The new
decade brings new hope
for a Greener Planet.

iPCA
SUSTAINABILITY IS OUR GOAL

ANNUAL REPORT
2020-2021

IPCA Founded

Started as a classroom discussion and executed by Founder, Mr. Ashish Jain who worked on campus recycling program in IIT, Delhi and decided to take sustainable solid waste management to the society.

IPCA's First Project

With Gillette India Ltd., for waste recycling. Added a component of inclusive operations where Rag-pickers were formally inducted into waste management programmes of IPCA.

Expansion of Operations

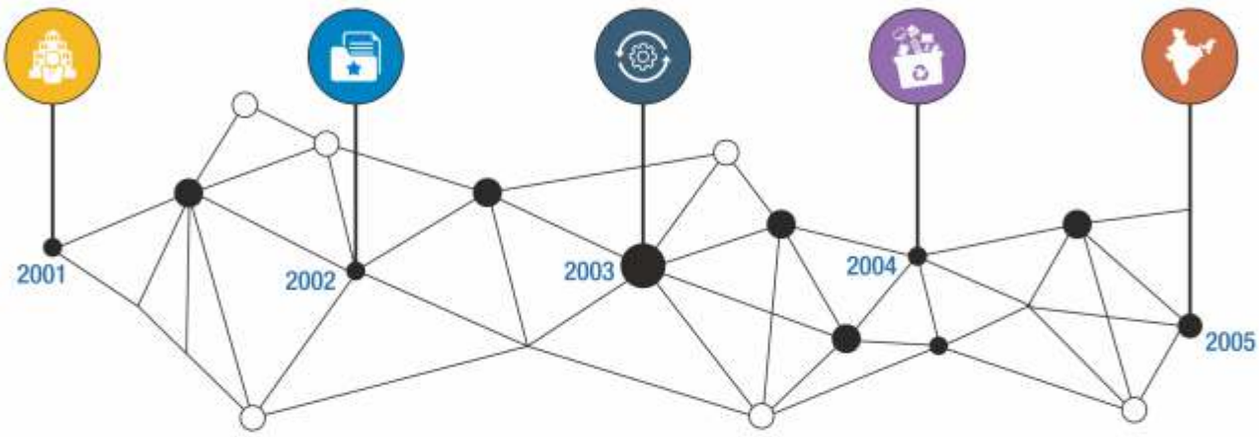
IPCA's unique waste management model was appreciated in the society leading to expansion of projects and operations to several Residential societies, educational institutes, corporate houses and industries.

IPCA's Destruction and disposal facility

Set-up of India's first destruction and safe disposal facility for damaged goods. Also developed technology for safely disposal of Aerosol cans.

IPCA's Pan India Operations

IPCA's Waste recycling programme and disposal facility catered to top Industries of India. Provided Pan India solutions to companies like Gillette India Ltd., Procter & Gamble, Reckitt Benckiser, Agrotech Food Ltd., Central Warehousing Corporation, Nokia etc.



IPCA's Awareness & Training Programmes

IPCA undertook education, awareness and Training in & 500 schools and trained & 2500 students on vermicomposting technology. Developed Vermibeds in schools to have hand-on training.

Vertical of Education and Trainings

IPCA conducted several educational and training for stakeholders like, students, waste workers, rag-pickers, residential welfare associations etc.

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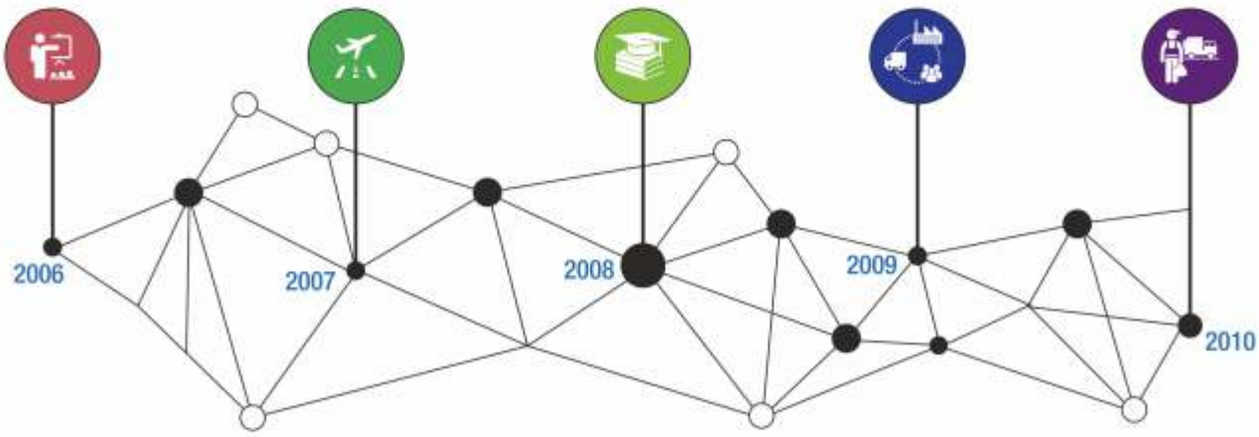
Sustainable Supply chain

IPCA developed supply chain for the post consumer paper beverage cartons with the support of Tetra Pak India Pvt. Ltd.

Networking with waste collectors

Created a reliable network of waste collectors in Northern India.



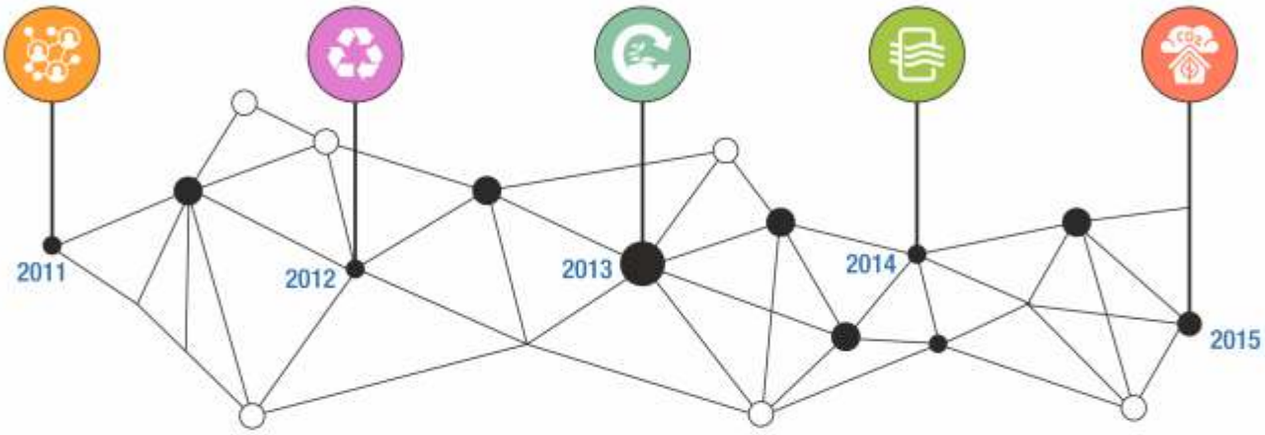
Community Engagement
Started community engagement program with project like Doh Bin supported by Coca Cola and Tetra Pak.

Recycled Products
Closed the loop from waste generation to consumption by designing and developing recycled products like notebook, bench, chair etc.

Composting and Herbal Garden
Set up vermicomposting facility and Herbal Garden in collaboration with CEIS, Noida and promoted the use of medicinal plant and vermicompost.

IPCA consultancy for Air quality management
Started providing consultancy services to hospitals, auditorium, corporate to improve their air quality.

Vertical of Air Quality Monitoring and Management
IPCA ventured into air quality management domain and set up its own laboratory to monitor indoor and outdoor air quality.



Disposal and Recycling of Plastic waste
IPCA has developed supply chain for the non-recyclable Multi-Layer Plastic (MLP) Waste and coined the term Non- MLP for the recyclable plastic waste.

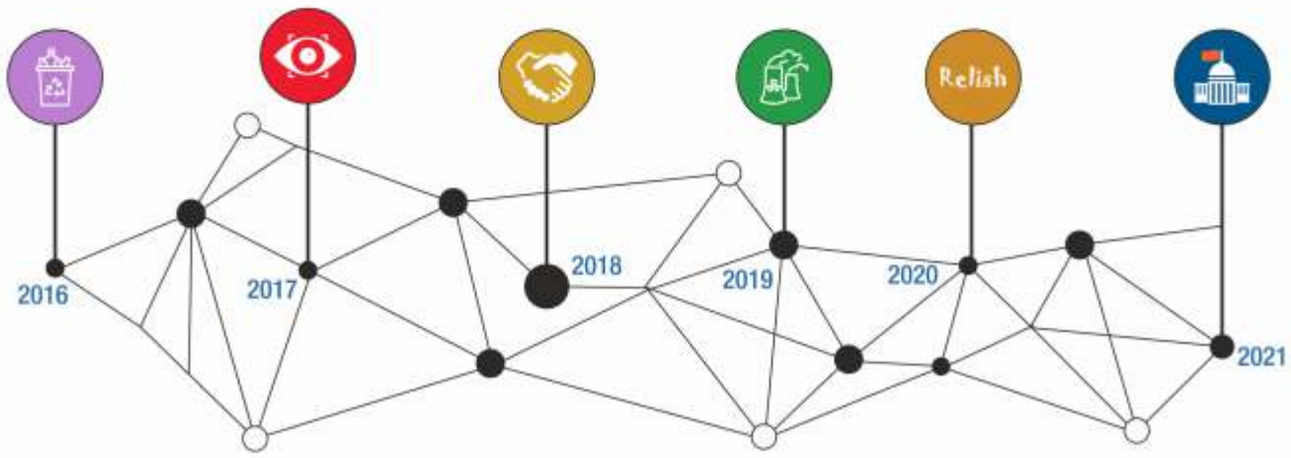
IPCA first recognised PRO by CPCB for EPR
Developed India's first EPR action plan with Central Pollution Control Board (CPCB) and executed it for PepsiCo, Nestle, Dabur, Perfetti and DS.

IPCA a trusted CSR partner
Undertook CSR projects in the domain of Solid Waste management, like S.O.R.T. for SLMTT, "My 10KG" for Dabur, "Bottles for change" for Bisleri etc.

IPCA a trusted partner to provide Air pollution solution
Undertook CSR Projects in the domain of Air quality management by Installing WAYU under "Project Air Care" for GSK and later "Solution for Air Pollution" for Goodyear.

IPCA's Project Relish
Conceived the idea of RELISH to train community organisations on IPCA's Solid Waste Management Model.

IPCA recognised by State Government
IPCA recognized by Chandigarh Pollution Control Committee (CPCC) as PRO for Chandigarh. IPCA appointed as member of State Advisory Committee, constituted by Govt. of Jammu & Kashmir.



Director Message

The year 2020-21 begun with almost everything under lockdown and each one of us was passing through tough time of COVID 19 pandemic. Many of us had lost our dear one in the battle of COVID 19 but at the same time this tough time had taught us lesson of humanity and conservation. I am feeling honoured to present this annual report for the year 2020-21, with the inclusion of new initiatives of IPCA to develop sustainable eco-system. The tough time gave us more courage and energy to do much better than previous years. We worked as Corona Warriors and extended our possible support to the society and fulfil the religious duty of humanity. We conceived new ideas and executed those ideas with zeal and enthusiasm on ground.

This year, IPCA has worked on sustainable technologies and develop infrastructure for managing plastic waste and improve air quality. Under CSR initiative of corporate, IPCA initiated project to installation of Air Purifiers, development of Green Belt on National High Way, set up Material Recovery Facility, and Recycling Facility for conversion of low grade plastic waste to chip board. Besides, some new initiative, we also continue with our previous year projects and activities except our primary education program for children of waste workers. We had to terminate this project with distress as school were allowed to open under COVID 19 Guideline and waste workers migrated to their native place.

During the year 2020-21, IPCA has increased their network and association with more organizations and marked its presence across the Nation. We made our operations more efficient and transparent as we also became digital and could reach to more people through digital media and created awareness on environmental issues. We came up with the mentorship program under project "Relish" and identified 20 aspiring start up organization / entrepreneurs from different States/UT and provide them practical and technical training on Solid Waste Management through a team of subject experts.

2020-21 was a promising year and we got support from each stakeholders and had several milestone achievements including installation of 95 aerobin, installation of 87 air purifier, collection and recycling of 82,000 MT plastic waste, and brought behaviour change to more than 10,000 families and run plastic collection drive under My 10 Kg Plastic and Bottle for Change Campaign.

I glad to have a team of passionate, enthusiastic, energetic, happy humans, who are eager to do more and more for the benefit of society and environment. I would like to thank all my teammate, members, associates, vendors, sponsors, clients, and well wishers for their valuable support, wishes and trust. Their support enable us to took tough tasks and challenges and convert them into reality on ground with ease.

ASHISH JAIN
DIRECTOR, IPCA

IPCA's Achievement 2020-21

Tangible impacts

- **82278MT** of Plastic Waste Recycled or Scientifically disposed.
- **10885MT** of MLP converted to energy at Waste to Energy Plant.
- **110MT** of Organic waste prevented from reaching Landfills.
- **5065Kg** of organic Compost generated.
- **87** Air purifiers Installed.
- **25%** reduction in PM_{10} & $PM_{2.5}$
- **95** organic waste composters installed.
- **2.5** km Green belt developed.

High impacts

- Presence in **30 States & UT.**
- Setting up Material Recovery Facility organisation by CPCB for Extended Producer responsibility.
- **Project RELISH :** Nation-wide Entrepreneurship programme.
- Setting up of Recycling plant.

Wide Impacts

- Collaborated with **26 ULBs**.
- Partnered with **150 corporate houses**.
- **125** recycling and co-processing Partners.
- **12000 Households** participated in waste recycling programmes.
- **>100** Training and capacity building programmes.

Deep impacts

- **>20,000** Rag-pickers have sustainable livelihood.
- Providing health and safety training to Rag-picker.
- Enhanced Citizen knowledge of segregation and recycling of Waste.
- **>500** trained and skilled manpower.

Our Team


Ashish Jain


Ajay Garg


Radha Goyal


Amit Jain


Ankit Goel


Shyam Lal Shukla


Pratyush Shukla


Reena Chadha


Madhu Jaswal

Akansha Gupta


Garima Kaushik


Ravi Singh

Kriti Jain


Ayesha Khosla


Raj Kumar Gupta


Karuna Shankar Shukla


Ranvir Singh


Rakhi ghosh


Sachin Jaiswal


Ramji Saxena


Tarkeshwar Pandey


Nitika Chandel


Rahul Saini


Nitin Sharma


Abhishek Shrivastava


Sachin Prasad


Lokesh Kumar


Subodh Kumar


Deepak Kumar


Ansh Rastogi


Manoj Kumar Verma


Amandeep


Ravinder Tusamarh


Prateek Saxena


SarveshKumar Sharma

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ABOUT
Indian Pollution Control Association

Indian Pollution Control Association started its journey in the year 2001. It was led by a group of passionate and environmentally conscious individuals, who believed that there was a need to instill a keenness for waste management in India. IPCA in 20 years of its existence, has established itself as a reputed environment NGO providing multifaceted solid waste management solution to corporate, industries, educational institutes and residential colonies. In recent years it has diversified into the domain of Extended Producer Responsibility, Air quality management, community centric educational and capacity building activities, awareness generation and sanitization regarding environmental issues and livelihood development for waste collectors/pickers. It has reached out to both public and private sectors to sensitize them about the importance of incorporating issues of environmental considerations and self-sustainability into project or policy development for a greener future in India.

Solid Waste
Management

Extended Producer
Responsibility

Air Quality
Management

Community Centric
Educational Programmes

Outreach and Capacity
Building Activities

IPCA's VISION

Sustainable Economic Development of India in a way that it Ensures Environmental Protection

IPCA's MISSION

IPCA's VALUES

Our values serve as a compass for our actions and describe how we behave in the environmental world.

Passion
We are committed with heart, mind, and soul to achieve and to serve the best

Accountability
If it is to be, it's up to me

Integrity
Be real and holistic in approach

Leadership
The courage to shape a better future by revolutionizing the present

IPCA and Sustainable Development Goals

Solid waste management is a key utility service that generally goes unnoticed if done properly. However, if it doesn't work well, improper solid waste management has the capability to draw the attention of public, government and the media alike. The improper or the lack of solid waste management has gained attention as it negatively impacts the three spheres of sustainable development- Ecology, Economy and Society. The17 Sustainable Development Goals (SDGs) introduced by the United Nations in 2015 to provide targets and indicators for broad global sustainability achievements and SDG 11 and 12 have direct linkages with solid waste management. And at least 12 other SDGs have links to solid waste management. Thus, effective solid waste management can help India Achieve its international commitment of achieving the SDGs by 2030. IPCA has streamlined and implemented its efforts, functioning and processes based on the atleast 14 of the 17 SDGs .

SDGs and IPCA's Goal For SUSTAINABLE DEVELOPMENT

1 NO POVERTY

Sustainable income to 10,000+ rag/wate pickers and 125 co-processing partners

3 GOOD HEALTH AND WELL-BEING

1,00,000+ MT of waste collected and sustainably processed

Mitigation of Air pollution and successful reduction of particulate matter by 39%

4 QUALITY EDUCATION

5 Primary education centres for children of Rag/waste pickers 100+ Training programmes and workshop

6 CLEAN WATER AND SANITATION

77325 MT of plastic waste recycled and prevented from polluting water bodies

7 AFFORDABLE AND CLEAN ENERGY

10885MT of waste sent to waste to energy plant

8 DECENT WORK AND ECONOMIC GROWTH

10,000 + Rag pickers provided sustainable livelihood source.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Development of 69 waste collection centres. Development of recycling Plant in Greater Noida

10 REDUCED INEQUALITIES

Education and capacity building of rag-picker community

11 SUSTAINABLE CITIES AND COMMUNITIES

Providing SWM solution for industrial waste, plastic waste, organic waste reducing pressure on landfills and preventing pollution

Providing solution for Air quality management and improving air quality

13 CLIMATE ACTION

1,00,000+MT of waste prevented from reaching landfills and producing emissions

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Waste is treated as a resource: Organic waste converted to usable compost, Plastic waste recycled, MLPs used as fuel at waste to energy plants Community programmes to educate about reducing waste

14 LIFE BELOW WATER

1,00,000+MT of waste prevented from improper dumping

15 LIFE ON LAND

Less pollution on the land, healthier enviroments

17 PARTNERSHIPS FOR THE GOALS

Collaborations with various organisations - IIT Delhi, IIT Madras, TERI University, Delhi University, GGSIPU, NEERI-CSIR, SBI, Dabur, Goodyear, GSK, SLMTT etc.

Vertical 1

Solid Waste Management

Organic Waste Management

According to Ministry of Housing and Urban Affairs, Urban India generates 1,50,000 Tonnes per day, of which 90% is collected and only 20% of this is processed the rest 80% or 10,800T/Day of waste is dumped into landfills which cause several environmental problems. The problem of municipal solid waste is monumental and is set to increase substantially and become double by 2030 and IPCA has undertaken several programmes and activity to sustainable manage the waste.

S.O.R.T.-Segregation of Organic-Waste for Recycling and Treatment

Delhi generates over 9,500 tons of municipal waste in a day and majority of it is dumped into already overflowing landfills. These landfills are up-to the brim, with 28 Million Tons of gigantic mountains of waste, which has become a major source of groundwater contamination and air pollution leading to severe impacts on public health and the environment. To tackle the problem of municipal solid waste, IPCA implemented project S.O.R.T. or **S**egregation of **O**rganic-**w**aste for **R**ecycling and **T**reatment, with the support of **SLMTT (Swarn Lata Motherson Trust)**. The Project was first implemented in Delhi-NCR in the year 2018. The project is based on the principle of sustainable minimisation of waste by source segregation and composting of organic waste; and to maximise resource utilisation to reduce pressure on landfills. The projects empower communities to sustainably self- operate the project for a long-term solution after adequate capacity building and training by IPCA. The first phase of the project was completed in 2019 which empowered six residential societies and two schools of Delhi NCR to sustainably process their organic waste. The project is currently in the second phase where the project is being implemented at 18 sites across Delhi-NCR.

Action domain of S.O.R.T.

- Bring Behavioral Change toward waste management.
- Conduct interactive and awareness building activities.
- Conduct capacity building workshops for stakeholders.
- Installation of Aerobins/composter.
- Operation and maintenance assistance for composting in aerobins/composter.
- Harvesting of Compost and Develop Vegetable Garden.

Figure: The key components of S.O.R.T.

Composter

One of the major components of the project is the installation of aerobins. By March 2021, 70 aerobins had been installed in 18 locations across Delhi NCR. The aerobin or composter is uniquely designed and requires no energy input, the only input required is of wet/organic waste from the kitchen or garden. The composter is easy to use and is based on thermal insulation which conserves the internal heat for rapid breakdown of biomass. It employs an aeration core that promotes aerobic and efficient break down of waste which in turn contributes to the reduction of greenhouse gas emissions. The composting process is free from foul odour and the first compost can be harvested after 40-45 days. The composters installed at the project sites are of 200L or 400L capacity and are operated by a designated operator, who is responsible for its daily operations like feeding organic waste, monitoring the temperature, moisture and harvesting compost.

Figure: Aerobin Composter

Figure: Functional Design of Aerobin

Presently the S.O.R.T project is operational at 26 sites in total that include residential societies, educational institutes, corporates and embassy.

Figure: SORT project sites in Delhi NCR

S.No.	Area	No. of Sites
1	Delhi	8
2	Gurugram	3
3	Noida	11
4	Ghaziabad	4

Operation process

IPCA takes the lead in the project implementation and undertakes all the steps necessary for successful implementation from conducting preliminary survey for selection of sites, running and facilitating operations and maintenance; providing trainings to the residents and staff to aiding in harvesting, processing and using the organic compost.

Identification of sites/location

Formation of Waste Managemen Committee onlocation

Training Workshops and awareness generation activities

Hand-holding for composting and development of vegetable garden

Installation of Aerobins/ Composters

Harvest Compost

Impacts of Project S.O.R.T

In the 3 years of the project execution by IPCA major long term impacts can be observed in the communities where the projects were undertaken. The impacts can be summarised as follows:

	Before SORT	After SORT
Awareness and knowledge of wet and dry waste	20%	89%
Use of 2 bins for source segregation	40%	70%
Availability of composting infrastructure	0	95 units of composter
Segregation at source	42%	50%-90%
Participation in awareness activities	26%	Increase of 68%
Capacity building of waste workers/ maids/ servants in household	Nil	Over 50 training and capacity building workshop conducted >500 trained personnel's
Compost generation	Nil	9653kg of compost generated in 3 years
Awareness generation regarding waste upcycling and community engagement	None	Over 20 awareness generating activities conducted Community engagement of >10,000

Annual Statistics for S.O.R.T. Phase II (2020-21)

INFRASTRUCTURE DEVELOPMENT

- Number of sites 26.
- Total composters installed : Phase I- 25 Phase II-70 (ongoing).
- 9 Vegetable gardens developed 12 vegetable gardens in stages of development.
- Reached 4250 households.

SOCIAL ACHIEVEMENTS

- 10,000+ community members reached.
- 40 Trainings and workshop for capacity and skill building.
- Knowledge enhancement by 26 awareness generation activities.
- 3000 Kg of organic Compost utilised by households.
- 6 residential societies and 2 schools empowered to undertake composting on their own.

ENVIRONMENTAL ACHIEVEMENTS

- 110T + of waste prevented from reaching landfills.
- Segregation of waste 50%-90% households.
- 5065kg (2019-2020) + 3445 Kg (2020-21) compost generated.
- 3655Kg Compost Distributed among households Produced over 150L of organic liquid manure can be sold to generate incentive (e.g. Aditya Mega City).

GARBAGE RECYCLING PROGRAM

The Garbage Recycling Program was the first community-centric service project bringing about social transformation, executed by IPCA in 2004. The Project aims to minimize environmental impacts of waste dump yards and maximize recycling and upcycling of waste. The program provides efficient and sustainable, door-to-door collection of municipal waste from households, markets, institutes, corporates etc., and thereafter scientifically recycles or disposes it. The program endeavors for formal inclusion of the informal sector of rag-pickers in the operations of the project, by providing them fixed waste collection location and ownership over the waste collected. The waste collected is then vended to IPCA's recycling and co-processing partners and it generates sustainable livelihood for the waste collectors. IPCA proudly operates the program till date, without any external funding.

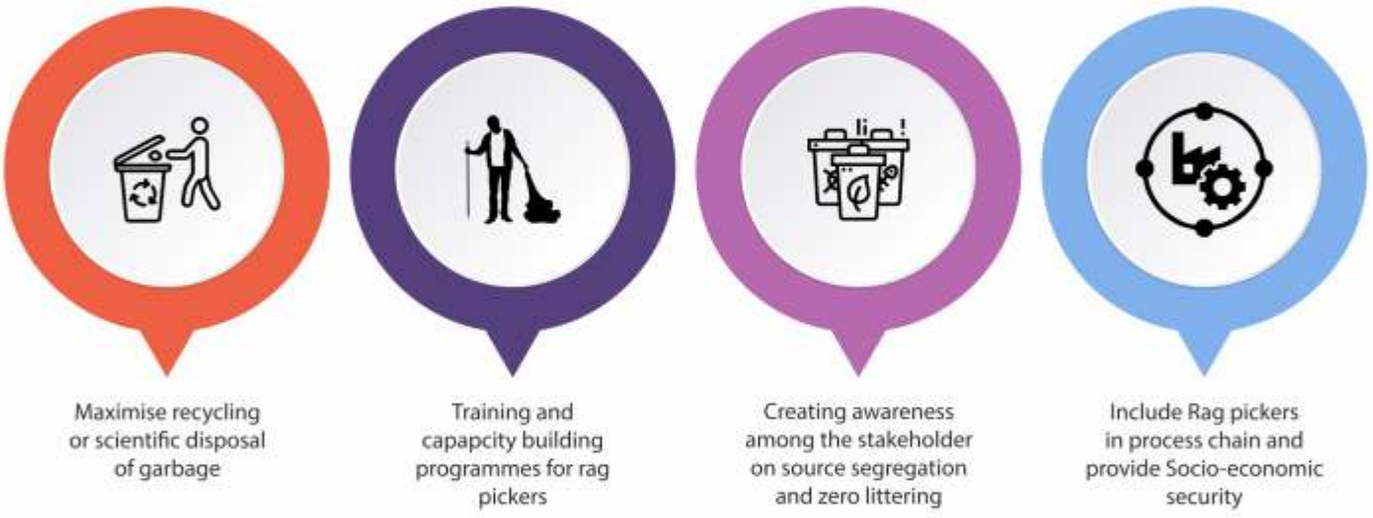


Figure: Key components of Garbage Recycling Program

Action Domain of Garbage Recycling Programme

- Door-to door collection of waste.
- Designating rag-pickers for waste collection.
- Training and capacity building workshops for waste collectors.
- Networking with waste recycler, aggregators and co-processors.
- Composting services for the waste collected.
- Awareness generating programs for stakeholder.

Project Impacts of Garbage Recycling Programme

Environmental Impacts

Reducing pressure on land fills Maximizing recycling of waste by primary and secondary segregation Vermicomposting of bio-degradable waste Creating supply chain for MLP waste Promotes zero littering.

Social Impacts

Generating awareness among stakeholders Yearly training and capacity building workshop for rag pickers/waste collector Educating the waste-pickers about personal hygiene and safety protocols Distribution of uniforms, badges, identity cards and safety kits.

Economic Impacts

Providing a source of sustainable income to the waste pickers Enhancing livelihood status Giving ownership rights over the waste collected by them Connecting the waste collector to recyclers/co-processors to increase their per capita income.

Annual Statistics for Garbage Recycling Programme (2020-21)

Waste collected 13200 Kgs/day

Number of waste collector deputed 30

Door to door collection of waste for

3500 households

7 corporate houses

Number of waste collector deputed 30

Through the project approx. 13200 Kgs/day or 4818MT/year of waste has been collected in the year 2020-21 which has substantially reduced burden on the environment as 2409MT of the constituting biodegradable waste has been processed through composting. 963.6MT of recyclable waste containing plastics, PET bottles, food wrappers, paper, glass etc. has been recycled. The rest of 1059.96MT of waste containing inert like carbon paper sand etc. has been and the other dry waste of 385.44MT has been disposed scientifically.

Composition of Waste

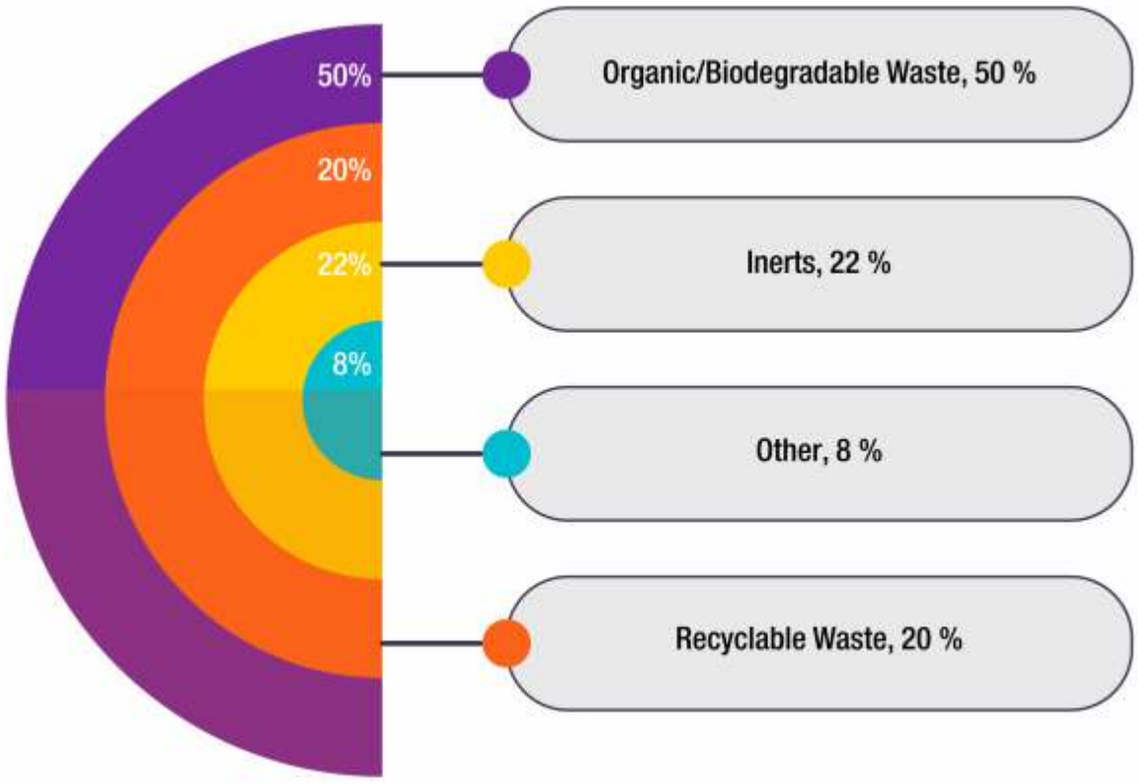


Figure: Composition of Waste collected under Garbage Recycling Program

PLASTIC WASTE MANAGEMENT

MY 10 KG CAMPAIGN

My 10Kg campaign, was conceptualized by IPCA and was supported and adopted by Dabur India Ltd., to address the ever-increasing problem of plastic waste disposal. According to Central Pollution Control Board, each year India generates a humungous 3.3 million MT of plastic waste, and due to lack of proper solid waste management the plastic waste is dumped in landfills without actualizing its potential of recycling. The aim of the campaign is to create awareness on plastic waste collection, segregation and correct disposal/ recycling of plastic waste.

This campaign is based on the principle of Extended Citizen Responsibility (ECR) which encourages each Indian national to take responsibility for the problem of Plastic waste. Through this campaign each person is to collect 10 kg of plastic waste CPCB's 2015 report, states that per Capita Plastic Waste Generation rate in India is 10 kg per year. Thus, collecting an equivalent amount would lead us on a path of plastic neutral economy and reduce littering of plastic waste, reduce plastic waste related pollution, encourage recycling and reduce the overall carbon footprint.

Action domain of My 10Kg Campaign

1. Bring about a social behavioral change in Indian citizens with respect to plastic waste collection, segregation and recycling/disposal of plastic waste.
2. Encourage community stakeholders to undertake environmentally sound plastic waste management.
3. Educate and create awareness about the problem of plastic waste so that people are encouraged to sort and recycle plastic waste.
4. Reduce littering and pressure on landfills. Increasing recycling of Plastic waste.
5. Provide an established channel for efficient collection and recycling/co-processing of Plastic Waste.
6. Provide Door-to-Door collection of Plastic waste from the target localities.

Operational process

IPCA started this campaign in house and later extended it to the community. The East Delhi Municipal Corporation(EDMC) also played a significant role in the expansion of the campaign by directly connecting households to IPCA and the campaign. As the campaign expanded more and more organization and stakeholders connected to IPCA in various capacities like "There is no Earth B" organization for collection of waste during the weekly clean up drives, other joined as recyclers and co-processing partners. Other community stakeholder includes RWA, Households, hospitals, educational institutes Corporates and Institutes from whom plastic waste is collected.

Impacts of Garbage Recycling Programme

Infrastructure development

- Efficient and sustainable management chain developed for plastic waste.
- Door-to door collection model developed.
- Plastic waste collection vehicles employed for waste collection.
- 6 empanelled recyclers/Co-Processor.
- Mobile app developed by Dabur India.
- Distribution of plastic waste bins.

Community Impact

- Social activities like clean up drives, street plays, group discussions generated awareness in the community.
- Behavioural change leading to source segregation of waste.
- Over 50,000 individuals have been a part of the campaign.
- RWA, individual households, corporates, schools, educational institutes, hospitals have joined the campaign.
- Collaboration with NGOs like Mother Earth, Maitri Foundation, Asmee Foundation have increased the outreach of the campaing.

Environmental Impact

- Monthly collection of plastic waste over 2T.
- Weekly collection of plastic 500kg.
- Active Adoption of campaign by:
- 30+ societies, 4000+ households.
- Increase in recycling of plastic.
- Reduced burden on landfills.

Figure: Impact of My 10Kg campaign

Annual Statistics of Garbage Recycling Programme

- 3 pick-up scheduled daily for collection of plastic waste.
- Over 4000 households have permanently joined the campaign.
- Societies from Indirapuram, Dwarka and Paschim Vihar (>865+ households) joined the campaign.
- Voluntary Individual participation has increased to over 400 Individuals this year.
- Over 10,000 Households have participated in the campaign.
- After EDMC, Ghaziabad Municipal Corporation joined the campaign.
- Monthly collection of plastic waste from Delhi/NCR has crossed 2 Tons of Plastic Waste/month as a part of the campaign.

BOTTLES FOR CHANGE

Bottes for change is an initiative by Bisleri International Pvt. Ltd. The campaign is an awareness generating campaign that intents to educate citizens about, waste segregation and recycling of plastic bottles. Plastic bottles though versatile are also prone to littering this campaign hopes to bring habitual and behavioral change through inculcating the habit of recycling plastic bottles and adopting best practices for a cleaner environment. The campaign recognizes the value of correct disposal and efficient recycling so as to add value to the plastic waste. The recycled plastics can be used to make furniture, hand bags, window blinds and, even fabric and textile.

The campaign follows a four-step approach to bring about a change in the society:

Figure: Approach of Bottles for Change Campaign

The campaign has been running successfully in Mumbai and this year IPCA in association with Bisleri has implemented the project in Delhi & NCR. The project started operations in October 2020 with a few residential societies of Noida but since has expanded to over 50 locations in a short span of 6 months.

Action Domain of Bottles for Change

- Provide Logistic Support to execute the campaign.
- Awareness generation among Delhi NCR Households.
- Inclusion of informal sector (rag-picker) for collection of plastic waste.
- Collect and segregate plastic bottles.
- Channelize the plastic waste to respective recycling facilities.
- Support for App based registration and documentation to Bisleri.

Operational Process

Figure: Operational process of Bottles for change

Impacts of Bottles for Change

The lifetime of the initiative though small at present, it has been able to make a significant impact in thousands of households. The quantifiable impacts of the campaign are as follows:

- Signs of behavioral changes observed in the households undertaking the campaign.
- Households segregating waste at source for recycling.
- Providing sustainable livelihood to rag-picker who collect and segregate the plastic waste.
- 53 locations have taken up the campaign in Delhi, Ghaziabad and Noida.
- In 6months 12.258 Tonnes of Plastic bottles have been recycled with a monthly collection reaching 3600Kg.

INNOVATIVE MECHANISM FOR MANAGEMENT OF PLASTIC WASTE

Plastics are the backbone of globalization and the enabler of modern lives; they are present in our everyday items like the toothbrush or our credit cards. But they are increasingly become problematic- currently India is estimated to generate 26,000 tonnes of plastic every day and nearly 10,000 tonnes from it is uncollected. The uncollected plastic waste often find itself as litter on the roads or in drains contaminating our surroundings. And these figures are set to increase as societies becomes more affluent and consumptions increase. And as plastic waste increases, we won't be able to catch up with it by collecting and recycling by traditional methods, it is the needs of the hour to find innovative methods to manage the plastic waste and strengthen its circular economy.

Circular Economy is created when the value of products, material and resources is maintained in the economy for as long as possible while minimising waste.

A circular economy is sustainable, has a low carbon footprint and utilises resources efficiently.

IPCA understands the future needs of plastic waste management and the value of reutilizing plastic waste as a resource. It has actualized the concept of circular economy of plastic waste by setting up Dry Waste Collection Center of 2MTD capacity and a Plastic Recycling Plant 900 MT per month capacity under the aegis of the CSR initiative of SBI Card and Payment Services Limited. In totality the project is called the Innovative Mechanism for Management of Plastic Waste and includes other components like community engagement and reduction of environment impacts etc. The Project was started in February 2021 and has already made substantial progress.

Action Domain of the Project

- Collection, segregation and channelization of different types of plastic waste for their end-of-life solution.
- Set up Dry Waste Collection Centre.
- Set up Recycling Plant for the low grade and non-commercial plastic waste.
- Establish sustainable supply chain for plastic waste.
- Train Manpower and capacity building programmes for stakeholder for running the facilities.
- Public Awareness campaigns.

Project Components

INFRASTRUCTUR DEVELOPMENT
- Setting up of Dry Waste Collection Center.
- Setting up Plastic Waste Recycling Plant.

COMMUNITY ENGAGEMENT
- Awareness Generating Activities Like Street Plays, Nukkad Sabha, Workshops.
- Encouraging Source Segregation.
- Socio-economic upliftement of Rag-Pickers.

STAKEHOLDER CAPACITY BUILDING
- Capacity building programmers for waste collectors/scrap dealers and recyclers.
- training man-power for operating the facilities developed.

REDUCING ENVIRONMENTAL DETERIORATION
Reuse/recycling of credit/debit card plastic waste in India.
Collecting equivalent quantity of PVC plastic waste from end consumer for recycling.

Figure: Components of the Project

Dry Waste Collection Center (DWCC)

Key Features of the Recycling Facility

The goal of the facility is to bring sustainability in the plastic waste supply chain by developing recycled products from plastic waste.

- The recycling facility is a fruit of extensive research done by IPCA and designed specifically to recycle low grade plastic waste (including Multi-Layer Packaging), which was earlier considered non-recyclable.
- Industrial areas of Delhi NCR were explored and a site was finalized in Ecotech - 12, Greater Noida, U.P. for setting up recycling facility.

- PSpecific Technologies were acquired to recycle low-grade plastic waste after extensive market research.
- Capacity of Recycling Plant is 200 MT of low-grade plastic waste per month.
- The facility is ready for operations and understanding the challenges of the recycled products the skilled team at the IPCA has already started working on various application of the recycling material. Some of the products developed include:

  a. Pellets

  b. Recycled Sheets

  c. Benches, chairs and table from recycled sheets

  d. Utility Products like office stationery, sanitizer stands etc.

INDUSTRIAL WASTE MANAGEMENT

Destruction and Disposal of Industrial waste

The consumer good industrial production in India is increasing exponentially with our growth rate but at times some quantity of products remains unconsumed due to expiry, transit damage, changes in packaging, changes in composition etc. It is estimated, that 1-2% of total production of any industries is remain unconsumed and need to be disposed in an environmentally sound manner. For many businesses and industries, the collection, transportation and disposal of industrial waste presents a host of challenges. There is also the eminent danger of mishandling as industrial waste can cause irreparable damage to humans and the environment. In addition, the waste handling infrastructure can become overburdened when industrial material eligible for recycling is dumped in the dumping yards without being reused or repurposed. Such challenges can be mitigated by ensuring proper collection, recycling and disposal of industrial waste by a qualified and experienced waste management company like IPCA. IPCA established a destruction and disposal facility in year 2002 in Delhi and caters to the needs of the industry that require waste disposal services.

Action domain of Destruction and Disposal Facility

- Offers safe and environment friendly destruction and disposal of industrial waste at IPCA facility.
- Develop comprehensive plan for Industrial Waste Management to maximize utilization of waste material generated by adopting various recycling approaches.
- Training and capacity building for effective implementation of Solid Waste Management Plan.
- Risk mitigation for misuse of damaged good into the grey market.
- Logistic support for the collection and disposal of Industrial waste.
- Design, set up and maintain composting facilities for safe destruction and disposal of expired/damaged FMCG goods.

Operational Process

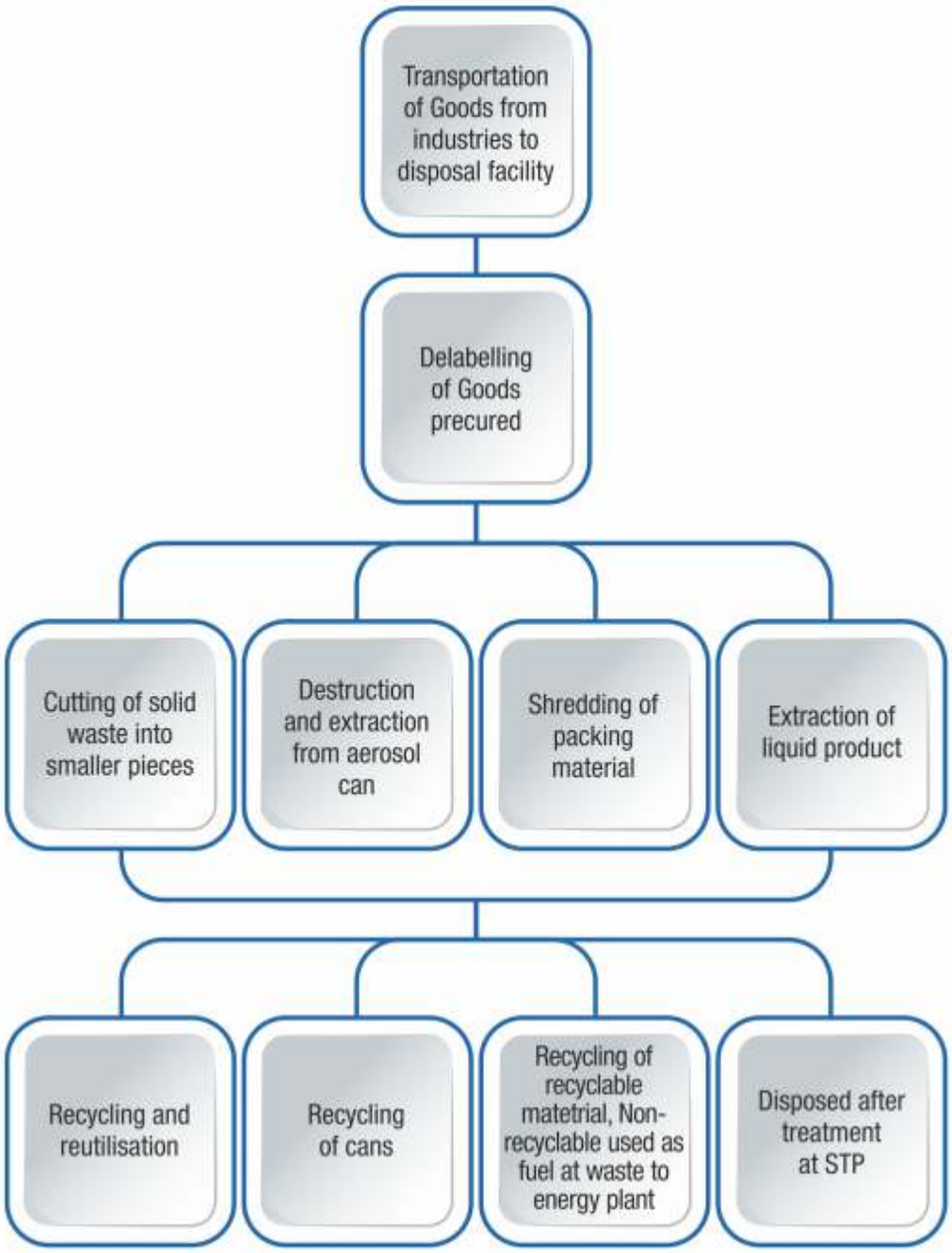


Figure: Operational process of eco-friendly destruction and disposal of industrial waste

Annual Statistics of the Destruction and Disposal Facility (2020-21)

- IPCA has worked with several business and corporate houses to safely dispose the industrial waste. Approximately 1000MT of damaged goods that include personal care, toiletries, home care, beverages, foods items, have been disposed by adopting eco-friendly technologies.
- IPCA is the only facility, which has the machine for the safe disposal of aerosol bottle and can and last year catred to the needs of several industries.

Vertical 2

Extended Producer Responsibility (EPR)

EXTENDED PRODUCER RESPONSIBILITY & IPCA

The Ministry of Forest Environment and Climate Change, to minimize the detrimental environment impacts of plastic pollution, notified the Plastic Waste Management (PWM) Rules, 2016. The PWM mandates the Producers, Brand Owners & Importers (PIBOs) to bear a significant degree of responsibility for the environmental impacts of their products. PWM makes the PIBOs responsible for the post consumer stages of the products life and they have to develop collection back mechanism for equivalent quantity of plastic packaging consumed by them, as their Extended Producer Responsibility (EPR). EPR makes the industries more environmentally conscious as they have to internalize the costs of pollution prevention and damage for sustainable management of natural resources.

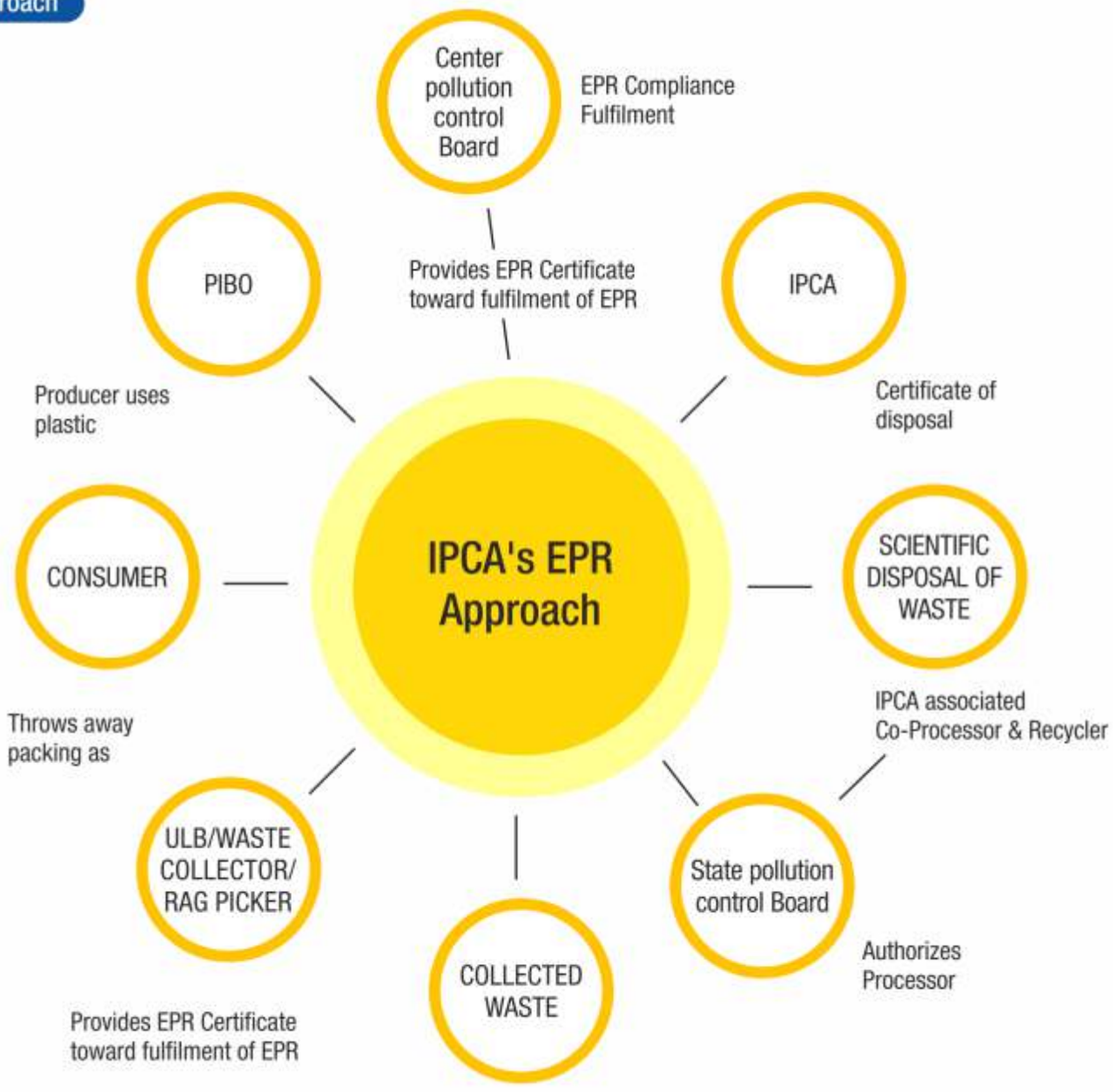
Figure: Benefits of EPR

In such a scenario the intervention of Waste Management Agencies (WMA) like IPCA becomes crucial as they have been pioneers in providing solutions for plastic waste since 2001. IPCA has the relevant experience and expertise in the handling and scientifically managing plastic waste. It was the first organization to prepare and execute India's first joint EPR action plan in 2017 and was recognized by CPCB as a waste management agency providing assistance and solution for EPR activities of PIBOs. Over the years, IPCA has scaled up its functioning and implementation, with respect to EPR, from eight cities in five states to a dominating presence in the EPR sector in all states and union territories of India. Today, IPCA is empaneled as an expert with CPCB; plays an active role as advisor and member with Punjab Plastic Waste Management Society (PPWMS) and Jammu municipal corporation. IPCA has assisted over 100 PIBOs in their EPR activities through their established framework and network of government organizations and private enterprises.

Action domain of EPR

- Develop sustainable supply chain (collection, segregation, recycling / processing) for MLP, Non-MLP and Paper Beverage Carton waste or any other plastic waste commodity.
- Connect to a developed network of authorized recyclers and coprocessors across all Indian States and UTs.
- Strengthen the collection and segregation of Plastic Waste.
- Development and execution of EPR plan on behalf of PIBOs.
- Facilitate collection, segregation, & recycling / processing mechanism.
- File and maintain documentation for complain on behalf of the PIBOs.

EPR Approach



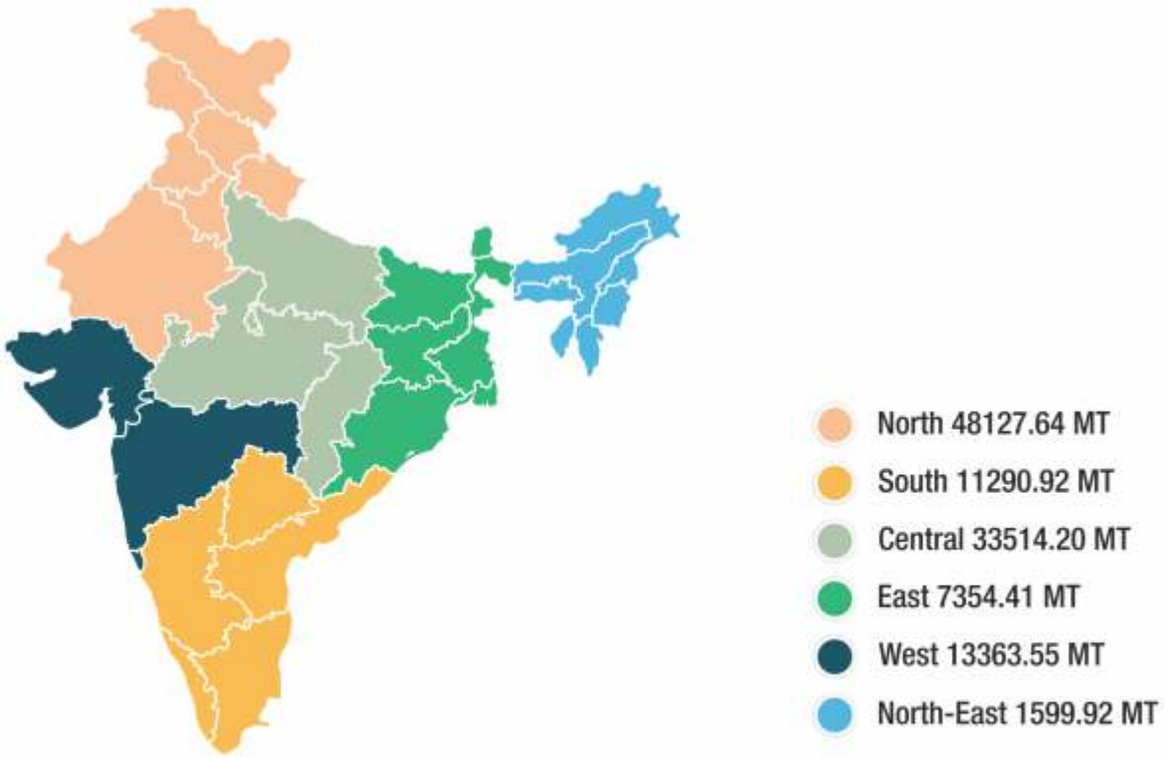
IPCA's EPR Approach

Annual Statistics for EPR (2020-21)

In the year 2020-21 IPCA partnered with a total of 334 organizations that including brand owners, municipal corporation, collection partners, co-processers and recycling partners.

The growth of the organization has been tremendous in the last few years and by 2020-2021, IPCA has a dominant presence in 30 states and Union territories, including the North East region where we have a presence in 5 states; even islands of Andaman & Nicobar and Dadar and Nagar Haveli have been reached in the last year alone.

Figure: Map showing presence in various states



The increase in our operations has not only impacted our operations significantly but has translated to deeper impacts on improving the environment. With increase in our nation-wide presence, we were able to increase the amount of dry solid waste collected and hence decrease the load on landfills.

- In 2020-2021 we were able to collect 85250.64 MT of solid waste which was a 64% increase from the previous year's collection of 52113MT.
- Multi-layer packing /plastic: 24327.78MT (increase of 20%).
- Non-MLP or recyclable plastic: 52965.38MT (increase of 81.5%).
- Tetra Pack : 7957.49MT (194% increase).

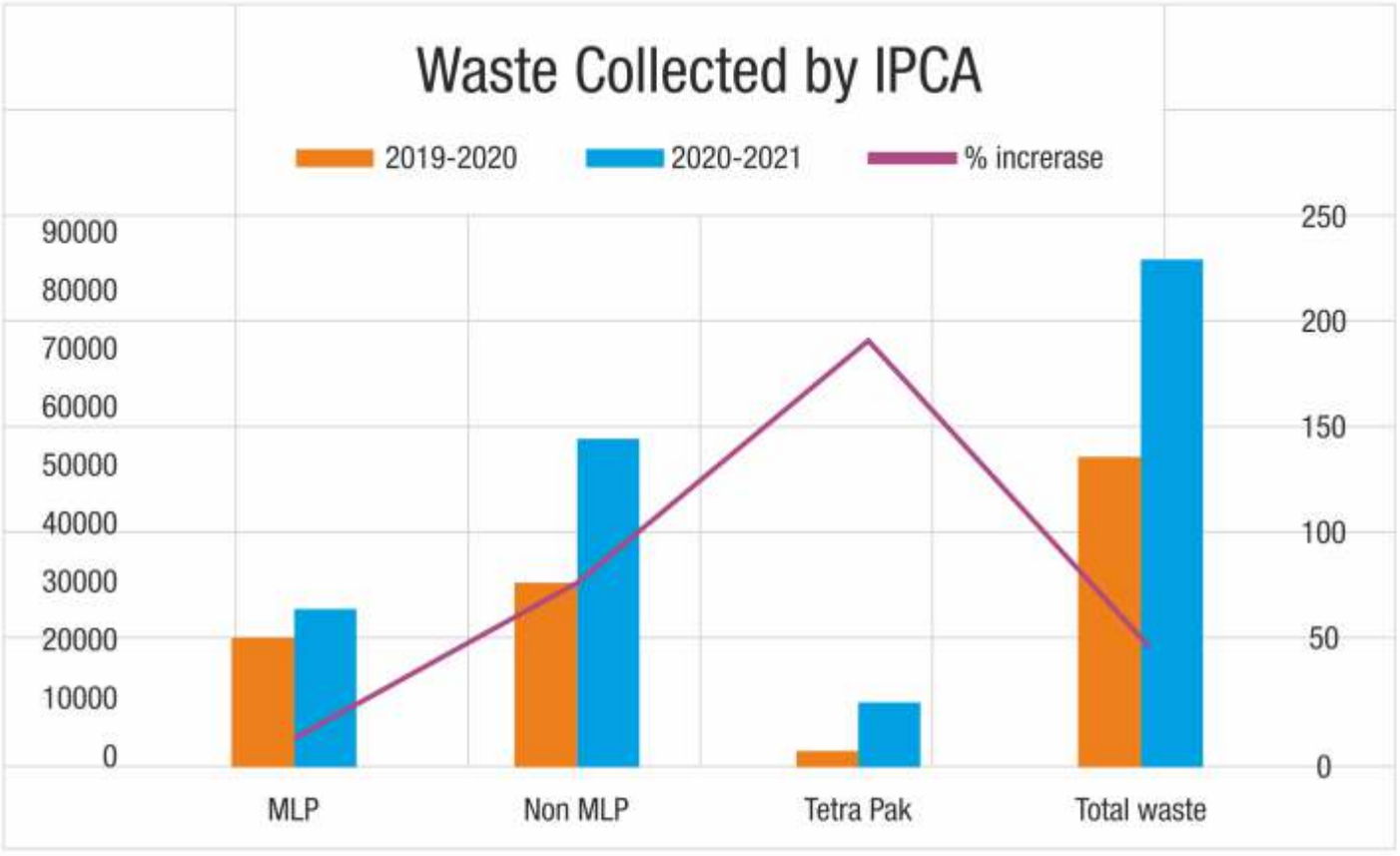


Figure: Increase in the amount of waste collected by IPCA

As the quantum of waste handled by the EPR wing of the IPCA increased it was also required to scale up the operations supply chain of IPCA. IPCA has expanded its collection centers across the nation and now has a total of 71 dry waste collection centers in various region as shown in figure below.

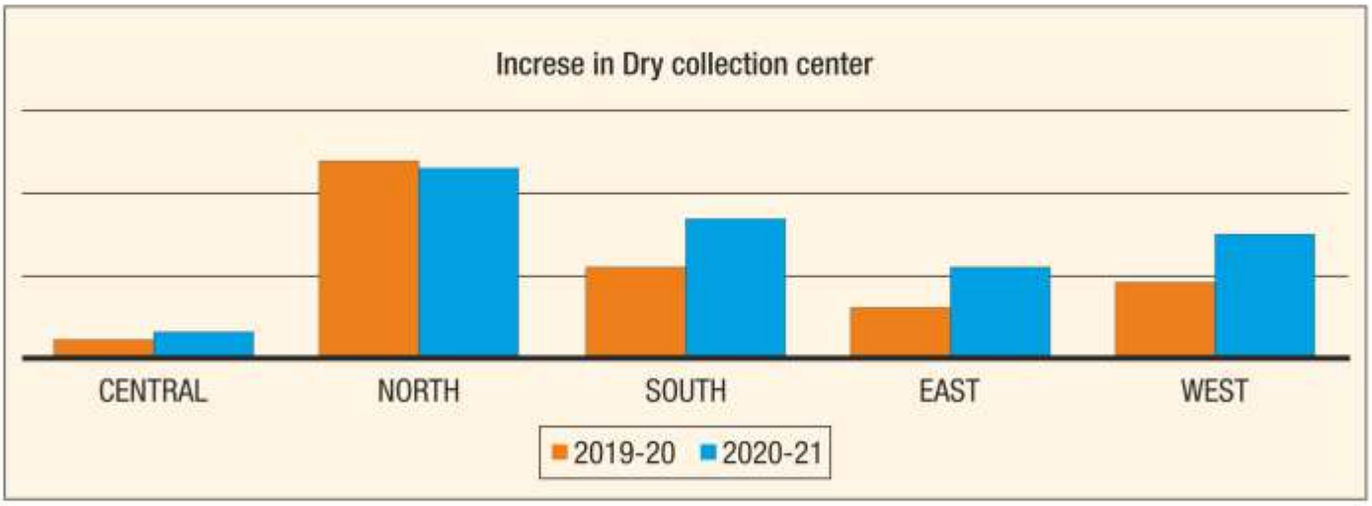


Figure: IPCA's Dry waste collection centres

The second link of the supply chain has also been scaled up in terms of our strong partnerships with the waste collection partners and our associated co-processing and recycling partners. The figure below gives our number of associated collection and recycling partners for the last three years.

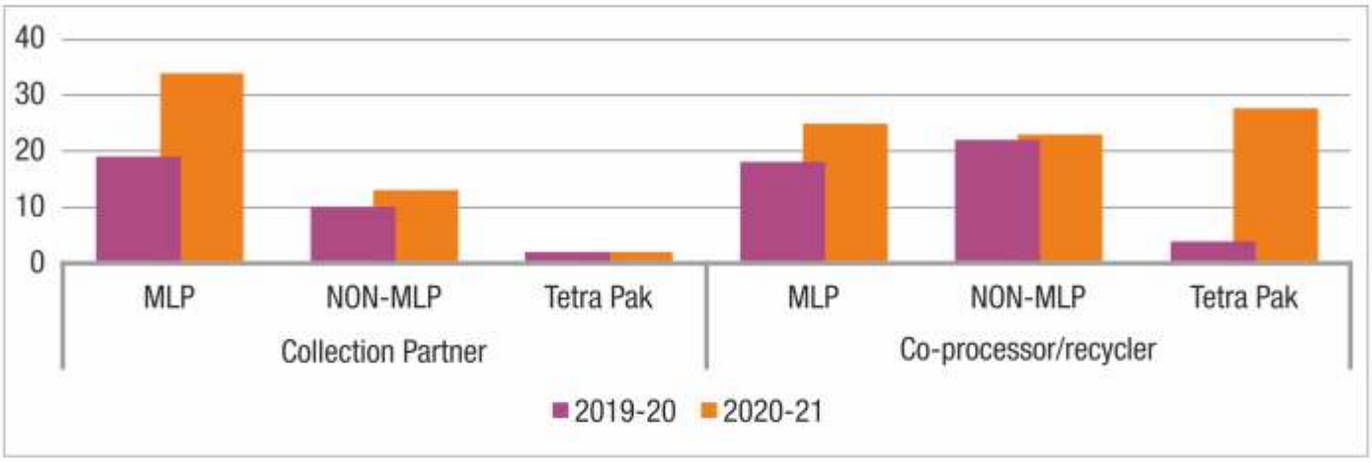


Figure: IPCA's Collection and Coprocessing/recycling Partners

The proper collection and processing of waste facilitates further use of as fuel etc. or re-enters the supply chain as recycled goods. In the year 2020-21 IPCA has decided to venture into the domain of recycling of plastic waste so that it can demonstrate recycling of plastic waste into useful products. The plant is to be up set up in Greater Noida, with support of the CSR initiative of SBI Card, to recycle waste of MLP, LDPE, HDPE, and Paper Beverages Cartons.

Impacts in the Society: IPCA's integrated development EPR frameworks

EPR on ground can be sustainably improved by connecting and building on 3 essential components, the ULBs who have been collecting waste and are a part of the organized waste collection channel, the informal sector covering the rag/waste pickers and the component of education, awareness and communication to build cognizance, knowledge and capacity. And IPCA works in all three components to have an overall impact in the society.

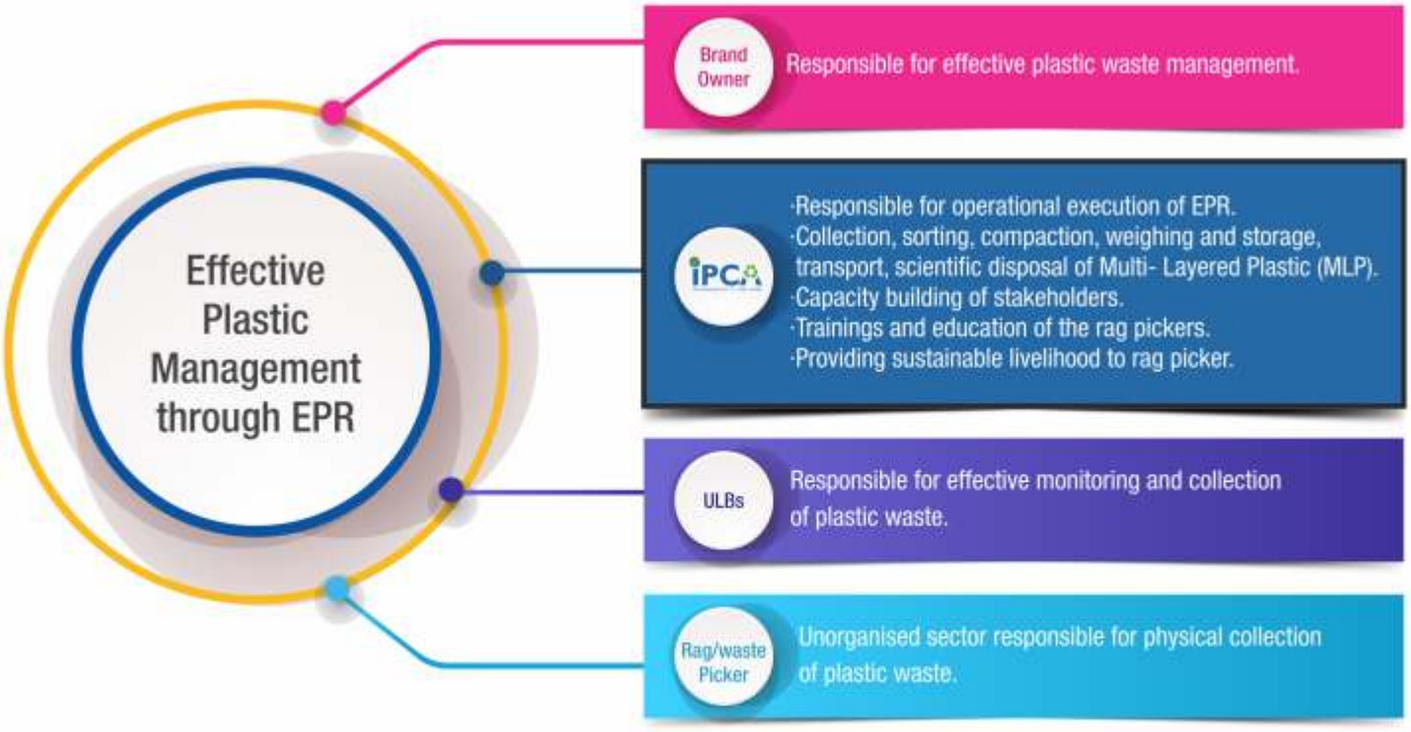


Fig: Components/Stakeholders for effective MLP management

IPCA and ULB

IPCA worked with many State Pollution Control Board and ULBs as a knowledge partner and worked with them on the PWM policies. IPCA has also organized various workshops for ULB officers of different states in India to build capacity and at present is associated with 48ULBs.

- 30 states and UT
- 108 brand owners
- 48 Urban local
- 10,000+ Rag Picker
- 150+ Health awareness and capacity building programmes


Affirmative Action


Plastic waste management


Health and sanitation


Socio-economic upliftment of Waste collector


Scientific disposal of waste


Capacity building activities


First hand Recycling of Plastic waste

IPCA and Rag/waste Picker

Rag/waste pickers were considered the weakest link in the supply chain of the highly unorganised waste collection sector but IPCA was able to strengthen their capacity to make them one of the strongest links. IPCA's training and capacity building programmes trained the unskilled migrant labour to identify the various type of plastic, collect MLPs, the importance of segregation of plastics,importance of hygiene and safety equipment. Post trainings the rag-pickers are able to add value to the supply chain and get a better price for their segregated waste. IPCA also actively works with the community to make an impact on their livelihood through improvement of their socio-economic status.

Environmental Impacts

- Increase in household income of the Rag picker.
- 30% Increase in income of rag pickers after collection of MLP.
- Price given to Rag-pickers for MLP higher than average market price.

Social Impacts

- Health care programmes across the country for the Rag-pickers.
- 37 trainings and capacity building programmes.
- Education centers in Delhi NCR.
- Cultural activities for rag pickers children.
- Change in attitudes towards overall hygiene.

Economic Impacts

- 85,250.64MT of waste collected by Rag pickers.
- 85,250.64MT of waste recycled/ processed.
- 24,327.78 MT of MLP processed.
- 13,563.2MT of plastic waste supplied to Waste to Energy Plant in Gazipur.

IPCA and Awareness generation about EPR and its importance

The Plastic Waste Management Rules, 2016 as amended in 2018 and Extended Producer Responsibility for Plastic Waste Management are fairly new concepts in India and many lack the awareness and understanding regarding the importance of EPR. And only a few organisations are undertaking the post-consumer processing of plastic waste. To fill this lacunae IPCA provided consultation services to the over 100 PIBOs to execute their EPR for their operations. IPCA also assisted PIBOs for getting registered with Central Pollution Control Board (CPCB).

Vertical 3
Air Quality Management

INNOVATIVE SOLUTION FOR AIR

The importance and essentiality of clean air for health and vitality cannot be stressed enough. The problem of polluted air has been a major area of concern for India, due to health impacts associated with the degrading air quality. It is responsible for the exacerbation of asthma, increase in respiratory infections, increased mortality due to cardiovascular diseases, chronic respiratory diseases, Covid-19, and cancers. To tackle the problem of air pollution the Government launched the National Clean Air Programme (NCAP) in 2019 and set a target of reducing PM10 and PM2.5 by 20-30 percent by 2024, in 122 cities.

The national capital region is of particular interest as there have been numerous incidences of severe air pollution especially with respect to elevated PM_{10} and $PM_{2.5}$ levels and only the efforts of the government will not be sufficient to curb air pollution. IPCA, understands its responsibility towards curbing the problem of air pollution and has endeavoured to promote and utilise innovative solutions for air quality management.

PROJECT AIR CARE

In a recently published study by World Health Organization (WHO), out of the 20 most polluted cities in the world 13 cities were from India. And Delhi, Gurugram top the chart with six times higher levels of airborne particulate matter than the safe limit. IPCA, understands its responsibility towards curbing the problem of air pollution and has endeavoured to promote and utilise innovative solutions for curbing air pollution through its Project Air Care.

Project Air Care began in August 2020 and is being implemented in Gurugram in collaboration with Gurugram Metropolitan Development Authority (GMDA) and GSK (GlaxoSmithKline) Consumer Healthcare's CSR initiative. Through the project, air purification devices by the name WAYU -Wind augmentation purifying unit are installed at different traffic intersections. A total of 65 WAYU(s)were deploy at eight traffic location in Gurugram as given in the figure below.

Location	No of WAYU Machine Unit
Sikanderpur Metro	12
Arya Samaj Chowk (GMDA Sec 44)	7
IFFCO Chowk	11
Max Hospital, HUDA Metro	7
Bakhtawar Chowk	8
Medanta Hospital	8
AIT Chowk	8
Sector 54 Metro Station	4

Maps are for graphical purposes only

Action domain of Project Air Care

IPCA's effort has helped accelerate the action on Air pollution by its various action domains in the project including:

- Preliminary survey and quality monitoring.
- Installation of WAYU (Wind Augmentation purifYing Unit).
- Operations and Maintenance of WAYU (Wind Augmentation purifYing Unit).
- Research and Development for further improvement.
- Post installation monitoring air pollution standards.
- Post installation monitoring of operations and impacts.

Operation process

IP IPCA is the protagonist in the operation process of WAYU at the project sites and looks after all processes including installation, maintenance, monitoring of standards and future developments and customization.

Figure: Operations Process of WAYU and Involvement of IPCA

WAYU : Innovative solution for air pollution

The air purifiers installed are known as Wind Augmentation Air puriFying Units (WAYU) and are designed and developed by CSIR-NEERI (Council of Scientific & Industrial Research-National Environmental Engineering Research Institute), IPCA's knowledge partner. The air purification units are customised to reduce PM2.5 and PM10 particles, through the use of various filters. The device has the capacity to purify air in an area of 500 square metres. It is energy efficient and has low maintenance cost. The purification system works on two principles- i) wind generation for dilution of air pollutants and; ii) Active pollutant removal. In ideal conditions it has the efficiency to reduce PM10 by 60-70 % and PM2.5 by 30- 40 %.

Project Air Care Impacts

Removal of Particulate Matter from Ambient Air

Air quality monitoring activities carried out on weekly basis at all operational sites. The purifiers successfully removed PM10 upto 33.5 % and PM2.5 upto 39%.

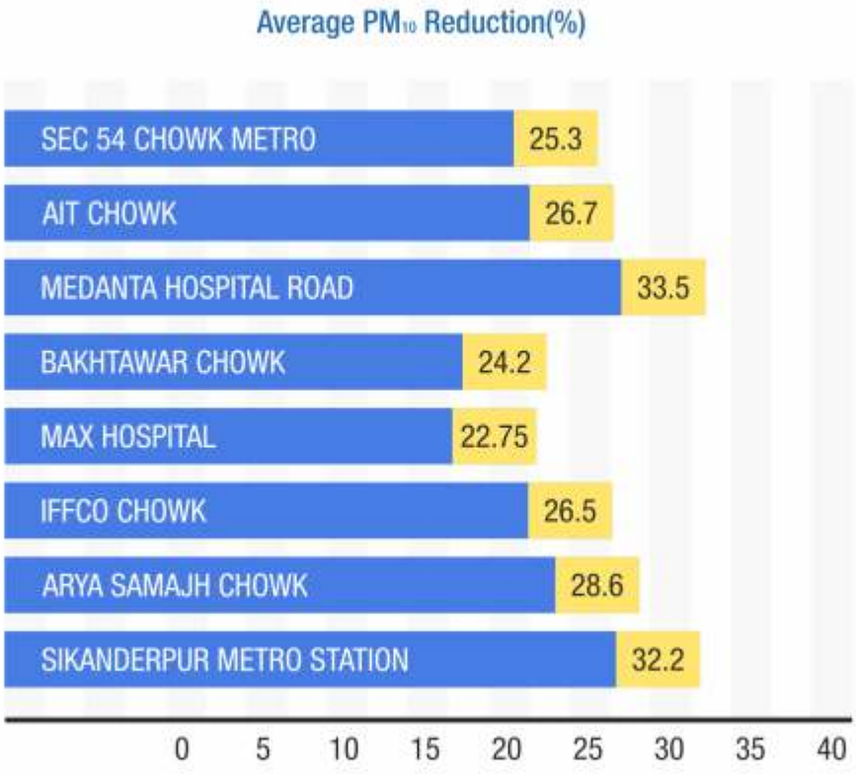


Figure: % reduction of PM10 after installation of WAYU

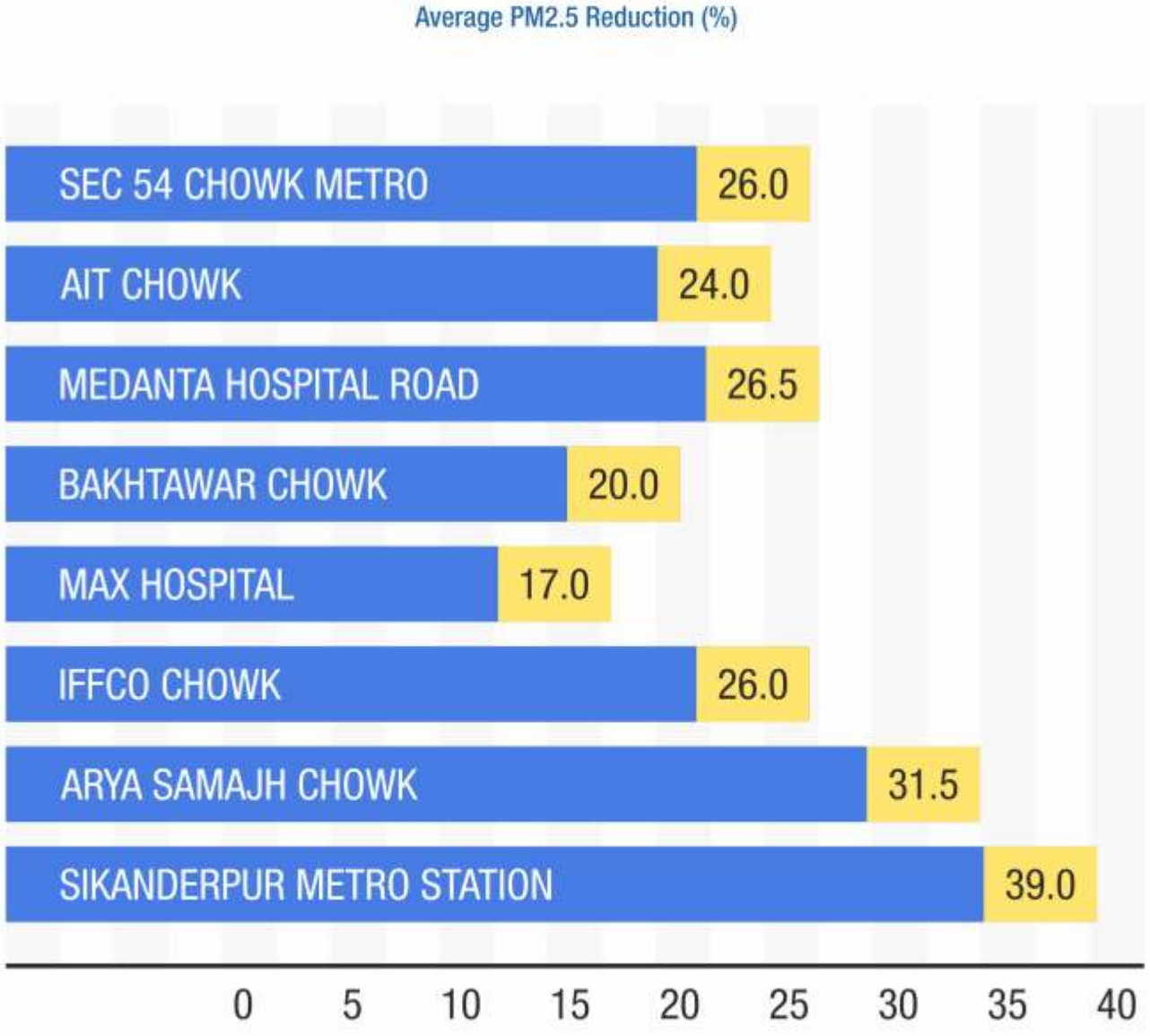


Figure: % Reduction of PM2.5 after Installation of WAYU

Assessment for presence of toxic elements in dust samples

The burning of fuels through vehicle engine generates toxic elements and a long-term exposure to these elements may cause health issues. These toxic elements can be assessed through analysing the dust collected by WAYU devices. 1gm of dust sample was collected from the devices placed at high traffic congestion areas in Gurugram and analysed for its metal element constituents. The metal concentrations trend shows Al>Fe>Ca>Cr>Na>Mg>Mn>Zn>Ba>Cu>Pb>Sr>Ni >Co>Cd. indicating re-suspension of road dust along with vehicular emission were the main source of toxic elements in collecteddust samples.

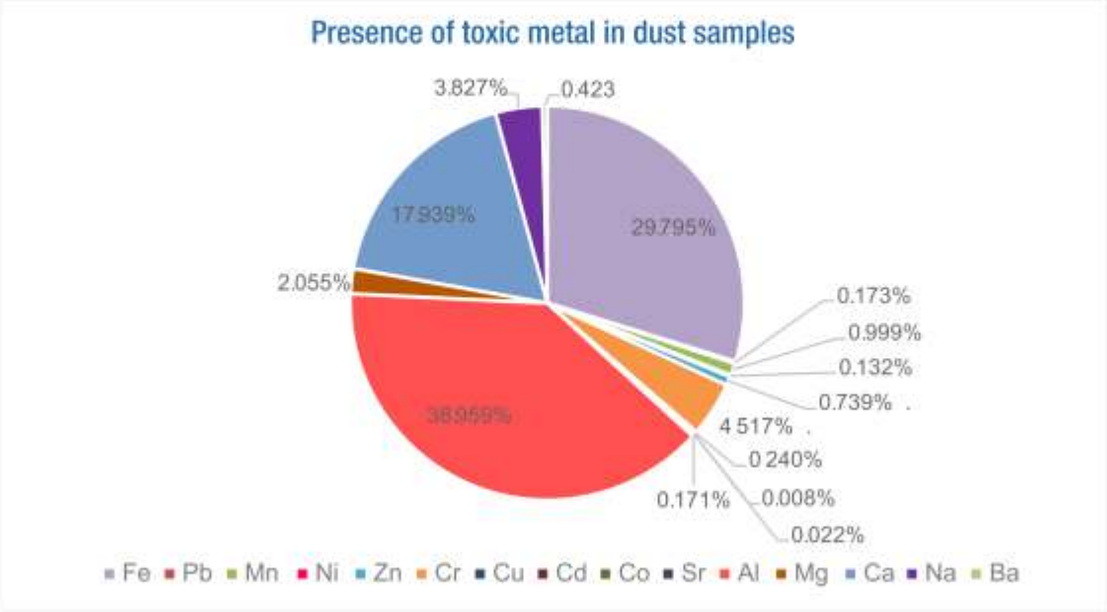


Figure: Assessment of the Toxic Heavy Metals Present in Dust Samples at Project Sites

SOLUTION TO AIR POLLUTION

The declining air quality has been responsible for the exacerbation of asthma, increase in respiratory infections, increased mortality due to cardiovascular diseases, chronic respiratory diseases, Covid-19, and cancers. To mitigate such health impacts of Air Pollution, IPCA along with Goodyear India Limited launched the Project Solution to Air Pollution, in early 2021, to mitigate air pollution so that citizens can lead a healthier life. The Project is a part if the CSR initiative of Goodyear India Limited and has 2 components:

(I) Installation of air purifiers called WAYU (Wind Augmentation purifYing Unit) in Ballabhgarh, district Faridabad, Haryana for purifying ambient air.

(ii) Development of Greenbelt on National highway to enhance the air quality naturally and add aesthetic value.

Action domain of Solution to Air Pollution

IPCA has helped to accelerate the action on Air pollution through the Project Solution to Air Pollution by providing solutions and services through its various action domains including:

- Preliminary survey and quality monitoring.
- Installation of WAYU (Wind Augmentation purifYing Unit).
- Operations and Maintenance of WAYU (Wind Augmentation purifYing Unit).
- Research and Development for further improvement.
- Post installation monitoring air pollution standards.
- Post installation monitoring of operations and impacts.
- Development and maintenance of Green Belt.

Figure: IPCA's Action Domain in Solution to Air Pollution

Installation of WAYU in Faridabad

The WAYU air purifiers installed are designed and developed by CSIR-NEERI (Council of Scientific & Industrial Research-National Environmental Engineering Research Institute), IPCA's knowledge partner. The air purification units are customised to reduce $PM_{2.5}$ and Pm6 particles, through the use of various filters. The device has the capacity to purify air in an area of 500 square metres. It is energy efficient and has low maintenance cost. The purification system works on two principles- i) wind generation for dilution of air pollutants and, ii) Active pollutant removal. In ideal conditions it has the efficiency to reduce PM10 by 60-70 % and PM2.5 by 30-40 %.

The project Solution to Air pollution is still in the preliminary stages where WAYU(s) are installed at 3 traffic intersections. A total of 22 WAYU systems have been installed and the monitoring of impacts is still on going. The location of the installation sites is given below.

Maps are for graphical purposes only

6 Narsingh Gate, near PWD House

8 Outside Ballabhgarh Court

8 Ambedkar Chowk

Development of Green Belt

In the year 2020-21, the development of Green belt was taken up on behalf of Goodyear India Limited over a stretch of 2.5 km of road divider from Goodyear Factory to Escorts Mujesar Metro station. The endeavour aims to enhance air quality and visual aesthetics by planting tree and shrub species like Bougainvillea, Nerium oleander, Decorative flowering plants in tyre structures and Palm trees at the corners of dividers.

Assessment of Indoor Air Quality

IPCA provides unbiased Air Quality Testing & Consultation services for monitoring of Indoor Air Quality as the risk of exposure to air pollutants is many folds higher in indoor settings than in ambient air. IPCA uses finest range (Gold standard) of calibrated instruments and national and international standards to investigate, identify and providing performance measurement solutions for improvement in indoor air quality.

Our clients include: Goodyear India Ltd., GSK Asia Ltd., DLF Foundation, Mysen, FICCI, Magneto, Honeywell, DLF, APT Technology, Samsung, and CPCB to name a few. In the year 2020-21 IPCA carried out indoor air quality assessment for Myzen Corporate Office and FICCI Federation House in Delhi.

Testimonial

Vertical 4

Community Centric Capacity Building: Project RELISH

PROJECT RELISH

IPCA is an organisation that believes that Solid Waste Management can be achieved in India when more individuals and organisations join the cause. IPCA has been working in the sector for the last two decades; from working at grass root level-developing technologies- to being a driver for change at the policy level. IPCA's learning and experience can be helpful to people working in the solid waste sector. Over the years IPCA has collaborated with hundreds of individual and organisations to expand its operations of Solid waste management, but it has only dented the existing improper solid waste management practices. To make a significant change observed throughout the country it is important to strengthen local initiatives and organisations that understand the socio-cultural aspects of the region in depth and can bring about a chain reaction for sustainable solid waste management. Currently only a handful of individual and organizations including NGOs or social entrepreneurs are working towards management of solid waste. Although the narrative is gradually changing and the scope offered by the sector is being well appreciated by the masses. There is still a grave need to facilitate and empower the budding entrepreneurs to take up this sector as a lucrative option. With this vision IPCA launched Project Relish throughout the country on 16th October, 2020.

Project Relish or Project Recognizing and Empowering Local Initiatives for a Sustainable Habitat, aims to recognize, appreciate and bolster the efforts made by organizations and Individuals working towards management of solid waste at grass root levels in India. The projects strengthens such organisations by providing appropriate platforms for learning, sharing and evolving.

Action Domain of RELISH

- Design a programme to Develop a chain of change makers contributing to sustainable management of solid waste.
- Train 20 organization on basic skills relevant for effectively operating in the domain of Solid Waste management.
- Facilitate skill development and capacity building for selected grass-root organisations.
- Provide a platform for organizations to demonstrate and promote their working models and initiatives.
- Inculcate a culture of collaborations and knowledge sharing for improving Solid waste management.
- Identify and recommend interventions at policy level.

Figure: Components of Relish

Project Design

The Project is undertaken by the education and training vertical of IPCA and had called for Applications from:

- organisations working in the field of solid waste management.
- Individuals aspiring to start an enterprise for solid waste management.

After a thorough two-tiered selection process, 20 participants from 10 states of India were selected for the project. The participants were organizations working in the field of solid waste management and individuals aspiring to start an enterprise.

Table: List of Participants of Project Relish

CONSORTIUM OF CARE & SUPPORT MANIPUR	CutPaste Save the earth, save the life	Gupta Enterprise	Chamo ...transforming lives together	Ecochirp Foundation
KWAMS	NJSM	Pushpanjali Eco Nirmit	Rise Foundation	Shreeji InnovEdge Solutions
	SOCIAL UPLIFTMENT & WELFARE ORGANISATION (SUWO) SUWO	Work is Worship	WUM	
 Mr. Arun Joshi	 Mr. Adarsh Mohan	 Ms. Jiji Joseph	 Ms. Megha TS	 Mr. Vasu Mishra
	LukPai	 Mr. Eswaramoorthy G	 Ms. Deepika Singh	 Mr.Dinesh Singh

The participants are from grass-root organisations who had been working diligently for solid waste management but could not expand their operations due to the limitation of resources, industry know how, and established networks.

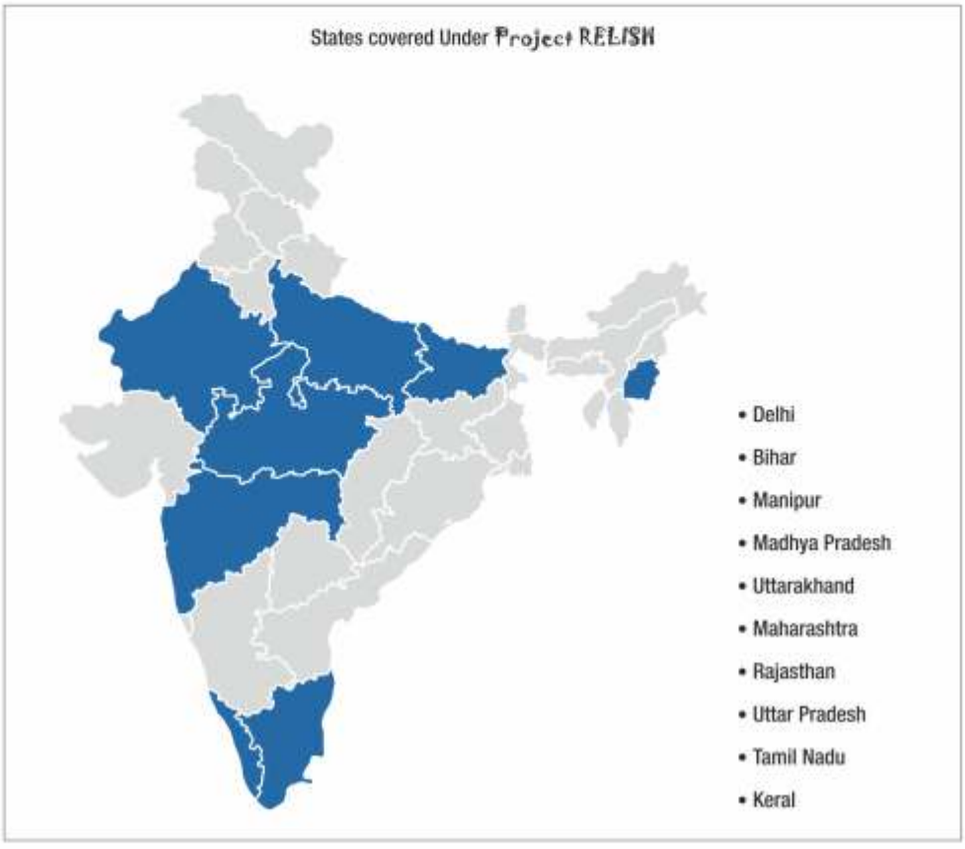


Figure: Participating regions

IPCA an industry forerunner in the field of solid waste management with over 20 years of experience has designed the project with a definite timeline with the following key feature:

Figure: Key Features of Project Design

Progress of the project

The Project can be divided into four distinct phases:

1 Orientation Phase: In this phase applications were called from the individuals and organisations working in the field of Solid Waste Management and 20 participants were selected from the applicants. The Applicants were then inducted through an orientation session and an informal session with the mentors of the program.

2 Execution phase: This is the learning and knowledge sharing phase where session on topic like Organisational readiness, waste management landscape of India, business development, project management, financial management, communications, marketing and branding were undertaken by professionals and experts. This phase also has various brainstorming sessions on start-ups, business models etc. This phase is ongoing where number of sessions have been undertaken through online mode.

3 Culmination Phase: This phase marks the completion of program where 20 skilled organisations and individuals will share their learnings and give insights into their future plans to develop India' Solid waste management sector based on the principles of "Atma Nirbhar Bharat".

4 Support Phase: After the completion of the project IPCA will provide support through regular follow-ups with the participants.

Figure: Progress of the RELISH

This year, 2021, marks 20 years of IPCA in the field of Solid waste management and IPCA on their foundation day in October '21 wants to give back to the society by creating a strong skilled workforce of solid waste mangers and professionsls. The skilled participants will be felicitated on the Foundation Day of IPCA, who will then take forward PCA's vision of sustainable India.

Vertical 5

Outreach and Capacity Building Programmes

OUTREACH AND AWARENESS PROGRAMMES

Since its inception, IPCA has been dedicated to providing solutions for solid waste management- from providing technical inputs, policy recommendations, composting of organic waste, executing operation plans for plastic waste disposal and building infrastructure for recycling of plastic waste. But these solutions would now be sustainable without the inclusion of stakeholders in each of the vertical of solid waste management.

IPCA believes that active participation and engagement of all stakeholder is absolutely essentially for sustainable solid waste management and strives undertake activities that enhance knowledge and awareness of the stakeholders.

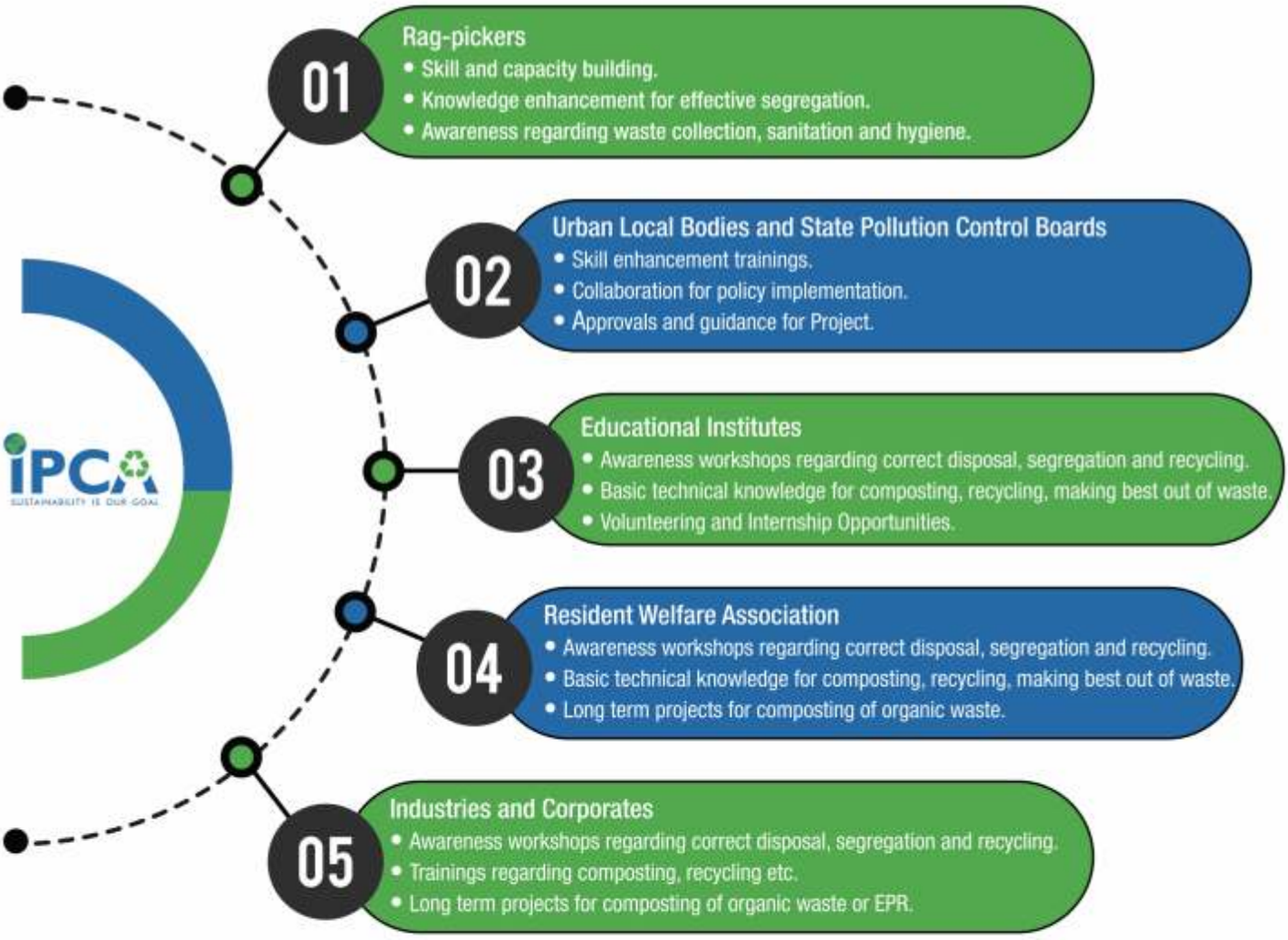


Figure: IPCA's Stakeholder Engagement

IPCA's Action Domain

- Engage and connect with more stakeholders.
- Enhance the awareness of Stakeholders regarding correct collection and segregation of waste.
- Impart basic skill and knowledge to all stakeholders regarding minimising waste, segregation of waste, environment friendly disposal and recycling of waste.
- Collaborate with stakeholders especially government bodies and corporates to bring about change in the solid waste management sector.
- Socio-economic upliftment of rag-picker/waste picker by enhancing their knowledge on recycling of various waste commodities and including them in main stream solid waste management.
- Train rag-picker/waste picker on personal hygiene and health safety measure. Provide safety kits to waste workers.

Outreach and Awareness activities 2020-2021

The Covid-19 Pandemic heavily affected the Outreach and Awareness programmes of IPCA, as during the lockdown community activities were completely suspended. Once the lockdown was lifted some activities were undertaken with limited individuals while following all Covid-19 protocols and other activities were undertaken digitally through various platforms.

Outreach and Awareness programmes for Rag-picker

The Rag-pickers are an essential part of the waste management supply chain. Strengthening their skill and building their capacity not only uplift their socio-economic status but also help improve the solid waste management in India. IPCA regularly conducts trainings and other workshops to improve their livelihoods and enhance their skills through capacity building on waste collection and segregation, health check-ups, educational counselling, providing safety equipment etc. IPCA is committed to inclusive models where the rag-pickers are formally inducted into the waste supply chain and give them the acknowledgement they deserve.

- Delhi NCR
- Punjab
- Uttar Pradesh
- Bihar
- Haryana
- Jammu and Kashmir
- Himachal Pradesh
- Uttarakhand
- Chandigarh

In the year 2020-21 the following activities were conducted with Rag -pickers for improving their livelihood status:

A **Capacity Building and Training Program for the Waste Collectors:** The Programme was organised in association with Perfetti Van Melle and focused on enhancing the waste collectors/Rag-pickers' skill on collection, segregation and recycling of waste and training them on their personal health and safety while collecting waste. The Workshop was organised at Dhani Market Sector-52 Wazirabad, Gurugram on 17th Feb-2021 and over 100 waste workers attended the workshop. The waste collectors primarily collected waste from Multistorey Apartments, Malls, Markets, Residential Colonies, and Dump yards. The workshop helped enhance their knowledge and learnt how segregating commodities like MLP, Tetra Pak, Plastic Polythene etc from the waste could help increase their income. The workers were also given safety equipment to protect themselves from the health hazards that come along with collecting waste.

Figure: Safety Kits Distributed included, Soap, Cap, 5 Pair of gloves, washable masks, safety jackets, fork, shoes and cloth bag.

Figure: Workshop with Rag-Picker

B **Creating Awareness and Capacity Building on Plastic Waste Management:** The programme was by IPCA organised in association with Jivanti Welfare and Charitable Trust, a Dabur India Limited CSR program and initiative. The project has 2 main objectives, first focused on creating awareness and social upliftment of waste picker communities, and the second related to creating awareness among other stakeholder for best practices for waste management.

In the first component the issue of Health, Education and livelihood development for waste picker communities was dealt with by providing skill enhancement trainings, increasing awareness and wellness for pickers communities.

The workshop-cum-trainings were attended by a network of waste workers including ragpickers, scrap dealer and Municipalities Safai Karamcharis. Over 1000 waste workers were trained and educated on effective waste management practices, types of plastic waste and their segregation and recycling, the environment and health impacts of improper disposal of waste.

Outreach and Awareness programmes for Government Bodies, ULBs and State pollution control board:

IPCA is a scientific research based organised that encourages innovative mechanism and technology for management of solid waste and remains up to date regarding the latest research and development in the field. This information based on empirical research and field-based intervention have often helped government bodies to reach their goals of effective waste management and thus for the benefit of the community government bodies often collaborate with IPCA.

In the year 2020-21 the following outreach programmes were held in association with Jivanti Welfare and Charitable Trust, a Dabur India Limited CSR program and initiative.

> **Workshop at Army Cantonment Board, Jammu**: Army Cantonment Board consumed huge volumes of packaged goods and thus generated huge amount of packing waste. IPCA organised a workshop on source segregation and effective plastic waste management and facilitated better segregation and recycling of postconsumer plastic

Figure: Workshop at Army Cantt. Jammu

> **Workshop with Stakeholders SPCBs, ULBs and Policy Makers:** The State pollution Control Boards and Urban local Bodies or municipalities have been traditionally the primary organisations responsible for governing and implementing correct disposal of waste. It is important to make the human resource involved in the implementation at the ground level to have adequate knowledge regarding waste management policies, existing rules, and their effective implementation on ground and IPCA collaborates with various Municipalities and State Pollution Control Board to organise capacity building workshop with them.

Figure: Workshop with SPCB and ULBs

- **Outreach and Awareness programmes with Educational Institutes:** The students are tomorrows leaders and raising them with values and knowledge of solid waste management is the key to a sustainable future. IPCA since its inception has engaged with students of all ages, from schools to college level, to educate them about best practices for effective solid waste management and inculcate in them an attitudinal change towards segregation and recycling of waste products. In the year 2020-21 the educational institutes remained shut due to which physical activities and campaigns were curtailed but IPCA took to the online platform and conducted online campaigns with colleges like Lady Irwin college and Institute of Home economics. Other campaigns and online discussions were undertaken on social media platforms like Facebook for school and college students. The online campaigns were able to reach approximately 400-500 students. Other activities during the year included volunteering experience in IPCA's project, internships and dissertation projects for graduate students.

- **Outreach and Awareness programmes with Resident Welfare Association (RWA):** In urban areas, domestic household waste is a major issue as consumptions in middle class urban households have been increasing putting more pressure on the urban waste infrastructure. TO find solution to the problems of urban domestic waste IPCA engages with several RWAs and households and educates them about the problems of domestic waste and how they can minimise, segregate and recycle or compost their household waste. Community engagement is the key for the success of Households campaigns and IPCA does this through various tolls and activities like street play, Nukkad Sabhas, waste mapping, group discussions etc. In the year IPCA has organised workshops for RWAs and Households under several of it projects and campaigns that include Project by Jivanti Welfare and Charitable Trust, and My 10Kg Campaign by Dabur India Limited; Bottles for Change campaign by Bisleri and S.O.R.T project by SLMTT; and IPCA's very own Garbage recycling programme.

Figure: Awareness Workshop with RWAs

- **Outreach and Awareness programmes with Industries and corporates:** IPCA has built a relationship based on trust with the industries and corporate houses by providing them reliable and effective solutions for solid waste collection and recycling. As a part of waste management efforts IPCA undertakes a number of activities with the industries to make them aware about the issues of solid waste management and how they can undertake programmes for their industrial campus and also for the community at large. Over the year IPCA has worked with over 100 corporate houses and businesses and conducted several awareness workshops and community-based projects for composting of organic waste, plastic waste collection and segregation, upliftment of rag-pickers etc. IPCA has also involved employees of the corporate houses in waste management campaigns to sensitise them about the issues.

- **Other Outreach and Awareness programmes:** Apart from these segment wise programmes IPCA undertakes some awareness programmes for the community. These include plantation drives, environment-based competitions, plastic clean up drives etc. In the year 2020-21 the activities undertaken were:

- **Clean Up Drives:** IPCA engaged many volunteers and Safai Karamcharis of ULBs to undertaken clean up drives in cities to spread the message of cleanliness and to sensitise people about littering of waste. Other similar campaign for zero littering of waste on road side was also undertaken by IPCA.

Figure: Clean up Drive

- **Plastic Tourism Campaign:** Another innovative campaign in collaboration with Ghaziabad Nagar Nigam and with the support of Dabur India Ltd. Was organised by IPCA and was called as the "Plastic Tourism" Event to propagate the concept of plastic collection and its recycling as a tourism activity. The idea behind the campaign was to support minimisation of single use plastic and promote the use of plastic recycled products. The campaign was launched to make people aware of the quantum of plastic that is littered around us and how the end consumer can help make a difference through the plastic tourism initiative. The launch of the program was attended by more than 100 delegates and Sh. D.S. Mishra (IAS), Secretary, Ministry of Housing and Urban Affair, Smt. Asha Devi, Mayor, Ghaziabad, Sh. Vinod Jindal, Director, Swachh Bharat Mission, and Sh. Mahender Singh Tanwar (IAS), Commissioner, Ghaziabad Nagar Nigam were present as the dignitaries. IPCA has also set up exhibition of plastic recycled product during the event.

Impacts of the Outreach and Awareness activities 2020-2021

Conspicous Impact		
Training and Capacity building workshops benefits.	Awareness Generation Workshops & Activities.	Environmental Benefits.
• 1000 Waste collectors. • 500 Studenst. • 5000 Households. • 300 Corporate Houses. • 250 Army Officers and Staff. • 26 SPCB/ULBs.	• 10,000 Community Memebers. • 2500 Rag-Picker Households. • Increased per capita income for Rag-picker households. • 100 Volunteers. • Two fold increase in public participation of activities.	• Plantation and clean up drives. • Segregation of waste. • Composting and recycling of waste.

Inconspicous Impact
• Behavioral and attitudinal change in Households regarding waste segregation of waste. • Reduced pressure on Landfills. • Reduced health risk for waste worker. • Reduction in littering. • Acceptance towards adopting recycled products. • Reduced emissions in the long run. • Reduction in risk of contamination of water sources.

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IPCA in Media

उपायुक्त ने ग्रीन बेल्ट तथा वायु यंत्र का किया शुभारंभ

आज समाज नेटवर्क

फरीदाबाद। शहरवासियों को साफ हवा और स्वच्छ वातावरण मिलेगा। रविवार को नगर निगम आयुक्त यशपाल यादव ने नेशनल हाईवे स्थित संत सूरदास मैट्रो स्टेशन पर ग्रीन बैल्ट का उद्घाटन किया। इसके बाद निगम आयुक्त द्वारा बल्लभगढ़ स्थित पंचायत भवन में वायु यंत्र का शुभारंभ किया गया। इन

बल्लभगढ़ स्थित पंचायत भवन में वायु यंत्र का शुभारंभ करते जिला उपायुक्त

कचरे से प्लास्टिक को अलग करने वाले संयंत्र का उद्घाटन किया आयुक्त ने

कृष्णा नगर वार्ड में लगा संयंत्र

बल्लभगढ़ पंचायत भवन से हुई एयर गन लगाने की शुरुआत

प्लास्टिक कचरे के संग्रहण केंद्र की हुई शुरुआत

प्लास्टिक वेस्ट के दोबारा इस्तेमाल से बदलेगी शहर की सूरत

ग्रेनो में हर महीने 900 मीट्रिक टन प्लास्टिक कचरे का होगा निस्तारित

EDMC to build a road using legacy waste in Kalyanpuri

Ashish Mishra

NEW DELHI: The East Delhi civic body will construct its first road using legacy municipal waste on an 800-metre stretch in Kalyanpuri, officials said on Wednesday, a project that will reportedly be the first of its kind in the city. A tender for the project will be floated after a detailed project is finalised in a civic body meeting.

The entire project will be conducted under the CRRI's supervision

SENIOR EDMC OFFICIAL

पीपीसीबी ने प्लास्टिक कचरे के संग्रहण एवं पुनः चक्रण के लिए की जागरूकता बैठक

गाजियाबाद/आसपास

प्लास्टिक कचरे का होगा स्थायी समाधान, निगम ने ढूंढ़ा उपाय

जीडीए ने हैश टैग प्लास्टिक टूरिज्म के नाम से की अभियान की शुरूआत

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