

# Siddharth Hande: Decentralised Waste Management

**RAMA CHAKAKI:** According to a report by the International Labour Organisation, more than 60% of the global workforce are in the informal economy.

**SIDDHARTH HANDE:** You know, 2 billion people are currently employed in informal work. I forget the number, but it's a significant part of the current working population. And most of that work happens in Asia. So waste management in Indian cities is a typical place where you see informal work.

We typically know of the waste picker as taking on that risk of putting their hand into dumpsites, or like garbage bags, to take up some kind of recyclable waste.

**RAMA CHAKAKI:** This is Siddharth Hande.

**SIDDHARTH HANDE:** I'm the founder and CEO of Kabadiwalla Connect: we work to provide decentralized waste management solutions for cities in the developing world that's really powered by the informal sector.

We're a social enterprise really looking at what the informal supply chain is doing and how can we firstly, use and leverage that supply chain, but then also integrate them into the formal system.

**RAMA CHAKAKI:** The scale of this informal sector is truly staggering. In today's episode, we're speaking to Siddharth about how his venture is solving the problem

of waste management while also mapping out this extensive informal supply chain.

**SIDDHARTH HANDE:** So when we did a survey in Chennai, which is where I'm from, the sixth largest city in India, I think, we found that there was like 2,500 scrap shops and they were collecting like 130,000 tons of recyclable waste every year. If that's a formal contract, that's a multimillion dollar contract.

**RAMA CHAKAKI:** I'm Rama Chakaki, and you're listening to Innovate with Purpose, the official podcast of Expo Live, an innovation programme by Expo 2020 Dubai.

### [INTRO STING]

**RAMA CHAKAKI:** Before we begin, it's important to define what we mean when we say 'informal sector'. The term refers to anyone part of a workforce that is employed informally - meaning no contract, no insurance, no standard working conditions, no health and safety regulations, and no social protection.

And when he considered the informal workers in his hometown of Chennai, India, Siddharth started looking at one subset in particular: the waste pickers and garbage collectors.

**SIDDHARTH HANDE:** You know, most waste collection models I would say in the developing world are really based on experiences of Western cities. And it's quite expensive. There's a World Bank study, which says that it can cost a municipality anywhere between 20 to 50% of its budget to implement what is considered proper waste management services.

So I think that there's this issue of like very centralised kind of thinking about waste collection and the informal sector is decentralised at nature, right? Because they're kind of like they've been built with trying to be the most efficient and found this way of cost optimization and collection.

So I think that they can really be leveraged to solve a problem for municipalities, ultimately, which is the cost of waste collection.

**RAMA CHAKAKI:** Tell me Siddharth, what's your background? And how did you first start thinking about this informal sector?

**SIDDHARTH HANDE:** So my background is, I'm a data scientist and GIS and remote sensing maps and data with latitude, longitude – that kind of the stuff that I've been working on. I worked in the development sector for about eight years, kind of working on that skillset before starting Kabadiwalla Connect. But the idea of this kind of came in when I was doing college and we used to organise these beach cleanups every week. It was a youth group called *Reclaim Our Beaches*.

It was kind of really cool. We used to meet up and then we'd also stay back and kind of talk about waste management because in Chennai, for example, we generate like 6000 tonnes of waste, I think every day. And that goes to kind of like two very unsanitary landfills.

**RAMA CHAKAKI:** According to the most recent data, Chennai generates 5600 tons everyday, but the point still stands. It's a lot.

**SIDDHARTH HANDE:** So, the de facto recycling in India is actually taken on by these waste pickers, small scrap shops and larger, you can call them informal, material recovery facilities.

**RAMA CHAKAKI:** That's when the idea to start Kabadiwalla Connect, or KC for short, came about. A waste management company that provides decentralised solutions.

**SIDDHARTH HANDE:** So the idea for Kabadiwalla Connect actually started when I wanted to map all the scrap shops, and then once you could see it on a map, all these scrap shops, serving the community. We started looking at it as infrastructure really.

And how do you make this ... how do you leverage this infrastructure for a city became the, kind of, the core mandate for Kabadiwalla Connect.

**RAMA CHAKAKI:** KC brings a multi-pronged approach. First, it provides mapping of the waste infrastructure in a particular neighbourhood or city.

**SIDDHARTH HANDE:** So we typically say that we can map an entire city of like 8 million people (you know, which is a tier one city in India) within six months and you can start seeing data in three months.

So it's also kind of like a pipeline of how you would collect this data, how you store this data, how would you, you know, build exactly where this infrastructure is and, and, you know, convert that into, let's say a procurement strategy or compliance strategy and things like that.

**RAMA CHAKAKI:** Secondly, with this information, KC can work with a supply chain that is traceable and predictable. That way, processing plants or businesses who are looking to buy recyclable plastics, paper or other materials can use this system.

## MUSIC

**RAMA CHAKAKI:** Siddharth and his team have designated this supply chain into different levels:

**SIDDHARTH HANDE:** So for us, we use 'Level Zero', 'Level One' and 'Level Two' aggregators based on what we've seen as the core function in the supply chain.

**RAMA CHAKAKI:** Level 1 is what is known as a Kabadiwalla: it's material agnostic and is set up to buy a lot of waste from waste pickers and local residents.

Level 2 then buys materials from these level 1s. They're much more focused on a specific type of material so they can be classified as a recovery facility.

Finally, KC can provide information on the logistics and traceability of these materials.

And through this, KC's solution is also bringing the informal sector into a more formal world.

**SIDDHARTH HANDE:** So KC, is really on a mission: bringing them to the former system means we need to see site compliance.

You need to have labour compliance in the supply chain, but we really believe in these stakeholders who are already incentivized and working to recycle as like a huge kind of lever of the circular economy in India.

**RAMA CHAKAKI:** Shifting gears, how did the Expo Live grant propel KC forward? What was the grant used for?

**SIDDHARTH HANDE:** This is where Expo has been so important to us.

We have this hypothesis, like there's a serious flaw in the system if the core material is coming from a waste picker, choosing between his health and livelihood by putting their hand in an open dump or in a garbage can.

So we had a hypothesis that what if we used these local scrap shops and the waste pickers to actually organise *last mile collection* of household waste? So rather than have the household mix everything, throw it into the outside bin and then the waste picker come and pick it up... What if there's a system where there was segregation at, let's say an apartment and you had these bins and waste pickers would come and pick up material, get a salaried wage, get incentives for the segregation? You know, a completely decentralised model of waste collection.

And we're at a point where we've, I think, collected over 200 tonnes of plastic through this exercise.

**RAMA CHAKAKI:** So that's incredible! You've solved the last mile problem and you've given the waste pickers stability and safety. So what comes next?

**SIDDHARTH HANDE:** But our goal now is to raise some money so that we can scale that and see if that works at scale. So can we do that for 50 streets, for example, with all the local scrap shops and the waste pickers. Then if we have a successful proof of concept there, then that would mean governments and big waste management companies should seriously look at the supply chain for what it's offering them.

## MUSIC

**RAMA CHAKAKI:** One of the things KC has invested in is the installation of these 'smart bins'. These bins are distributed in an area where residents and locals can put and separate their waste: plastic, paper, metal, etc.

Once it's full, the bin has a sensor that notifies the local scrap shop and they send out the waste pickers to then collect this material.

That way, they're not going into dirty water or off the side of the road or jumping into bins to collect the waste.

**SIDDHARTH HANDE:** They're going to the household, they have ID cards, they're going in there. They have a positive relationship with the community. They pick up that material and it comes back.

It's also very important from a traceability perspective, because then you start seeing how much volume is coming from each independent location and you can really start doing things at scale.

I hope that it builds into something more and more. It's just trying to use data to tell a story about actually what's happening in a supply chain. People are shocked to hear that there's so many people working informally, you know, there's so many informal businesses.

And I think data really helps showcase what these businesses do and like how they support just our everyday life.

**RAMA CHAKAKI:** And what does success look like for you?

**SIDDHARTH HANDE:** Success for me, you know, if it would be like zero waste to the landfill and really the backbone of the supply chain being these current waste pickers, small and large scrap shops who have been working tirelessly for the last 60 years.

**RAMA CHAKAKI:** And you've been doing this work in Chennai so far and I believe in another Indian city too. So where's next?

**SIDDHARTH HANDE:** We've been to Indonesia and we were so excited to see that the supply chain looks very similar and that there is this L0, L1 and L2 kind of concept there where there is an L1 who's material agnostic, and there is an L2 who is actually very specific in what they do and more like a material recovery facility.

But our goal is to go to places where we've heard that there's a form of work happening in the recycling supply chain, like Vietnam, Philippines, and do some mapping work there and like work with the right partners that really make sure that the supply chain can play a central role in the waste management system of the future.



Innovate with Purpose  
Episode 26: Siddharth Hande:  
Decentralised Waste Management



**RAMA CHAKAKI:** “Innovate with Purpose” is the official podcast of Expo Live, an innovation programme by Expo 2020 Dubai. Innovation can come from anywhere, to everyone.

Learn More by visiting [expo2020dubai.com/expo-live](https://expo2020dubai.com/expo-live).

“Innovate with Purpose” is produced by Kerning Cultures Network.

Episodes are released every Sunday and Wednesday. Subscribe to “Innovate with Purpose” on your favourite podcast app so you don’t miss an episode. If you enjoyed listening to this episode, share it with your friends and leave us a review.