



Profile of Stakeholder: Mr. Siddharth Hande

A spatial data analyst interested in social entrepreneurship, urban planning and the circular economy in the developing world. He is the founder of Kabadiwalla Connect(KC), an award winning social enterprise in the field of waste management. Prior to KC , he worked as a consultant in some of India's premier urban policy and research think tanks, including the Indo-German Centre for Sustainability at IIT-Madras, IHS and IFMR

TEAM MEMBERS:

1. Aarti D.(<https://bit.ly/3pN2odh>)
2. Prathamesh P.(<https://bit.ly/3bBEmgg>)
3. Shalini M.(<https://bit.ly/37IL0Aa>)
4. Shruti B.(<https://bit.ly/3plp92d>)

Initiative Overview

Kabadiwalla Connect specializes in integrating the informal sector into the formal waste management system in developing world cities. They currently work in 5 cities across India, Indonesia and the Ivory Coast with commercial contracts from Veolia, Unilever and Danone for specific engagements around plastic collection, recycling and informal integration. Through a unique business process and ICT-based technology they integrate the informal ecosystem into the reverse-logistics supply chain; helping municipalities, brands and waste management companies to recover post-consumer waste cheaply, efficiently and more inclusively in the developing world.

The Award winning start up is revolutionizing urban waste management company, relying in particular on mapping technologies. Based in Chennai, India's fourth-largest urban hub, it offers a social and environmental model that holds an appeal beyond the country's borders.

PART I: PROVIDE BACKGROUND INFORMATION

Describe the city where the Initiative takes place?

The company was founded in Chennai, a metropolitan city listed among Tier 1 cities in India. Data compiled by the WTER highlights that it generates about 0.71kg/day of garbage per capita, the highest in the country [1]. Being a coastal city, proper waste management is of the utmost importance as the marine life along with land life is at stake. From the grants that KC won from WEF and world bank enabled them to survey and map the informal supply chain in Chennai. KC plays its role by recovering the recyclable plastic waste and integrating the formal and informal sector.

Provide the scale of the problem of plastic waste in this city?

Chennai is a megacity of nine million inhabitants that generates 5,000 metric tons of urban-waste on a daily basis. Chennai has one of the highest per-capita garbage generation rate in the country. Just like many other large Indian cities, 90% of the waste collected ends up in inefficient landfills. The two waste yards at Kodungaiyur and Perungudi have reached full capacity several years ago. Waste is often incinerated on site which aggravates the air pollution and provides very little energy recovery, it causes serious public health and safety problems. Similar situation in the other cities of India

Why did the Initiative start in this city?

Siddharth Hande's path to co-founding KC began with an interest in sustainability. While participating in beach clean-up drives during college he observed that the plastic waste was merely transported to landfills and none of the recyclable plastic found its way to the material recovery facility. While working in development he noticed that reports regarding waste management only mentioned waste pickers as a footnote, and completely ignored the surrounding system. Being born and brought up in Chennai, they were already well acquainted with the local informal waste ecosystem, aware of the sources, trustworthy stakeholders and hence thought of Chennai as an ideal solution.

PART II: THE INITIATIVE'S IMPACT

What are the benefits to society? What has been accomplished? Have the societal benefits outweighed the amount of resources expended to generate the results?

- Kabadiwalla connect deals with the informal sector and commercial pilots. It has created employment for the local people. About 2,000 kabadiwallas were surveyed, 100 of whom have specialized and professionalized with KWC. It supports local communities to tap into India's informal waste ecosystem and turn waste into materials of value. It has improved the living conditions and income of these behind-the-scenes workers, try to organize this clandestine economy. KC platform makes the informal ecosystem more accessible to other players. Municipalities can utilize informal infrastructure to bring down operational costs; waste management firms can source from it; corporations can carry out their extended producer responsibility through it; apartments and small businesses can send their recyclable waste directly to informal stakeholders that are a part of the informal ecosystem.
- The amount of plastic recycled, empowered a network of over 500 local scrap dealers. The project not only takes urgent action to reduce waste, but also ensures decent work and livelihoods for workers in country's informal economic sector.
- Kabadiwalla Connect is a technology-based social enterprise. The technology developed is set in such a way that it can adjust to various waste management ecosystems. It has determined that leveraging the informal ecosystem of urban waste recyclers has the potential to decrease the amount of waste sent to landfills in Indian cities by 70 percent. The founders believe that with little survey and research the hyperlokal used by KC can be used elsewhere, Indonesia is one such example.

What are the benefits for the environment? Has the Initiative reduced or eliminated the amount of plastic in the streets or waterways? What has been accomplished?

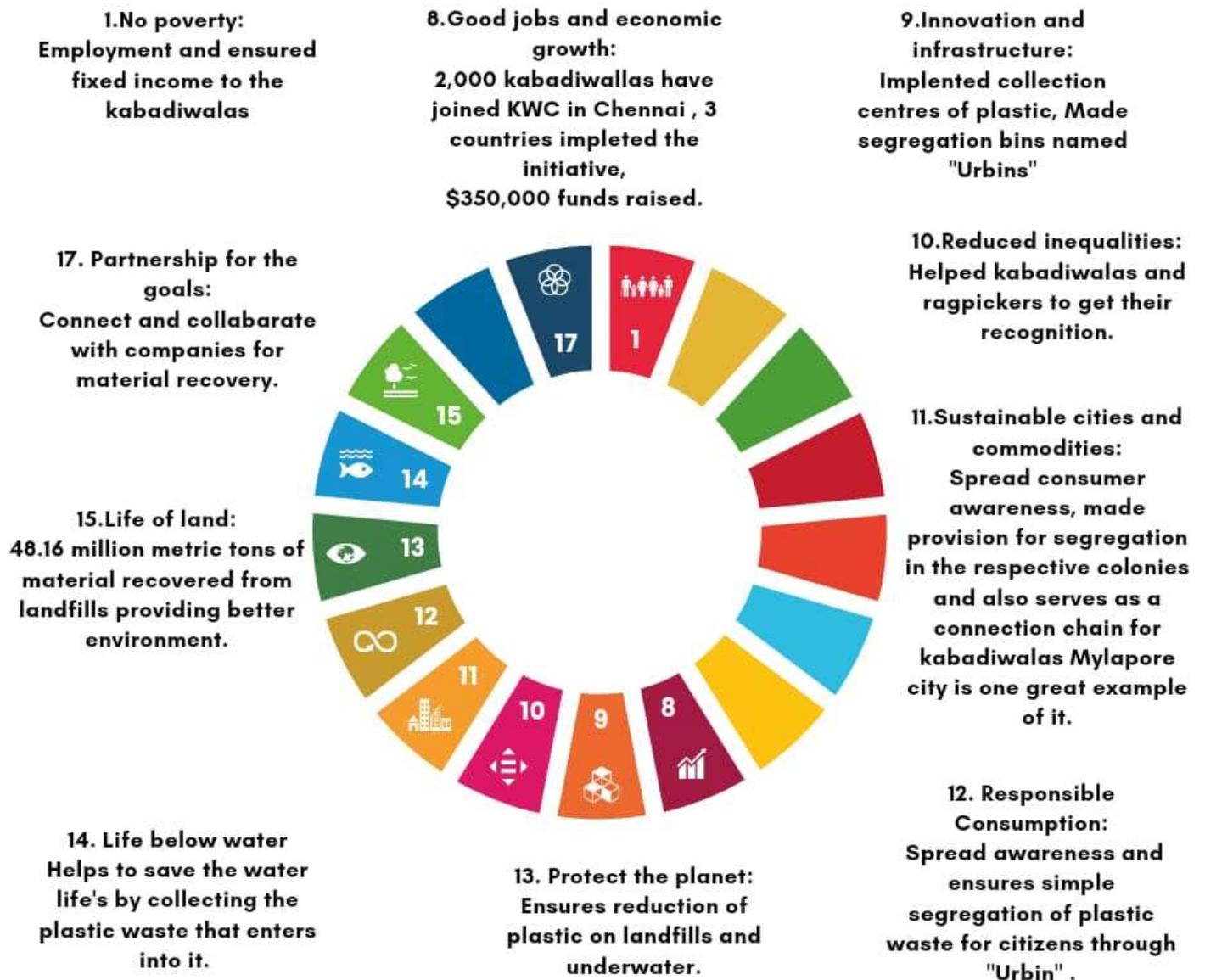
- The Kabadiwalla connect is a pillar in the value chain. They have recycled over 600 tons of plastics. This eventually result in less waste being sent to the landfill, more revenue for stakeholders in the informal waste sector, as well as a push towards recognizing their contribution to waste management in the city.
- Kabadiwalla Connect started with an interest in sustainability. This reduced plastic waste in the roadsides, they installed smart bin in 30 apartments, where people can put their waste into the bin which has sensors, when the bins are full the kabadiwallas picks up the rack. over 60-70 tons material collected from the program also organized beach cleanup campaigns & collected around 5000 PET bottles.
- Circular economy plays an crucial role in India's economy and KC has assisted it by implementation of "URBINS" which helps in recovery of plastics.It has also helped in developing a heuristic for the implementation of circular economy goals for cities in the developing world. 68.8 million metric tons of waste generated per year.

What are the benefits for the economy? Has the Initiative created new business? Can it create new jobs?

- The initiative has been successful in improving the standard of living of the kabadiwallas and ragpickers in Chennai, more and more kabadiwallas have joined this venture, with the belief that their work and significance in establishing circular economy is priceless, because someone has to do it!

- If such initiatives are replicated in different states, it will definitely generate employment given the fact India's massive reserve of ragpickers and kabadiwallas estimated between **1.5 million and 4 million**, and **KC's initiative revolves completely around them.**
- Inspired by the deployment of IoT and data to solve such an underrated and major reverse logistical issue of the country by KWC, has surely ignited the minds of young entrepreneurs and students to come forward with same motivation as that of Siddharth and his team.

Which SDGs will the initiative impact through its social, economic and environmental contribution?



PART II: WHAT IS POSSIBLE IF THE INITIATIVE HAD MORE RESOURCES IN ITS CURRENT LOCATION

Are the Initiative's operations sustainable "as they are?" Will it be in operation for next five years? If yes, why? If no, why not and what can be improved?

As the world slowly shifts to circular economy and as conscious consumerism gains momentum, waste management businesses prevails in the supply chain. KC's basic business model and current operations will remain sustainable for years to come. With the rising number of plastic products entering the consumer market, the kabadiwallas plays a vital role in strengthening the circular economy. Quick adaption to the trends in the market sustains a business in our fast-growing economy. As the initiative venture out, we are bound to make changes according to the geographical, economical and cultural characteristics of the ecosystem but the basic business model remains the same.

Assume your team had the funds to increase the budget to maximize social impact. How would the team spend this additional funding, and what would be the incremental results/benefits?

SPEND MONEY/WHY:

Based on open literature available to us we have tried to provide the approximate funds require for the following operations, KC mainly takes aid from collaborations which cuts down the overall cost.

- #1 Rs. 1,00,000 -2,00,000- Municipal connection project.
- #2 Rs. 50,000- Awareness programmes in Academic institutes
- #3 Rs. 80,000- Reward system/ Incentivization
- #4 Rs. 70,000 – Expand Hyperlokal service and deploy Urbins in tourist locations and beaches
- #5 Rs.3,00,000 p.a. - Employ Women for segregation and support them financially

INCREMENTAL RESULTS/BENEFITS

- Collaborations with Muncipal bodies help in more effective recovery of plastic waste as it already has a waste collection system plan. With the plastic recovered, the kabadiwallas earn more.
- Awareness promotes the development of knowledge, skills, understanding, values and actions required to create a sustainable world, which ensures environmental protection and conservation, promotes social equity and encourages economic sustainability.
- Reward system: Rewards to citizens, health insurance benefits for level 1 and 2 aggregators, where additional funds can be utilized hence involving more audience.
- Deploying urbins at these places stops plastic waste from entering water bodies and reduces water pollution and save marine as well as land ecosystems. Tourist places generate maximum plastic waste which is generally left as it is , eg Mumbai beaches, Urbins will help to recover maximum plastic from here.
- Try to collaborate more with women workers, Additional funds can be deployed to create sort of policies where in women can be ensured special medical benefits during maternity leave period, hence empowering the participation of Women in this sector

PART III: “MAKE THE CASE” TO REPLICATE THIS INITIATIVE IN FIVE OTHER LOCATIONS IN INDIA (OR WORLD)

How can this Initiative be replicated in other cities in India?

To start with any replication in a new city the primitive stage is to do data analysis for the same which will help to understand the conditions in the formal and informal sector of the city. Any initiative should base in a city where they have the best relationships with the business environment. This includes the relationship with suppliers, buyers, investors, and employment for the community since metropolis cities, welcome people from every corner of the world and its nature makes it easy for outsiders the initiative will gear up. At the same time, they need to build incentives into the ecosystem so the aggregators who buy from kabadiwalla shops treat them better, and kabadiwalla shops are in turn able to pay waste pickers more. This will strengthen the informal, decentralized approach to waste management to make this possible.

What kind of resources will be required to replicate current innovation? Money? People? Change in regulation/policies?

The mapping technology developed is set in such a way that can easily adapt to similar waste management ecosystems, its implementation in Indonesia and Cote d’Ivoire prove its scalability. Initial survey and research is required which is capital-intensive. KC usually partners with multiple brands both India and abroad for material recovery programs. Kabadiwalla’s support is most crucial as it is a labour intensive initiative, thus understanding the informal ecosystem and partnering with stakeholders across the value chain is necessary. Cities wherein EPR guidelines are properly implemented allows KC to function smoothly.

Why would these new Initiatives be worth the time, resources and effort?

SIC PARVIS MAGNA- greatness from small beginnings

These initiatives like that of Kabadiwalla connect are startup organizations lead by a team of diverse and visionary professionals. Their focus lies on the unsung heroes of circular economy, all the efforts of the initiative are directed to revolutionize and discover the true potential of this closely guarded and clandestine economy who form the entire backbone of the waste management sector in India.

There are entrepreneurs, who can communicate to the audience and there are entrepreneurs who just want to bring bread on the table for their families, and the kabadiwallas and lapaks of the world do that, so they deserve to be recognized as the central part of the circular economy.

What challenges need to be overcome for replication?

Mapping & serving becomes difficult. But there might come some small challenges that needs to be accepted & adopted. At the same time, it is difficult to implement because of the diverse nature, socially and economically, like the material being categorized would be different. While cities battle issues such as waste segregation and pricing would be different. However, the most difficult challenge would be Language barrier, for example, here in Chennai most commonly called “Bomai plastic” will be called differently in other places & it might have different composition as well. Second would be from language perspective, need to scale it with local people, to holistically address such problems in cities need to transform planning, governance and regulatory aspects. However, this is not necessarily a challenge but that is something need to be adopted when we go to other cities for replication.

Which cities of India will you choose and why?

As kabadiwalla connect is a profitable business and social enterprise this initiative can be implemented and replicated across India. To start with this initiative can be first implemented in cities which are underdeveloped and cities having more tourist attraction like Uttarakhand, Uttaranchal etc. because these places need provision for segregation as these places end up accumulating more plastic waste once this initiative adapts the ecosystem we can move to metropolitan cities like Mumbai and Delhi to upscale the initiative. These cities will give access to a substantial number of allied services eventually help the initiative to connect more kabadiwallas and find clients that wish to invest in the same.

What type of stakeholder and partnerships will be needed to replicate the current initiative?

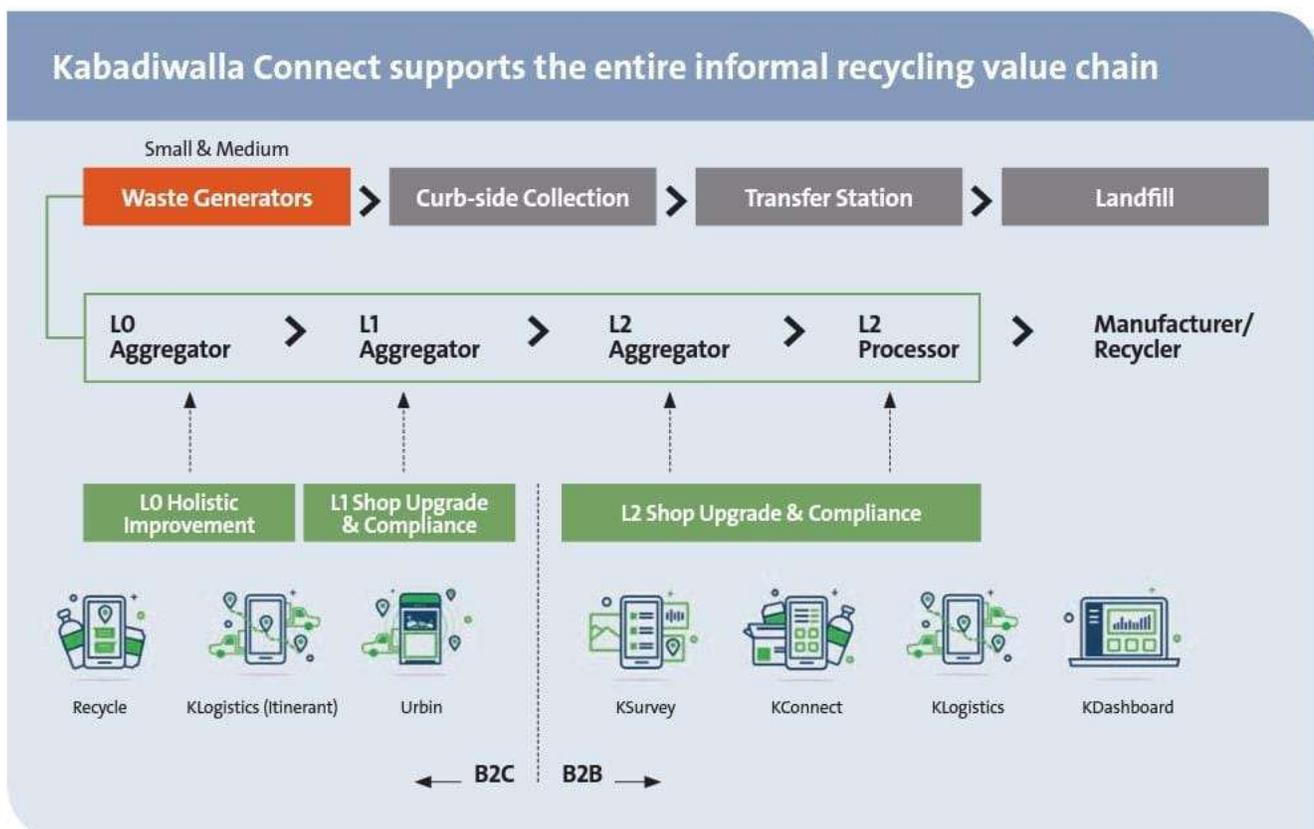
To solve this major plastic waste management issue, no silver bullet has been discovered yet.

Cross-industrial and value chain collaborations is something that will help the root cause. To replicate such initiatives, partnerships from a brand and processor's perspective keeping in loop with the EPR guidelines, are to be prioritized, because what EPR says is that the brands have to take the responsibility, irrespective of where they have littered, so this is where initiatives like ours have to be funded and work closely with the brand owners and develop this entire supply chain across different cities.

Educating the consumers should also be the top priority, especially in a developing economy like India, collaborations at an academic level should be the driving force.

The future lies in the hands of youth, sowing the right seeds of sustainability from a very young age will surely help us build a strong foundation for the circular economy.

An infographic explaining the business model of Kabadiwalla connect^[2]



TEAM PROFILES

TEAM LEADER: Ms. Aarti Bhimsen Desai, <https://bit.ly/3pN2odh>

A packaging enthusiast interested in the fields of sustainable packaging, recycling sector, circular economy and research related on biodegradable packaging materials. Recipient of the prestigious ' Dr. APJ Abdul Kalam Research fellowship' and West zone topper for Print Olympiad organized by OPA. My main goal is to work towards curbing climate change with all the available resources. I look forward to working in a growth-oriented environment with the scope of learning, innovation and career development.

TEAM MEMBERS:

Mr. Prathamesh Ravindra Patil, <https://bit.ly/3bBEmgg>

I am an energetic, systems thinking and solution oriented aiming beyond sustainability to regenerative. Loves using creativity to unlock the hidden value in overlooked resources and concepts. Enjoys working collaboratively, loves to step up as leader.

Ms. Shalini Mudaliar, <https://bit.ly/37ILOAa>

I was delighted to be presented with the opportunity to utilise the skills gained during my MAKE A CASE COMPETITION and has benefited me got learn a lot about circular economy, informal sector, waste management studies to solve problems in the engineering world. Due to graduate in the coming months, I am eager to secure challenging & potential career opportunities roles in Food Packaging, Supply chain management, designing, Circular economy, Food -Packaging related sphere.

Ms. Shruti Ravindra Belose, <https://bit.ly/3p1p92d>

I am always fascinated by innovation; technology & creativity. Thus, plastic & the concept of packaging offers me to channel all these aspects. I would love to work more in this field, & gain experience and learn to improve myself to serve as a great intern. Now given the opportunity by your esteem institution I am grateful that I could add more to my work and will keep on working hard whenever given the opportunities.

FOR JUDGES ONLY: REFERENCES/INTERVIEWS

INTERVIEWS (LIST PERSON, DATE OF INTERVIEW)

1. Mr. Ganesh Kumar Subramanian, 18/02/2021

REFERENCES

1. http://timesofindia.indiatimes.com/articleshow/28256852.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst
2. The Veolia Institute Review

MENTOR: NAME; PLEASE LIST YOUR INTERACTIONS WITH THE MENTOR HERE

1. Dr. Rangaprasad R
- 2.
- 3.