









## Limitations

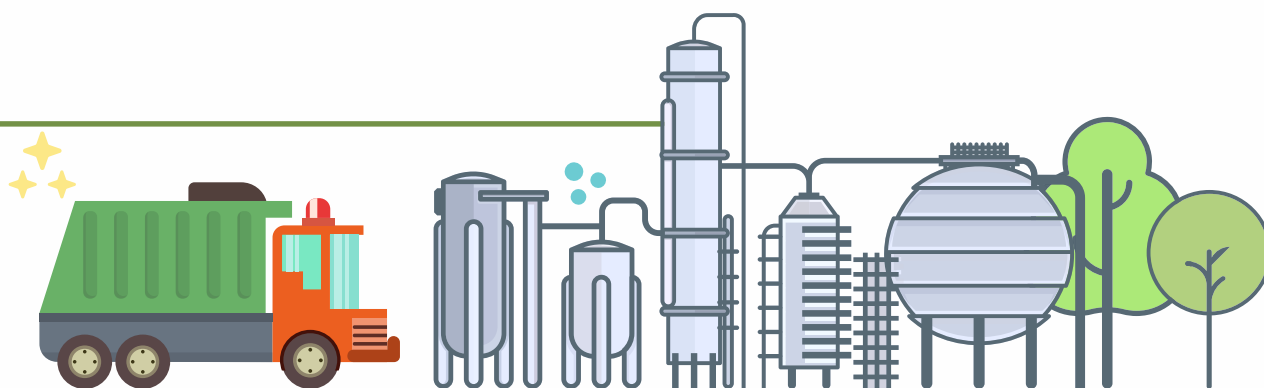
The report deals with a very relevant issue and is quite contemporary in nature. The theme is very timely as worldwide there is growing emphasis on need for decoupling resource use from economic growth to ensure a truly sustainable and inclusive growth and achieve UN 2030 Agenda for Sustainable Development.

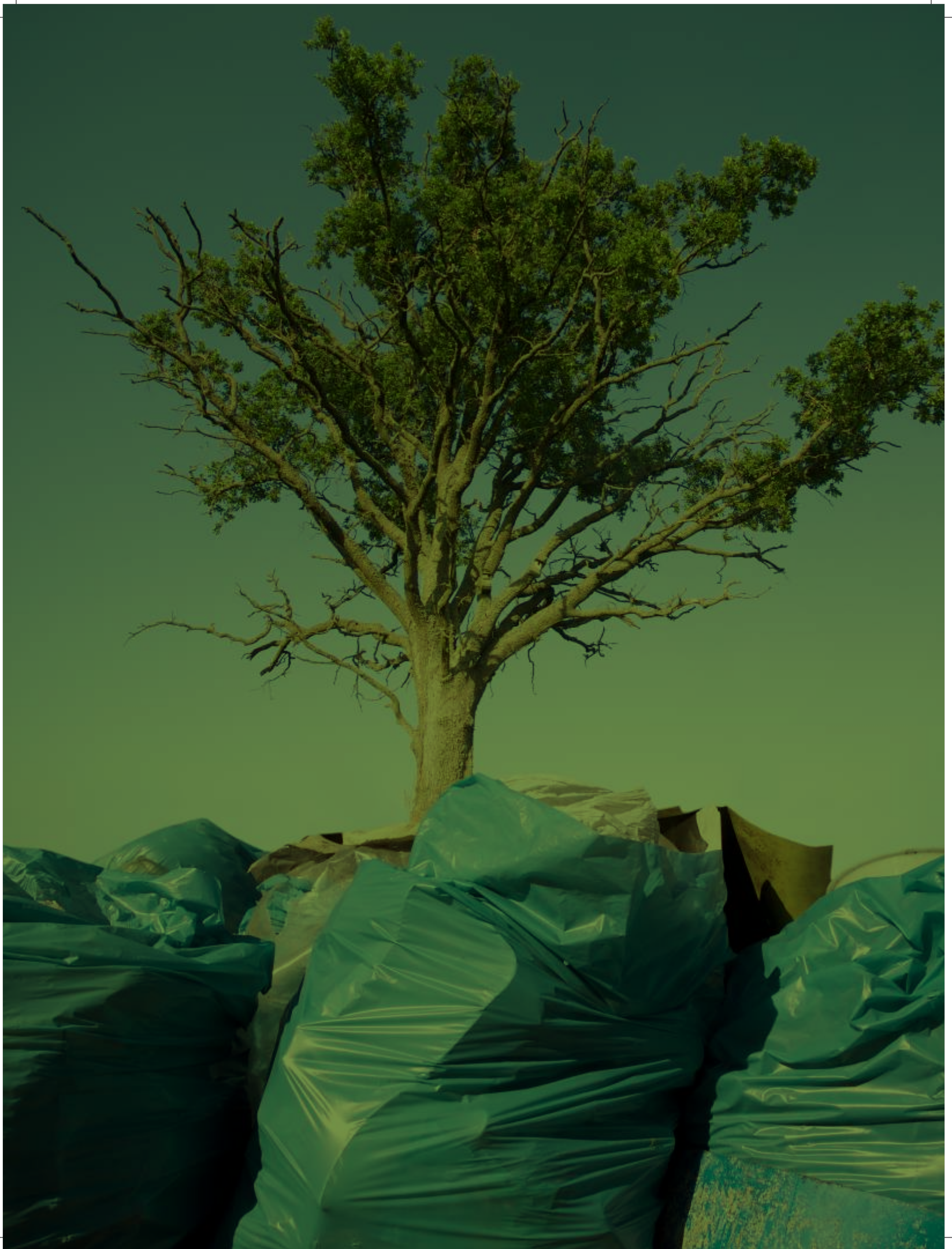
However, this report has a few limitations. The survey was voluntary in nature hence response was not received from everyone who was invited. Therefore, the results may not be statistically representative but it gives good insights into the issues and expectations of key stakeholders in this sector.

For case studies, FICCI reached out to over 250 firms and incubators. Out of the applications received, the best ten were selected to do a detailed analysis as presented in this report. Therefore, this report is not representative of overall business scenario in Indian Waste management sector but provides a good snapshot of small, medium and emerging businesses as well as NGOs and not for profit organizations working in this sector.

## Challenges

Considering the focus area of this report (with a very niche and scattered market), reaching out to the right audience was a key challenge. Additionally, the participants of this survey and application for innovative ideas studies are either entrepreneurs who are young graduates/fresh out of college or have limited exposure and experience. Therefore, getting the response in a structured manner from them was difficult and involved lot of back and forth with the individual applicants to understand their perspective for better communication.











## Background

**E**nvironmental degradation and resource depletion threaten the sustainability of economic growth in both developed and developing economies. In India, around 62 million tonnes of solid waste is produced in the country every year, of which only 43 million tonnes is collected, only 12 million tonnes treated and the rest dumped. This is expected to rise to 436 million tonnes by 2050. However, at the same time the currently untapped waste management market is expected to be worth \$13.62 billion by 2025, with an annual growth rate of 7.17 percent <sup>1</sup>.

Optimization of material use has not only become an urgent priority considering our limited natural resource base and predominately linear production model but this can as well be an opportunity to leverage competitive edge and gain commercial advantage. Several startups have sensed the huge market opportunity in resource used optimisation and waste management sector. Backed by the startups India movement there is a sudden proliferation of waste management startups in India.

FICCI is proud to present this research based report on 'Start-up Ecosystem Survey and Best 10 Ideas Eco-innovation/Waste Management Start-ups/organizations in India'. This study is based on a primary survey (through open call for survey and interviews) as well as secondary research on the waste management scenario, policy framework and scientific research papers.

Our survey focused on emerging and established businesses that use innovative technology, challenge the existing business models and have a global outlook. We focused on these types of companies because their needs are different and generally less understood than those of more traditional industries. It is pertinent to note here that under the 'Swachh Bharat Mission' of Government of India, these types of companies have huge potential for rapid growth and wealth creation. Of the applications received, the best 10 innovative approaches to resource use optimization and waste management were selected to do detailed analysis with the relevant information.

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<sup>1</sup> <http://www.marketresearchreports.com/novonous/waste-management-market-india-2014-2025>

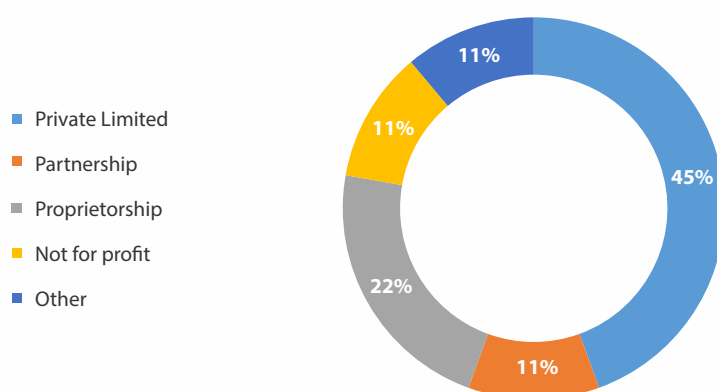


# Survey Findings

## Profile of Participating Companies

### Ownership Structure

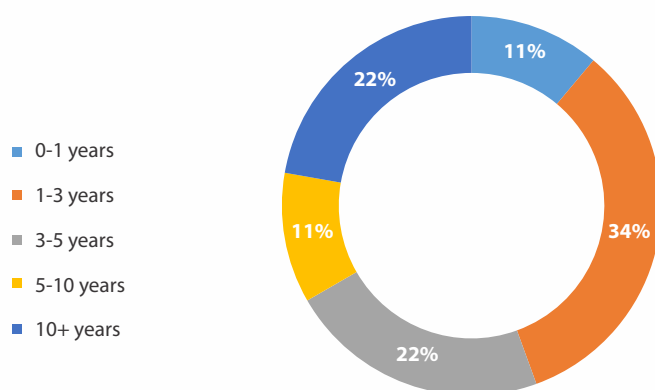
Each respondent is attributed to one of the following categories:



Evidently 45% firms are private limited whereas rest of them are divided in partnership, proprietorship, and in not for profit structures.

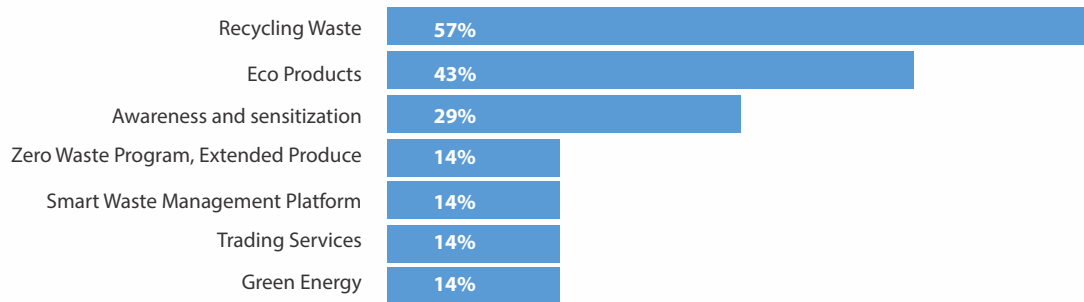
### Years in Operation

A characteristic of sample which is interesting to note is the age of businesses who are a part of this study. We have an extremely diverse group of respondents, ranging from 2 months old businesses to 10+ year old firms. As is clearly visible from the graph below, 56% of the respondents are start-ups working in this sector with less than five years of operation.



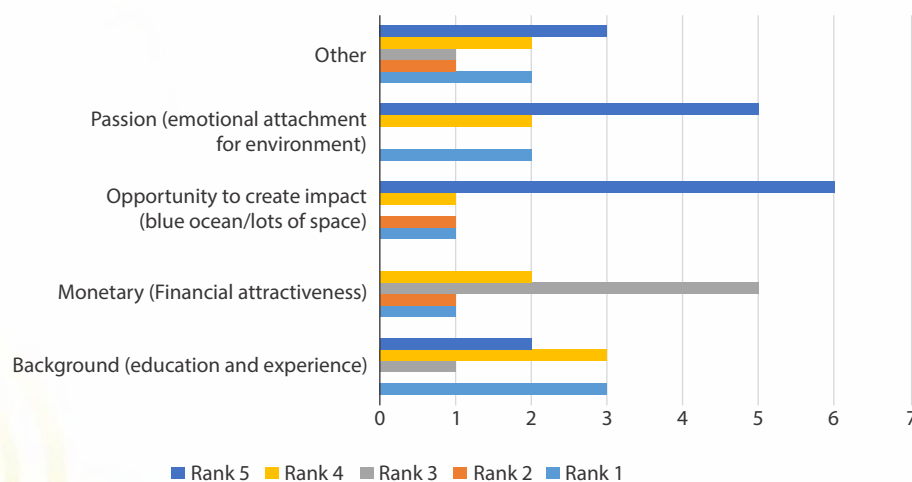
## Area of Engagement

Around 57% of the respondents are into recycling of waste whether it is hazardous industrial waste, plastic, PET etc. 43% of these organizations are upcycling waste into innovative lifestyle and useful eco products. Most of these organizations are also creating awareness on the subject through sensitization programs.



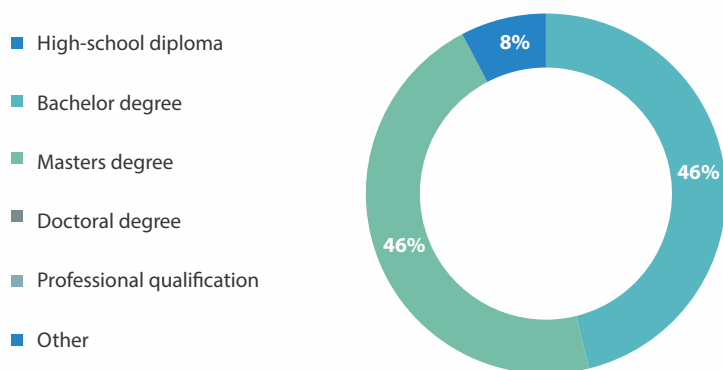
## Business Trigger/Motivation

A key imperative of this study was to understand the motivation of those who are working hard to shape the future of waste management sector in India. For past decade or so, India has consistently been recognized as a growing market. There are a number of sectors in India that provide higher chances of success (IT Services, FMCG, and Real estate to name a few). What motivates then, the entrepreneurs who are choosing waste management and resource efficiency as their battlefield. The results show that 'opportunity to create impact' and 'passion for environment' are top 2 reasons that motivate people to enter waste management sector. Relevant background was also pointed out as one of the factors but it did not receive the same importance as top 2.



## Founding Team Qualification & Experience

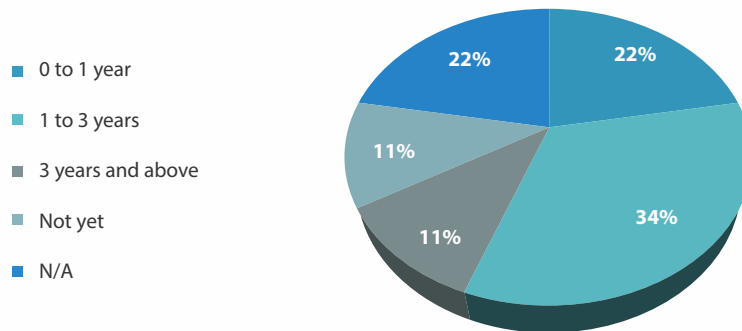
92% of respondents had a university/college degree or a professional qualification. The overall experience of respondents varied from just out of college to mid-career level experienced professionals. This gives an indication of the potential for third level institutions to influence and assist our future entrepreneurs. It also shows the extent to which people appreciate the importance of further education, even if they intend working for themselves.



# Growth Story

## Turning Trash into Cash

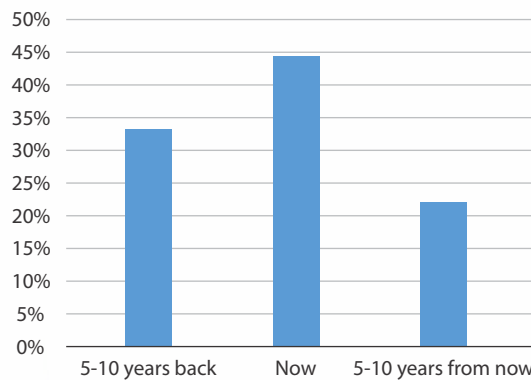
67% of the responding companies are generating revenue from their business operations in the waste management sector. To further understand the financial performance, we looked at the break even period and annual turnover figures of the businesses. Though there are businesses (23%) who did break even in first year itself, majority of them have taken close to three years to do so. N/A in the pie chart below refers to the organization who run not for profit businesses and are dependent on financial grants for running their operations.



## Best time to start WM/Eco-innovation business in India

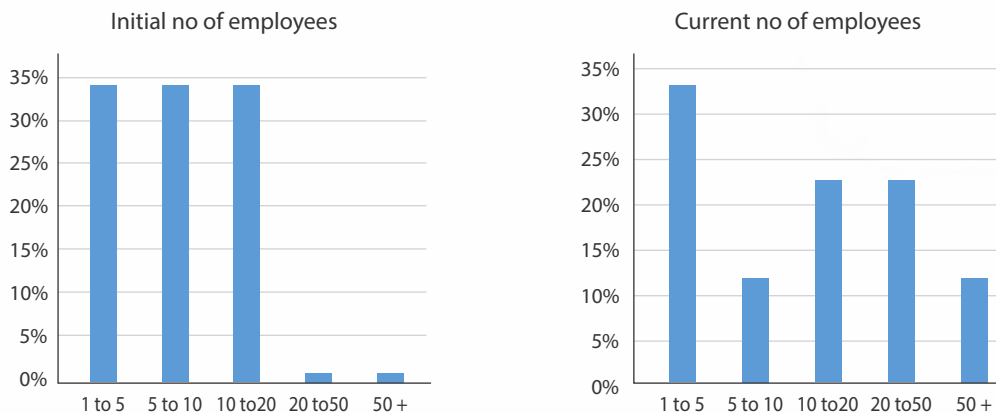
Around 44% of respondents consider that 'now' is the best time to start waste management business in India. Especially, the push given by the current government policies through Start-up India and Swachh Bharat Mission have been instrumental in rise of waste management startups in the country.

33% of the respondents feel that 'Startup Business Revolution' in domain of waste management and eco-innovation in India should have started 5-10 years back considering the waste management problem has been around and most talked about in last two decades.



## Generating Employment

To understand the growth of new businesses, we have looked at the increase in their employee strength from their initial phase. The results are inspirational and further strengthen the growth potential in the sector.

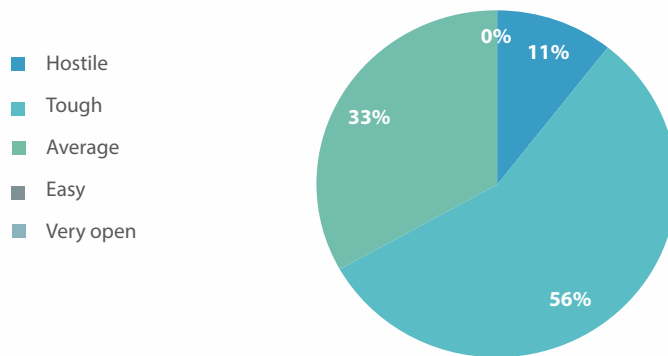


67% of our respondents have at least one employee and, on average, have five employees. 33% of respondents had increased employment levels since their initial year of operation.

# How they Foresee their Future in India

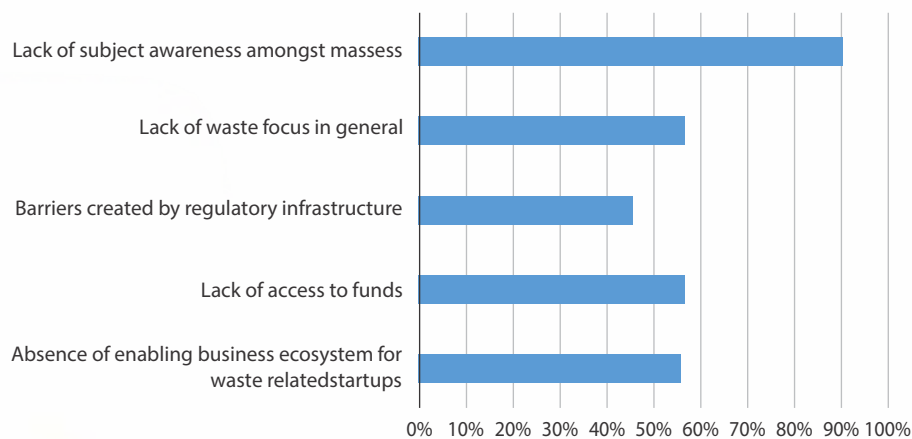
## Ease of Doing Business in India

Majority of respondents indicated that India is average to tough market for waste management and eco-innovation startups. They also indicated that at this point in time, Europe offers better incentives and is more flourishing market for similar startups.



## The Challenges they face

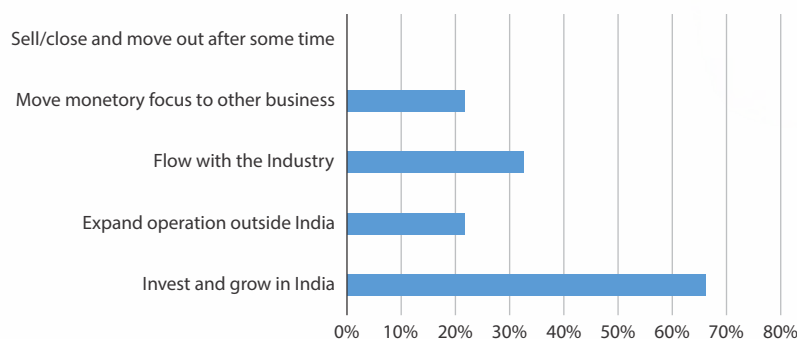
A key challenge that startups face is lack of information or knowledge on the subject amongst masses. Other significant challenges include access to funds, complex regulatory environment and lack of enabling business ecosystem for operating such a niche business in India.





## Future Business Plan

All startups indicated that they would like to continue operation in this sector. 67% of the startups responded that they want to invest and grow their business in India. Our survey also indicated that almost a fourth of these startups would like to expand their operations outside India as well.



## Feedback for Specific Key Stakeholders

**Ministry of  
Environment,  
Forests and  
Climate Change**

Make authorized eco warriors

Provide the 'fragmented' waste management industry an industrial status

Back up Swachh Bharat Mission with business vision for waste management sector over and above Sanitation

**Ministry of  
Human Resource  
Development /  
Ministry of Skill  
Development and  
Entrepreneurship**

Compulsory programs/subject on segregation of waste in all schools and colleges

Linking with Skill India mission to create skilled man force and professionals for managing waste

**FICCI**

Help our voice being heard by providing a platform

In reaching out to corporates for funding as well as a prospective client

# Best10 Waste Management Startups Businesses / Organizations Profiles



## Chakr Innovation Private Limited

Chakr Innovation Private Limited is a private incorporated in June 2016. With a team of skilled engineers and innovators, their mission is to develop and implement technologies which can effectively control pollution - saving the natural environment and people's health. They have invented a device which can trap soot and have developed ways to create ink out of it

### Business Fundamentals

**Vision:** To create pioneering, sustainable and scalable technologies to combat the grave threat posed by pollution

**Key Products:** ChakrShield - Retro-fit device which can reduce PM emissions from diesel generators by ~90% and POINK - Ink made from pollution (captured particulate matter)

**Unique propositions:** Technological innovation for controlling emission at source while ensuring that the collected particulate matter is not disposed-off or burnt but is used as a raw material for inks and paints

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** PM 10 and PM2.5 are a leading cause of death, disease and local environmental pollution. While they had invented the device to be able to capture the matter with great efficiency, they lacked a mechanism to dispose-off the matter as dumping the soot would lead to soil pollution and burning of soot would still lead to increase in carbon footprint.

**Solution:** While designing the device, they captured the particulate matter, and looked for ways to treat and safely dispose-off the waste by-product of "pollution". Hence, they decided to make it into ink - for fountain pens, printing on T-shirts, wall-paintings and for artists.

**Benefits & results:** The ink made from pollution - "POINK" was widely accepted in the market - wholesale industry, artists, etc. This pigment is non-toxic (as certified by a third party lab) and is of same quality as the ink used in industries. Each kilo of particulate matter produced, purifies 5 billion liters of air. Moreover, apart from controlling the PM emissions from generators, it also reduces the carbon footprint of the ink manufacturing process - thus creating double benefits.

## The Upcycle Co

The Upcycle Co was set up in 2014 by three professionals with a mission to develop creative solutions or products from non-recyclable waste and to reduce consumerism at source by raising awareness. Their goal is to bring creative alternatives to recycling that use lesser energy and can tackle those kinds of waste that do not have any place in the regular recycle value chain. By creating funky products made from waste, they aim to change perceptions around waste among the urban youth as well as reduce waste from landfills and homes.

### Business Fundamentals

**Vision:** To eliminate world waste

**Key Products:** Upcycled Lifestyle Products

**Unique propositions:** 'Upcycle the non-recyclable and make seriously cool things out of it' - mainly targeting the urban youth which is an empowered and large target group that can be committed to bringing about change.

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** 42 million metric tonnes of solid waste is generated per year by Urban India. The 7 mega cities produce more than 70% of this. Number of waste generated will exceed 260 million MT per year by 2047. This causes depletion of resources, environmental degradation and leaching into soil & water.

**Solution:** Create lifestyle products using non-recyclable waste to change mind-sets around waste in urban India and create awareness about waste specially targeting the urban youth. In phase two and three they plan to further use large scale processes to create recycling systems for streams of waste which have no current recycling solutions.

**Benefits & results:** The model makes waste a brand and helps make it acceptable to the urban youth. They want the youth to talk about and take-action about these issues willingly and had done this by selling products to over 3000 customers over 3 years. So far upcycled 1000 kg of non-recyclable waste and saved 1170 kg of carbon emissions in the process.



## Ecoware Solutions Pvt. Ltd. ("Ecoware")

Ecoware is India's first and largest manufacturer of eco-friendly food packaging. The Ecoware™ range of 25+ compostable products spans tableware, cutlery, biodegradable garbage bags and takeaway packaging. All Ecoware products are made from the waste of common agricultural crops such as sugarcane, wheat and rice. Ecoware products are 100% natural, biodegradable and compostable including Ecoware can which is oil and water-proof and can be safely used in microwave and freezers.

### Business Fundamentals

**Vision:** To create a plastic-free India by converting common agricultural waste into eco-friendly and biodegradable food disposables and packaging

**Key Products:** Biodegradable disposable food packaging

**Unique proposition:** Ecoware products are environmentally and health wise better than plastic and as well as paper disposables (which contain a non-biodegradable plastic lining).

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** All food services entities were using plastic and Styrofoam disposables - be it a local chaat shop or a five-star hotel. The challenge was to convince users such as restaurants, cafes, hotel to switch from cheap plastic to a more expensive but environment friendly alternative.

**Solution:** After intense R&D, Ecoware perfected plates made from agricultural waste that performed better and were more functional than plastic. They implemented by education and by dropping the sale price to be competitive vis-à-vis plastic. Roped in many Key Opinion Leaders (KOL) such a doctors, especially in the Oncology division and school teachers. The key consideration was always to make the message clear of why a user should consider Ecoware.

**Benefits & results:** Ecoware is far superior than current synthetic disposables and reusable tableware. With respect to current synthetics such as plastic and Styrofoam, Ecoware is cheaper in terms total lifecycle costs. Ecoware can be disposed off with food and organic waste and requires no waste segregation as is done with plastic. Furthermore, once the waste reaches a landfill it can just be dumped where it will degrade in the presence of soil and microbes in 90 days.

## VB Scrap App Management Services Pvt. Ltd

ScrapApp came into existence 1.5 years ago with a mission of creating a team of dedicated environmentalists who seek to improve the ethos of the waste management industry in India and streamline it for the better with greater care for the environment, not purely profit maximization. The company donates 50% of their revenue from each transaction to 'Grow Trees Foundation' and/or 'Sanskara', the certification for which is given to the client at no additional charge.

### Business Fundamentals

**Vision:** To provide eco-friendly convenient and timely waste management services

**Key Products:** Waste management consulting, tree plantation and planned afforestation activities, education and awareness seminars and workshops, recycling

**Unique proposition:** Converting trash to trees, integrating kabadi network and setting up an education team to enforce segregation at source

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** Before Scrap App started operations at DLF Mall of India, one of their prime clients today, the place was in utter chaos. Garbage had not been collected for almost two weeks and the management were trying to arm twist them into cleaning their mess for free and then reward with the contract. Additional challenges in waste management sector included corruption in the system, illegal dumping of waste, lack of education and awareness, no segregation at source, lack of strict enforcement of rules/laws, improper working conditions, infrastructure problems.

**Solution:** Scrap Apps' goal was to ensure that each of the tenants segregated their waste into wet, dry and electronic waste. Additional objective was to plant a million trees and convert 'trash to trees' as an intrinsic part of their model giving back part of our profits to planned afforestation activities. Paying the workforce minimum wages, providing them safety equipment and a system to incentivize effective collection is what we did to streamline the system and factor as key considerations in decision making.

**Benefits & results:** By the implementation of Scrap App's model at DLF Mall of India, they increased segregation at the food court by up to 70%. This resulted in recovery of more scrap materials, and thereby they planted 5000 trees on behalf of DLF, Mall of India. In turn, eight tones per month of solid waste was diverted from the landfill towards their recycling plants in turn affecting environmental degradation.

## Karwak Eco Matters

KARWAK started its strategic business unit called 'Eco - Makhar' in year 2016, an initiative to offer products and services for environment friendly lifestyle. Karwak eco products are made of recycled / recyclable material like recycled wood, corrugated paper, handmade paper, jute, bamboo, etc. Some of Karwak products are assembled by women from low income groups or differently challenged people, thus generating employment for needy.

### Business Fundamentals

**Vision:** To help individuals & organizations enhance their sustainable behavior and practices by giving solutions, ideas, products and services

**Key Products:** Design, development, manufacture, marketing & exports of eco-friendly products & services made of Eco-friendly materials

**Unique Proposition:** Eco-friendly and beautifully designed 'Makhar' (decoration) for Ganesh festival

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** During Ganesh festival, very high level of pollution is being caused by the decoration materials, which is predominantly made of Thermacol. It is understood that in the city of Pune alone, around 300 truckloads of thermacol comes in during Ganesh festival. Disposal of this amount of thermacol is a big challenge & a grave threat to the environment.

**Solution:** Karwak conceptualized an eco-friendly and beautifully designed Makhar' (decoration) for Ganesh festival! The makhar is primarily made of recycled corrugated paper & handmade paper is used to further decorate it. It is a 'Do-It-Yourself - DIY' kit, the unique design feature is a box which contains the parts which themselves turns into the base when inverted, on which the idol is kept. This helps in saving material in extra packaging for the parts as well as makes it easy for the user to carry, transport & store the Makhar. Since it is foldable, the user can pack it up once the festival is over & keep it safely for reuse.

**Benefits & results:** Change in consumer behavior who now consider celebrating ecofriendly festivals in a holistic way not only using eco-friendly idols but also decoration materials.



## Saahas Waste Management Pvt. Ltd

Saahas Zero Waste (SZW) is a social enterprise that believes in a circular economy, where all waste is converted to resources. Registered in 2013, SZW mission is to work with Nature, People and Technology to enable resource recovery and support a circular economy. SZW currently manages 25 Tons of waste per day across Bangalore and Chennai. As a part of their 'Closing the Loop' initiative, SZW offer products made from waste including compost and a range of other recycled products like roofing sheets, chipboards and stationary items. SZW also supports livelihood at the base of the pyramid for our field staff with emphasis on health and safety.

### Business Fundamentals

**Vision:** To contribute significantly in making India clean through our holistic approach & will achieve 90% resource recovery to create a positive impact on society and environment

**Key Products/Service:** Develop and implement a reverse logistics mechanism that facilitates in bringing back large volumes of waste into the recycling chain

**Unique Proposition:** End-to-end holistic approach by managing all streams of waste including low grade plastics

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** Waste Management often has a negative connotation and tends to attract colluding players who ignore fair market practices, are ignorant of the right technology and are insensitive to nature and people working with waste. Generators of waste experience a common phenomenon called 'NIMBY' Syndrome (Not In My Backyard) where they are happy if the waste is cleared from their homes/offices and do not care much about the destination of waste. Illegal dumping and burning, child labour, not paying minimum wages are commonplace in this sector. Segregation at source was absolutely neglected which made resource recovery extremely difficult. There was a big gap in terms of the ever growing problems of the waste management in India and the available solutions.

**Solution:** Saahas Zero Waste has developed a simple effective and efficient on-site system of waste management where all the waste generated is managed within the campus facility. Their solutions are guided by nature, people and technology.

**Benefits & results:** With over 15 years of domain expertise and a strong senior team of experts, SZW currently manages 25 Tons of waste per day across Bangalore and Chennai. SZW also supports livelihood at the base of the pyramid for our field staff with emphasis on health and safety through a dignified career.



## GEM Enviro Management Pvt. Ltd

GEM Enviro Management Pvt. Ltd ("GEM") is among very few companies in India to provide end to end packaging waste management solutions in a professional manner. Their mission is to work towards environment sustainability and to be recognized as among the best packaging scrap management company within and outside India.

### Business Fundamentals

**Vision:** The company aspires to work towards providing complete packaging scrap solutions to their clients that includes collection (pre-and post-consumer scrap), recycling and sale of recycled merchandise.

**Key Products:** Collection and recycling of packaging scrap that includes PET, Plastic, paper, etc. and sale of recycled merchandise which is developed from recycled polyester

**Unique proposition:** In parallel GEM is also involved in creating awareness of recycling and sustainability amongst common people through our efforts to make a better world.

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** In India packaging scrap (PET, Plastics, etc.) collection is highly unorganized with involvement of illegal and non-professional practices. Even the big corporates are providing their scrap to non-professional entities who handles the scrap in non-environmental friendly way. The use of child labor and improper handling of scrap is very common in the industry. In India, only around 38% of the PET scrap is recycled in an environmental friendly and legal way. Therefore, increase in collection and recycling rates in India represents great opportunity.

**Solution:** GEM initiated collection of PET scrap from point of origin that includes collection from manufacturing plants of Food and Beverage industries (Coca-Cola, Pepsi, Bisleri, etc). Once the scrap is recycled GEM ensures development of merchandise such as T-Shirts, backpacks, etc. from these recycled stuffs and that is again being used by the scrap producer company (Coca-Cola, Bisleri, etc). This ensures closing the scrap loop by these companies.

**Benefits & results:** Through its initiatives GEM has been successful to ensure collection and recycling of PET scrap from corporates such as Coca-Cola, Bisleri, Pepsi, etc. In addition, GEM is also providing recycled merchandise to corporates under brand name of 'Being Responsible' which has been highly appreciated by these companies.

## Society for Child Development (Trash to Cash Employment Unit)

The Society for Child Development started in 1992 as a special school for children with disability. When the students entered adulthood, the need was to create a market driven facility with a clear mandate of ensuring economic viability. This resulted in conceptualization of Trash to Cash, as a way to encourage people with disability from poor communities who work vertically in their areas to recycle waste into attractive products with basic infrastructure.

### Business Fundamentals

**Vision:** Through Trash to Cash employment unit, an eco-system for skill building and income generation should be created using the tool of creative recycling and waste management.

**Key Products:** Consumer products for festivals especially Holi, home furnishings, textile weaving and printing from flowers, stationery items, conference products

**Unique proposition:** Skill development of people with disability who produce eco-friendly products from waste

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** Unlike the general population, the skilling landscape for people with disability was nil (in 2002) and close to nil (for those from the poorer sections) even today. The search for a set of skills that were based on the key requirements of low-cost technology and repetitive process led to adoption of India's tradition of weaving.

**Solution:** Building practices that encourage small group interventions in waste management with low investment, breaking boundaries: creating a model of employment for groups of persons with disability (from poorer sections of the population with little or no access to education), empowering other NGOs to adopt this model, encouraging the widespread adoption of this methodology to ensure sustainability in income generation and waste management.

**Benefits & results:** Today, a production team comprising 164 people who are hearing impaired, visually impaired or physically challenged take over to make ecofriendly products. Women with disability form the core of this section. The group is inclusive with 25% "able" but educationally and economically deprived persons. The Trash-to-Cash retail store is a recycled rickshaw managed entirely by a team of 12 persons with disability of varying types. This store travels to various marketplaces - reaching out to all with the message that "Employment is Possible". The income generated supports the entire enterprise, and after paying salaries to the employees, the profits support the educational activities of the Society for Child Development.



## Prithvi Innovations

Prithvi Innovation is an NGO formed in 2001 with an aim to help the underprivileged persons of the society. Prithvi Innovations strive to care for the planet and all its life forms through innovative thinking and capacity building that leads to individual introspection and transformation and helps to build inclusive, pro-active, participative and purposeful partnerships to promote peace and all round prosperity (environmental, social and economical).

### Business Fundamentals

**Vision:** To dream, discover, design and deliver love, faith, peace and hope and strive to create Compassionate Citizens and Sustainable communities, who care for their Planet and all its life forms, who work locally but think globally and who strive for Sustainable development and growth in four main areas, i.e. Education, Environment, Socio-Economic Engagement & Empowerment.

**Key Products:** Eco-friendly, hand-made, multi utility gift items like flower baskets, display baskets of all shapes, etc.

**Unique proposition:** ABHIVYAKTI' project promoting sustainable lifestyle by involving marginal sections of the society

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** The Issue of Waste-YOUR WASTE IS NOT WASTE-encountered by all of us daily is the presence of polythenes and poly wrappers everywhere-on the streets, in the drains, on the ground, etc. These polythenes keep changing their place, when they are thrown out of our house by us, every day. They travel distances and continue creating problems (polluting the land, water) at places far away from their source.

**Solution:** Transforming the wasteful polythenes into multi-coloured utility items, like eco-friendly baskets, containers, trays, flower pots, mats, coasters, pencil box, etc. which could be put to multiple uses, mainly for decoration, display & storage of various household or office goods like Stationery Items, Medicines, Jewellery & Cosmetics, Table Utilities etc.

**Benefits and results:** They transformed waste into WEALTH, became beautiful and displayed these "Best out of Waste" at various places on various occasions like World Environment Day, National Science Day, School Annual Exhibitions, Art & Craft Melas, to spread the message of 'Conservation-Creativity-Craftmanship can go hand in hand.

## K K Plastic Waste Management Ltd

K K Plastic Waste Management Ltd is a Bangalore based firm, the commercial promoter of the technology - "Reuse of plastic waste in asphaltting of roads". The Company currently operates plastic reuse/recycling plant in Bangalore which can process up to 30 metric tons of plastics per day. The Company has received appreciation in many forums for successfully implementing its technology.

### Business Fundamentals

**Vision:** To eliminate the myths about the plastic waste by providing a scientific technology for permanent disposal of plastic waste

**Key Products:** road construction using plastic

**Unique proposition:** Using waste plastic for durable and qualitative roads

### Innovative approaches adopted for waste management

**Problem, challenge or opportunity:** More than road, solid waste management handling was not organized. The concept of source segregation was absent. They made people realized the importance of source segregation and used segregated plastics from garbage into road construction, which enhanced the life of road twice the normal road, and conversion of solid waste into organic compound. It was a win- win situation.

**Solution:** The innovation of road construction using plastic bags was driven by the need. When ban on plastic bags were imposed, the plastic bag making industries had a big impact, the workers who were dependent on industry had to be supplemented with alternative.

**Benefits and results:** The use of plastics in road construction has reduced the carbon foot print by reduction in use of bituminous binder while manufacturing the bituminous mixes. Due to its longevity and sustainability there has been a tremendous reduction in maintenance cost and reduction of carbon emission which is due to aggregate production, binder production and mix production. This all has be achieved without increase in cost of laying the road.



## About FICCI

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate, engaging with policy makers and civil society, FICCI articulates the views and concerns of industry. It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, reaching out to over 2,50,000 companies.

FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policy makers and the international business community.





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