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  Compost Design & Shed Layout

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Our mentors John Reinhart, Kaleel Ahmed, and Arun Patre
Our Acara Instructors Fred Rose, Brian Bell, Julian Marshall, Tobin Nord, and Connie Rutledge

All Photography accredited to the “Tracing Waste”
Collection by Enrico Fabian Photography (5)
Sabujawalla will setup door to door waste collection services for households in Bhubaneswar by hiring waste pickers to collect and segregate waste. The high value waste will be recycled or composted, diverting 85% of waste that traditionally went to the landfill.

Waste is a huge problem.
What do we mean by huge? Urban cities alone, produce around 40 million tons of waste every day. With little infrastructure in place to handle rapidly growing population and dense living conditions, current waste management in many regions of India is insufficient. Municipal collection is unreliable and inefficient; In Bhubaneswar, 60% of the population resorted to dumping their waste in public drains because of broken municipal systems (6). Additionally, the waste being collected by municipalities and many private companies is not being segregated which results in rapid landfill volume growth.

Waste pickers are a quiet, sustainable army, who comb the barren landfills for valuable plastics and metals, to re-sell to scrap dealers. They are exposed to landslides, disease, pollution, toxins, human waste, fires, and work 12 hour days to make on average, $1.50 per day.

Sabujawalla proposes a solution to take waste pickers out of the landfill and educate them to collect waste door to door in a residential neighborhood. This provides waste pickers a safe, steady supply of income and residents with reliable, convenient waste collection. Sabujawalla will educate both waste pickers and residents on segregating their waste. The company will facilitate proper recycling, composting, and dumping of waste, and at full scale, remove 85% of volume from entering the overflowing landfills (9).
BACKGROUND

Roughly 450 tons of waste is being generated per day in Bhubaneswar and the BMC is capable of collecting 70% of it (6). The waste ends up at one landfill located in the surrounding area, without being segregated or processed in any way (2). Roughly 60% of the waste collected is organic, which generates methane when left to rot in the landfill (9).

The waste pickers are normally unskilled, illiterate people, secluded by the caste system, with no other option but to make their livelihood by collecting and selling waste. Waste pickers hunt for metals and plastics which they can sell to scrap dealers. The sales of their findings earn waste pickers a modest daily income of 1.5 USD (90 INR). It is important to note the income is dependent on how much waste they can find and how long they can work that day.

Moreover, the majority of the waste pickers handle the waste without protective gear, leaving them vulnerable to scrapes, bruises, and infection. Due to these poor conditions the life expectancy of a waste picker is estimated to be 45 short years.

The importance of segregating waste, to remove the massive amount of organic waste from the landfill is recognized by many states of India, with laws (that vary by state) put in place to penalize households who don’t segregate. Since methane emission is roughly 20 times more harmful than carbon dioxide, it creates a hostile work environment for waste pickers who spend 14 hours a day breathing the toxic air at the landfills. Unfortunately, many disregard the law as it is rarely enforced. Our system is set up to incentivize segregation by the waste pickers, and Sabujawalla can thereby prevent over 85% of waste produced from ending up in open spaces or the landfill, while improving the lifestyle and health of the waste picker.

Waste is a problem anywhere in India, but we are able to gain the most insight into the city of Bhubaneswar because our mentors, student partners, and field researchers are located there. The door to door collection model is successful, proven in multiple cities (big and small) in India, so it will likely work anywhere. As we gathered information from our sources we found the current waste collection system in Bhubaneswar to be inefficient, and so far have not seen any formal door to door waste collection and segregation business. All sources indicate waste is a growing problem in Bhubaneswar and the size of this opportunity is attractive.

“WHAT RAG PICKERS NEED IS BETTER PAY AND SOCIAL RESPECT, WHICH YOUR ORGANIZATION WOULD PROVIDE”
—ASHISH AGRAWAL, WASTEPICKER ORGANIZER

IMPACT METRICS

■ Within the first year Sabujawalla will provide door-to-door waste collection for one city ward (1,800 households) resulting in:
  - 600 tons/year of waste diverted from landfill or being openly dumped.
  - 150 tons/year of CO2 equivalent reduction in greenhouse gas emissions.
  - Improve the lives of 15 waste pickers and their families in the process.

■ After five years Sabujawalla will expand service to the 20 non-privatized wards in Bhubaneswar (~80,000 households) resulting in:
  - 24,000 tons/year of waste diverted from landfill or being openly dumped.
  - 6,000 tons/year of CO2 equivalent reduction in greenhouse gas emissions.
  - Improve the lives of 800-1,000 waste pickers and their families in the process.
**Problem Statement**

Waste collection in Bhubaneswar is unorganized and informal, which leads to uncollected waste and poor living conditions for residents. Moreover, waste pickers who scour landfills for high value waste work in extreme conditions risking their health for small and variable income.

**Value Proposition**

Sabujawalla will reduce uncollected waste in the community, and provide both a steady income and a safer work environment to waste pickers.

- **Customer benefits:**
  - Dependable waste collection
  - Cleaner community
  - Decrease in health effects such as nausea associated with open waste

- **Waste picker benefits:**
  - Higher salary
  - Reputable organizational employment
  - Healthier work environment

- **Environmental benefits:**
  - Decrease in open production of methane
  - Increase in recycling
  - Decrease volume of waste reaching a landfill
BUSINESS DESCRIPTION

Sabujawalla is a decentralized door-to-door solid waste management business in Bhubaneswar.

The company provides household waste collection for a monthly fee. This will be accomplished by setting up a hierarchy of managers, waste collectors, and sorters to service households paying for the service. Managers will preside over the waste collectors, ensuring they collect waste from paying households. Participating customers will be educated about segregating their wet and dry waste. Collected waste is gathered at a local sorting facility where it is further sorted into:

- High-value wastes (e.g., plastics, paper, glass, metals) to be sold to scrap dealers
- Wet waste to be composted and sold to gardeners and local farmers
- Inert waste to be disposed of through the existing waste management system

According to the BMC, 10% of the waste stream is neither organic or recyclable so we will utilize the current waste-to-landfill system the BMC has in place to safely dispose of inert waste.

SEGREGATION

The model the company implements is designed to incentivize waste pickers to segregate waste. Because segregation is so important the company must consider additional solutions to increase household level segregation. In preparation for the pilot, Sabujawalla will test increasing segregation by households with monetary incentives. This is the most feasible idea to test as the company has complete control over the price we want to charge households. Additionally, during the pilot phase is when the company will be searching for the price households are willing to pay for the service. Below are other ideas Sabujawalla is interested in testing:

- "Gamify" waste segregation by giving households a public rating (silver, gold, platinum) based on their performance in segregation, similar to the United States LEED program. This will both encourage residents who are participating, and spread the word to other residents in Bhubaneswar about the company’s system. The effect of this idea can be accomplished through other societal statuses that are inherent to the culture in Bhubaneswar.

- Forming community groups with local women from households that are segregating well. These community groups will speak to their friends and neighbors about the importance of waste collection and segregation. This strategy has worked for multiple waste picker organizations in different cities throughout India.

- Presenting and demonstrating residents of our target location in a communal event will educate attendees on the impact of the company’s system, as well as segregation. This can help with not only segregation, but also adoption of the model throughout the city. Community events will be held by the company during the pilot and launch, but a continuation of educational events can work towards increasing segregation.

EMPLOYEES

Sabujawalla’s service will rely on waste collectors, sorters, and managers. These employees will have the following roles:

- Waste collectors
  - Collect waste from 150 individual households per day
  - Verify household level sorting
  - Conduct low-level sorting of waste at the point of collection as necessary
  - Transport collected waste to the sorting facility

- Sorters
  - Receive collected waste from collectors;
  - Conduct high-level sorting of waste;
  - Sell high-value waste (e.g., plastics, paper, metal) to dealers;
  - Maintain composting facility

- Managers
  - Collect regular payments from households;
  - Solicit and set up new household accounts;
  - Establish new collection routes based on new and existing accounts;
  - Hire and train new collectors and operators;
Market Analysis

What is happening now?

The BMC collects 70% of waste produced in the city, but segregates none of it before it reaches the landfill. Bhubaneswar is separated into 60 different wards, or zones, and the BMC contracts private entities to collect waste for 40 wards. The BMC pays about Rs 460 per trip of garbage to private entities who collect waste costing the BMC roughly $2,600,000 per year (3). Significant costs can be reduced for the BMC by removing 85% of waste volume that would usually end up in the landfill.

Contracts

A for profit company, Waste Ventures, charges households 50 to 60 Rs. per month to collect waste at their doorstep. This company has implemented several successful pilots of door to door collection with households of 3,000, 5,000, and up to 100,000 in Nalco, Motihari, and Osmania, respectively (6).

SWaCH, a waste picker organization servicing 400,000 households in Pune, vary their contract price from 5 Rs. to 50 Rs. per month depending on the user (Direct Source from SWaCH). We are basing our initial contract fee off these sources and will test it in the pilot. What are people willing to pay for waste collection? This answer will vary by region, city, neighborhood, and household. A survey of 300 random households conducted by BMC in 2010 (as a part of BMC’s City Development Plan) suggest ~50% of residents are willing to pay an additional fee for door-to-door waste collection. Our XIMB team talked with 30 households near a slum in Bhubaneswar, and 90% of those interviewed said they were willing to pay for a reliable service to collect their waste. During the pilot, we will test this finding and determine exactly how much residents are willing to pay.

Re-selling solid waste

The solid waste being re-sold by waste pickers includes plastic, paper, metal, wood, glass, batteries and more. We have received information from a waste picker association in New Delhi about the pricing of recyclables and on average the valuable waste being collected at the door is worth 10 - 15 Rs. We are still working to find numbers specific to Bhubaneswar, as the market rates will be different. Mapping out how much can be made from selling valuable waste in Bhubaneswar will be part of the pilot project this coming summer.

Education

A crucial part of the company’s success will be educating the employees to effectively collect and segregate waste. Moreover, thoroughly training the collectors on how to interact with the customer, in order to create a trusted door-to-door collection system.

We are in contact with Chintan, a waste picker association active in Delhi, that currently implement household level waste collection. In addition to effective segregation, our contact at Chintan pointed out the importance of teaching the waste pickers to maintain a professional appearance. Since waste pickers are viewed as low level in the caste system, professionalism is key to make the interaction between customers and collectors work. The educational program will focus on the following topics:

- Professionalism - How to maintain a professional appearance
- Segregation - How to efficiently separate wet and dry waste
- Reliability - Importance of building customer trust
CUSTOMERS

■ Who is our target market?

Households in the city of Bhubaneswar who feel the pain of insufficient waste collection and are willing to pay for an alternative. At a fixed rate, the company’s waste collectors will collect waste from households on a daily basis. The waste collectors and Sabujawalla will educate households on how to segregate waste prior to collection. The company recognizes many households have maid services who clean the households, and the education program will be targeted at this persona when necessary.

■ Who is not our target market?

Apartment complexes, slums, and areas where private companies are already well established will not be our target market for the pilot and initial launch. As our solution begins to gain ground we will re-assess whether apartments and other residential areas are attractive for the business.

■ Revenue streams

Sabujawalla has three different revenue streams, the first being residents who pay a fixed monthly fee. The two other streams come from selling the waste collected by the company.

■ Recycling plants

For the initial pilot phase, waste pickers will continue to sell the high value waste they gather to their existing customers.

As Sabujawalla scales we will control the sale of plastics, develop a physical location to process plastic waste, and increase the profit margin, as waste is sold with a higher value to companies who can use the waste in its purchased form to make new products. Aggregating and cleaning plastics alone can increase the return per kilogram by a factor of 2-3. This can be achieved by skipping kabadiwalas and selling directly to plastics processing plants. Further processing by Sabujawalla, including chipping and melting of plastics, can increase returns more than 40 times what a waste picker can achieve selling plastics to a kabadiwala (10).

Sabujawalla recognizes that further treatment independent of waste can have a negative impact on the current Bhubaneswar waste collection system, as it moves toward a more self-controlled treatment process for plastic waste. The effects of the company’s gradual movement towards this will be closely monitored as it occurs.

■ Wet Waste

Depending on location, wet waste is valuable to farmers, gardeners, or energy companies as fertilizer or biogas, respectively. We have made contact with Maheswar Khiller, the founder and managing trustee of Bhubaneswar’s Kitchen Gardeners’ Association. Mr. Khiller is also an organic farming consultant, and wants to work closely with us as we begin producing organic fertilizer.

CHANNELS

To deliver our value proposition to our customers, Sabujawalla will rely on two main channels, waste pickers and managers.

■ Waste pickers
To deliver the improved waste collection service to households, waste pickers will be utilized to:
- Collect waste from ~150 house-holds a day
- Transport the waste (via rickshaw or cart) to Sabujawalla’s sorting facility
- Process the wet waste through the on-site composter
- Sort the high value waste

■ Managers:
To ensure the income of the waste pickers and the sustainability of the company, sales personnel and managers will be used to:
- Collect contract monthly fees from customers
- Sell recyclables to local facilities and collect revenue from valuable waste
- Educate the households about the importance of segregation and how to do it correctly
**COMPETITORS**

**In accordance with Indian legislation,**
the BMC is responsible for the waste management and required to provide waste collection service in the 60 wards constituting Bhubaneswar. Sanitation is privatized in 40 of these, meaning the BMC has contracted private businesses to control waste management here. By initially focusing on wards which are entirely run by the BMC, Sabujawalla will not be directly competing with private companies.

As the business scales, we will begin to compete with the private entities in Bhubaneswar. However, to our knowledge at this time, there is no working model for door to door collection in the city. Current collection systems are mainly based on residents dumping their waste in community bins, which are being controlled by the BMC or the private companies. After establishing ourselves with a successful pilot and launch, this will give Sabujawalla a competitive advantage, establishing ourselves as a trusted household waste collection service.

- **A Larger Scale**

Waste Ventures is a for profit company which provides tailored waste management solutions with focus on tier 2 and 3 cities in India, where no formal waste management exists. Their main model is to employ waste pickers to conduct waste collection from industries, commercial buildings and households, depending on the market in the current region. As for now, Waste Ventures is not operating in Bhubaneswar and will not be a direct competitor. Different from Waste Ventures, Sabujawalla will focus on waste management systems in bigger cities, rather than creating new systems from scratch in smaller cities.

Waste Ventures does not wish to prevent companies from adopting their model, and are willing to share their process and data with anyone interested. They will serve as a valuable partner during our feasibility test and pilot.

- **Retailers of waste management products**

Businesses, such as Daily Dump, which provide products for composting solutions and other equipment that facilitates waste separation at a household level, appear to be gaining ground throughout urban Indian areas. The products offered require high level customer involvement, as composting at the household level can be cumbersome and space intensive. Moreover, we have not identified any companies that provide this type of product in combination with a waste management service. In fact, the growing market for waste treatment products indicates a higher awareness of the importance of segregation, which would be beneficial to our business.

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**PARTNERS**

To implement door-to-door collection at Sabujawalla, we will rely on one key partner and several key relationships:

- Possessing control of waste collection in Bhubaneswar, the BMC will be an important partner in the growth of the company. Sabujawalla strives to alleviate dependence on the government for waste collection. Because we have the potential of diverting 90% of the waste stream from the BMC’s collection, we are creating a symbiotic relationship between our collection system and the local government. As indicated by our contacts at Waste Ventures, local governments support projects such as our intended pilot and have in some cases aided such efforts financially, by finding space, or providing necessary connections. Waste Ventures attributes much of its success to a cooperative and supportive local government.

- We intend to develop strong relationships with local scrap dealers, plastics processing plants, community leaders, the households we serve, and the anchor of our organization, waste pickers.
Risks and Assumptions

The implementation of the Sabujawalla system is connected with certain risks, and at this stage, a few assumptions need to be validated through a pilot:

- Contracts with residents
  The size of the market for waste collection services is believed to be substantial, but is not entirely known at this point. Results of the survey conducted by BMC in residential areas of Bhubaneswar indicate that the majority of the residents are willing to pay a nominal fee for a reliable and convenient waste management system. Numbers from Waste Ventures operations also point towards a significant market for this type of service in similar locations. Accurate first-hand data of the market size specific to Bhubaneswar will be obtained through the pilot.

- Customer interactions
  The door-to-door collection system will require interaction between waste pickers and residents. Considering that waste pickers most commonly belong to the lower segments of the social hierarchy, meanwhile the residents have a higher social status, residents could see the interaction as unfavorable. As previously mentioned, a major part of the education of the employees will be focused on maintaining a professional appearance towards the customers. This training, in combination with appropriate attire and equipment, will assist waste pickers to be recognized as an official service provider for the residents. This has been the case with similar business models in India and the pilot will further test this assumption specific to the Bhubaneswar area.

- Cooperation with the BMC
  For the pilot phase, residual waste which cannot be recycled in anyway, will be dumped in existing community bins and transported to the landfills through the BMCs channel. With scaling of the business, an agreement with the BMC concerning the use of these transports will be needed. Additionally, there is a bidding process for any waste management company seeking approval by a local government. A contact with Waste Ventures shared that local municipalities view projects like ours to not require any formal bidding process. This period can last for the first three years of a company’s life, but must be re-evaluated as it grows. Details on the BMC’s view on this must be clarified.

Feasibility Study

In order to validate crucial components of our business plan and evaluate risks, we will conduct a two month feasibility study. If our assumptions hold and the plan still seems feasible, we will raise capital for full implementation.

In consultation with our XIMP partners and the BMC, we will determine a suitable neighborhood to conduct our pilot in one of the 60 wards in Bhubaneswar.

In partnership with Waste Ventures, Sabujawalla will research what the local climate is for the value of waste and This period will allow the team to learn more about the waste management and aswer key questions about waste collection, specific to Bhubaneswar. Below are a few:
- The amount and make-up of waste collected.
- The gaps in current waste practices being done in the city and in the landfill.
- Residents willingness to pay for collection of the waste.
- Understand local authorities, municipality, and households interest in this system.
- NGO presence
Implementation Strategy

Full Implementation
We will launch the business starting with 2 waste pickers servicing 300 households and adding 300 households every three months for the first year. This will be a period to test further assumptions we developed through the pilot test, but the company will begin providing a service to households for a fee. For the first 6 months, focus will be put on the composting process and household interactions with the collectors.

Sabujawalla will begin to aggregate and sell high value plastic waste 6 months after the launch date. We will continue a conservative growth rate for the remainder of the first year to ensure quality control of the service being provided. During this period, focus will be put on the recycling process and markets.

By the end of year one, we plan to collect from 1,800 households and employ 12 waste pickers, 4 sorters, and 2 managers. At this point, the company will break even and continue to scale.

In year two we plan to grow by 600 households per month and by the end of year two we plan to be collecting from 9,000 households. We will increase the growth rate as we continue to expand and learn more about that process.

We can use the lessons learned during the first two years to develop and document a growth strategy, that will enable rapid expansion to new locations. Additionally, we will be developing a plan to approach BMC to become a contracted private waste collector for Bhubaneswar with plans to expand to locations they are currently servicing and competing with existing privatized waste collectors.

Pilot
For the first month of our pilot we will employ three people: a field employee from our team, a local consultant, and a waste picker. The field employee and consultant will identify 150 customers to provide our service for one month for 30 Rs. ($0.50), and the consultant will educate the customers on waste collection and segregation. The waste picker will be provided with a uniform, protective gear, and a cart (7000 Rs., $110) to collect waste from the 150 customers on a daily basis. The waste picker will keep and sell the collected recyclables in addition to receiving a small salary of 60 Rs. ($1) per day. Collected wet waste will be added to a compost bin (Appendix C) constructed and maintained by the field researcher. The remaining inert waste will be disposed in a nearby, existing community bin. During the first month, the field employee and consultant will identify a second community and 50 customers to provide our service for one month for 60 Rs. ($1). We will hire a second waste picker and provide them with the same supplies to provide daily collection for these households. At the end of the first month, we will inform the customers at the first location that the monthly fee will be raised to 60 Rs if they do not segregate their waste.

Conclusions and Recommendations
As India grows into a developed nation waste remains one of the country’s most pressing issues with many of environmental and societal health impacts. Because of the complexity of this issue, and the lack in infrastructure to meet the needs of the exponentially growing population, municipal waste collection is not sufficient in maintaining clean communities in many regions. Moreover, the waste that is being collected and sent to landfills is not being segregated, wasting valuable resources. The waste contributes to the potent greenhouse gas methane and is a missed financial opportunity. In the middle of the waste crisis are waste pickers, who work long and dangerous hours in landfills to collect valuable waste to sell. This informal segment of waste collection is critical to alleviating landfill waste and increasing the lifecycle of plastics, metals, and glass. Sabujawalla fights to get waste pickers taken out of the hostile landfill environment, helps to implement in-door-to-door collection for households, and process both wet and dry waste to create profit from recyclables and compost. Specifically in Bhubaneswar, where no door-to-door collection of waste exists, this plan will ensure an increase in both the waste pickers lifestyle and cleanliness of the community.
Matthew Bechle
Hunter is pursuing a B.S. in Engineering and Business, with a physics and product design minor. He picked which courses interested him and will apply to his future goals related to each discipline. He currently works at the Venture Center, which is a part of the Office for Technology Commercialization (OTC), assisting with business plans, financial projections, and other market research for new university start-ups. He was a founder, member, officer, and vice president of a student group on campus called Tesla Works that does engineering and design projects. In a word, Hunter can be described as curious. He loves learning about new problems and how to solve them. This is why start-ups have attracted him and he aspires to do his own some day. What drew Hunter to the Acara class and his current job, was the opportunity to work on an impactful project and not yet another app (unless it saves the world).

Stefan Lundell
Abbe is currently seeking a Bachelor of Design of Art in Architecture and a minor in Sustainability Studies from the University of Minnesota. Growing up in the small suburb of Mahtomedi, MN, she enjoyed spending the winters with snowball fights and the summers swimming in one of the many lakes. It was in Minnesota where she grew a love for the urban environment. This interest brought her to study in Chicago, Honolulu, and now Minneapolis, where she has honed her studies on how to design and repair cities to be environmentally sustainable and livable. She is interested in taking the Acara challenge course because of her fascinated with Indian culture and desire to have first hand contact working with issues presently facing India; While she has many opportunities to build and model in architecture studio, this class will give her a new way to problem solve outside her usual methods of design.


Table 1: Start-up Cost (First Year, including pilot)

<table>
<thead>
<tr>
<th>Cost</th>
<th>USD</th>
<th>INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pilot Test</td>
<td>1490</td>
<td>89400</td>
</tr>
<tr>
<td>Employee Costs</td>
<td>13920</td>
<td>835200</td>
</tr>
<tr>
<td>Equipment Costs</td>
<td>4160</td>
<td>249600</td>
</tr>
<tr>
<td>Transportation Costs</td>
<td>840</td>
<td>50400</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td><strong>20410</strong></td>
<td><strong>122400</strong></td>
</tr>
</tbody>
</table>

**Pilot Test**

Table 2: Pilot Financials

<table>
<thead>
<tr>
<th>Pilot Costs</th>
<th>USD</th>
<th>INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste picker Salary ($3/day)$</td>
<td>270</td>
<td>16200</td>
</tr>
<tr>
<td>Consultant Salary ($8/day)$</td>
<td>360</td>
<td>21600</td>
</tr>
<tr>
<td>Cart (2)</td>
<td>300</td>
<td>18000</td>
</tr>
<tr>
<td>Compost Shed</td>
<td>200</td>
<td>12000</td>
</tr>
<tr>
<td>Uniforms &amp; Safety Equipment (2)</td>
<td>80</td>
<td>4800</td>
</tr>
<tr>
<td>200 L Barrels (4)$</td>
<td>80</td>
<td>4800</td>
</tr>
<tr>
<td>Printer + Office Supplies</td>
<td>200</td>
<td>12000</td>
</tr>
<tr>
<td>International Travel$</td>
<td>4000</td>
<td>240000</td>
</tr>
<tr>
<td>Room and Board$</td>
<td>1000</td>
<td>60000</td>
</tr>
<tr>
<td>Travel Domestic (India)</td>
<td>200</td>
<td>12000</td>
</tr>
<tr>
<td><strong>Total Cost</strong></td>
<td><strong>1490</strong></td>
<td><strong>89400</strong></td>
</tr>
</tbody>
</table>

**Full Implementation**

Table 3: Full Implementation Costs

<table>
<thead>
<tr>
<th>Employee Costs (per employee-month)</th>
<th>USD</th>
<th>INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1 Waste Picker Salary ($2/day)$</td>
<td>60</td>
<td>3600</td>
</tr>
<tr>
<td>Stage 2 Waste Picker Salary$ ($4/day)</td>
<td>120</td>
<td>7200</td>
</tr>
<tr>
<td>Operator Salary ($4/day)</td>
<td>120</td>
<td>7200</td>
</tr>
<tr>
<td>Manager Salary ($8/day - 22 days/month)</td>
<td>180</td>
<td>10800</td>
</tr>
</tbody>
</table>

**Equipment Costs**

<table>
<thead>
<tr>
<th>USD</th>
<th>INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>280</td>
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<tr>
<td>150</td>
<td>9000</td>
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<td>40</td>
<td>2400</td>
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<tr>
<td>50</td>
<td>3000</td>
</tr>
<tr>
<td>30</td>
<td>2000</td>
</tr>
</tbody>
</table>

**Transportation Costs**

<table>
<thead>
<tr>
<th>USD</th>
<th>INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>30000</td>
</tr>
</tbody>
</table>

1. For the first 6 months, waste pickers will keep and sell high-value waste, and Subujwala will give them an additional salary on top of this.
2. After 6 months, Subujwala will begin aggregating high-value waste and providing waste pickers with an increased salary.
3. Consists of a 2m x 6m compost shed & 4 200L sorting barrels.

Table 4: Full Implementation Revenue

<table>
<thead>
<tr>
<th>Revenue Component (per household-month)</th>
<th>USD</th>
<th>INR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Fees</td>
<td>1</td>
<td>60</td>
</tr>
<tr>
<td>Sales from Recyclables (after aggregating)$</td>
<td>0.6</td>
<td>40</td>
</tr>
<tr>
<td>Sales from Compost$</td>
<td>0.2</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
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1. Based on value per waste picker calculated by Waste Ventures
2. Based on 1kg/day total waste, 60% organic waste, and ~300Rs for 50kg of compost.
Table 5: Year 1 Cash Flow

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