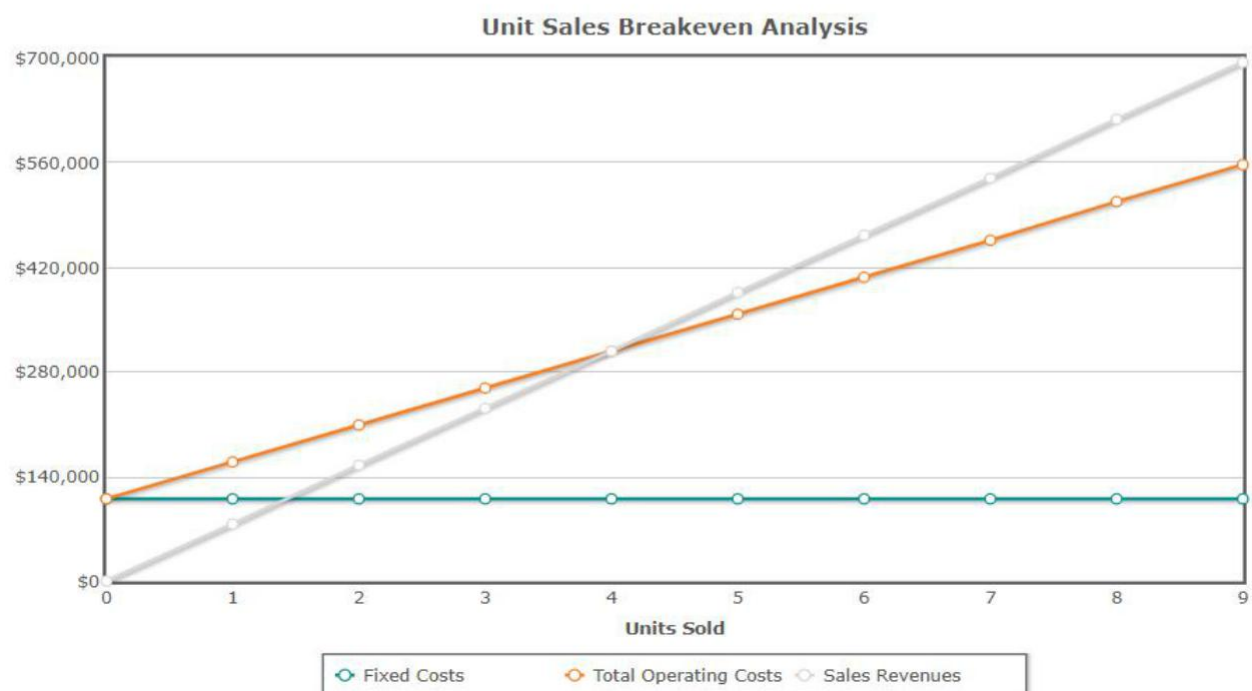
Maintaining expenses

Maintenance Expenditure is any expenditure on the maintenance of an asset. It is a type of Recurrent Expenditure. We estimate it to about 25000 rupees.

Break Even Analysis :

Input	
Total fixed costs (\$)	Variable cost per unit (\$)
<input type="text" value="110,000"/>	<input type="text" value="45,000"/>
Sales price per unit (\$)	Anticipated unit sales (0 to 999999999)
<input type="text" value="70,000"/>	<input type="text" value="20"/>

Graph



Detailed Data Table

Units Sold	Sales Revenues	Variable Costs	Fixed Costs	Operating Profit
0	\$0	\$0	\$110,000	\$-110,000
1	77,000	49,500	110,000	-82,500
2	154,000	99,000	110,000	-55,000
3	231,000	148,500	110,000	-27,500
4	308,000	198,000	110,000	-0
5	385,000	247,500	110,000	27,500
6	462,000	297,000	110,000	55,000
7	539,000	346,500	110,000	82,500
8	616,000	396,000	110,000	110,000
9	693,000	445,500	110,000	137,500

BREAK EVEN POINT is : 4units

13. FURURE SCOPE

Expansion of business :

Infuse More Working Capital

According to Business Dictionary, “Capital infusions are typically made by company management to prop up a division or subsidiary. Venture capitalists will infuse cash into a start-up company until it can generate profits on its own.”

Have Right Employees On Board

Building reputation of a company is considered as one of the challenges for many start-up businesses. Every start-up owner wants to make a company synonymous to good work, professionalism and quality service. Having right people on board is important because employees act as the face of a business. The employees, suited to a business need, are responsible for long-term sustainable growth of that company. When you bring out the flawlessness from your employees, in return, you can get the support from them and establish a lasting reputation of your company in a volatile market.

Create a Good Work Culture

“Strong corporate cultures that facilitate adaptation to a changing world are associated with strong financial results”, rightly said by John Kotter, a professor of leadership at Harvard Business School, in his book “Corporate Culture and Performance”. Work culture can make or mar the performance of employees in any business sector. If you really want to map out your business expansion in a volatile market, you must keep a good work culture in your office to make your employees satisfied and boost productivity.

Search New Markets to Sell

Exploring secondary markets for your business is a good way to firm up your long-term outlook in a volatile market. On top of that, once you expand, you are afforded the luxury of an additional customer base to fall back on if there will be any struggling situation ever with your primary market. Therefore, plan and implement a growth strategy to search for new markets to expand your startup business before your current market flattens out - this will not only help you stand out when market is volatile, but also give you a considerable edge.

Expand to the SEZs around the world

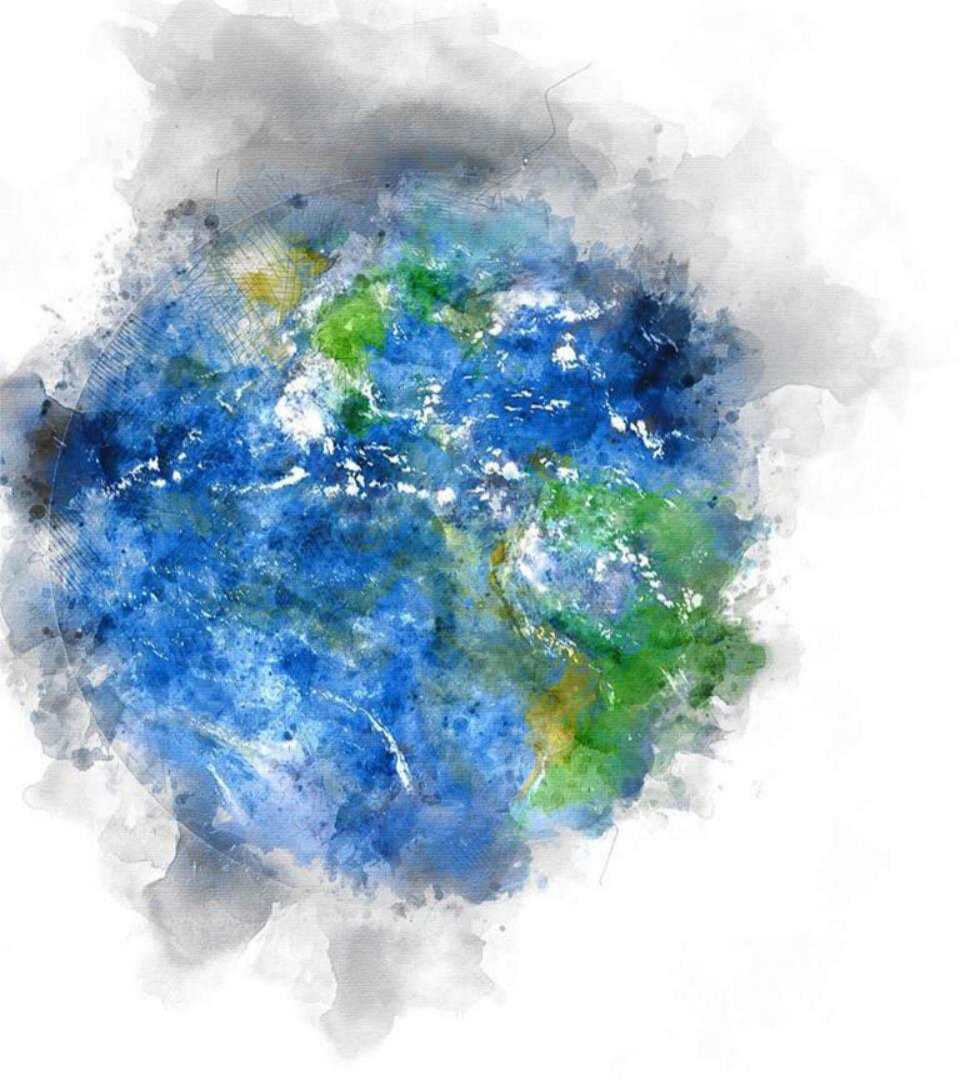
Depending upon the response gained from the consumers and clients, we aim to expand around the world with help of networks and encouragement from the government.

Introducing new products and services:

This project involves the solid waste management of an institution/locality from large scale to small one. Waste management is a serious environmental issue. The project includes the waste collection, segregation, incineration of waste products like plastics and polymers, which take several hundreds of years to decompose. It also focuses on power generation by harnessing the heat generated by the process. For this purpose, a thermal power plant can be set up. The smoke and fumes can be filtered by chemical treatment and fresh air can be vented out through large chimneys. The by-products can also be post processed for further use. The by-products obtained can also be used for construction materials. The carbon emitted can be processed to Carbon Nanotubes, which has further use. The problem of landfills and dumping yards can be minimized.

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WASTRIX

We work for EARTH



“

*Thousands have lived
without love, not one
without water.*

~ W. H. Auden

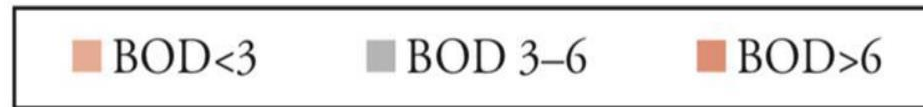
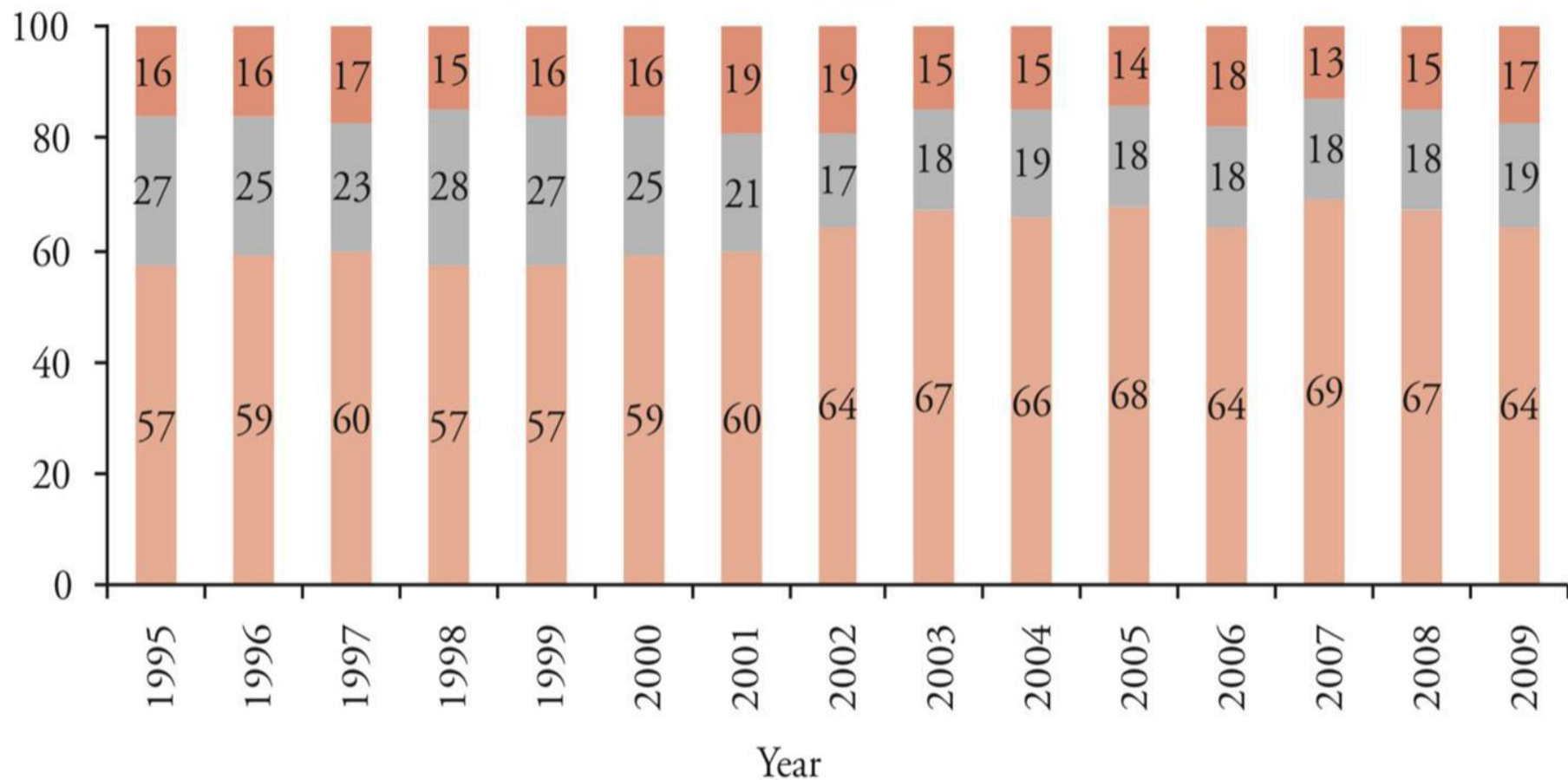
Product Description

- Wastrix is a human piloted device which sails over the water body where it is deployed.
- Wastrix can clean up all type of floating junk by swallowing it into itself.
- It does not need any kind of pump to suck in the waste, because the device runs in contrary direction to the water flow, using proper devices we are working upon.
- For cleaning up the oil spills in the water body where it is deployed , we will be introducing skimmers or absorbents, whichever will be efficient and economic(Absorbents - which would not be affected by water flow).
- So this is the basic working concept idea about our product.



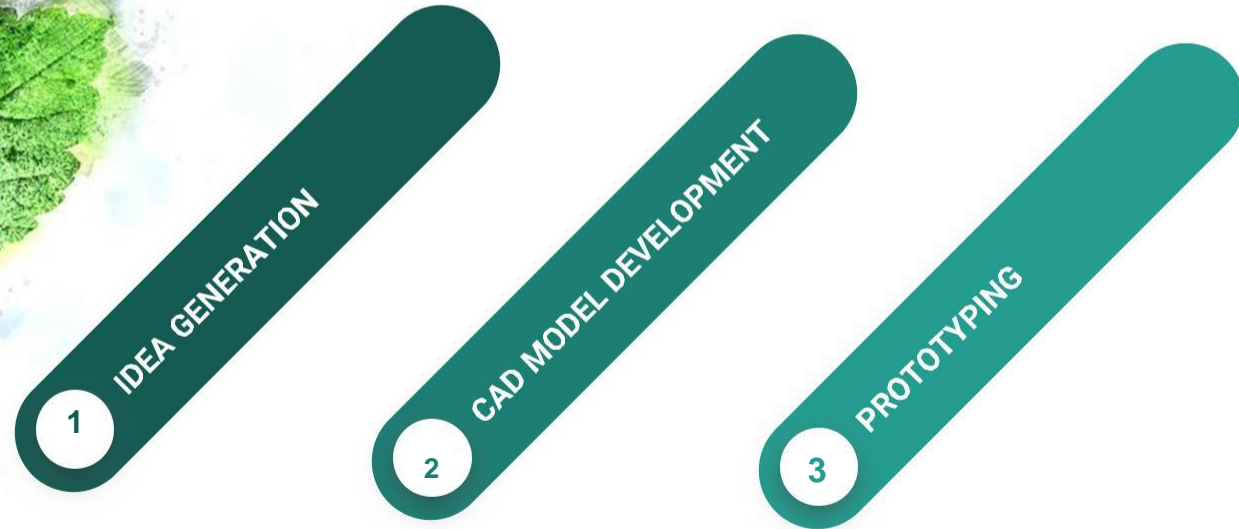
WHY DO WE NEED WASTRIX?

- ❖ 70% of surface water resources are contaminated.
- ❖ 2 million tonnes of sewage and industrial and agricultural waste are discharged into the world's water, EVERYDAY !
- ❖ 47.4 % people live on contaminated ground water.



Source: CPCB (2009).

PHASES OF PRODUCT DEVELOPMENT

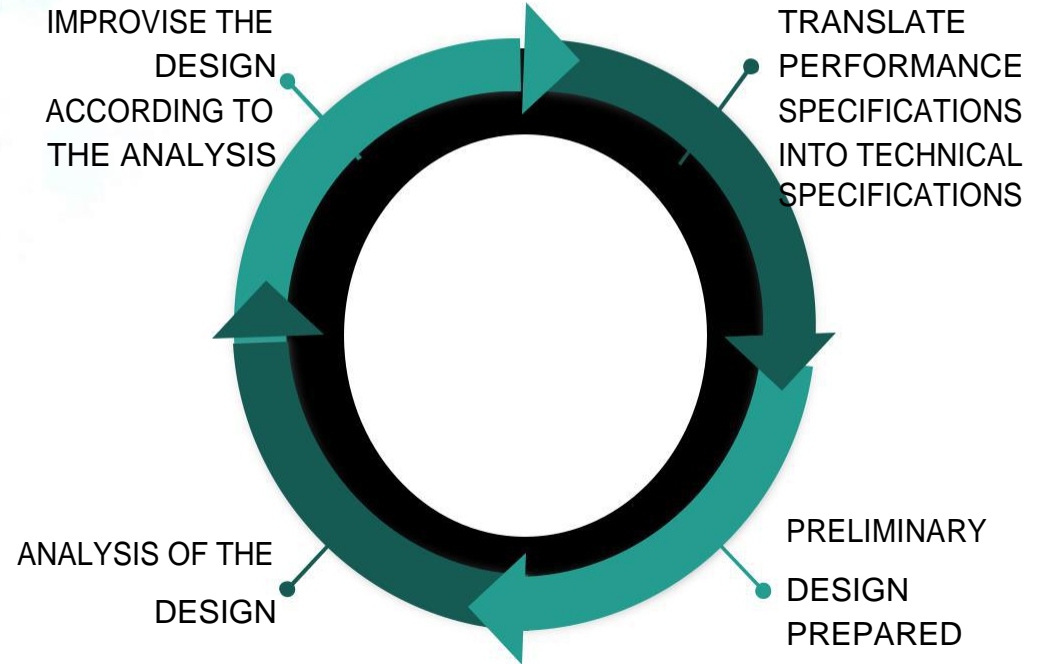


IDEA GENERATION

- Conceptualisation of idea
- Background Research
- Feasibility Study
 - Market Analysis
 - Economic Analysis
 - Technical and Strategic Analysis
- Fixing Design Parameters

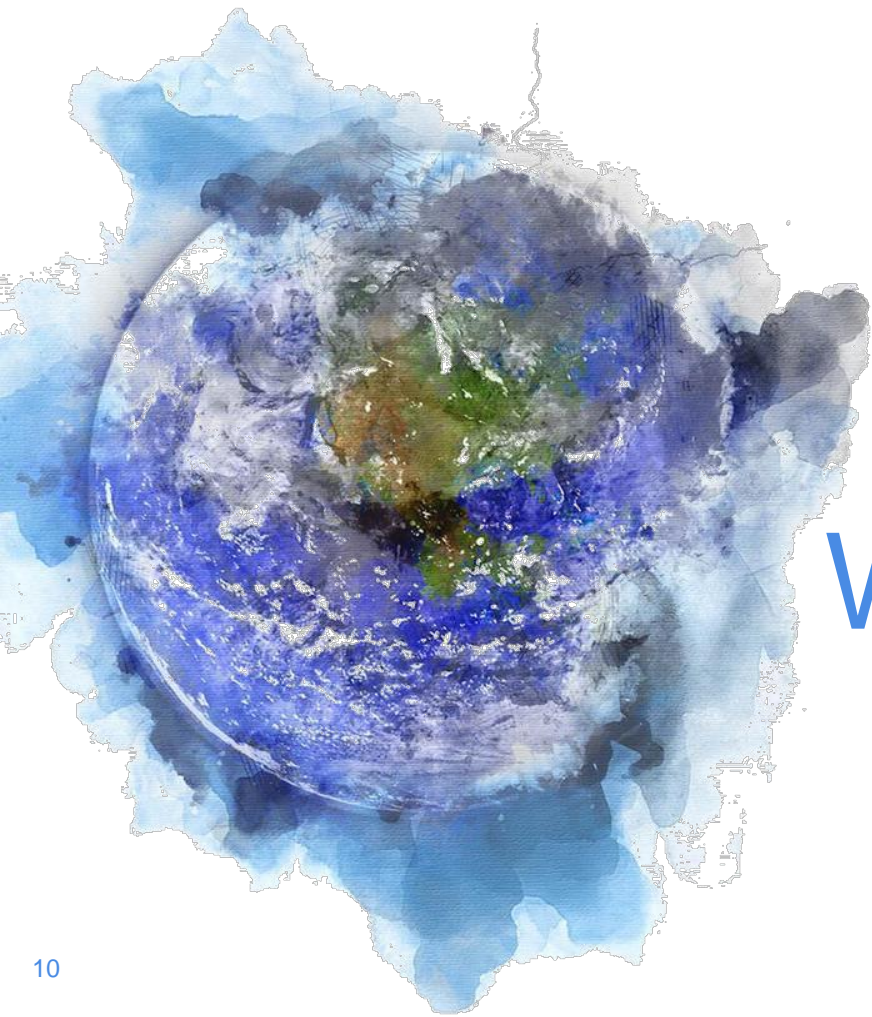


CAD MODEL DEVELOPMENT

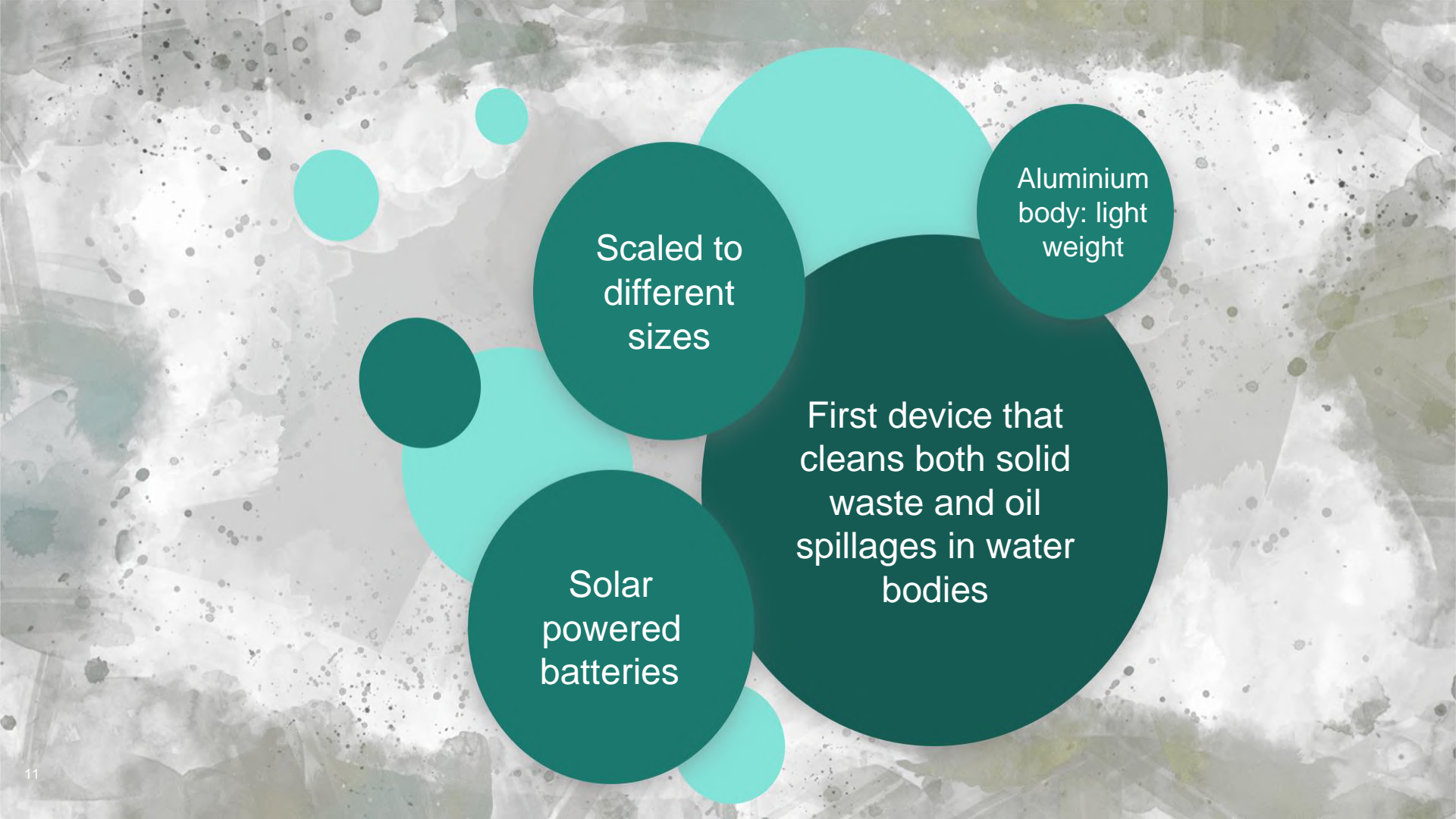


PROTOTYPING

- Prototype is built once design is finalised.
- It is tested to ensure the functional requirements of the design are validated.
- Allows to look for possible problems.
- Helps in visualisation.



WHY WASTRIX?



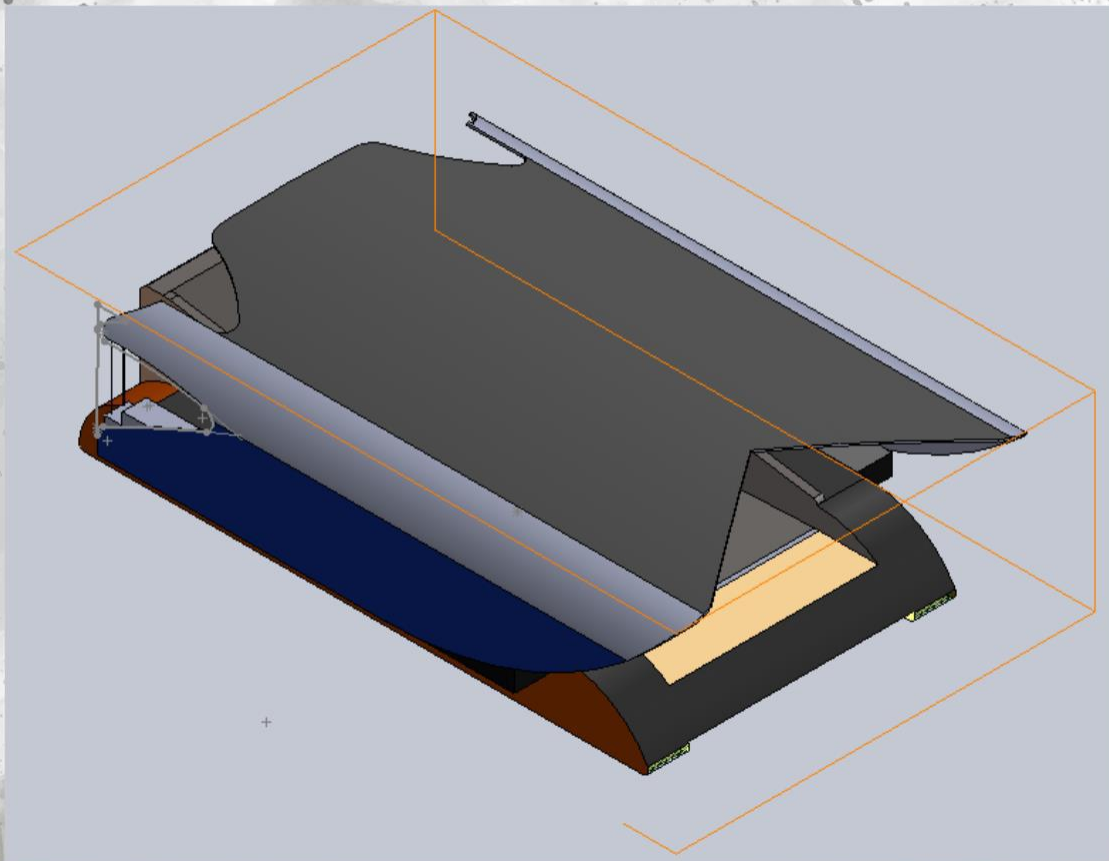
Scaled to
different
sizes

Aluminium
body: light
weight

First device that
cleans both solid
waste and oil
spillages in water
bodies

Solar
powered
batteries

CAD MODEL



BUSINESS LOCATION

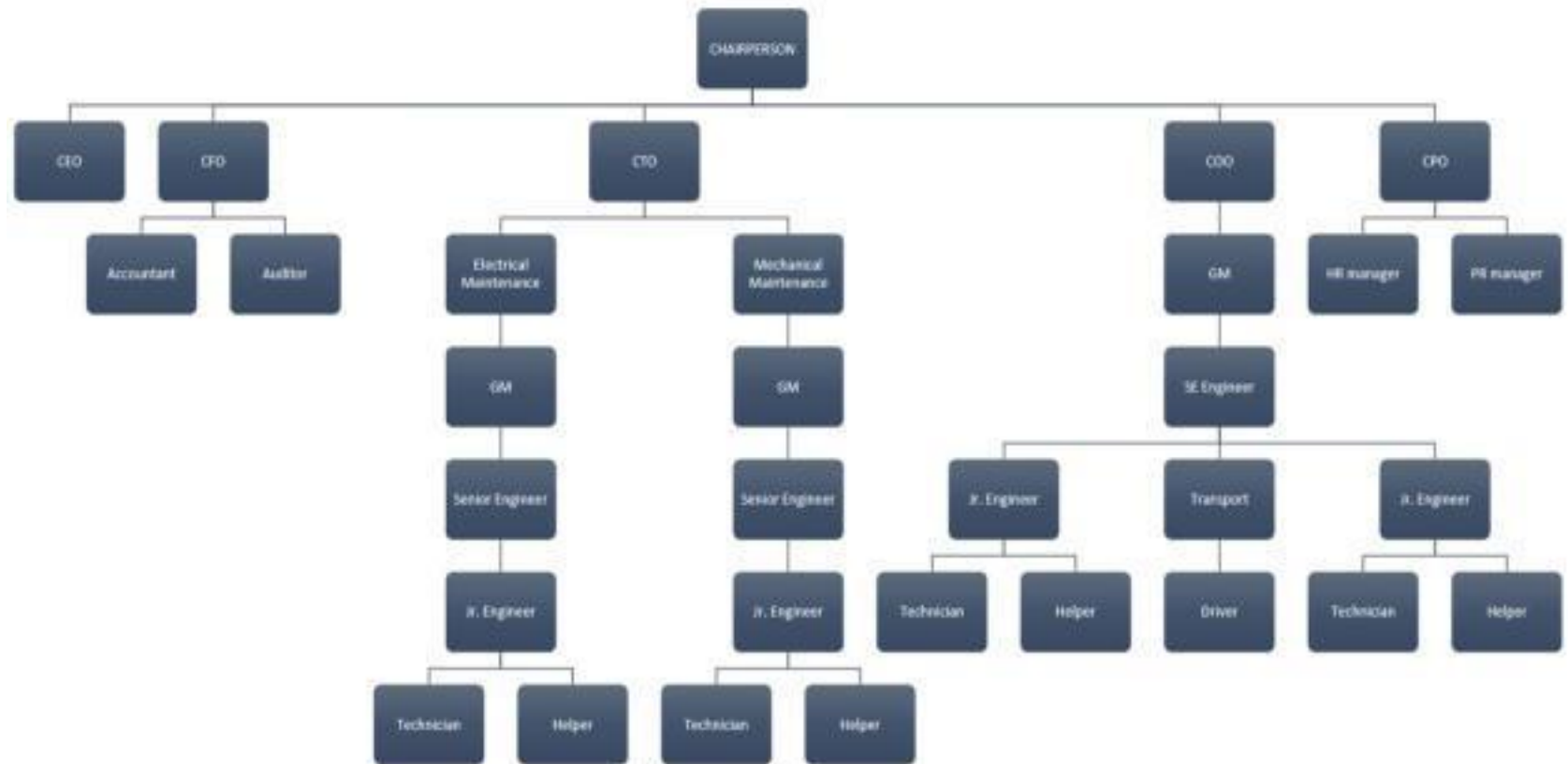
- Special Economic Zone (SEZ) is a specifically delineated duty-free enclave and shall be deemed to be foreign territory for the purposes of trade operations and duties and tariffs.
- In other words, SEZ is a geographical region that has economic laws different from a country's typical economic laws. Usually the goal is to increase foreign investments.
- The prime objective was to enhance foreign investment and provide an internationally competitive and hassle free environment for exports.
- The idea was to promote exports from the country and realising the need that level playing field must be made available to the domestic enterprises and manufacturers to be competitive globally.

Our Location - Vishakhapattanam (SEZ)

A world map is displayed in a dark blue silhouette against a lighter blue background with a watercolor-like texture and scattered gold specks. A green speech bubble points to the location of Vishakhapattanam (SEZ) on the eastern coast of India.

Our Location

HIERARCHY OF ADMINISTRATION



TARGETED CUSTOMERS

- Government - our product is presented to the government as a possible solution to the major problem of cleaning water surfaces.
- NGOs - Stats gravely contribute to 3.4 million people who die each year from waterborne diseases, which helps us to convey our product to them.
- Naandi Community Water Services - it's mission is to provide rural communities with access to safe, potable drinking water; offering them our services we can help them expand their business.

COMPETITORS

- **The Ocean Cleanup** - Backed with \$30 million in funding and led by 22-year-old Boyan Slat, this foundation's ingenious solution is based on the understanding that ocean currents tend to concentrate plastic into oceanic garbage patches. Their technology corrals floating plastic in these ocean currents with U-shaped screens, in which it's trapped and shipped away to be recycled.
- **Seabin Project** - installing floating rubbish bins (with a pump and filtration center) at harbors, marinas, and other major hotspots, cleaning up garbage and oil floating in the water. These hotspots are considered some of the major sources of ocean littering. On average, an individual Seabin catches around 3.3 pounds (1.5 kilograms) per day, which is about a half a ton of debris a year.

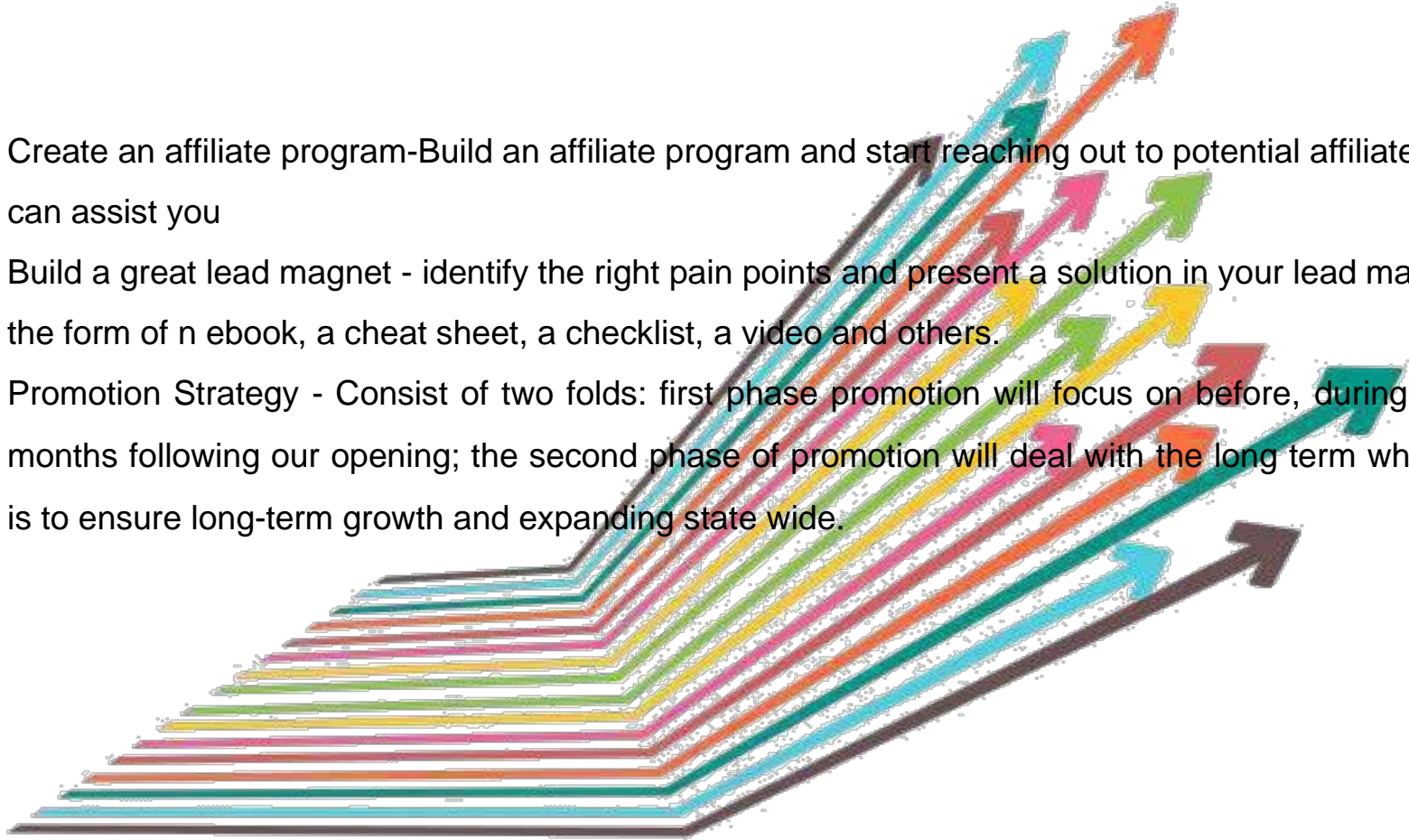
STRATEGIES FOR ATTRACTING CUSTOMERS



- CAUSE MARKETING - As more and more customers are integrating their social responsibility with their purchasing decision, a brand tries to prove itself to be socially responsible
- DIGITAL MARKETING - the use of various digital devices and technologies to deliver marketing messages to customers.
- SOCIAL MEDIA MARKETING - bring attention to a new product or service that businesses will be introducing or launching
- PR MARKETING - allow the business to make use of the news or the business press
- EVENT MARKETING - involves the development and execution of a promotional campaign in a special occasion or event

MARKETING STRATEGY

- Create an affiliate program-Build an affiliate program and start reaching out to potential affiliate who can assist you
- Build a great lead magnet - identify the right pain points and present a solution in your lead magnet in the form of n ebook, a cheat sheet, a checklist, a video and others.
- Promotion Strategy - Consist of two folds: first phase promotion will focus on before, during, and six months following our opening; the second phase of promotion will deal with the long term whose goal is to ensure long-term growth and expanding state wide.





First Phase Promotions

Publicity - We will send news releases to all of the major newspapers near the coastal areas.

Publicity in the form of news stories from local (coast regions) radio and television stations.

Advertising - direct mail and face-to-face promotional strategies to raise awareness about our products and services in the target markets

Internet - content heavy website geared toward educating potential customers about the benefits of our products and services.

Alliances - To form alliances with our targeted customers like NGOs and other organizations.

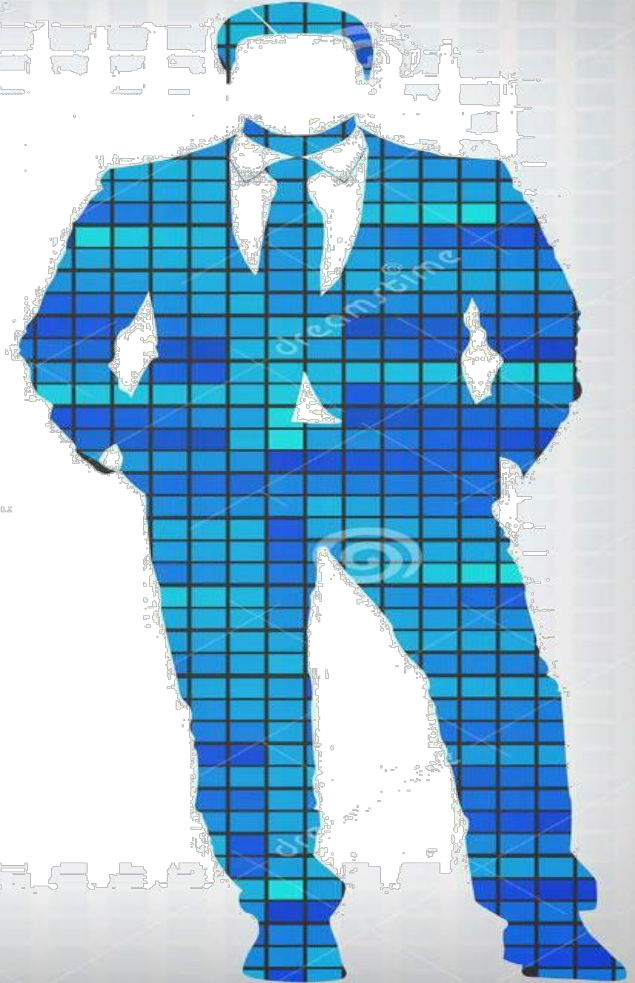
Second Phase Promotions

- Publicity: As the business grows and expands we will continue to seek publicity through news media to tout our successes.
- Advertising - continue to make face-to-face contact with potential customers. The second round of mail outs will be updated to reflect the benefits provided to customers thus far
- Internet- website will be updated to provide responses to frequently asked questions.
- After the first six months we will evaluate the viability of having target clients advertise on our site, and conversely, we the viability of advertising on our target clients websites
- Alliances: Seek mutually beneficial and complementary alliances with manufacturers where applicable.



BUSINESS OBJECTIVE

- Survival
- Getting and Staying Profitable
- Mission-driven Core Values
- Sustainable Growth
- Competition
- Change



Financial planning

- Initial expenditure :

A project's initial costs are those that are incurred during the design and construction process. For our business considering all the above criteria we estimate about to 40000 rupees.

- Running expenses :

An operational expenditure is an ongoing cost for running a product, business, or system. For our business considering employees salary and miscellaneous charges it comes to 45000 rupees.

- Maintaining expenses :

Maintenance Expenditure is any expenditure on the maintenance of an asset. We estimate it to about 25000 rupees.

BREAK EVEN ANALYSIS

Input

Total fixed costs (\$)

110,000

Variable cost per unit (\$)

45,000

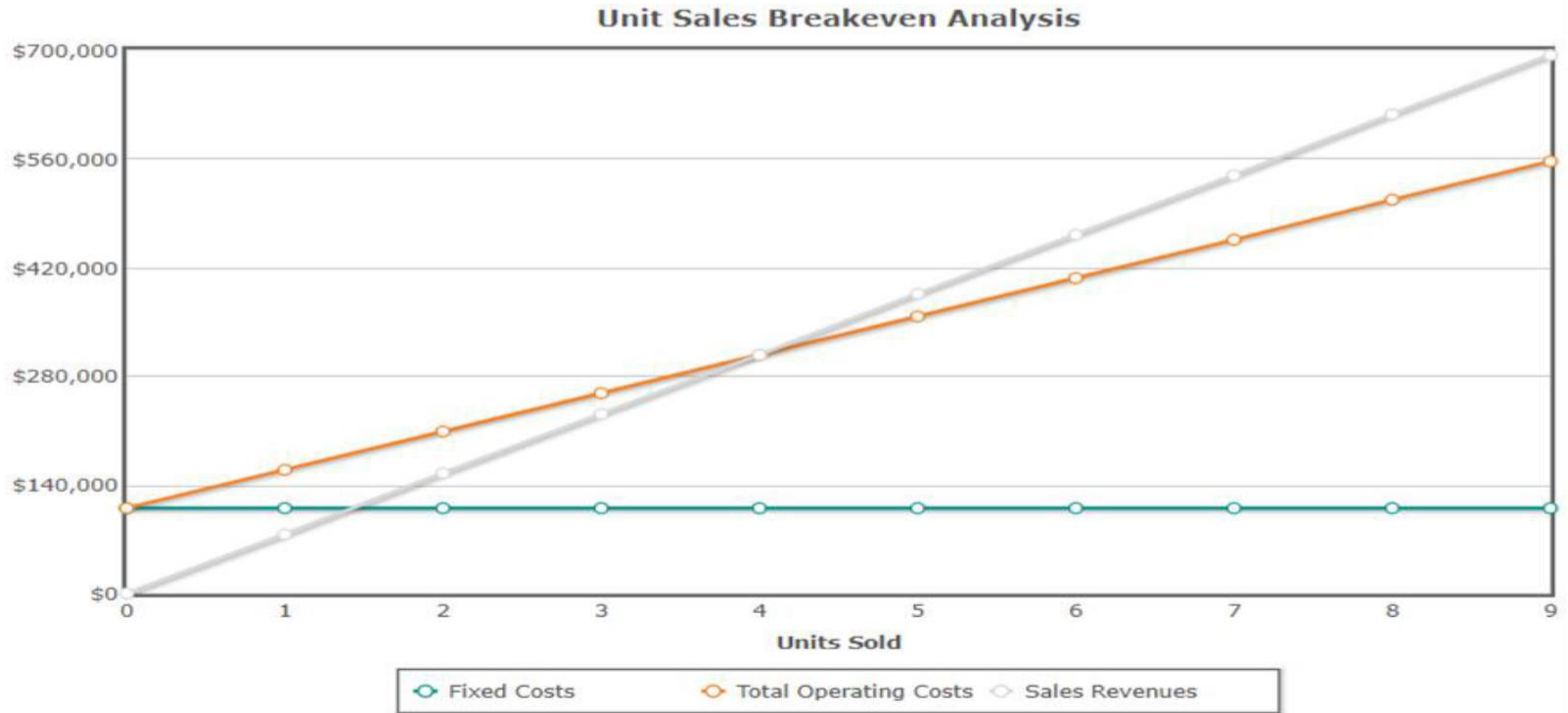
Sales price per unit (\$)

70,000

Anticipated unit sales (0 to 999999999)

20

Graph



Detailed Data Table

Units Sold	Sales Revenues	Variable Costs	Fixed Costs	Operating Profit
0	\$0	\$0	\$110,000	\$-110,000
1	77,000	49,500	110,000	-82,500
2	154,000	99,000	110,000	-55,000
3	231,000	148,500	110,000	-27,500
4	308,000	198,000	110,000	-0
5	385,000	247,500	110,000	27,500
6	462,000	297,000	110,000	55,000
7	539,000	346,500	110,000	82,500
8	616,000	396,000	110,000	110,000
9	693,000	445,500	110,000	137,500



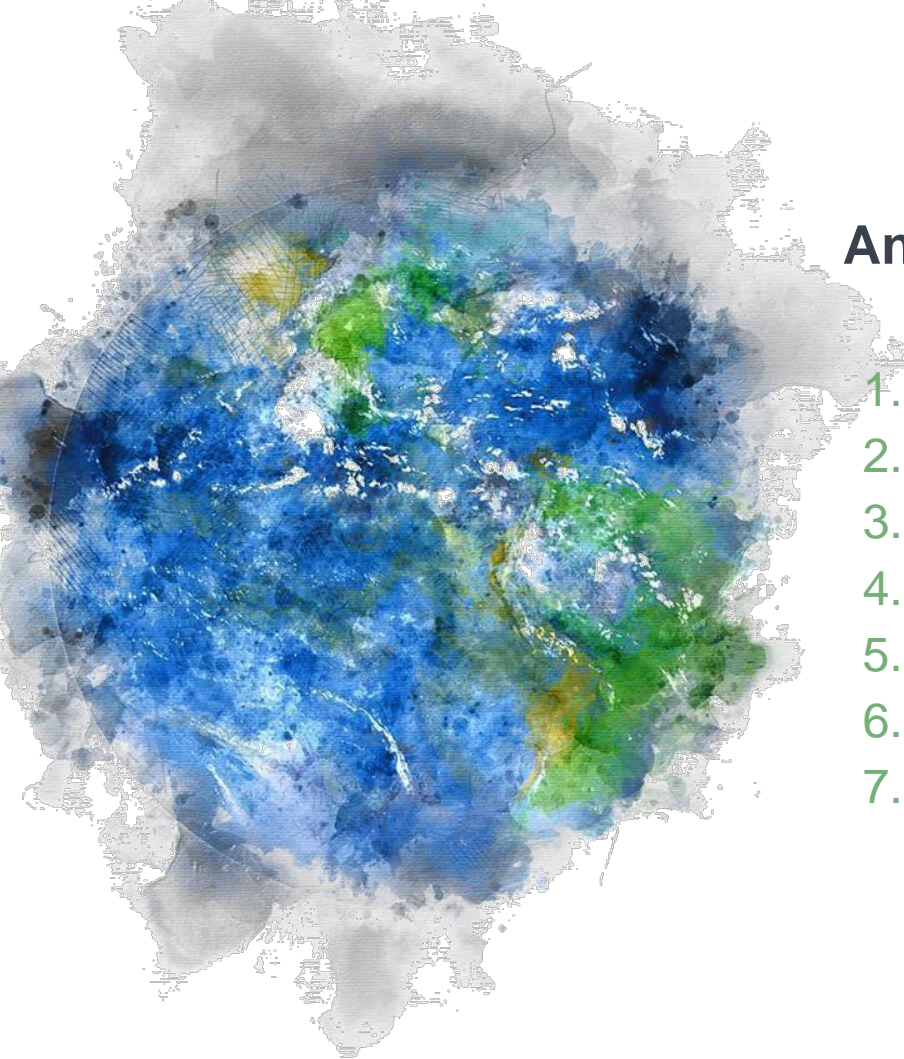
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Thank You

Any questions?

1. Mahak Pandia - 17BME0391
2. Utkarsh Kumar - 17BME0396
3. Paurush Kumar - 17BME0402
4. Shrikant Patil - 17BME0180
5. Sushant Kumar - 17BME0164
6. Nirmaladevi Padmarajan- 17BME0168
7. Saurabh Borse - 17BME0666





13.

Financial Planning

12.

India’s rapid urbanization

11.

challenge. About 377 million urban people residing in

10.

municipal solid waste per annum out of which only 43

11.9 MT is treated and the rest 31 MT is dumped in landfill sites. Marine litter (marine waste, garbage or debris),

is every type of man-made solid waste which deliberately or accidentally pollutes rivers, lakes, seas and A

coastlines. Marine litter is found in all the world’s oceans and seas, even in remote areas. Marine solid waste can purchases,

float on the sea surface or sink on the seafloor and some can be washed on sea coastlines (beach-litter). Marine

litter can spread very easily to the coastline as a result of marine transport, tourism and uncontrolled discharge

of municipal waste in illegal landfills. Marine litter has become a serious pollution problem in all regional seas,

including the Mediterranean Sea and coastal waters and shores.

Background Work

. The increasing use of plastic materials in the last decades, replacing wood, metal and leather, and their low

biodegradability, has influenced substantially the spread of marine litter. Waterborne plastic waste poses a • The

serious threat to marine biota. Seabirds, fish, marine reptiles and mammals can be damaged or killed by plastic

debris, as well as plastic nets and fishing items. Ocean dumping, accidental container spillages, municipal litter

washed into storm drains and wind-blown solid waste (paper, plastic, etc) from urban areas and waste landfills.

contribute to the marine litter. The continuous growth, in the amount of solid waste thrown away, and the slow

rate of its degradation in water, are leading to a gradual increase in marine litter found at sea, on the sea floor •

and coastal shores. It is very difficult to estimate the amount and type of marine litter. Creating a start-up with a •

very organized manner of every collecting every solid waste and processing everything possible with proper •

business formulae without causing much environmental effects would be an emerging trend in the country’s

progression. Moreover, this start-up would definitely make India’s garbage into a profitable business.

Details of the Start-up



WASTRIX -We work for earth

Business Location : Special Economic Zone (SEZ) is a specifically delineated duty-free

9. enclave and shall be deemed to be foreign territory for the purposes of trade operations

In order words, SEZ is a geographical region that has economic laws different from a change when

country's typical economic laws. Usually the goal is to increase foreign investments.The prime objective directly related

was to enhance foreign investment and provide an internationally competitive and hassle free

environment for exports. The idea was to promote exports from the country and realising the need that

level playing field must be made available to the domestic enterprises and manufacturers to be

competitive globally.

Targeted customers-

• GOVERNMENT

Prime Minister Narendra Modi, during his poll campaign, had promised to integrate all ministries that look after water-related issues into one ministry -- the Jal Shakti Ministry. The BJP had also promised to provide clean drinking water to all households in the country. Water falls under the state list of the Constitution and participation of states is crucial to make the mission of providing clean drinking water a success.

• NGOs (NON GOVERNMENTAL ORGANIZATIONS)

While water isn't the most popular topic among humanitarians and NGOs, it is undoubtedly an increasing, distressing concern. According to the reports, 780 million people worldwide do not have access to a clean water source, and an estimated 2.5 billion do not have access to improved sanitation.

• NAANDI COMMUNITY WATER SERVICES

Naandi’s mission is to build alliances between state governments, corporates and civil society to create and implement innovative strategies for improving the quality of life of the underserved communities.

STRATEGIES FOR ATTRACTING CUSTOMERS

CAUSE MARKETING:

- It is also called “cause-related marketing”. Under this strategy, as more and more customers are integrating their social responsibility with their purchasing decision

DIGITAL MARKETING:

- Digital marketing is used to describe the strategy of promoting brands or products through electronic media. It basically advocates the use of various digital devices and technologies to deliver marketing messages to customers.

SOCIAL MEDIA MARKETING:

Out of the several internet marketing strategies used by businesses these days, social media marketing or SMM, is seen by many businesses.

Social media marketing includes:

- Email marketing
- Blogging
- Platforms like Instagram, Facebook, etc
- Video channels like YouTube

PR MARKETING:

The PR in PR Marketing stands for Public Relations. In the context of marketing, it entails the business developing and cultivating a relationship with the media or the press to create brand awareness in the market.

EVENT MARKETING:

Event marketing involves the development and execution of a promotional campaign that revolves around, or is back.

Financial planning is the task of determining how a business will afford to achieve its strategic goals and objectives. Usually, a company creates a Financial Plan immediately after the vision and objectives have been set. The Financial Plan describes each of the activities, resources, equipment and materials that are needed to achieve these objectives, as well as the timeframes involved.

Initial expenditure :

project's initial costs are those that are incurred during the design and construction process. They can include any of the following: Construction costs, including improvements to existing facilities, Equipment and vehicle

ses, Equipment required for project operation.For our business considering all the above criteria we Marine round it about to 45000 rupees (including raw material and labour costs).

Running expenses

An operational expenditure is an ongoing cost for running a product, business, or system. For our business considering employees salary and miscellaneous charges it comes to 45000 rupees.

Maintaining expenses

Maintenance Expenditure is any expenditure on the maintenance of an asset. It is a type of Recurrent Expenditure. We estimate it to about 25000 rupees.

FACTORS WHICH MOTIVATES US TO START THE BUSINESS

tasks of solid-waste management present complex technical challenges. They also pose a wide variety of administrative, economic, and social problems that must be managed and solved.

• It would make India’s garbage into a profitable business.

• It is a very economically sound development strategy.

• Various health issues can be solved by creating a healthy environment.

• More organized waste disposal education to be provided to the citizens and brought into implementation.

• Creation of an eco-friendly environment.

• Creation of clean and hygienic environment since there would be not much dump yards to affect the

surrounding area.

• Reduces all types of ocean waste.

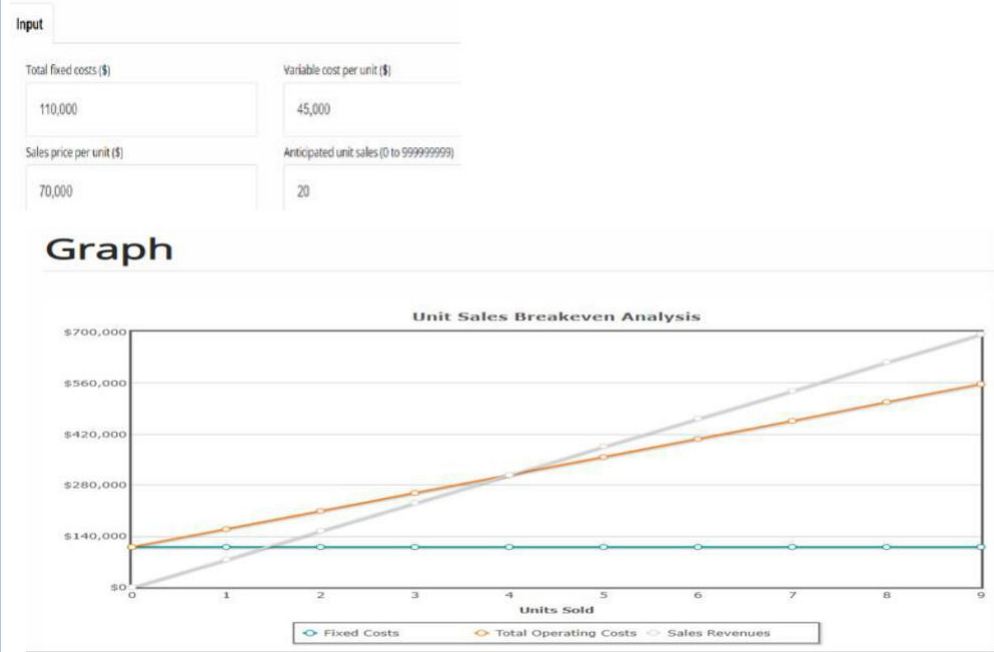
• This practice is highly lucrative.

• Creates employment.

• Relatively easier way of disposing all types of wastes.

Break-Even Analysis

Break even analysis is a point where there is no loss or no profit incurs. It is based on categorising production costs between those which are "variable" (costs that the production output changes) and those that are "fixed" (costs not directly related to the volume of production).



The break even point is 4 units

Expansion

Expansion of business :

Infuse More Working Capital

According to Business Dictionary, “Capital infusions are typically made by company management to prop up a division or subsidiary. Venture capitalists will infuse cash into a start-up company until it can generate profits on its own.”

Have Right Employees On Board

Building reputation of a company is considered as one of the challenges for many start-up businesses.

Create a Good Work Culture

If you really want to map out your business expansion in a volatile market, you must keep a good work culture in your office to make your employees satisfied and boost productivity.

Search New Markets to Sell

Exploring secondary markets for your business is a good way to firm up your long-term outlook in a volatile market. On top of that, once you expand, you are afforded the luxury of an additional customer base to fall

closely linked to a special occasion or event. The themed activities entail face-to-face or in-person engagement and interaction, turning customers into active participants in the campaign.

Expand to the SEZs around the world

Depending upon the response gained from the consumers and clients, we aim to expand around the world with

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY



Meeting Minutes

MEETING 1:

Program/Area:	<i>To be decided</i>
Meeting Purpose:	<i>To decide the topic/idea for the project.</i>
Meeting Date:	<i>17/07/2019</i>
Meeting Time:	<i>7 pm</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Utkarsh</i>
Attendees:	<i>Utkarsh, Nirmala, Sushant, Paurush, Mahak, Saurabh, Shrikant</i>
Minutes Issued By:	<i>Shrikant</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Come up with new/better ideas for the project</i>	All members	23/07/2019
<i>Prepare a literature review on the two shortlisted ideas</i>	Sushant & Paurush	23/07/2019

Decisions Made: (What, Why, Impacts)

1. *Two ideas - Security System and Automatic Street Light have been shortlisted for the next meeting.*
2. *Finalize the project idea in the next meeting.*

Discussion: (Items/Knowledge Shared by Individual member of the team)

1. Security system using LDR and sensors:-

- This idea consisted of a grid of system which alarmed the owner of the house if there is any threat regarding his house security. First of all, the circuit consisted of LDR sensor which was getting continuous light from a laser. And, if the light between the sensor was disturbed, the sensor breaks the circuit and due to which alarm gets activated and the system sends an alarming message to the house owner.

2. Automatic street light:-

- This idea deals with the safety and power consumption of a street light. So the idea being automatically switching on and off the light with the photoresistors. This idea works totally on sensor

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



which senses the light coming from the headlights of the vehicle and activate the nearest street light and the process goes on with the others.

3. Small scale gig rewards

- An app that focuses on the gig economy and utilizing the hype around it to generate revenue and attention from the consumers. We discussed about the feasibility of the idea as it deals with offering small tasks and rewarding accordingly to the consumer.

PARKING LOT:

- *The two shortlisted ideas are to be finalized for the next meeting and the decisions are pending depending upon the faculty approval.*

Miscellaneous Items:

- *Whatsapp group made by Paurush.*
- *Meeting to be held every Wednesday.*

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 2:

Program/Area:	<i>Solid Waste Management with maximum efficiency</i>
Meeting Purpose:	<i>Start working on the idea</i>
Meeting Date:	<i>24/07/2019</i>
Meeting Time:	<i>6pm</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Utkarsh</i>
Attendees:	<i>Sushant, Shrikant, Utkarsh, Nirmala, Saurabh, Paurush, Mahak</i>
Minutes Issued By:	<i>Utkarsh</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Start collecting respective info about the domain: Solid Waste Management.</i>	All members	30/07/2019
<i>Work on the details to complete DA-1</i>	Sushant & Shrikant	24/07/2019

Decisions Made: (What, Why, Impacts)
<ol style="list-style-type: none"> <i>The project idea is finalized.</i> <ul style="list-style-type: none"> <i>The idea is based on Solid Waste Management with maximum efficiency</i> <i>Type of Business Organization & Organizational structure</i> <ul style="list-style-type: none"> <i>These parameters are finalized.</i>

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



Discussion: (Items/Knowledge Shared by Individual member of the team)

Discuss the two shortlisted ideas and new ideas :-

- Shrikant came up with a new idea related to Solid Waste Management.
- The idea was finalized after studying the outcomes.

Discussion about the completion of the DA

- Type of Business Organization
- Organizational structure: Collection, storage and recycling sectors is decided

PARKING LOT :

- Factors that motivate the selection of project.

Miscellaneous Items:

- *Next meeting to be held next week as per convenience.*

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 3:

Program/Area:	<i>Solid Waste Management with maximum efficiency</i>
Meeting Purpose:	<i>Factors that motivate the selection of the area of interest</i>
Meeting Date:	<i>31/07/2019</i>
Meeting Time:	<i>7pm</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Paurush</i>
Attendees:	<i>Sushant, Shrikant, Utkarsh, Nirmala, Saurabh, Paurush</i>
Minutes Issued By:	<i>Sushant</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Work on finalising Business location</i>	Saurabh	7 August
<i>Work on the details to complete DA-2</i>	Paurush & Nirmala	31 July 2019

Decisions Made: (What, Why, Impacts)	
<i>Finalized the background work and look forward to the completion of DA02.</i>	

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY



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Meeting Minutes

Discussion: (Items/Knowledge Shared by Individual member of the team)

Discussion about the completion of DA-2

- *Background work for selecting the concerned business depending upon the urbanization of the country.*
- Factors that motivated us to start the selected business was discussed. One of them being vast market available due to the uneven waste collection and not using the available opportunities.
- Industry is becoming more and more pro-eco-friendly, thus domain will be more friendly to setup the industry. There are tax benefits and earth will also be benefited from it. The benefits are very lucrative.
- Creates employment and uses the human force to find a solution to a major problem of earth.
- Relatively easier way of disposing waste and utilizing them to make it a profitable business

PARKING LOT

1. Think of a tagline for our business
2. Work on devising a logo.

Miscellaneous Items:

Sushant has opted to make the logo.
Shrikant has some suggestions for our tagline.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 4:

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>Discuss the business location, logo and tagline.</i>
Meeting Date:	<i>07/08/2019</i>
Meeting Time:	<i>11am</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Saurabh</i>
Attendees:	<i>Sushant, Shrikant, Utkarsh, Nirmala, Saurabh, Paurush</i>
Minutes Issued By:	<i>Nirmala</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Work on the details to complete DA-3</i>	Saurabh & Sushant	07/08/2019

Decisions Made: (What, Why, Impacts)
<ol style="list-style-type: none"> <i>The business location criteria is finalized</i> <ul style="list-style-type: none"> <i>This integrated solid waste plant needs to satisfy many criteria such as geographical area, economics, politics, social conditions, population etc.</i> <i>Business Logo and Tagline is finalized.</i> <ul style="list-style-type: none"> <i>Tagline : We work for EARTH.</i>

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



Discussion: (Items/Knowledge Shared by Individual member of the team)

Discussion about the work on the Assessment-3

- *Discussion about the business location suitable to the transport and the development of the area.*
- *There has been serious problems regarding solid waste management faced by people in India. It has been avoided for a long time. Recently, due to technological advances it has gained importance as it has solved many problems such as managing waste efficiently, increased employment, etc. But setting up a management plant has been set at places without considering different criteria. This integrated solid waste plant needs to satisfy many criteria such as geographical area, economics, politics, social conditions, population etc.*
- Company logo is made by Sushant
- We came up with many different taglines- Don't trash our future: Recycle., Be the change you want to see in the world: Reduce, Reuse, Recycle. Reuse it or lose it. Recycle, reduce, reuse ... close the loop!
- Tagline is discussed and agreed mutually - We work for Earth

Miscellaneous Items:

Arrange a meeting before CAT01

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 5:

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>About DA 04</i>
Meeting Date:	<i>14/08/2019</i>
Meeting Time:	<i>11am</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Shrikant</i>
Attendees:	<i>Sushant, Shrikant, Utkarsh, Nirmala, Saurabh, Paurush</i>
Minutes Issued By:	<i>Saurabh</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Next Meeting to be held on 28/08/2019</i>	All members	28/08/2019
<i>Work on the completion of DA-4</i>	Shrikant & Sushant	14/08/2019

Decisions Made: (What, Why, Impacts)
<p><i>1. Hierarchy of Administration is decided.</i></p> <p><i>2. Management designations for the Organization.</i></p>

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



Discussion: (Items/Knowledge Shared by Individual member of the team)

Discussed about the work on the Assessment 4

- *Shrikant revised the management designations of the organisation namely Chairman, CEO, CFO, CTO, COO, CPO, General Manager and the associates under them.*
- *Their qualifications are discussed.*

Hierarchy of Administration.

- *Hierarchy is suggested by Sushant.*
- *Hierarchy of administration is discussed.*

PARKING LOT:

1. *Discuss about Targeted Customers & Strategies for attracting customers for the next meeting.*

Miscellaneous Items:

- *Next meeting on Review 1*

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Meeting Minutes



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MEETING 6:

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>Discussion for review 1 and new idea.</i>
Meeting Date:	<i>28/08/2019</i>
Meeting Time:	<i>11am</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Utkarsh</i>
Attendees:	<i>Sushant, Shrikant, Utkarsh, Nirmala, Saurabh, Paurush, Mahak</i>
Minutes Issued By:	<i>Mahak</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Review 1 ppt</i>	Mahak and Utkarsh	29/08/2019
<i>Meeting Minutes Compilation</i>	Shrikant	28/08/2019

Decisions Made: (What, Why, Impacts)
<ol style="list-style-type: none"><i>1. Assigned PPT and Meeting Minutes Compilation.</i><i>2. Introduced new idea of a device to clean ocean surfaces which will be pitched in Review 1.</i>

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



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Discussion: (Items/Knowledge Shared by Individual member of the team)

Discussion about a new idea.

- *Discussion about the idea of a light weighted vehicle that consists of a storage tray with a high volumetric capacity to store junk collected from the water bodies.*
- *Basically it is a device that sails on the water body opposite to the water flow, thereby eliminating the use of vacuum pump for the collection of junk.*
- *The device will be power by solar powered batteries and in case of turbulent flow, lithium powered batteries will be used.*
- *Introducing a skimmer to the device in order to clean up the oil spills.*
- *The alternative to skimmers on the device are the absorbents layer that will absorb the oil from water.*
- *After the storage tray gets filled completely, it will be called to the shore in order to Dispose the collected waste and prepare it for the next trip.*

PARKING LOT:

Discussion about the design of device.

Miscellaneous Items:

Take printouts of Meeting Minutes.

All members to be present for Review 1.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 07 :

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>Discussion about DA05.</i>
Meeting Date:	<i>04/09/2019</i>
Meeting Time:	<i>6 pm</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Utkarsh</i>
Attendees:	<i>Utkarsh, Nirmala, Sushant, Paurush, Mahak, Saurabh, Shrikant</i>
Minutes Issued By:	<i>Mahak</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Next Meeting to be held on 11/09/2019</i>	All members	11/09/2019
<i>Work on the completion of DA-05</i>	Mahak & Utkarsh	04/09/2019

Decisions Made: (What, Why, Impacts)

1. Details about the Targeted Customers are discussed.
2. Strategies for attracting customers are discussed.

Discussion: (Items/Knowledge Shared by Individual member of the team)

1. TARGETED CUSTOMERS:

- The concept of the product is discussed.
- Targeted Customer is defined as the specific group of consumers who are the focus of a company's advertisements.
- Target consumers have a large impact on a company's marketing and advertising plans. When companies design campaigns with messages to be conveyed in advertisements, they compose them specifically around the target consumer attributes.
- It is important to understand your target consumer, and the following criteria can act as a guide:
 - Your product or service has the ability to be preferred by the customer
 - Your product or service contains an attribute they desire
 - The target consumer has buying power and can provide you with sales and profits

2.: STRATEGIES FOR ATTRACTING CUSTOMERS

- Marketing strategy is basically planning all your actions in order to promote your brand, product or service in advance and monitor the results of such actions to understand what should be maintained and what can be improved.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



- This strategic planning must be constantly and closely followed up on, to make sure the expected results for each action are positive, and mainly, to ensure that the necessary adjustments are made.
- Digital marketing is used to describe the strategy of promoting brands or products through electronic media. It basically advocates the use of various digital devices and technologies to deliver marketing messages to customers.
- This marketing strategy is useful in attracting customers, building brand awareness and lasting relationships. In a study conducted by the Event Marketing Institute, 50% of the people that attend and participate in an event marketing activity end up making a purchase during the event.

PARKING LOT:

- Discussion about alternative sources of our product.

Miscellaneous Items:

- *Next meeting to be held on 11/09/2019 (Everyone should be present)*
- *Completion of DA 05 ASAP.*

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 8 :

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>Discussion about DA06.</i>
Meeting Date:	<i>11/09/2019</i>
Meeting Time:	<i>1pm</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Sushant</i>
Attendees:	<i>Utkarsh, Nirmala, Sushant, Paurush, Mahak, Saurabh, Shrikant</i>
Minutes Issued By:	<i>Shrikant</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Next Meeting to be held on 18/09/2019</i>	All members	18/09/2019
<i>Work on the completion of DA-06</i>	Shrikant & Sushant	11/09/2019

Decisions Made: (What, Why, Impacts)

1. Details about the product are discussed and finalized.
2. Alternative sources for the product are discussed.

Discussion: (Items/Knowledge Shared by Individual member of the team)

1. Product Specifications and details :

- The concept of the product is discussed.
- WASTRIX is a light weighted vehicle that consists of a storage tray with a high volumetric capacity to store junk collected from the water bodies.
- Basically it is a device that sails on the water body opposite to the water flow, thereby eliminating the use of vacuum pump for the collection of junk.
- Design Specifications like Mouth of The Device, Flapper, Sheet Metal Body and Equipped With Dual Battery Backup are discussed.
- Novelty of our product is discussed.

2. Alternative sources for our product :

- The Ocean Cleanup and Seabin Project seem to be our product competitors.
- Details about the background of these sources are discussed and analysed.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



<p>. 3. CAD Model of the product :</p> <ul style="list-style-type: none">• Various CAD model designs for the product are discussed.• The CAD model is finalized to be made on SOLIDWORKS Software.
<p>PARKING LOT:</p> <ul style="list-style-type: none">• Come up with better CAD model ideas if possible.
<p>Miscellaneous Items:</p> <ul style="list-style-type: none">■ Next meeting to be held on 18/09/2019 (Everyone should be present)■ Completion of DA 06 ASAP.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 09 :

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>About DA 07</i>
Meeting Date:	<i>18/09/2019</i>
Meeting Time:	<i>6 pm</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Mahak</i>
Attendees:	<i>Sushant, Shrikant, Utkarsh, Nirmala, Saurabh, Paurush</i>
Minutes Issued By:	<i>Utkarsh</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Next Meeting to be held on 25/09/2019</i>	All members	25/09/2019
<i>Work on the completion of DA-7</i>	Utkarsh & Mahak	18/09/2019

Decisions Made: (What, Why, Impacts)
<div>1. List of current competitors was made.</div> <div>2. Final market strategies to be implemented were finalised.</div>

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



Discussion: (Items/Knowledge Shared by Individual member of the team)

1. COMPETITORS

- a. Research was done on what current designs are available in the market with the same purpose.
- b. For all the competitors, their USPs (Unique Selling Point) were analyzed.

2. MARKET STRATEGY

- a. Great emphasis was given by all team members to the use of social media for marketing our product.
- b. Based on research, creating an affiliate program looked like the second best option to market our product. For this, each team member was assigned to look for three most suitable partners for the affiliation program.
- c. Also, the procedure to approach each of the potential partners was discussed.
- d. First phase and second phase promotional strategies were discussed.

3. CAD Model

- a. Design constraints faced were discussed and how to approach these problems was discussed.

PARKING LOT:

Discussion on Financial Planning and Break-Even Analysis.

Miscellaneous Items:

- Next meeting on DA-08 on 25/09/2019
- CAD Model finalisation within the next 2 days.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 10:

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>Digital assignment 8</i>
Meeting Date:	<i>25/10/2019</i>
Meeting Time:	<i>11am</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Paurush</i>
Attendees:	<i>Sushant, Shrikant, Utkarsh, Nirmala, Saurabh, Paurush, Mahak</i>
Minutes Issued By:	<i>Saurabh</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Upload DA</i>	Everyone	29/10/2019
<i>Meeting Minutes Compilation</i>	Paurush	28/10/2019

Decisions Made: (What, Why, Impacts)

1. Break Even Analysis:

- All the revenues and profits were calculated.
- Chart was prepared with the help of an online website
- Chart was then verified by all members among the group for any input errors and then finalised.

2.. CAD Model of the product:

- Various CAD model designs for the product are discussed.
- The CAD model was prepared on SOLIDWORKS Software.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



Discussion: (Items/Knowledge Shared by Individual member of the team)

Financial Planning (Prepared by Paurush and Saurabh)

- *Assessing business environment*
- *Business vision and objectives*
- *Budgeting*
- *Quantifying the amount of resources*
- *Summarizing the cost*

Business Objectives (Paurush)

- *Survival*
- *Competition*
- *Sustainable growth*
- *Mission driven core values*
- *Staying profitable*

Break even Analysis (Paurush)

1. *Using the variable cost and fixed cost to prepare the graph for break even analysis*

PARKING LOT:

Discussion about preparing the business marketing plan and operation plan.

Miscellaneous Items:

Take printouts of Meeting Minutes.

All members to be present for Review 2.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY



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MEETING 11 :

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>Discussion for review 2</i>
Meeting Date:	<i>10/10/2019</i>
Meeting Time:	<i>11am</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Sushant</i>
Attendees:	<i>Sushant, Shrikant, Utkarsh, Nirmala, Saurabh, Paurush, Mahak</i>
Minutes Issued By:	<i>Shrikant</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Review 2 ppt</i>	Sushant and Shrikant	10/10/2019
<i>Meeting Minutes Compilation</i>	Utkarsh	10/10/2019
Decisions Made: (What, Why, Impacts)		

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



1. *Assigned PPT and Meeting Minutes Compilation.*
2. *Slides of ppt were divided in each member for review 2.*

Discussion: (Items/Knowledge Shared by Individual member of the team)

Discussion about the review:-

- *Work flow of the review was discussed.*
- *Cad model was checked and verified for errors.*
- *Parts of ppt were divided into members.*
- *Minutes of meeting were assembled for the review 2.*

PARKING LOT:

Discussion on idea of working model.

Miscellaneous Items:

Take printouts of Meeting Minutes.

All members to be present for Review 2 on time.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 12 :

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>Discussion about DA09.</i>
Meeting Date:	<i>16/10/2019</i>
Meeting Time:	<i>6 pm</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Nirmala</i>
Attendees:	<i>Utkarsh, Nirmala, Sushant, Paurush, Mahak, Saurabh, Shrikant</i>
Minutes Issued By:	<i>Shrikant</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Next Meeting to be held on 30/10/2019</i>	All members	30/10/2019
<i>Work on the completion of DA-09</i>	Shrikant & Nirmala	16/10/2019

Decisions Made: (What, Why, Impacts)

1. Details about the Business Marketing plan are discussed.
2. The Operating plan is discussed.

Discussion: (Items/Knowledge Shared by Individual member of the team)

1. BUSINESS MARKETING PLAN :

- The business marketing plan will be a three phase plan.
- Phase 1 - Strategic Positioning, Brand and Web Presence
- Phase 1 consists of Strategic positioning, Brand development and Web Presence.
- Phase 2 - Blogging, PR, Video and SEO
- Phase 2 consists of Blog Strategy, Digital PR and partnering, Viral videos marketing and SEO and link-building.
- Phase 3 – Advertising
- Phase 3 consists of Online Advertising, Strategic PR, Speaking and Briefing, etc.

2. OPERATING PLAN :

- The key to an operations plan is having a clear objective and goal everyone is focused on completing. In order to create an efficient operational objective, think SMART.
- There are Department Objectives consisting of Strategic Objective, Manufacturing department operational Objective, IT department operational objective, Product Development operational Objective, Sales & Marketing department operational objective.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



- Production Process is discussed, consisting of Suppliers, Equipment & Technology and cost factor.
- Timelines and milestones of the company are discussed.
- They consist of Production Milestones, Market Milestones, hiring and Financial Milestones.

PARKING LOT:

- Discussion about the future scope of our product.

Miscellaneous Items:

- *Next meeting to be held on 30/10/2019 (Everyone should be present)*
- *Completion of DA 09 ASAP.*

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



MEETING 13 :

Program/Area:	<i>Solid Waste Management with maximum efficiency.</i>
Meeting Purpose:	<i>Discussion about DA10 and Final review.</i>
Meeting Date:	<i>24/10/2019</i>
Meeting Time:	<i>6 pm</i>
Meeting Location:	<i>Library</i>
Meeting Facilitator:	<i>Saurabh</i>
Attendees:	<i>Utkarsh, Nirmala, Sushant, Paurush, Mahak, Saurabh, Shrikant</i>
Minutes Issued By:	<i>Utkarsh</i>

Next Steps: (Task, Assigned to, Checkpoint Date)	Owner	Due Date
<i>Presentation, Report and Poster to be made</i>		
<i>Work on the completion of DA-10 and final review</i>	All members	06/11/2019

Decisions Made: (What, Why, Impacts)
<ol style="list-style-type: none"> 1. Future Goals like expansion and coming up with new products and services were discussed in detailed. 2. The Industrial estate information is discussed. 3. Final review preparation (Report preparation and Final PPT)

Discussion: (Items/Knowledge Shared by Individual member of the team)
<p>1. Expansion</p> <ul style="list-style-type: none"> • Venture capitalists will infuse cash into a start-up company until it can generate profits on its own. • To map out our business expansion in a volatile market, we must keep a good work culture in our office to make our employees satisfied and boost productivity. • To search for new markets to expand our startup business before our current market flattens out • Depending upon the response gained from the consumers and clients, we aim to expand around the world with help of networks and encouragement from the government.. • Knowing our limitation, which means being aware of what kind of performance we can really expect from our current business model is an important factor in business growth. <p>2. Introducing new products and services:</p> <ul style="list-style-type: none"> • The project includes the waste collection, segregation, incineration of waste products like plastics and polymers, which take several hundreds of years to decompose.

SOLID WASTE MANAGEMENT WITH MAXIMUM EFFICIENCY

Meeting Minutes



- The by-products obtained can also be used for construction materials. The carbon emitted can be processed to Carbon Nanotubes, which has further use.
- Business-to-Business service among other institution to provide them electricity or construction materials to industries.

3) Industrial Estate Formation:

- Provide infrastructure and accommodation facilities to the entrepreneurs;
- Encourage the development of small-scale industries in the country.
- Decentralize industries to the rural and backward areas.
- Encourage acclimatization in surroundings of major industrial units.
- Develop entrepreneurship by creating a congenial climate to run the industries in these estates/area /townships, etc.

4) Final review Preparation.

- Prepared final report.
- Included major points from all the previous DA's.
- A4 poster is prepared.
- Final mom is prepared before diwali vacation.

PARKING LOT:

- Before the final review on 7th November all the material is prepared accordingly.

Miscellaneous Items:

- *Completion of DA 10 ASAP.*