

# Hasiru Batte

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## **Introduction**

“Roti, kapada, aur makaan” is a popular phrase in India used to define the three basic needs of humans. Roti, being food, Kapada meaning clothes, and makaan denoting house. While food and shelter have always been a focal point, clothing often goes unnoticed. With people buying billions of pieces of clothing every year, clothing waste is bound to become a problem [1]. Where does this waste go? Or, more importantly, where *should* it go?

### *Background*

In 2010, the Bruhat Bengaluru Mahanagara Palike (BBMP) commissioned the Dry Waste Collection Center (DWCC) to decentralize the waste management system in Bengaluru. In the bi-party agreement between the BBMP and the DWCC operator, the BBMP provides land, infrastructure, and ensures inflow of dry waste where the operator manages the day to day operations of collecting, segregating and recycling/selling of the dry waste [2]. As of today, 189 of the 198 wards in Bengaluru have a DWCC with a capacity between 1- 4.5 ton per day [3]. The DWCC could be operated by a waste-picker, scrap dealer, Non-Governmental Organization (NGO) or a Civil Society Organization (CSO). The dry waste is collected door-to-door (residential) by the operators, and dropped off at the centers by formal/informal waste-pickers which they collect from houses or black spots around the city. Since February 2017, it is mandatory for residents to segregate their waste into wet waste, dry waste and reject waste. The DWCC operators are suppose to go to every house to collect the dry waste twice a week. The BBMP defines Dry Waste as non-biodegradable wastes and includes paper, plastic, glass, metal, thermocole, cloth, and wood [3].

### **Problem**

For the past four weeks, our team of four students have been visiting DWCCs throughout Bangalore on behalf of Hasiru Dala to collect data on infrastructural issues and best practices. By conducting interviews with DWCC operators and waste pickers, we have both gained a better understanding of the local solid waste management system and identified an additional problem imbedded within these infrastructural challenges: Until three months prior, the majority of the non-recyclables ending up at DWCCs would be sent to a cement factory for incineration. However, due to a surplus, the cement factory will no longer accept non-recyclable waste for free, causing tons of non-recyclables to pile up at DWCCs. Furthermore, DWCC operators cannot refuse the collection of these material because BBMP requires them to collect it with the agreement that BBMP pays for and provides appropriate transportation of the non-recyclable material to landfill. However, BBMP has yet to follow through on this agreement, therefore adding to this growing problem. Thus, this unexpected accumulation of non-recyclable dry waste has created consequential problems for DWCC operations, including consuming valuable storage and storing space for recyclables and safety hazards.

Of the non-recyclables, clothing waste is a major component. Clothing waste accounts for about 3.5% - 4% of dry waste collected by weight and they represent little to no value to these operators [4, 5].

#### *Environmental Impact (Planet)*

Our team identified the need for a better disposal cycle for clothes. Incinerators and landfills cannot be the only option for these textiles. Incinerators at factories are used to create energy, similar to waste to energy plants [6]. Waste to energy plants burn waste to create energy, but they have been experiencing issues all over India and are always on the verge of shutting down. These waste to energy plants fail because of “poor waste segregation, seasonal variations in waste composition and properties, inappropriate technology selection and operational and maintenance issues” [7]. If industrial plants with the sole purpose of creating energy get shut down, incinerators cannot be any better as they are privately controlled industries, hidden away from the enforcement of rules and regulations. Unfortunately, the clothing waste going to landfills is no more environmentally friendly than incineration. Most of the textiles which end up at landfills release toxins as they decompose, where some textiles even take as much as 200 years to decompose [8]. Textile waste disposal is a serious environmental issue, but it is one that can be solved with a step in the right direction, even at the level of a DWCC in Bangalore.

#### *Financial Sinks (Profit)*

As of now, all dry waste is collected at DWCCs through door-to-door service or drop off. At DWCCs, all types of dry waste materials deemed “recyclable” are segregated, aggregated by the kilogram, and sold to various other markets. “Recyclable” in the context of a DWCC operator includes any dry waste material which have some marketable value, bringing the business revenue. Some examples include PET bottles, milk packets, and paper that sell for anywhere between 2-4 rupees per kg [6]. Likewise, “non-recyclable” materials include mixed dry waste which has no marketable value. These non-recyclables majorly include multi-layered plastics (MLPs), textiles and mattresses. Within the tons of non-recyclable material building up at these centers, one type in particular sits as an untapped source of revenue: all of the contaminated yet reusable clothing.

#### *Credibility (People)*

Our team accompanied the DWCC operator Mansoor on a door-to-door collection of dry waste. By observing and interacting with residents during the collection, we noticed people were throwing away clothes that were in completely usable condition along with the rest of their dry waste. This experience also showed us a new relationship we had not realized before: waste pickers had low credibility in the eyes of these residents. The residents said that they would not separate out the clothes from rest of the dry waste for waste pickers, as they do not want them to

make any extra money from the clothes despite the fact that many residents agreed on giving the clothes separately if they could trust that the clothes were going to people in need. Goonj, a nationally recognised NGO, said that they do not and would not accept the clothes from DWCC as the clothes are contaminated, adding to the fact that waste pickers did not have much credibility, even in the eyes of nonprofit organization.

### *Problem Statement*

Reusable clothes are getting contaminated at DWCCs and are forced to go to incineration plants and landfills.

### **Solution**

We are Hasiru Batte, a nonprofit organization dedicated to finding new alternatives for textile waste. We believe in creating new markets for traditionally low value textiles which have consistently ended up in landfills or have been incinerated. We are the missing link between the commercialization of textile reuse/recycling and untapped revenue streams for Dry Waste Collection Centers.

Hasiru Batte is a brand within Hasiru Dala with a triple bottom line goal:

- Planet: Identifying markets & techniques for clothing waste to divert it from landfill and incinerators.
- Profit: Help waste pickers identify new markets and create business models for traditionally unrecyclable clothing waste.
- People: Providing credibility for the waste picking community.

### *Pilot*

A pilot program focusing on the segregation of clothing at the source by collection of clothing through door-to-door service took place with planning and execution by Hasiru Batte and several waste picker stakeholders. The entire process for this pilot program began with outreach; please refer to “The Story So Far” on page 9 of the Appendix for further detail. Hasiru Batte created a poster flyer for Ward 112 residents about door-to-door collection of unwanted, used clothing. The flyer includes guidelines on what the quality of the discarded clothing should be in when given with dry waste. For further details on the content of this flyer, please refer to page 15 in the Appendix. The flyer was shared with Shivkumar, a member of the Residential Welfare Association, who sent it in a WhatsApp group message to approximately 100 residents in Ward 112 on the 21st and 22nd of February. Hasiru Batte joined waste collectors from Krishna’s DWCC on Saturday, February 24th for the established door-to-door collection for several hours. By joining the waste pickers during door-to-door collection, we ensured that the clothes were kept separate from other dry waste. Clothing collection continued for the rest of the day, unmonitored. The clothing collected was then surveyed, folded, and stored in the office space of

Krishna's DWCC. Further evaluation of the total clothing collection will be held on Tuesday, February 26th including total counts of usable and unusable cloth and weight of each material type. From there, markets will be determined for the cloth.

#### *Pilot Outcome*

We discovered that not many residents had received the poster flyer in the whatsapp message. Thus, our outreach technique needs to be reconsidered and we will be coming up with an elaborate outreach plan in the coming week.

Our DWCC operator Krishna also pointed out how it meant extra work for his guys during collection to keep the clothing segregated from other dry waste, inferring that proper segregation may not continue in our absence. He said that collecting the clothes during daily collection and storing them over a long period at DWCC is not a very feasible strategy as he does not have enough space and rodents might damage the clothes. Thus collecting the clothes once or twice in a month would be a better way to do it.

For detailed feedback, please refer to page 17 of the Appendix.

#### **Cost-Benefit Analysis**

There are three present markets for clothes (along with other non-recyclables):

##### Cement Factory

Amount paid by Cement factory to DWCC for non-recyclables = Rs 3-4/kg

Amount DWCC would have to pay for transportation to cement factory = Rs 10/kg

Thus, the DWCC would make a loss of Rs 6-7/kg

##### Landfill

The BBMP is suppose to take the non-recyclables to landfill for no cost nor profit. Thus, the DWCC operators would make no money in that scenario.

If the DWCC wanted to send the non-recyclables to landfill to free up space for sorting, they would have to pay Rs 2/kg

##### Waste-to-Energy Plant

The BBMP is planning to create waste to energy plants using the non-recyclables to feed the incinerators for energy production.

The BBMP wants to pay the DWCC for these non-recyclables Rs 0.5/kg

The DWCC operators are demanding Rs 4/kg

→ Thus we have to find a market for these clothes where the DWCC makes at least **Rs 5/kg**.

## **Next Steps**

First, we will come up with a thorough outreach plan. Pitching our idea to all the RWA members in Ward 112 and subsequently the Corporator would help us reach more residents. We will also meet up with the outreach manager of Daily Dump, a wet waste composting organization in Bangalore to learn about best outreach techniques. Once we maximize our outreach, we then plan to do another collection drive on 7th of March.

Meanwhile, we will test our potential markets. In order to verify whether there is a market for used clothing, we will reach out to various clothing related NGOs, donation centers, second-hand markets, fabric shredding factories, and local buyers. For a detailed list of potential markets, please refer to page 10 of the Appendix.

In order to ensure longevity of Hasiru Batte, there are several more steps we must take:

We will create a mission, vision, and value statement also branding Hasiru Batte. We will create a logo to brand Hasiru Batte for legitimacy purposes. A brand logo for Hasiru Batte will provide credibility for waste pickers to explore their future markets.

We need to establish a permanent team of employees. As a student intern team with only three more weeks left in Bangalore, we need to arrange for someone to take our place. Considering our desire to keep this nonprofit organization within the waste picking community, we will be focusing on employing passionate and capable members within the waste picking community such as DWCC operators, collectors, and ward residents. We will also search for skilled business professionals that have exceptional work experience with other startups and NGOs. We will educate our new employees as needed.

## **Future Scope**

For the future scope of this project, we plan on scaling up Hasiru Batte to all other wards associated with Hasiru Dala. From there, we would like to expand this practice to all other dry waste centers in Bangalore. If possible, the expansion of clothing collection at dry waste collection centers would scale nationally.

Furthermore, we would like to develop a chain of second-hand clothing stores associated with the Hasiru Batte brand run by the DWCC operators and waste picker community. They would use these stores to sell the clothing they receive in usable condition. Along the same lines, a website to sell these clothing items would be another form of expansion that could maximize revenue.

Most importantly, we would like to research and create an in-house shredding operation for the unusable clothing and fabric pieces. So far, we have identified several companies invested in the

full-circle recycling of fabric. Generally, the process includes shredding of unusable fabric/cloth, purifying of the shredded material, addition of chemicals to separate fabric that creates a slurry, then the remaking of fabric sheets. While we have a brief understanding of this process, we plan on reaching out to these industries for a complete answer so as to inform our operators on their next steps.

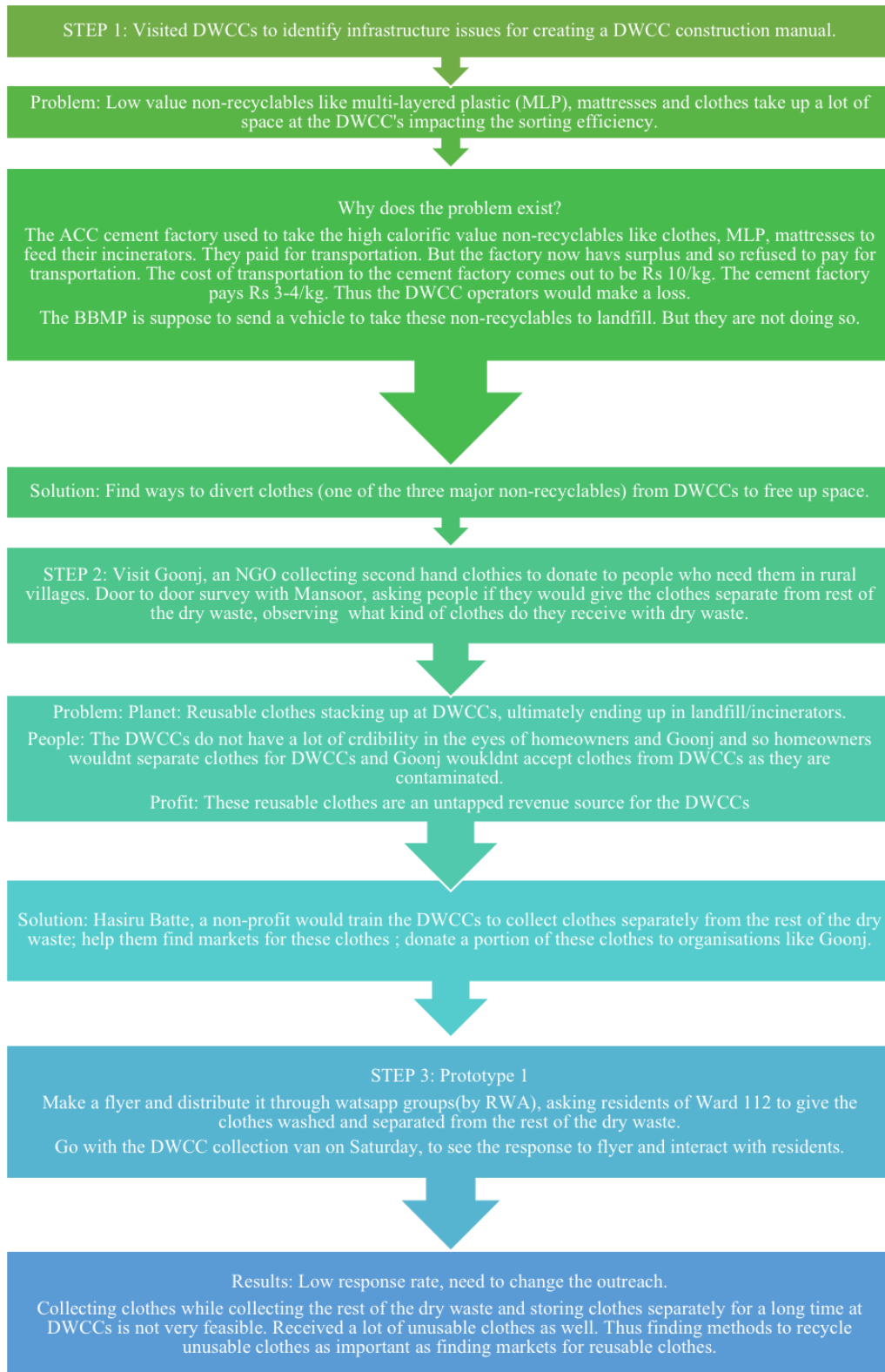


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## Appendix

### The Story So Far



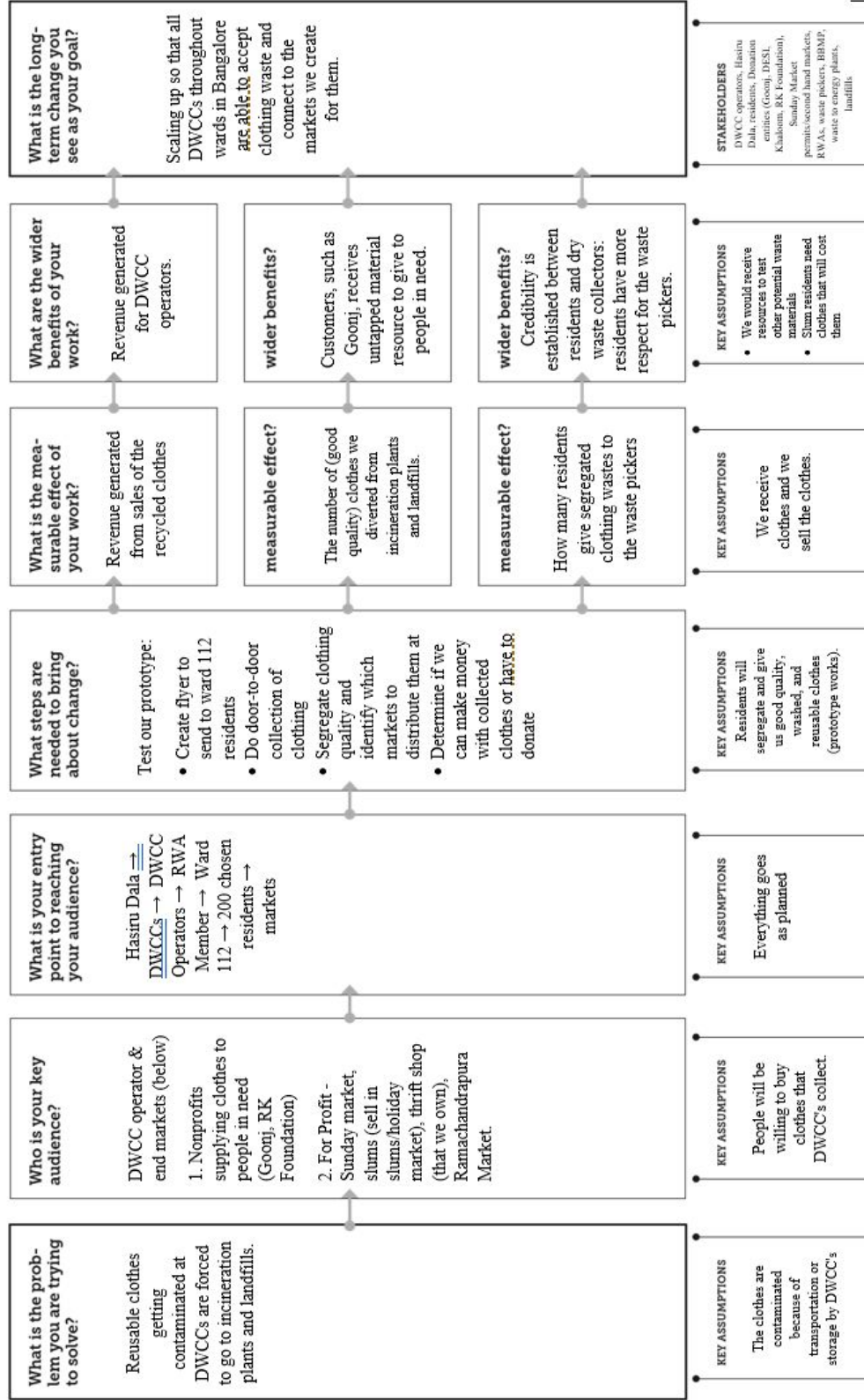
## Potential Markets Identified

- Organisations which take donated clothes like Goonj, R.K. Foundations, Vidyanarayan, Indest Kindess Wall, Bangalore Hospice Trust.
- Traders buying second hand clothes per kg.
- Second hand markets, Sunday markets.
- Wholesale fabric markets : Ramachandrapuram, Bangalore.
- Thrift shop (run by Hasiru Batte and DWCC operators), online sales through Hasiru Batte website.
- Clothes shredding companies.

# DIY 10

## THEORY OF CHANGE

I want to clarify my priorities  
by defining my goals and the path to reach them

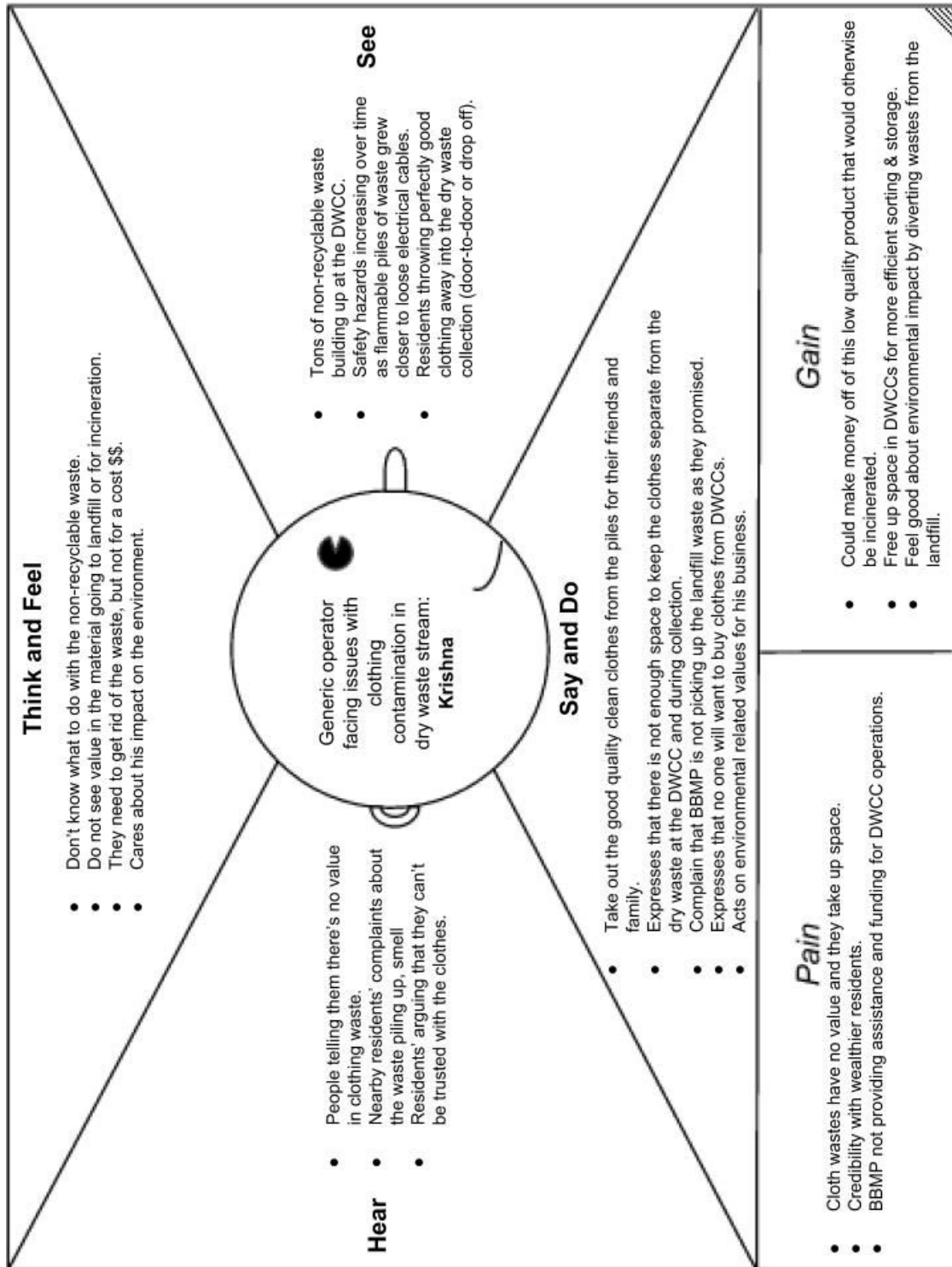


## Randomized Control Trial

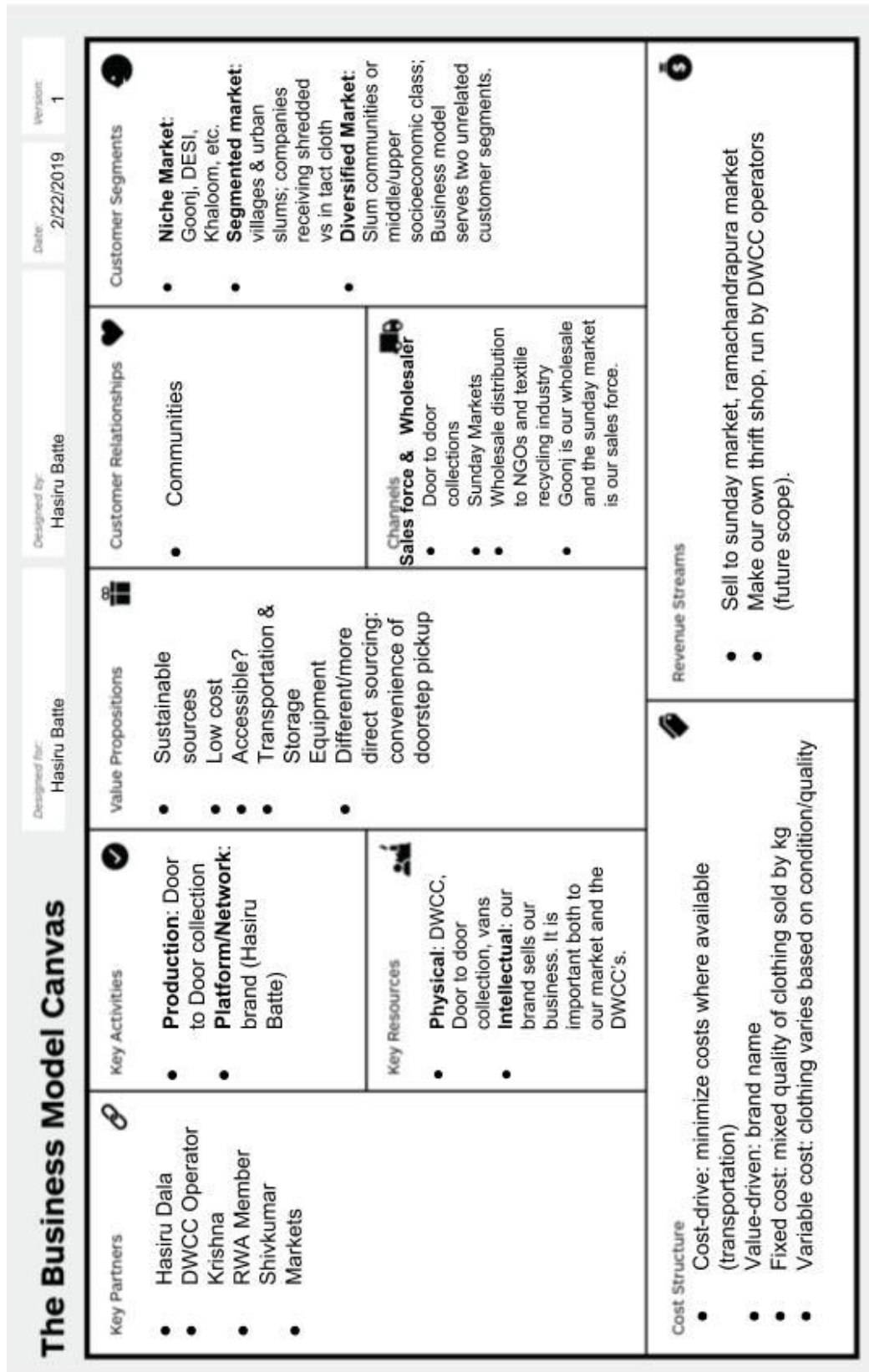
### Intervention: Outreach to residents

One of the randomized control trials that Hasiru Batte can conduct will involve the amount of clean reusable clothes received from door to door collection. The control variables of this test are the number of households in the ward, duration of collection and the amount of resources used to complete the door to door collection such as vehicles and number of workers. The test will provide one of the DWCC operators with educational outreach materials for the residents regarding how to prepare their clothing waste for collection while another ward will not receive any educational outreach materials; that will be the dependent variable for the test. These educational materials can be flyers distributed through an effective channel, or channels, to the residents who will know how to segregate clothing wastes in a way that waste pickers can easily collect, sort and recycle them to different markets provided by Hasiru Batte. In the end, the difference in the amount of revenues generated with the clothes collected will determine the effectiveness of this intervention.

# Empathy Map



# Business Model Canvas



# Don't Dispose, Give Your Clothes!

Give your unwanted, used clothing to someone in need—not a landfill.

## **DON'T GIVE:**

- Torn, stained or dirty clothes.
- Undergarments or socks.

## **DO GIVE:**

- Washed, cleaned & ironed.
- Separate your clothing from other Dry Waste.

## **Ward 112**

Clothing collection will occur along with usual Dry Waste collection.



Thank you for your contribution!





Prototype Testing Photos: Door-to-Door Clothing Collection



## Prototype Feedback

The feedback received for this prototype involves how much clothing waste we successfully diverted from contamination of other dry waste. In addition, these wastes were to be segregated and cleaned according to the guidelines described by the flyers sent out to resident WhatsApp group.

<b>Who is giving feedback?</b>	<b>What is the feedback?</b>
Our team: Hasiru Batte	Although we got some reusable clothes, it was because we were lucky that some residents were throwing away clothes bagged separately from the dry wastes that weren't too dirty to reuse. Only one person out of the two hundred households saw our poster in the WhatsApp group. However, the residents might not have enough time to notice and act on our message. We still should to look into alternative channels to reach the residents within these wards. More collection day in the future will be needed to evaluate the effectiveness of this prototype.
Krishna: DWCC Operator	Changes like this do not happen overnight.
Residents during DtD	I have not received this message. You are doing great work, keep it up!
Nalini, Indha, & Karthik: Hasiru Dala staff	Scheduled for meeting on Tuesday 2/26
GCIL Peers	The idea is good and look forward to seeing what's next.
GCIL Staff	The idea is good and look forward to seeing what's next.
Daily Dump Outreach Coordinator	Scheduled for meeting on Thursday 2/28