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ADAR POONAWALLA
CLEAN CITY INITIATIVE

Sustainability Excellence Report 2018-19

LEADING INNOVATION FOR TECHNOLOGY DRIVEN AND SUSTAINABLE WASTE MANAGEMENT IN PUNE CITY

Highlights of APCCI Sustainability Report

Clean City

- 60% of the city population has benefitted
- 1,044 waste chronic spots covered
- 1,300 fleet routes mapped optimally
- 227 low carbon and advanced fleet machines
- 2,500 litter bins made available at strategic locations in Pune city

Model of Public Private Partnership

- Corporate joining hands with Government essential services
- INR 100 crore pledged by Mr Adar Poonawalla as part of corporate social responsibility (CSR)

Citizens Engagement

- 10,322 downloads of MyAPCCI mobile app by citizens
- 18,841 waste pickup concerns raised by citizens were resolved successfully

Behaviour Change Communication (BCC):

- 20 awareness campaigns among citizens every year
- Education programs 132 schools
- 49,971 young children were educated on waste management
- 163 active volunteers enrolled
- 900 feedback letters from citizens and students appreciating the efforts

Bringing Dignity to Public Cleaning Jobs through Technology

Waste warriors are our on-the-ground employees. We seek to make their work safe and hygienic, their lives healthy and dignified.

The waste warriors:

- have no physical contact with the garbage
- are continuously trained on-the-job training by OEMs
- are trained in safety, BOP, and security functions
- receive Personal protection equipment (PPE)

Beyond these direct actions, the APCCI

- conducted 45 daily cleaning audits for all activities of on-road machines fleets
- generated 10 daily reports for better communication and further improvements
- followed all solid waste management (SWM2016) guidelines
- assign 2 waste warriors per machine

Financial Sustainability

- The operating expenses are financed by Mr Adar Poonawalla's pledge
- Sponsorship for sports events to promote a healthy lifestyle and cleaning activities
- Plans to scale to other parts of Pune and put circular economy framework in place
- Plans to works on long-term goals like a waste-to-energy plant

GRI 403-9

Environmental Performance

- 50% of the fleet machinery operated on electricity
- Remaining 50% of the fleet machinery are BS-IV compliant, conforming to the latest emission norms
- Mechanical road sweepers are compliant with PM10 emissions norms of global standards
- Reduction in PM matter in the air. The fleet machines that pick up waste do not pollute the air. The entire operation is dust free
- 22.7% reduction in emissions

Our People - Waste Warriors

- More than 450 skilled jobs created in the waste management sector
- Well trained manpower across job roles
- More than INR 2200 safety budget per waste warrior, annually
- 6 safety items for every waste warrior
- 0% injury rate (accidents) per 100 waste warriors
- 96% retention of manpower
- 0% vehicle accidents during driving
- BOP in Marathi and English languages

Pothole Free Roads for Citizens

- State-of-the-art potholes machine used for the first time in India
- Potholes repaired: 20 square meters per day
- 4 stage van occupies 2.5 meters of the road without hindering the traffic
- It is a low emission machine and recycles old material for potholes repair

ADAR POONAWALLA
CLEAN CITY INITIATIVE

Message from
Mr Adar Poonawalla
Owner and CEO of Serum Institute of India

Building on Success

For long, public cleanliness has been seen as the responsibility of municipal corporations. Considering the challenges they face, the municipal corporations have been doing commendable work too. However, we believed that we had a role to play. We wanted to experiment with using modern technology latest devices to clean streets while adding dignity to the manual work of keeping our cities clean.

Towards this end, Serum Institute of India, an Indian corporate, pledged Rs. 100 crore (US$ 14.5 million) as a part of its CSR initiative in the civic space towards this unique initiative named the Adar Poonawalla Clean City Initiative (APCCI). We are confident that the insights from the lessons learnt in this drive are relevant to not only expanding this initiative, but it will also help in launching similar initiatives all over India.

It is a matter of great satisfaction that APCCI is publishing the first edition of its Sustainability Report. This transparent report focuses on APCCI's performance based on economic, environmental, and social parameters.

This report has traced APCCI's performance across all the dimensions of triple-bottom-line over eight to ten months. This sustainability report meets the highest levels of scrutiny through voluntary disclosure.

The initiative's central theme is to **use technology** and **public-private cooperation** to add **dignity** to the manual work of street cleaning. This theme reflects the company's vision and commitment to chart a path that raises the standards of public cleanliness using modern technology with a high level of employee training. The report uses the same parameters for evaluation.

Public-Private Collaboration

Despite the overall perception that such large scale interventions with the government in the public space can be complicated and unsuccessful; this initiative is an excellent example of how public and private collaboration can work successfully for the benefit of the citizens.

Dignity

The Indian society has unique dichotomy on cleanliness. Personal and private space is sacrosanct and thus always clean, even meticulously so. But the cleanliness of public areas is ignored. The task of cleaning public spaces is considered demeaning and has a social stigma attached to it. It is thus carried out by a part of the population that has the lowest social strata and is economically weak.

We strongly believe that when the spirit of collaboration, technology and sustainability come together, there can be an attitudinal shift in people, and the menial task of public space cleaning can become dignified.

Technology

Technology and innovation have touched every sphere of human life, yet peculiarly, the task of keeping our public places clean is literally in the hands of our city cleaners.

It is a common sight in Indian cities to see waste being picked up manually or often being transported in old and dilapidated vehicles. Picking up garbage with bare hands is a health hazard, and it also poses a risk of injury. This harmful and unhygienic mechanism and does not conform to Municipal Solid Waste (MSW) norms. Our initiative is about changing all these dimensions with the use of technology and collaborating with the government.

Rekindling Hope for a Visibly Cleaner City

Any street corner in an Indian city is an eyesore. In Pune, this is not an unusual sight either. These are pictures from across the city.

The APCCI decided to focus on this most visible aspect of cleanliness almost the same time when Hon. Prime Minister Narendra Modi started the 'Swachh Bharat' Mission–the most ambitious national civic movement for cleanliness.

There are three Urban Local Bodies (ULB) -Pune Municipal Corporation (PMC), Pune Cantonment Board (PCB), Khadki Cantonment Board (KCB) and eleven Gram Panchayats(Manjari, Shewal wadi, Wagholi, Lonikand, Perane, Koregaon Bhima, Sanaswadi, Shikrapur, Kondhapuri, Ranjangaon and Karegaon). More than 500 kilometres of road within three urban local bodies (ULB) and eleven gram panchayats (village councils) were selected for this initiative. This area covered over 1000 chronic garbage spots.

APCCI has collected street waste, cleaned streets, and transported waste from chronic garbage spots to the transfer stations of ULBs. These activities have resulted in clean roads that are no longer an eyesore. The impact is much more visible in the following photographs.

Initially, a few machines were deployed. Today more than 227 fleet machines operate daily on streets across the city. There are more than 2500 litter bins and state-of-the-art machines like Electric Vacuum Street Litter Picker (Model Electric Glutton), Electric Auto Tipper, Vacuum Litter Picker Mounted on Vehicles (Model Trilo), Vacuum Assisted Truck Mounted Road Sweeper (Model Johnston Road Sweeper) and Auto Tippers. Waste collected by this equipment is transferred to various ULB transfer stations. Other activities of APCCI include repairing potholes using the latest equipment and providing safe drinking water to local neighbourhoods.

No initiative can be successful without the contribution of its people. APCCI has taken adequate steps to provide training and skill development to its employees. Content with what we have achieved and learning from the roadblocks along the way, we now have the faith that the APCCI model can be used across the country.

Litter picking machine

Litter picking machine at work

Chronic spot cleaning by Truck mounted Vacuum Cleaner

Shifting of collected litter in Tipper

Mechanical road Sweeper at work

Road side litterbins are cleaned regularly

Citizens giving household waste to Electric Auto Tipper

Waste being transported through Compactor

Pothole repair in progress

ADAR POONAWALLA
CLEAN CITY INITIATIVE

Message from
Mr Krishnan Komandur
CEO, APCCI

Collaboration is the Key

The APCCI is built on Mr Adar Poonawalla's vision of improving the environment and waste management in Pune, which is his home base, and the spirit of Hon. Prime Minister Mr Narendra Modi, who said, we should move away from PPP (Public Private Partnership) to PPPP (People-Public-Private Partnership)[1].

As Mr Poonawalla mentioned, one of the successes to emerge out of this venture is the demonstrated ability that even in an area like municipal services, corporate initiatives can work with both government and the common citizen. It just needs the right amount of passion and planning.

The Public-Private-People Partnership

The entire APCCI initiative is a close collaboration of four partners:

- The APCCI team
- The ULB teams
- Janwani and other NGOs
- Volunteers–citizens and corporate

As a part of the good governance exercise, all levels have been mapped, right from the CEO and Commissioner of ULB to the project coordinators and most importantly, the citizens. This creates a structure for planning, dialogue, and ongoing engagement that leads to the most creative ways of finding solutions to some of the most complicated and deep-rooted problems.

1: https://www.narendramodi.in/we-need-to-move-from-ppp-to-pppp-people-public-private-partnership-shri-modi-at-think-india-summit-5220

There are two examples of problems solved because of collaboration:

- Identification of critical chronic waste spots and
- Coordination at various garbage transfer stations.

The collaboration is an ongoing activity. So far, more than 36 meetings at the senior most level of ULBs, and more than 90 Prabhag Samiti (region-wise local committees) meetings have taken place. Subsequent sections of this report provide better details.

Meeting at ULB office

Creating the Partnership for Tomorrow

APCCI has come a long way from its early days but has set its sights on ambitious goals for future.

These goals are:

- Expand programmes to other municipal regions
- Bring more partners on board
- Work towards more energy and climate efficiency
- Reduce per kilometre cost of street cleanliness through better technology and training
- Community engagement.

In addition, several new initiatives would be undertaken especially in the area of setting up waste-to-energy plant for self-sufficiency in waste management and introducing more electric vehicles in the fleet for energy efficiency.

The long term vision is to lay the foundations for a complete circular economy built on the principle of Reduce-Retain-Repair-Reuse-Recycle.

Towards a Sustainable Future

The famous British-American Physicist and Mathematician Freeman Dyson said that the purpose of thinking about the future is not to predict it but to raise people's hopes. We hope that this initiative and the success of its outcomes raises people's hope and make them demand increasingly higher standards of public area cleanliness.

We know it is a big responsibility and we take the sustainability of the initiative seriously.

Cleaning our streets by damaging the environment is not acceptable. Therefore, we actively track the technology used for fuel efficiency and the emissions that it leaves behind. The annual tCO_2 per kilometer is one of the best, and our consistent efforts in planning, low carbon investments and optimising efforts has brought it down to 0.110 tCO_2 per kilometer per annum as compared to the usual scenario of 0.143 tCO_2 per kilometer per annum.

Along with the environmental sustainability, financial sustainability is equally important. The cost of cleaning streets per day per km has declined by 31% over last two years. The programme continues to run with strong philanthropic commitment from Mr. Adar Poonawalla.

Citizen using myAPCC app

Citizen using myAPCC app

APCCI has also initiated various drives for creating awareness in schools and citizen groups. An app has been created for wider community engagement. Citizens can upload photographs of unclean spots. There have been more than 18,000 waste pickup concerns raised by citizens using the app, which have been resolved by the waste warriors[2] (employees).

APCCI volunteers meet

BCC programme at School

Active participation of volunteers in cleanliness drive

2: Waste warrior are our employees working on-the-ground employees

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About the Report

Sustainable waste management solutions are successful when they engage stakeholders and local communities. This belief is reflected in Adar Poonawalla Clean City Initiative's (APCCI) first sustainability report. APPCI's commitment to foster public-private partnership has borne fruit as seen through its achievements.

This report has been prepared according to the GRI[3] standards.

APCCI's activities spread across the economic, social, and environmental parameters of the Global Reporting Initiative (GRI) Standards 2016. The GRI Standards index is available in the GRI Standards Content Index section of this report. This report has been prepared in accordance with the GRI standards: Core option. The report boundary is APCCI activities implemented in Pune, Maharashtra for the period April 2018–March 2019 with 2016-17 as the baseline year.

The information in the 'Economic Performance' section is regarding Mr Adar Poonawalla's pledge and APCCI's fleet machine procurement and payments to service providers. Independent internal and external auditors have audited the APCCI's financial statements. The data and information on the environment and social parameters are derived from APCCI's official documents.

Approach and Collaboration

Mahratta Chamber of Commerce, Industries and Agriculture (MCCIA)[4], Pune was engaged to analyse the data and information, to develop the strategic intent, and to design a roadmap for its implementation. APCCI's project implementation and outreach partner, Janwani[5] acted as the advisor and coordinator of this report. It also audited APCCI's activities. MCCIA and Janwani, along with a cross-functional team from APCCI, worked with the data captured through our systems. This collaboration facilitated quick decision–making towards a sustainable effort of waste management services to improve the impact on lifecycle impact and cleanliness in Pune.

MCCIA has evaluated the calculation methodologies adopted and analysed the results to ensure that the report adheres to the principles of report contents–stakeholder inclusiveness, sustainability, context, materiality and completeness; and the principles of report quality–balance, comparability, accuracy, timeliness, clarity and reliability.

Report Development Team

APCCI	MCCIA	JANWANI
APCCI team was led by Mr. Krishnan Komandur, Chief Executive Officer	MCCIA team was led by Mr. Chetankumar Adhar Sangole, Head – Sustainability Desk	JANWANI team was led by Mr. Mangesh Kshirsagar, Project Officer

Contact Information

The Sustainability Report and additional information on APCCI's role and activities in sustainable waste management services in Pune can be found at http://www.adarpcleancity.com/about-us.html.

The point of contact for the information in this report is Mr Krishnan Komandur, Chief Executive Officer of APCCI. Any query or suggestions concerning this report may be addressed to him at the registered office address or via email to ceo@adarpcleancity.com.

APCCI is an initiative of Mr Adar Poonawalla, CEO, Serum Institute of India, Pune. APCCI's headquarters is located at Mittal Court A Wing, 3rd Floor, Off. Dr Ambedkar Road, Pune 411011, India.

3: The GRI Sustainability Reporting Standards (GRI Standards) are the first and most widely adopted global standards for transforming sustainability from a niche practice to one range of economic, environmental and social impacts. The GRI Standards are designed to be used as a set by any organization that wants to report about its impacts, and how it contributes towards sustainable development. GRI Standards feature a modular, interrelated structure, and represent the global best practice for sustainability reporting.

4: MCCIAs 'Sustainability Desk' facilitates, engages and helps industry members to adopt sustainability actions within their facility to grow sustainably and to improve their triple bottom-line performance.

5: Janwani, a Pune-based NGO, advocates better solid waste management within the Pune Metropolitan Region. Janwani works towards identifying gaps in the development process, deciding priority areas and providing well-researched and implementable solutions to facilitate Zero-Garbage Wards, to change the view of waste as garbage to waste as a potentially valuable resource, to guarantee effective monitoring and replication of the new process and to inspire the stakeholders to scale up the activities.

1.Purpose: A Cleaner City, A Healthier Citizen

Global View on Waste – A Dire Waste Situation

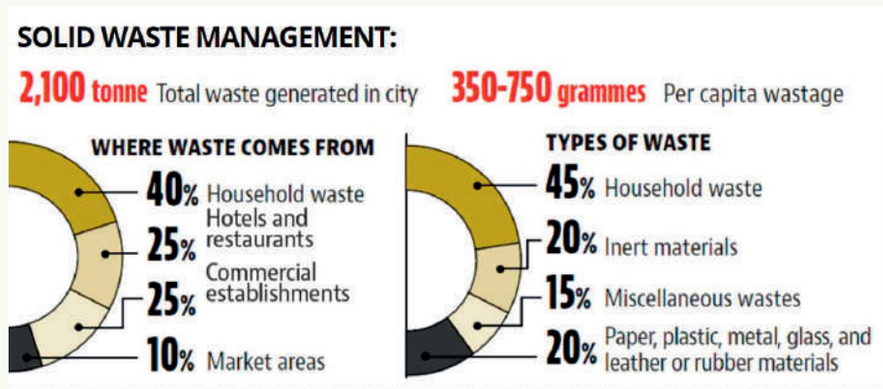
Globally, the urban population is growing. The waste it creates is piling up at an even quicker pace. By 2100, waste generated is projected to be three times the current waste generated. By 2025 itself, solid waste generated alone would have gone up by 70% from 2010 levels, which were already worrisome at 3.5 million tonnes per day (TPD).

Moreover, waste from cities is being transported to landfills by trash trucks that drive thousands of kilometres every day. The cost of transporting waste is also increasing. The expenditure is expected to increase from $205 billion in 2010 to $375 billion in 2025, with developing countries facing the sharpest rise. These are only some attributes that can be quantified. Waste generation impacts the planet and its people in profound ways, beyond numbers. The entire process of generation, collection, processing and disposal pollutes the air, damages the environment, takes up valuable estate consumed by landfills, and adds to the heavy sword hanging at the world's throat–climate change. The obvious impact down the chain leads to physical and fiscal consequences for countries across the world. The increasing amount of waste translates to rising costs for governments and ever-increasing environmental pressure.

Overview of Pune's Waste

The global issue is of equal concern in Pune too. Currently, Pune generates about 2100 TPD of waste which is expected to increase by 1.4 times, come 2025. Already the city is short of resources to pick and manage the waste generated.

- Population of Pune: ~ 35 Lakhs spread across 41 Prabhags
- MSW per capita: 460 gm/day
- Dry to wet waste ratio: 35:65
- Total MSW per day: 2100 TPD
- Treatment being done on approximately 1100 TPD waste
- Still 700-900 TPD goes to landfill without processing
- More than 10% of waste generated is not getting collected from source and ends up on streets as chronic spots
- Almost 40 % waste going to landfill



Pune generates 2100 tonnes of garbage while per capita waste generation is 350 to 750 gm. Almost 40% of waste is generated at household while 25% of waste is generated through hotels and restaurants. Commercial establishments generate 25% of total waste while remaining 10% generated in market areas. The type of waste includes 45% household waste, 20% inert materials and 20% of waste includes papers, plastics, metals, glass and leather or rubber materials while remaining 15% is miscellaneous waste.

About Adar Poonawalla Clean City Initiative (APCCI)

APCCI is an environment friendly initiative, undertaken by Mr Adar Poonawalla, CEO, Serum Institute of India, as his contribution towards society.

APCCI's sole purpose is to clean the city, improve the environment and manage the waste on the streets, reduce chronic garbage spots by providing state of the art equipment/ machines in Pune.

Activities of APCCI

One of APCCI's priorities is to keep the city clean.The initiative uses Electric Vacuum Street Litter Picker (Model Electric Glutton), Electric Auto Tipper, Vacuum Litter Picker Mounted on Vehicles (Model Trilo), Vacuum Assisted Truck Mounted Road Sweeper (Model Johnston Road Sweeper) and Auto Tippers. These machines are used to pick up and clear the waste from the streets and chronic garbage spots.

Urban Local Bodies (ULBs), citizens, resident welfare associations and NGOs are essential stakeholders in this initiative. This multi-stakeholder approach with active collaboration and cooperation has led to a successful and unique, first-of-its-kind model of private-public partnership for waste management.

Moreover, awareness programs in schools and colleges and with the general public propagate the importance of waste segregation. These events have inspired other cities to implement such initiatives leading to an inclusive, sustainable and resilient future for the city, the nation and the planet.

The Hon Prime Minister of India, Mr Narendra Modi, under Swachh Bharat Mission nominated Mr Adar Poonawalla, as the Swachh Bharat Ambassador in recognition of the significant work carried out by APCCI.

Governance and Ethics

The governance of APCCI is headed by the CEO, and Assisted by COO and Senior Managers of APCCI team. Also, support is rendered by NGOs, Citizen Groups and ULB officials.

The CEO brings various perspectives and industry knowledge relevant to waste management. He also leads the planning and collaboration activities with ULBs and other stakeholders in accordance with governance guidelines. Senior management effectively serves the long-term interest of stakeholders by continuously developing criteria for implementation of activities and adding value. These are evaluated for personal, professional integrity, skills, experience and judgment.

Functional structure

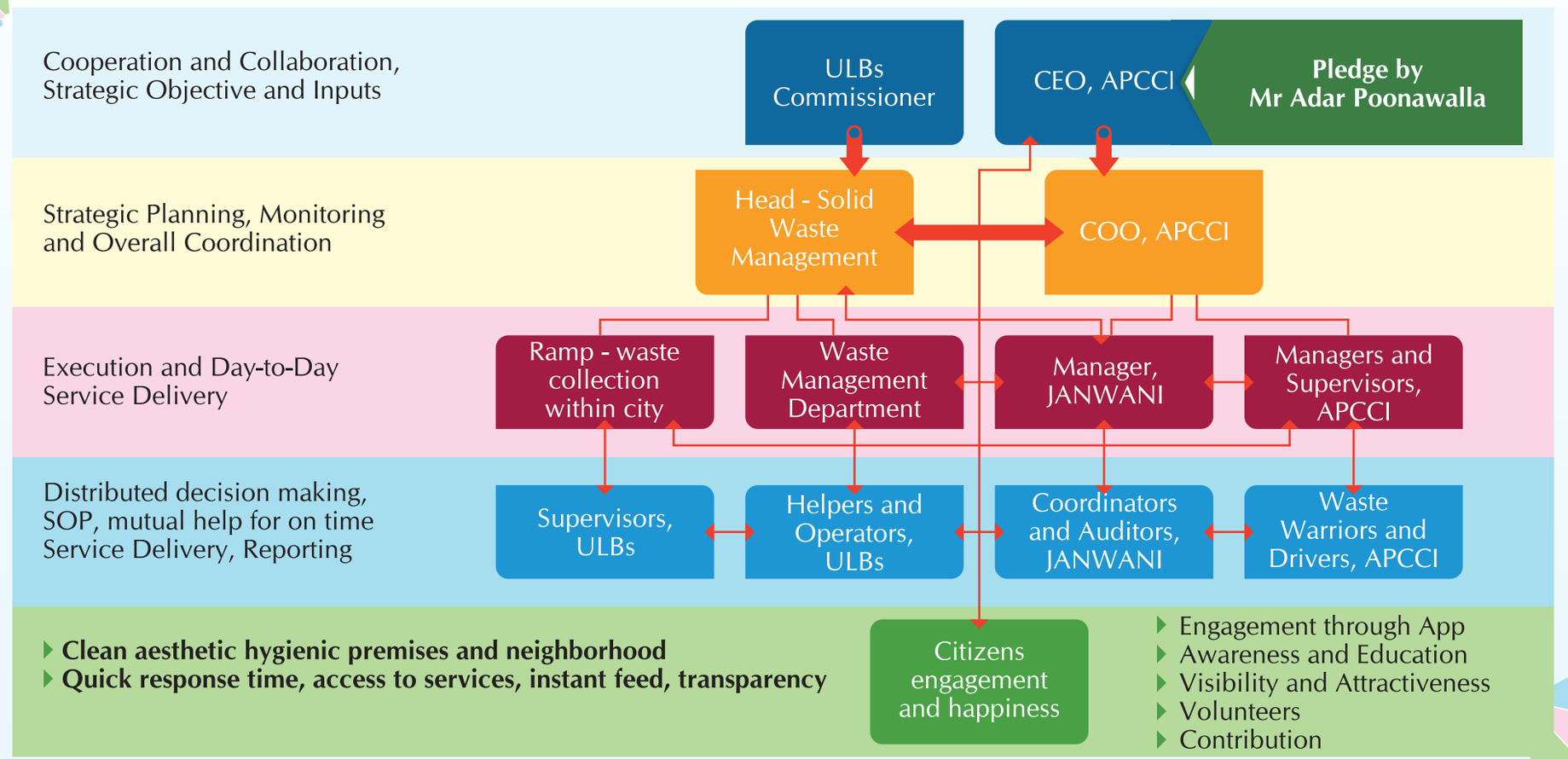
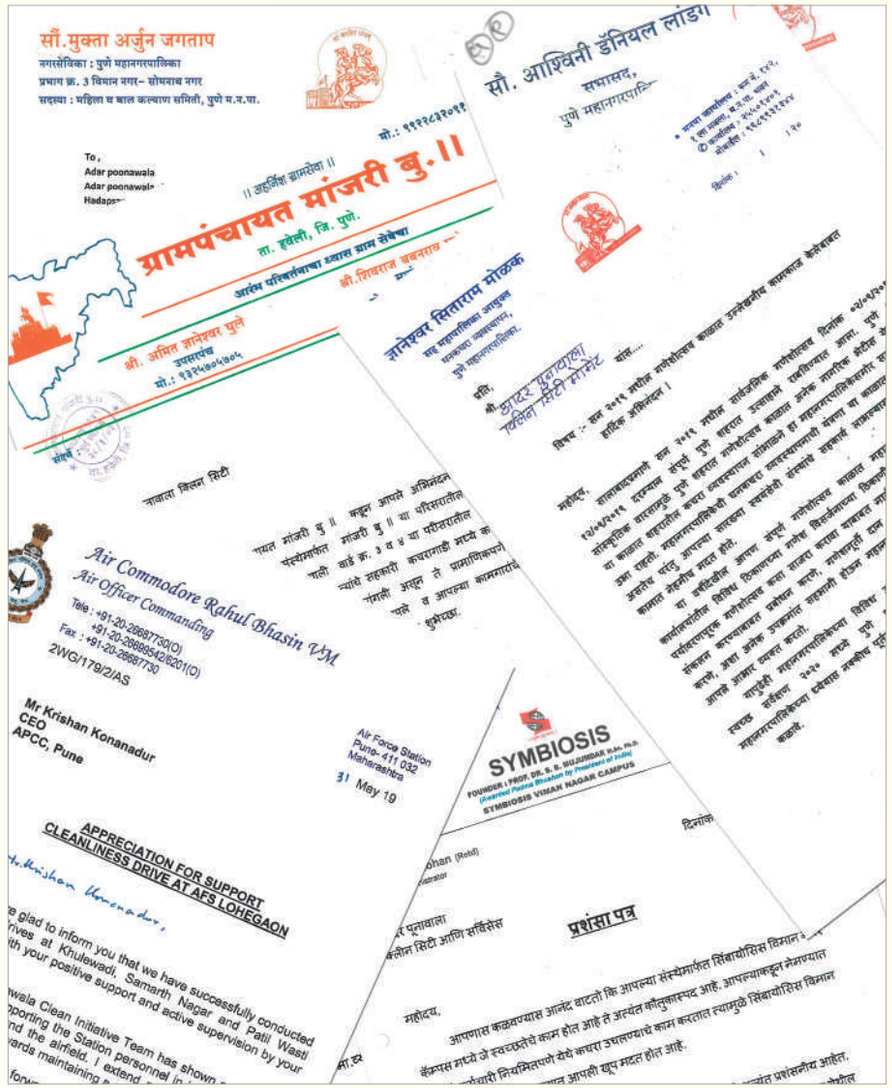


Figure 1 APCCI's Functional Structure

APCCI Code of Ethics

- Foster a sense of trust and pride as a 'waste warrior' amongst its employees
- Strive to ensure clean streets with the help of allotted machinery
- Ensure the safety of the personnel while on duty with the use of protective gears
- Ensure proper maintenance of machines for smooth functioning
- Attain a high level of integrity and refuse any forms of gifts–either cash or kind
- Adhere to the Standard Operating Procedure (SOP)
- Report/scale-up any serious incident to a higher authority

Testimonials from PMC, Ancillary Donor, Corporaters



2.Partnerships: Everyone Owns the Environment

An Indian city comprises of its government, the people who appoint the government, and the people employed implement government decisions. These decisions include decisions made for the city's infrastructure and its environment too. Therefore, APCCI considers each citizen as a stakeholder in different capacities.

Stakeholders: For the people, by the people, of the people

Partnerships and stakeholder participation are the essential elements of the success of this initiative.

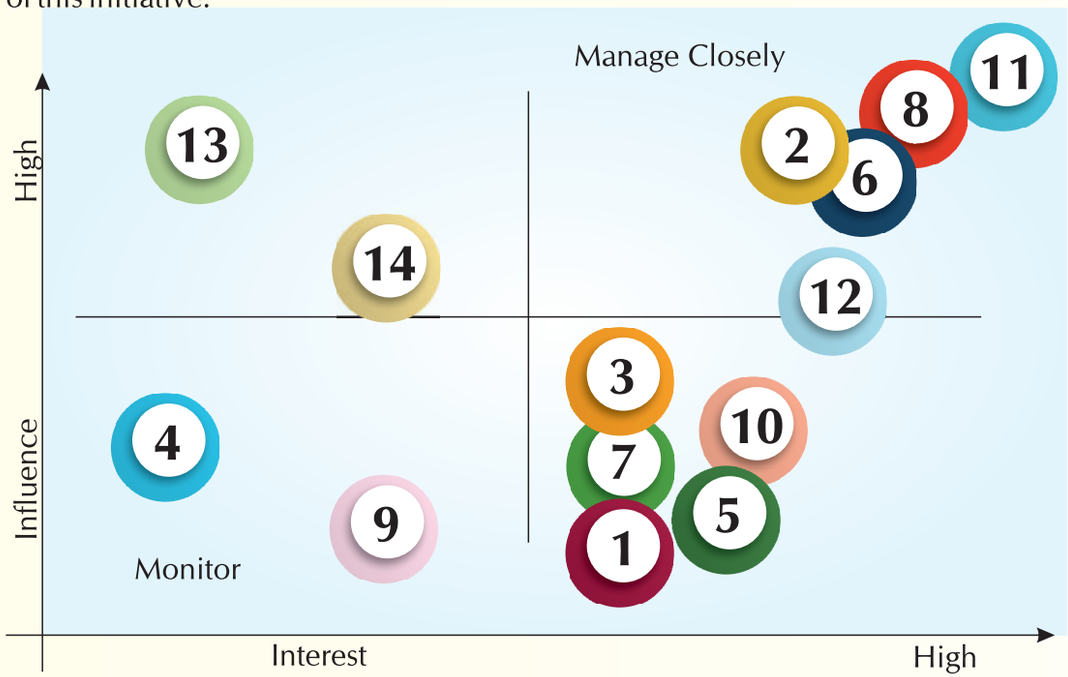


Figure 2: Stakeholders mapping

The stakeholder analysis helped APCCI to identify the key stakeholders based on their influence versus their interest.

Codes of the numbers are as depicted below.

Sr.No.	Stakeholders
1	Service providers – Bharat Petroleum, Mtech (Tata)
2	ULBs–PMC/PCB/KCB and 11Gram panchayats
3	NGO – Janwani, Poornam, Swachh
4	Educational Institutes
5	Prabhag communities
6	PR(Public relations)
7	Manpower service providers – Sumeet Facilities Ltd, ASR Services
8	Main Donor – Mr Adar Poonawalla
9	Technology suppliers – Manyatech, Changebhai
10	Volunteers
11	Citizens
12	Employees (Waste Warriors)
13	Media
14	Schools, Colleges

Key stakeholders are those with high interest and influence:

Priority	Code	Key Stakeholders
1	11	Citizens
2	8	Main Donor
3	6	PR - Public Representatives
4	2	ULBs - PMC/PCB/KCB and 11 no. of Gram panchayats
5	12	Employees (Waste warriors)

1. As this initiative is for citizens, they top the list as stakeholders.

2. Mr Adar Poonawalla has pledged Rs. 100crore. APCCI would not have existed without his vision and support.

3. Public representatives help to smoothen the functioning of the initiative.

4. ULBs work on many fronts such as waste collection at transfer stations and route planning.

5. Employees are the backbone of these services.

The following table demonstrates the engagement process with the key stakeholders

Name of Stakeholders	Significance	Vehicle for Engagement	Frequency
Citizens	Beneficiaries Involvement in initiative	Take Feedback Communicate waste pickup concerns Volunteering opportunities Awareness Drives	Daily
Donor–Mr Adar Poonawalla	Main Investor	Updates and reports Meetings	Daily
Public Relations	Represents the city's civic body Helps to smoothen the functioning	Meetings Take Feedback Address waste pickup concerns	Monthly
ULBs	Partner in waste management Provision for waste collection at the transfer station	Meetings Reports	Daily
Employees (Waste Warriors)	Mobilises initiative	Reports Meetings Take action on waste pickup concerns Give feedback Work performance audits	Daily

Materiality: Who and what do we prioritise?

The initiative followed a 5-step process in detail to determine the materiality of issues:

1. Identifying material topics within each activity
2. Engaging with prioritised external as well as internal stakeholders relevant to the activities such as citizens, ULBs, and donor
3. Prioritising and establishing co-relation of material topics on 'Importance as per external stakeholders' and 'Importance as per internal stakeholders'
4. Aligning the issue with the APCCI vision, charting a sustainability agenda and actionable milestones
5. Appointing executives responsible for the mitigation of identified topics and engaging cross-functional teams to deliver solutions and implementation.

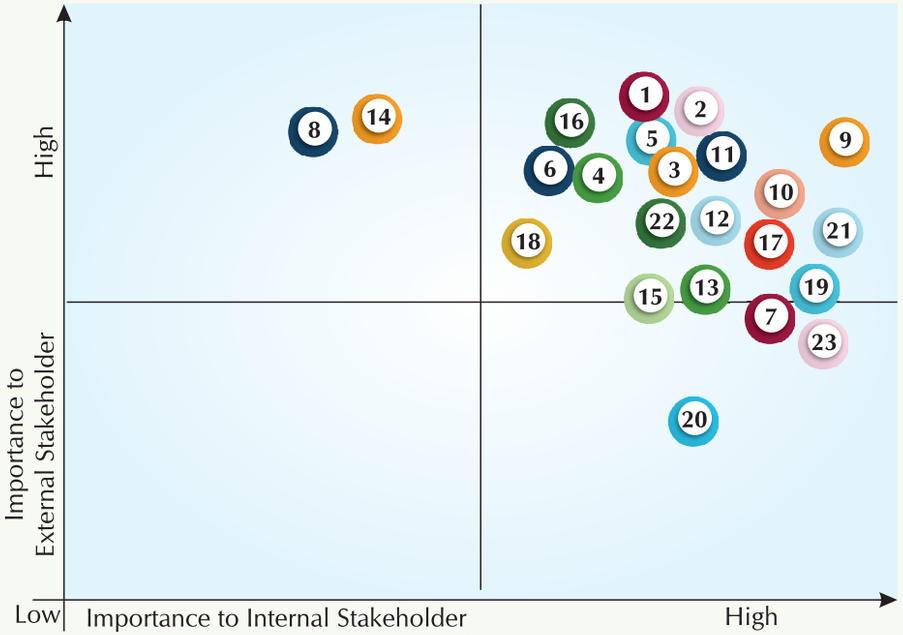


Figure 3: Materiality assessment

No's	Internal stakeholders
7	Manpower service providers – Sumeet Facility Ltd, ASR Services
8	Main Donor–Mr Adar Poonawalla
12	Employees (Waste Warriors)

Sr.No.	Material Topics
1	Area/Population covered
2	Garbage Collection/Street Cleaning/Waste Chronic spot Cleaning
3	Manpower
4	Waste segregation
5	Public Good will
6	Hygiene and City Aesthetics
7	Training, Awareness, Engagement
8	Water - consumption & conservation
9	Energy/Fuel - optimization

Sr.No.	Material Topics
10	Maintenance
11	Technology - State of the art and IT
12	Best Operating Procedures
13	Low Carbon Technology (Machines)
14	Potholes
15	Environment Friendly Operations
16	Health and safety
17	Communication channels
18	Litter bins
19	Public Awareness and Education
20	Compliance
21	Ethics, Governance, Code of conduct
22	Partnerships
23	Circular economy - framework for citizens

Sr. No.	Material Topics	Importance to Internal Stakeholders	Importance to External Stakeholders
1	Area/Population covered	■ Optimum capacity usage ■ To clean waste/garbage chronic spots within administrative boundary ■ More citizens are benefited	■ Clean streets ■ Aesthetic, hygienic premises and neighbourhood
2	Garbage collection Street cleaning/ Waste chronic spot cleaning	■ Direct impact on performance ■ Timely cleaning of high waste generating spots ■ Visible waste chronic spot reduction leads to expansion of services	■ Cost savings for ULBs ■ Hygiene restoration through timely garbage collection ■ Healthy environment for citizens
3	Manpower	■ Highest operational benefits ■ Well-trained manpower brings productive outcomes ■ Dignity of labour and loyal workforce	■ Better tangible performance ■ Regular and responsible cleaning service
4	Waste segregation	■ Ease of waste-handling for employees ■ Ease of disposal in a formal setup ■ Lack of awareness and willingness in citizens ■ Restore value from waste ■ Waste segregation increases waste management efficiency ■ Increase hygiene	■ Behaviour change in throwing waste ■ Environmentally-friendly practices ■ Reduce landfills required ■ Reduce processing costs ■ Increase in recycling productivity
5	Public goodwill	■ Increased cooperation, hence a smooth operation ■ Acceptance by citizens and shared responsibility ■ Increased outreach ■ Improved civic sense ■ Dignity in garbage cleaning	■ Acceptance by citizens and shared responsibility ■ Visibility and respect
6	Hygiene and city aesthetics	■ Increased morale and performance ■ Protection of nature and environment	■ A more livable city ■ Maintained beautification of street and nearby areas due to a reduction in waste
7	Training, awareness, engagement	■ Better performance ■ Safe ■ Moral ■ simplified work ■ Responsible work ethics ■ Better communication ■ Better judgment and decision making ■ Well maintained fleet machines ■ Increased productivity	■ Better performing assets ■ Increased response time ■ Ease to approach and access ■ Free connect ■ Smooth interaction ■ Perception change towards waste management
8	Water - consumption & conservation	■ Add value through savings of water ■ Moderate use of water for cleaning purpose	■ Easy access to potable water
9	Energy/Fuel - optimization	■ Optimum utilisation to ensure better performance and less emissions ■ Cost-effective route-planning ■ Use of clean energy sources ■ Strategic parking locations	■ Less emissions

Sr. No.	Material Topics	Importance to Internal Stakeholders	Importance to External Stakeholders
10	Maintenance	■ Efficient fleet machinery ■ Reduced breakdown cost ■ Increased fleet machine lifecycle ■ Ease of functioning for employees	■ Assured service ■ Visually attractive
11	Technology–state-of-the-art and IT	■ Optimised operations and ensured reliability ■ Quality reports ■ High response-time ■ Data driven decision-making ■ Ease of spot-identification ■ Fleet machine tracking ■ Maintain public health through cleaning without touching garbage by using best technology	■ Quick connect to waste warriors ■ Quick response time ■ Access to services ■ Instant feedback ■ Transparency ■ Helping to create green environment
12	Best operating procedures	■ Standardised hence easy to expand and cover more areas, cities ■ Time saving ■ Cost saving ■ Habitual pattern of working style ■ Waste chronic spot coding ■ Increased skills ■ Clarity in role ■ Simplification of complex waste management practices	■ Efficiently cleaned streets ■ Visible cleanliness
13	Low Carbon Technology (Machines)	■ Monitored and controlled costs ■ Less carbon emissions	■ Working against climate change ■ Less pollution
14	Potholes	■ Pothole-free city roads ■ Beyond street cleaning	■ Higher mobility ■ Fewer accidents
15	Environment-friendly operations	■ Increased brand value	■ Less pollution ■ Working against climate change
16	Health and safety of waste warriors	■ Fewer leaves ■ Zero accidents ■ Improved productivity ■ Healthy working style	■ Timely and safe Service ■ Better hygiene restored
17	Communication channels	■ Easily accessible support team	■ Ease of communication ■ Easy to approach
18	Litter bins	■ Reduction in street waste ■ Segregated waste collection	■ Ease of access to bins ■ Encourages segregation at the time of disposal
19	Public awareness and education	■ Helps to make and keep the city clean	■ Helps to contribute to clean city movement
20	Compliance	■ Employee satisfaction	■ Undisputed service
21	Ethics, governance, code of conduct	■ Smooth functioning ■ Happiness	■ Within the framework of ULBs ■ Satisfaction and happiness
22	Partnerships	■ Gain expertise, cooperation and value addition ■ Excellent coordination	■ Volunteering opportunities
23	Circular economy-a framework for citizens	■ Waste to wealth ■ Reduction in landfills	■ Contribution opportunity and value addition to challenges faced by the planet such as climate change

GRI 416-1

Measuring Ourselves: Sustainability Dashboard of APCCI – Year-on-year

Sr. No.	Sustainability KPI	Units of Measurement	2016-17	2017-18	2018-19
1	Improvement in cleanliness of City's street compared to the baseline year	Factor (street kilometres cleaned per number of machines on the road)	6.2	17.4	23.6
2	Carbon footprint per kilometre	Annual tCO_2 per kilometre	0.139	0.110	0.110
3	Investment in Personnel protection equipments (PPEs)	Annual Investment for PPEs in Rs. per Waste warrior	1387	2071	2387
4	The economy of street waste cleaning	Daily Costs in Rs. per kilometre	109.2	85.0	75.5
5	Strengthening interactions on sustainability for stakeholders (Employees, ULBs, NGOs/Service providers etc.)	Person-hours per year invested by APCCI staff for key stakeholder	2241	2741	3052
6	Strengthening social capital (schools, citizens) for a healthy environment and holistic waste management	Person-hours per year invested by APCCI staff	240	393	441
7	Response to Waste pickup concerns received through APCCI App resolved by Waste Warriors	The ratio of number of waste pickup concerns–received to resolved	1:1	1:1	1:1

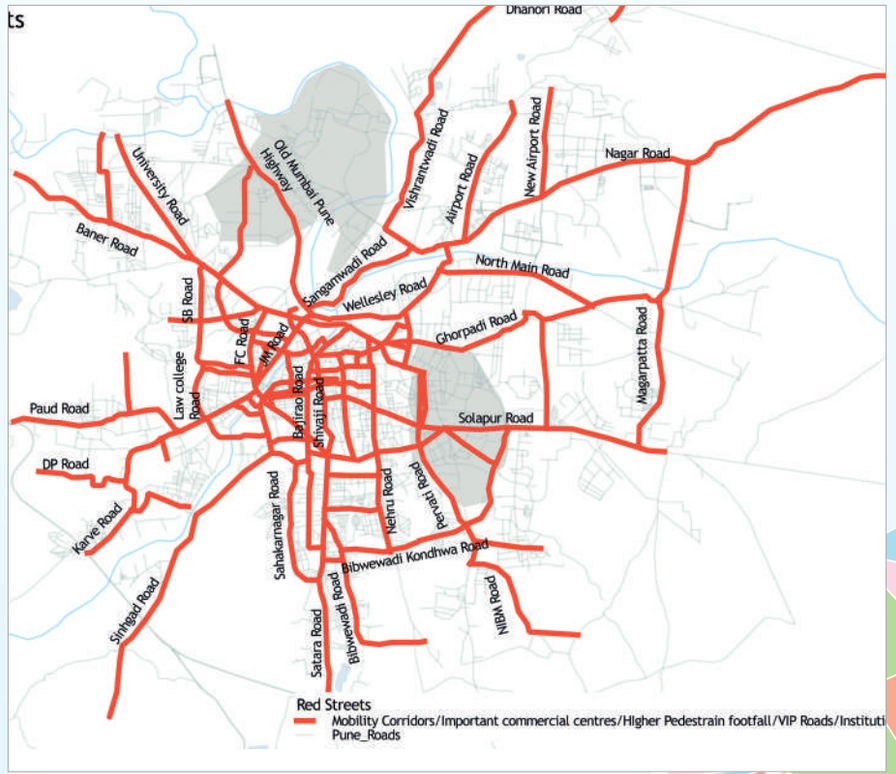
3.Planning: Engage, Optimise, Communicate, Implement, Analyse with the People

As mentioned earlier, APCCI started small and expanded once we had a proof of concept. Planning for expansion stuck to the basic principles of engaging people while respecting the dignity of the labourer and the sanctity of the environment.

Stakeholders Engagement

APCCI officials began the planning process in 2015 with meeting officials at ULBs in a spirit of cooperation and collaboration. The head of the Solid Municipal Waste (SWM) department welcomed the initiative and was committed to partnering with APCCI.

Together, APCCI and ULBs identified areas in Pune where they could begin operations. APCCI partnered with Janwani to conduct a survey of streets and chronic waste spots. APCCI identified main roads, critical waste spots, garbage points, commercial areas to be covered under the initiative with the help of data gathered by ULB officials and the Janwani survey. The survey also provided inputs for fleet machine management to connect with parking locations.



Fleet Route Optimisation

APCCI optimised the on-road fleet's route through data on:

- fleet travel distance, areas with maximum waste collection spots
- peak and non-peak hour traffic for main roads and commercial areas
- unloading points such as transfer stations or compactors (ULBs bigger-sized vehicles)
- time and motion of fleet to reduce unproductive hours

This information enabled an assessment of the resources required for the various activities.

Behaviour Change Communication (BCC)

Initially, a small area from Salisbury Park was selected for a 3-month trial period. State-of-the-art fleet machines like Electric Gluttons and Trilos efficiently managed the street waste during this period. This pilot project instilled confidence to spread the initiative to other areas of the city.

This initiative now covers 500 kilometres of roads in Pune.

This required a change in behaviour at various levels. The communication of the necessary change occurs in three stages:

APCCI and Janwani: – APCCI's CEO and Janwani's project manager put their efforts together to expand the initiative and plan resource utilisation, work efficiency and behaviour change communication.

ULB Prabhag representatives and Janwani coordinators: The Prabhag committee representatives and Janwani coordinators are

Awareness on segregation of waste

APCCI kiosk at PWHM marathon expo

Awareness drive by APCCI volunteers

responsible for planning the exact route and schedule. Machinery and waste warriors are deployed accordingly.

Waste Warriors: New areas or streets are included based on resource utilisation and optimisation. This information is communicated to waste warriors, and effective changes are made.

Citizens: Citizen participation has increased significantly during the last two years due to various awareness programs and special events. This has resulted in a change in peoples' attitudes towards street hygiene and waste segregation. More than 2,500 bins were placed at strategic locations along 73 main roads in the city. The use of info-graphics and colour-coded litter bins –green for biodegradable and blue for recyclable, resulted in better waste segregation.

Street play at Yerwada slum

To watch above APCCI video scan below QR code

Low Carbon Fleet Machines

Technical specifications, sizes and procurement were based on the assessment of resources required for the activities.

The project started with 6 Electric Gluttons, 3 Trilos and 1 Tipper. This gradually increased to 87, 33 and 24, respectively at the end of the baseline year 2016-17.

Today the fleet machines in operation are:

- 110 electric vacuum street litter pickers (Model Electric Glutton)
- 79 vacuum litter pickers mounted on vehicles (Model Trilo) conforming to BS-IV emission norms
- 2 vacuum-assisted, truck- mounted road sweepers (Model Johnston Sweeper) conforming to BS-IV emission norms
- 28 auto tippers conforming to BS-IV emission norms
- 6 electric auto tippers conforming to BS-IV emission norms
- 1 jetting machine for cleaning litter bins conforming to BS-IV emission norms
- APCCI has also acquired one imported state-of-the-art pothole repair machine mounted on an Indian van, which repairs potholes up to 0.8 square meters in 30 minutes.

Table: Number of on-road fleet machines year-on-year

Assets - fleet machines	2016-17	2017-18	2018-19	TOTAL
Glutton (Electric)	87	96	110	110
Big Trilo (Diesel)	-	31	46	46
Small Trilo (Diesel)	33	33	33	33
Tipper (Diesel)	24	28	28	28
Road Sweeper (Diesel)	2	2	2	2
Electric Auto Tipper (Electric)	-	-	6	6
Jetting Machine	-	-	1	1
Potholes Repair Machine	1	1	1	1

Electrically operated Auto tipper at work

Classification of Fleet Machines

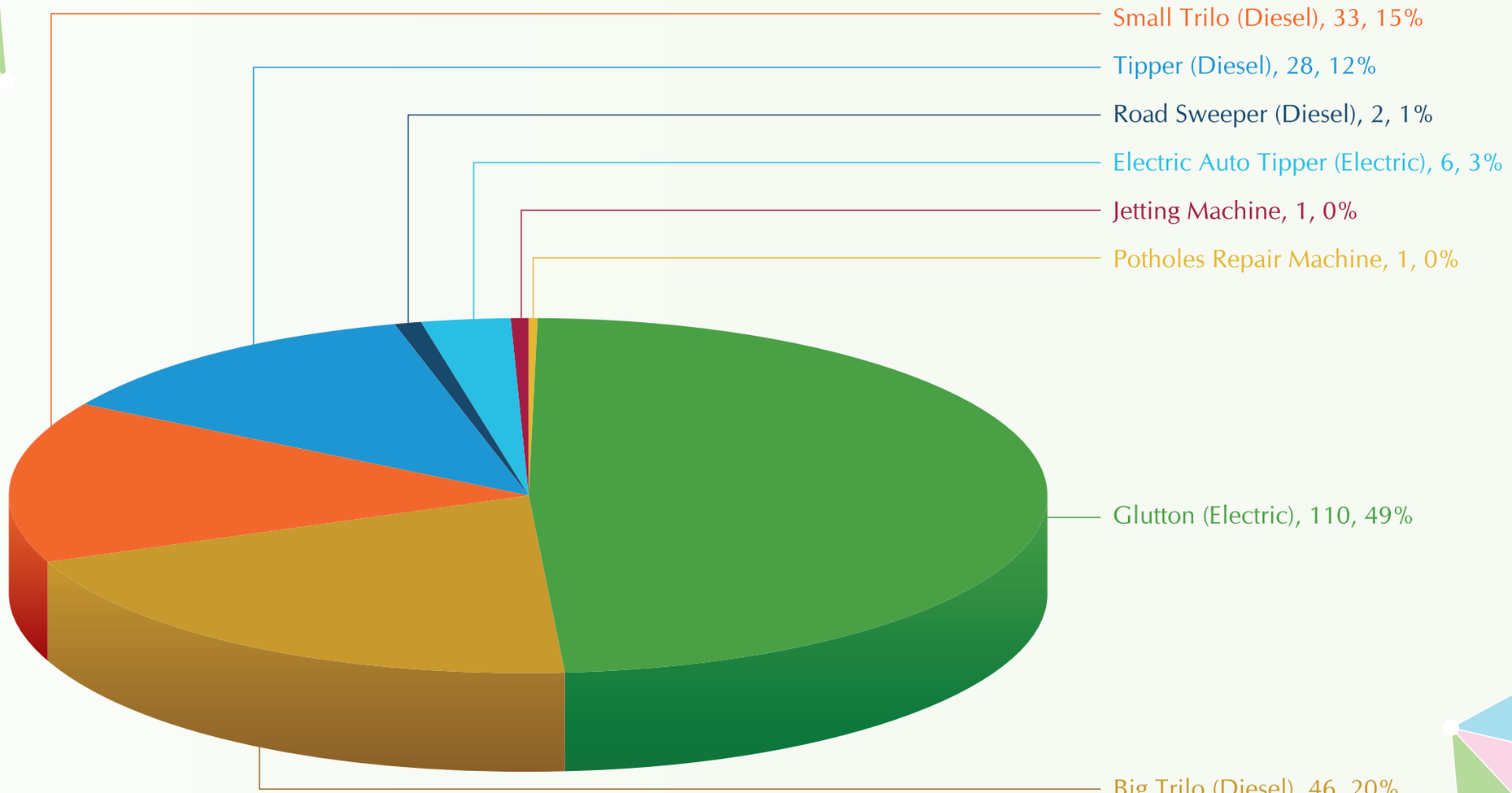


Figure 4: Number of on-road fleet machines

Glutton (Electric)

Small Trilo

Tipper

Big Trilo

Road Sweeper

Electric Auto Tipper

Pothole Repair Van

Jetting Machine

Number of Fleet Machines and km Street Length Coverage in Pune City

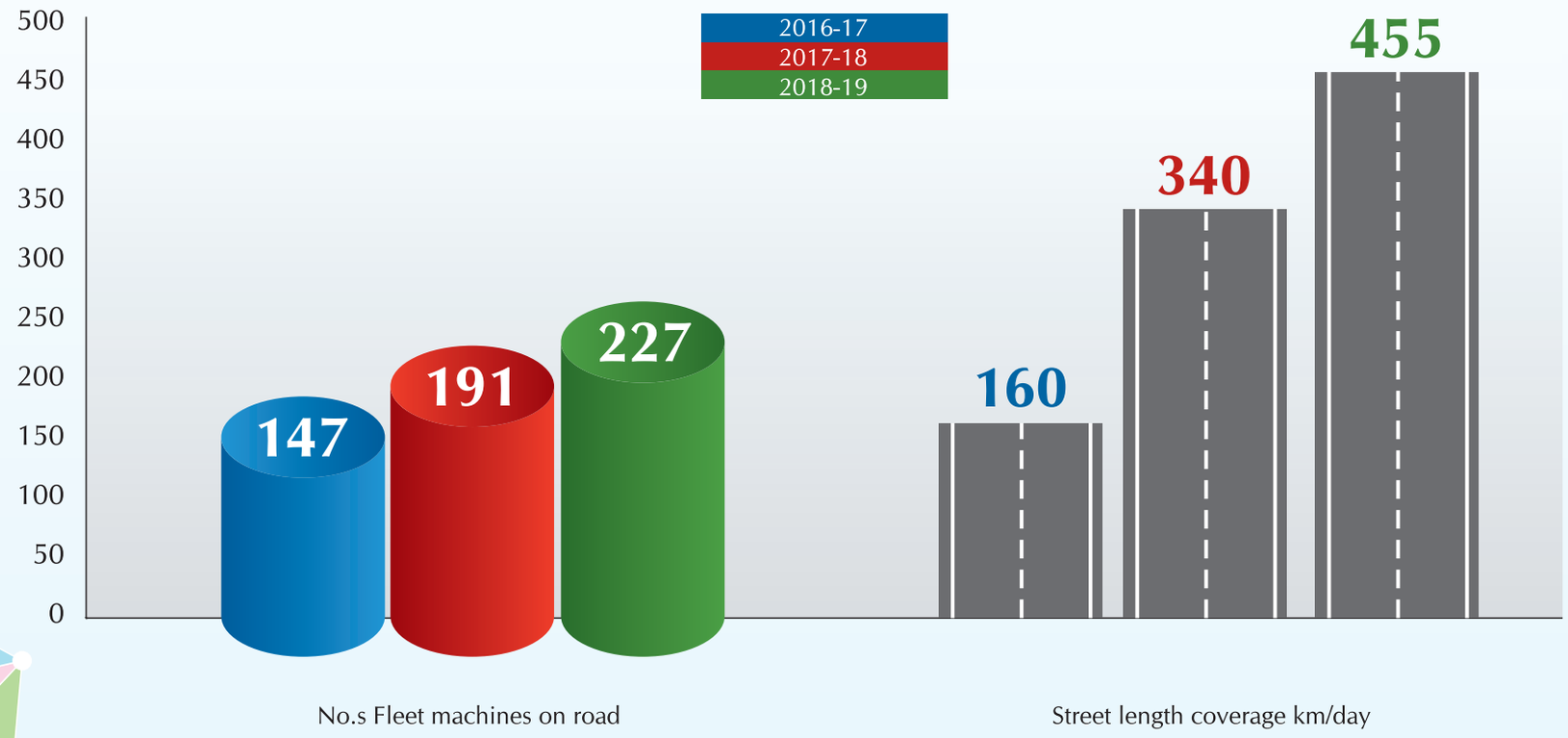


Figure 5: Year-on-Year streets length coverage

$ Economics of Waste Management Activities

These state-of-the-art fleet machines and IT support for operations has required substantial investments. The following table provides asset-wise capital:

All values in INR lakhs

Capital for Assets	2016-17	2017-18	2018-19	TOTAL
Glutton (Electric)	1,121	116	180	1,417
Big Trilo (Diesel)	-	608	285	893
Small Trilo (Diesel)	524	-	-	524
Tipper (Diesel)	144	24	-	168
Road Sweeper (Diesel)	240	-	-	240
Electric Auto Tipper (Electric)	-	-	16	16
Jetting Machine	-	-	6	6
Potholes Repair Machine	-	59	16	76
Litterbins	-	59	16	76
Container	-	29	21	49
Compactor	-	-	63	63
TOTAL Investment in fleet assets	2,029	895	603	3,527

The project has successfully resulted in building a large asset of fleet machines. The current operating expenses are being funded from Mr. Poonawalla's pledge.

Operating expenses to keep the city clean – Year-on-year

All values in INR lakhs

Parameters	2016-17	2017-18	2018-19	TOTAL
Fuel cost (Diesel)	21.64	69.28	133.01	223.93
Fuel cost (Petrol)	2.33	3.99	4.13	10.45
Fuel cost (Electricity)	1.40	4.13	5.36	10.89
Manpower Expenses	285.28	767.23	1,119.83	2,172.34
Maintenance Expenses	11.32	71.05	61.30	143.67
Admin and Managerial Cost	32.06	91.16	120.29	243.51
Personal protection equipment (PPE) Cost	3.86	8.35	11.48	23.69
TOTAL Cost	357.89	1,015.19	1,455.40	2,828.48

Best Operating Procedures (BOPs)

The best operating procedures (BOPs) for daily operations, ease of handling, safe waste collection and transport of waste were developed and put in place.

240 hours of training per month was imparted to 481 waste warriors.

Efficient housekeeping techniques, weekly maintenance schedule and periodic servicing are followed to improve life-cycle impact and maintenance of the fleet.

Each BOP includes:

1. Proper technical understanding of the fleet machine from the suppliers.
2. Safe driving.
3. Efficient and safe use of fleet machines.
4. Effective waste collection and cleaning activity.
5. Supervision criteria.
6. Safe fleet parking.
7. Weekly audit check.

Daily Morning briefing of Waste warriors by Supervisor

Analysis and Intelligence

GPS-based mobile applications track real-time operating status for all on-road fleet machines for better performance and further optimisation. Data collected includes:

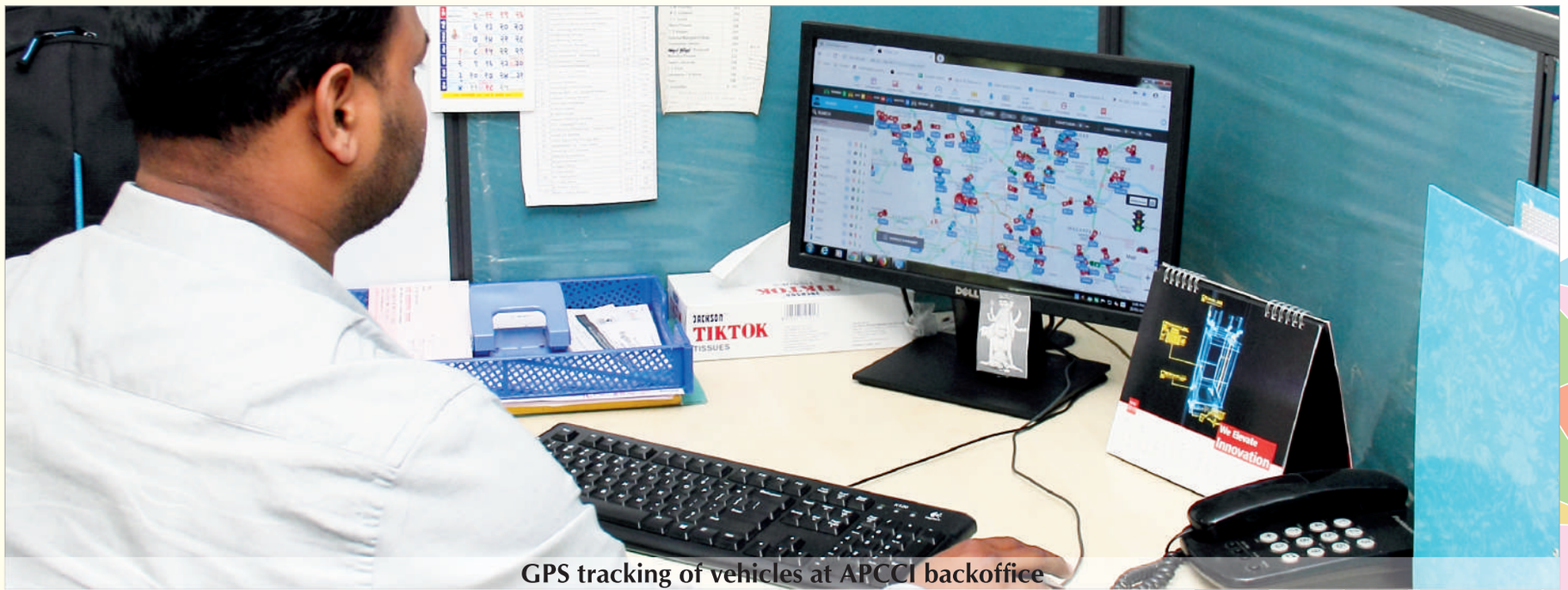
- Attendance of waste warriors.
- Timely service and safe transportation.
- Response to citizen's waste pick up concerns.
- Fuel performance.
- Fleet tracking and route completion.

In addition, customised software collects fleet machine breakdown instances. Daily and monthly summary data is analysed for improvement in planning and performance.

The APCCI CEO monitors the two-way communication between waste warriors and citizens who use the app. This ensures timely service.

Feedback analysis System

The feedback analysis system is well planned. Feedback received from the citizens through the app, and other communication channels is evaluated for further improvements in the services.



GPS tracking of vehicles at APCCI backoffice

Waste Warriors

Initially, 14 waste warriors and fleet machines that included Electric Gluttons, 1 Tipper and 3 Trilos were deployed to clean a small area in Salisbury Park. Today there are over 450 waste warriors. As mentioned above, the fleet machinery has also increased. To ensure the best operating procedures, optimum use of technology and maximum efficiency, APCCI have opted for third-party service providers.

- Sumeet Facility Ltd and ASR Services work as partners providing uninterrupted manpower.
- Other service providers include consulting firms that provide training, health, safety, legal, and other aspects related to human resource management.
- All transaction receipts are maintained monthly for audit purposes.
- APCCI conducts quarterly checks to ensure legal compliance and health & safety compliance.

Basic thumb rule measures for manpower planning are street-kilometre-to-machine ratio and machine-to-person ratio. Street-kilometre-to-machine ratio is eight kilometres for every Electric Glutton. One operator is assigned for each glutton. Similarly, for efficient operation, to clean twenty chronic waste spots, one Trilo requires two waste warriors.

Table: Fleet-wise manpower

Particulars	Unit	2016-17	2017-18	2018-19
Fleet machines on the road	Number	147	191	227
Street length coverage	km/day	160	340	455
Actual kilometre/day travelled by all on road fleets	km/day	910	3,320	5,353
Waste chronic spots	No.s/day	300	650	1044
Waste warriors on job/year	Number	278	403	481

Disinfestation of chronic spot site after cleaning

Diversity

Skill diversity is an important function and the key to the success of this initiative. Therefore, APCCI conducts regular training programs to sharpen and upgrade the skills of its employees. The curriculum is continually updated with new skills.

Skills diversity has been categorised as:

Operator/Drivers skills: Drivers (waste warriors) of the fleet machinery not only have to be skilled at driving, they also ought to have sound understanding of fleet maintenance and repairs, and daily housekeeping practices. They should also have sufficient knowledge of different types of waste, and be able to segregate them for better waste collection.

Supervisors skills: The supervisor interacts with ULBs' staff at various levels starting from the ground level operators to the Sanitary Inspector and transfer station officials on a daily basis. Necessary skills include coordination, team management, analytical thinking, leadership and problem solving. Executive Body: The executive body comprising of APCCI CEO, COO, coordinators and Janwani project manager manage the entire initiative. Planning, Monitoring, Quick decision-making, problem-solving skills are required to keep the initiative functional seamlessly. The Executive body guides the entire team on day-to-day operational challenges and provides solutions.

Soft skills training to Waste warriors

Personal Protection Equipment (PPE)

Safety has been an important hallmark of this initiative. Adequate personal protective equipment as mandated by law has been provided to all the personnel working in the field operations. This is in line with the safety health and environment standards prescribed by law. The personal protection and safety equipment includes:

1. Safety Boots
2. Safety Gloves
3. Respirator dust Masks
4. Caps
5. Apron
6. Raincoats
7. Drinking water containers

Use of PPEs by Waste warriors

Retention Policy

The passion to keep the streets of the city clean has been instilled in the entire team. This firm belief is adopted as the Standard Operating Procedure which is respected and followed across the organisation with pride. This has naturally transferred into sound retention policy resulting in low attrition rate which is below 5%.

Soft skills training to Waste warriors

4.Performance: Moments of Pride and Learning

Strategic planning of fleet routes has resulted in economic and environment-friendly utilisation of resources. Judicious fleet management and optimal route planning has helped in effective deployment of vehicles resulting in savings on fuel, reduced emissions and congestion.

Street Cleaning: Flow Chart

The process is mapped to ensure visible cleanliness on streets by innovative methods such as roadmap and standard operations procedures.

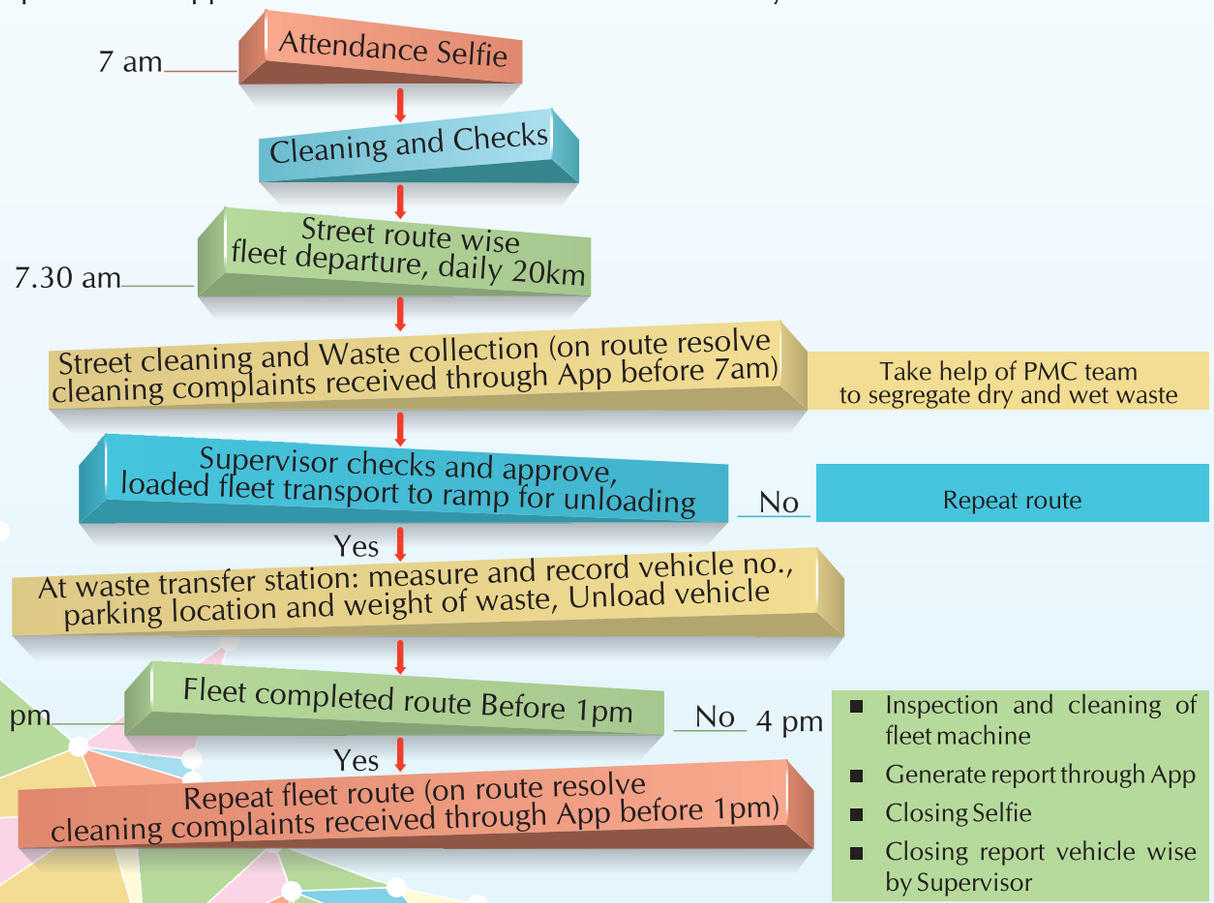


Figure 6: Operational flow for waste pickup, cleaning and waste transport activities

Reporting and communication

Fuel report:

- 2-4 pm, twice a week, fueling at specified petrol pump.

Waste collection report:

- 4-5 pm, along with before and after images of street cleaning and resolved cleaning complaints.
- Communicate respective citizens for their resolved waste pickup complaints.

Weekly audit report:

- Evaluation of quality and efficiency of work,
- Fleet appearance, compliances,
- personal protective equipment,
- Findings and feedback to drivers, supervisors and waste warriors.

The day for the waste warriors begins with an attendance selfie at 7 am at the parking location. This is followed by checking and cleaning of fleet machines before leaving the parking locations.

7.30 am onwards, each fleet machine starts cleaning the planned routes. They complete the cleaning of the streets waste is then collected from identified chronic spots located on the street. At these chronic waste spots, ULBs' manpower helps the waste warriors to segregate wet and dry waste as and when required.

Concerns raised or requests received from citizens on APCCI app are attended to and resolved along the routes. The waste warriors take photographs of the cleaned spot and send them to respective citizens who have raised the waste pickup concern on specific location along the street. The issue raised is closed, and informed to the citizen by SMS. Once the target of the route is achieved, the vehicle goes to a transfer station to unload the garbage. Data is recorded in log sheets at the transfer station.

The day ends with an inspection and cleaning of the fleet machine. The supervisor then prepares a closing report.

Reporting and Communication

Reporting

For effective working, reporting is a crucial activity for APCCI. The reporting flow starts with opening manpower attendance, cleanliness of vehicles, inspection of PPEs, monitoring waste collected, chronic spot monitoring, resolution of citizen complaints received through app, incident reporting and maintenance issue reporting. At the end of the day, all the reports are consolidated and sent to the management.

Communication and review

Daily reporting practices, continuous communications reviews and feedback from various stakeholders like citizens, volunteers, partners like ULBs, Janwani help APCCI to improve services.

Weekly audit report

Janwani conducts weekly work audits and assessments on quality and efficiency of work by waste warriors, fleet machine appearance, standard compliances as per relevant laws applicable from time to time.

Weekly work audit conducted year-on-year

2016-17[8]	2017-18	2018-19
-	2,454	3,919

The fleet wise work performance weekly audits started in 2017.

Fuel filling report

Fuel in fleet machines is filled twice a week between 2 pm and 4 pm at pre-determined, partner petrol pumps that are close to the parking locations for optimum utilisation.

8: The fleet wise weekly work performance audits started in 2017-18.

Workplace

The primary workplaces of APCCI are the main and arterial roads of the city. This has been planned and mapped jointly with the ULBs to avoid duplication of cleaning by ULB and APCCI. Surveys include identification of main roads, garbage chronic spots and areas that require attention. This, in turn, is supported by technology using Google Maps, geofencing and other modern techniques.

Chronic Waste Spots cleaning

Due to lack of an effective waste collection system across the city, the waste ends up on the streets in the form of chronic garbage spots. These spots, so identified, are cleaned according to a predetermined schedule on a daily basis. These chronic spots are demarcated, numbered and assigned to specific vehicles for collection. Further, awareness campaigns on behaviour change are conducted across the communities to include schools, colleges, citizen groups, and door-to-door campaigns to reduce the number of chronic spots and thereby eliminate them over a period of time. This activity is jointly carried out by various stakeholders such as ULBs, NGOs, citizen groups, volunteers in coordination with APCCI. This activity is constantly monitored and measured to reduce the number of chronic spots.

Cleaning of chronic spot

Cleanliness drive by APCCI volunteers

Chronic waste spots elimination

With the active involvement of all stakeholders in coordination with APCCI it has been possible to eliminate 65 chronic waste spots in the city.

Waste Chronic Spots Eliminated

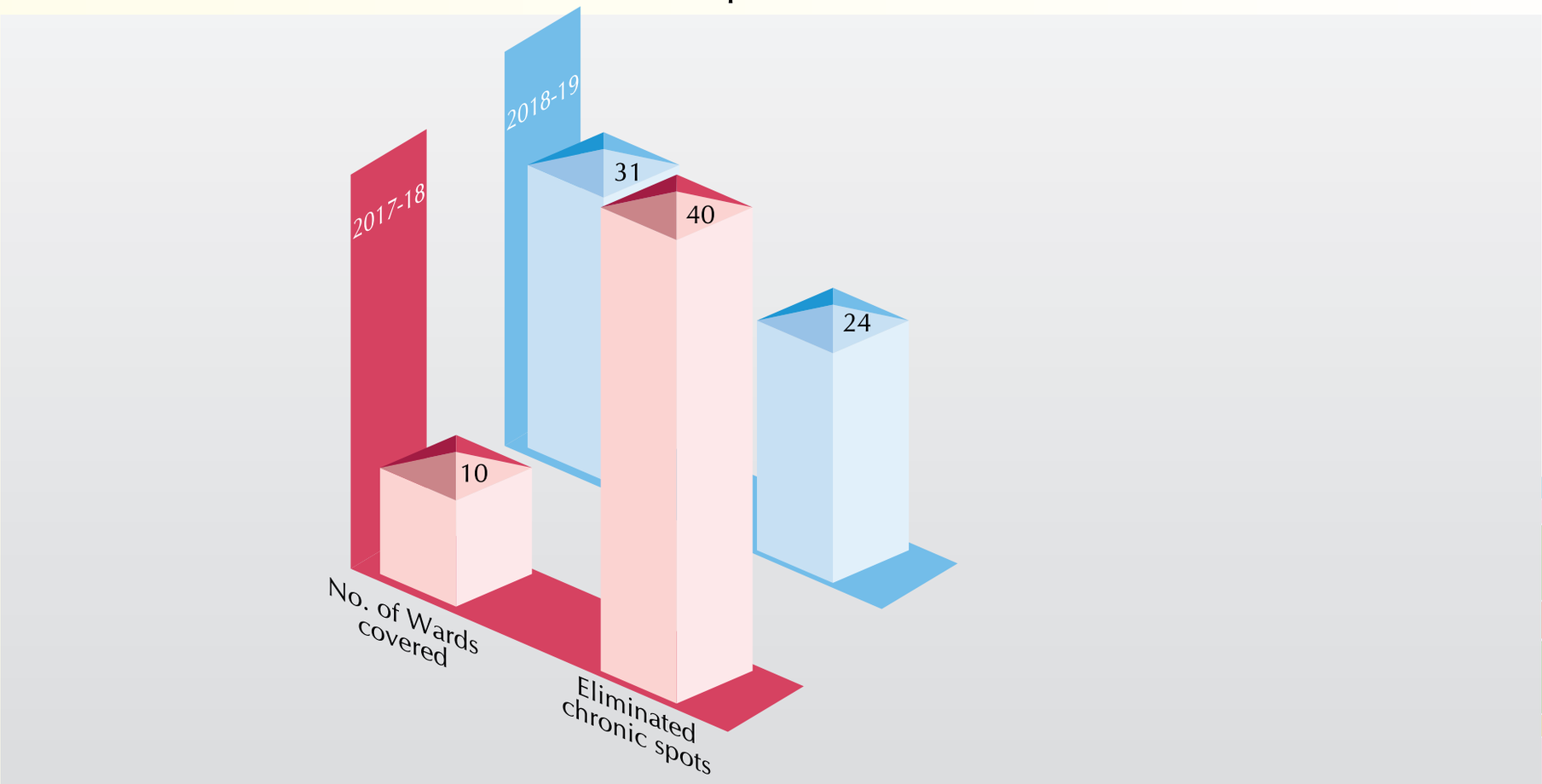


Figure 7 Waste chronic spots eliminated

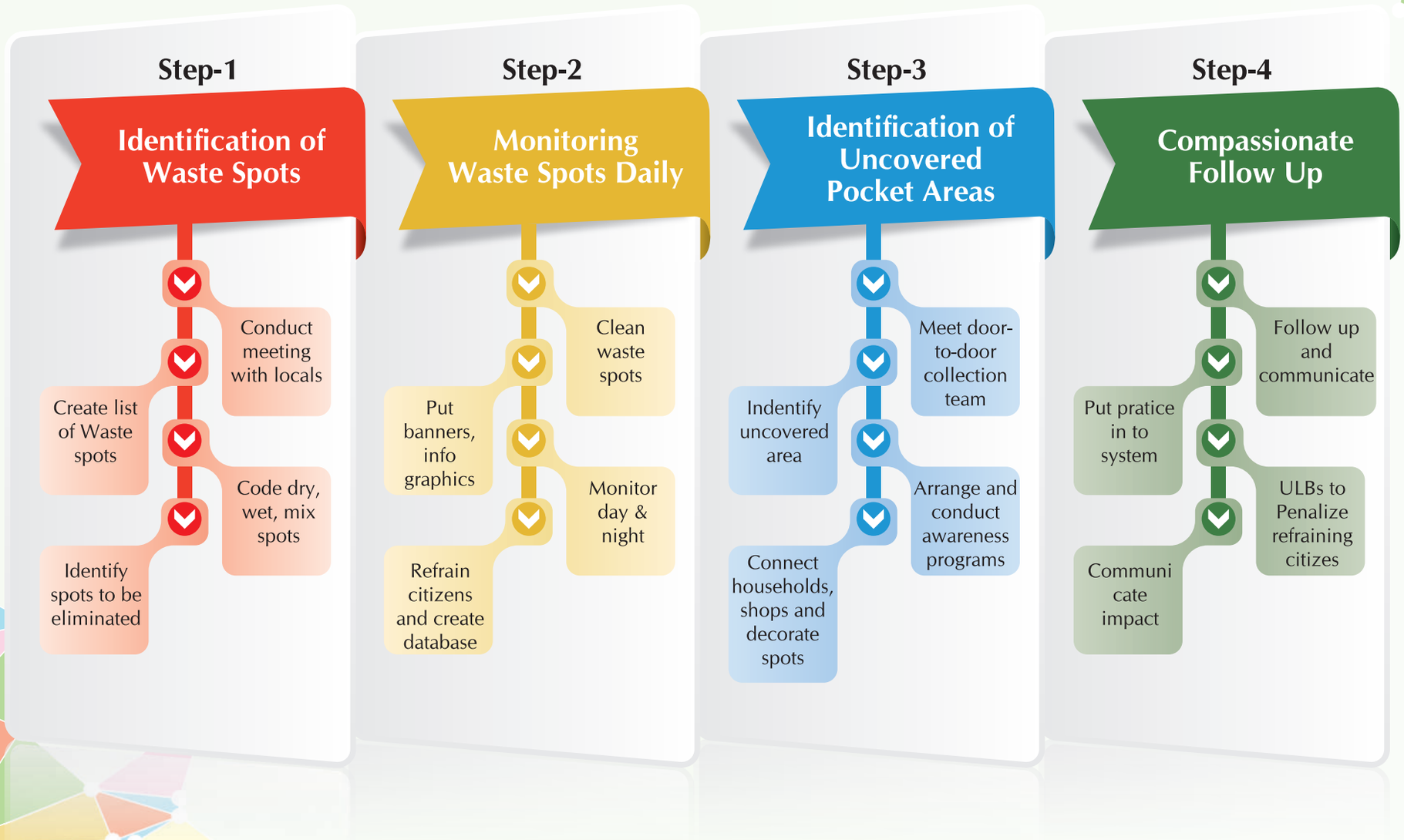


Figure 8 SOP for chronic waste spot elimination

Case Study: Yerwada Slum Project

The Yerwada area of Pune has one of the city's largest slum. Lack of awareness and unwillingness of the people had led to several waste management issues. The efforts of the ULBs to solve this chronic issue have not met with the desired results.

In view of the above, APCCI adopted this area and supported the primary door-to-door collection of waste to mitigate the subsequent problems of garbage disposal and make the locality clean and disease-free. This was carried out by the joint efforts of ULBs, NGOs and local citizens and today the area is free of garbage accumulation.

APCCI also planned a secondary waste collection and transportation system after several meetings with the stakeholders and conducted campaigns to create awareness and understanding.

Issues in Yerwada slum area before APCCI intervention

- A poor house-to-house waste collection system.
- Absence of waste segregation.
- Chronic garbage spots were becoming eyesores.

Irregular services and unwillingness to pay user-fees created a vicious circle.

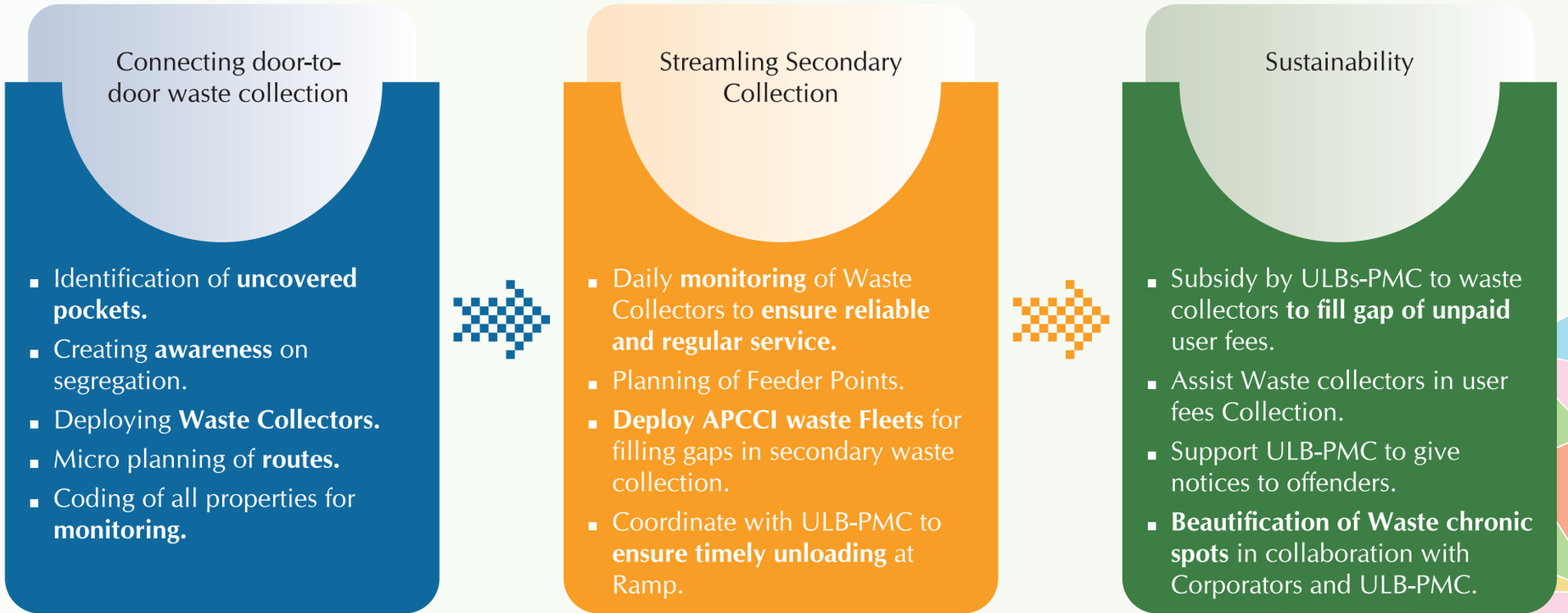


Figure 9 Methodology for slum area waste management

Yerwada slum area project details

Sr. No.	Particulars	November 2017	December 2018
1	Total properties	~21,000	~21,000
2	Coverage (Properties)	~2,700	~19,000
3	Segregation (Properties)	0	~11,000
4	No. of waste collectors	50	66
5	Average house to house covered per waste collector	~90	~250-300
6	No. of waste chronic spots and containers	38+18	25+9
7	Daily segregated waste collected		~Total waste 11/day (Wet 6 Ton & Dry 5 Ton)

After APCCI interventions:

- 90% coverage of waste pick up in a challenging slum pocket with a high population density
- APCCI volunteers closely monitored the collection system and addressed issues
- The primary waste collection was ensured when APCCI provided fleet machines for secondary waste collection
- Today, 11 tons of segregated waste per day is collected and transported to the processing/recycling facility of Pune ULB
- 22 open dumping spots were eliminated by integrating uncovered pockets into the door-to-door waste collection system.

Before

After

House-to-house survey and awareness programs conducted in Yerwada slums by APCCI and Janwani teams.

House to house survey and awareness

House to house survey and awareness

Awareness Campaigns

Awareness Campaigns

Legal Compliance

All statutory and legal compliances stipulated by the Government are complied with and duly audited.

Legal compliances

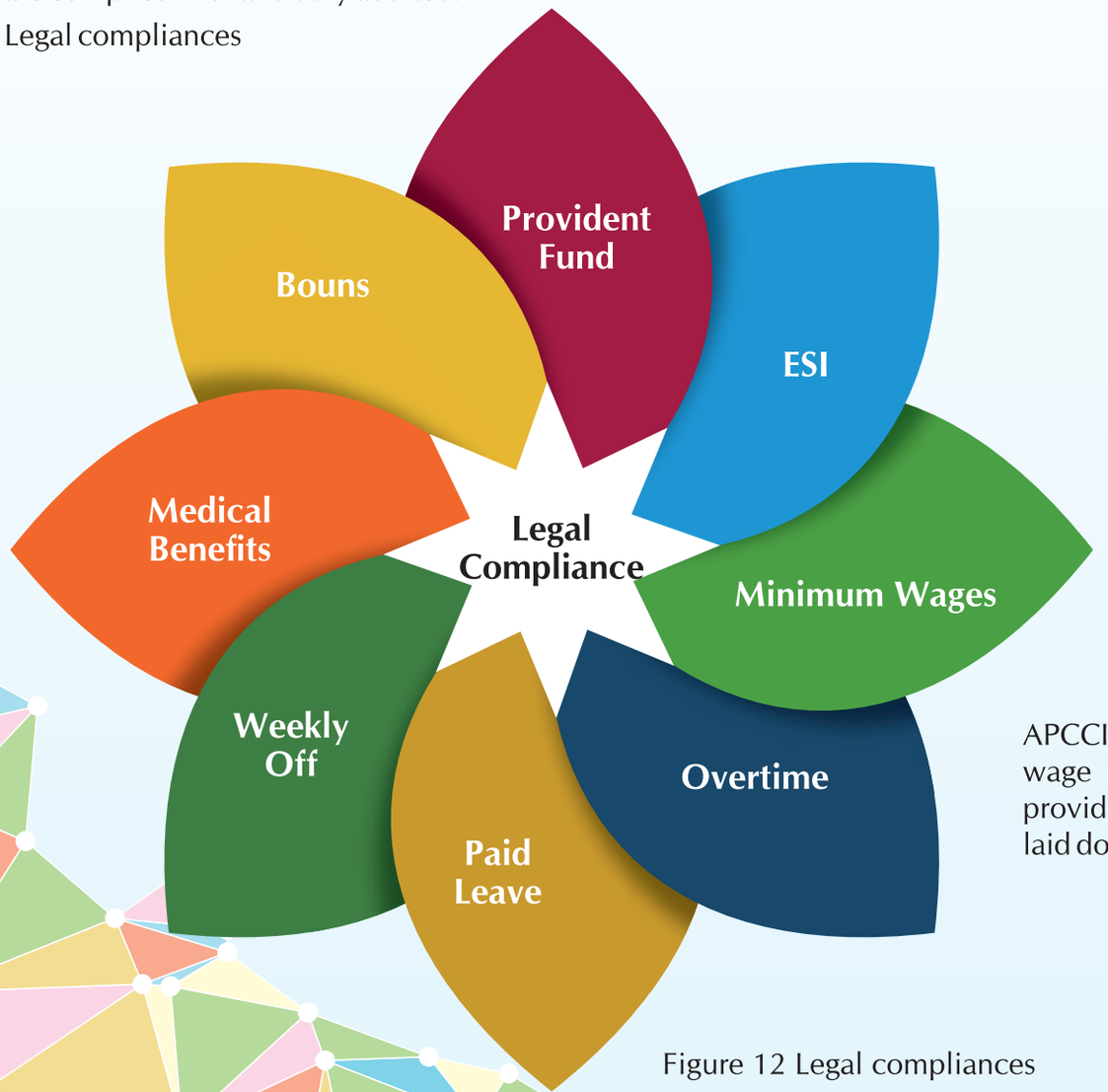


Figure 12 Legal compliances

APCCI complies with the standard government policies on wage payments and statutory legal compliances. APCCI provides enhanced benefits which are over and above the laid down government norms.

Recognition – Awards and Appreciation

APCCI is one of the unique interventions by an individual to mitigate the problem of garbage management of an Urban Local Body in India. This is the first time an individual has dedicated his personal time and resources to address the issue of garbage in a city. This generated curiosity and inquisitiveness about this project amongst a cross-section of citizens, government, ULBs, and NGOs. The success of this initiative, driven by passion and dedication of the donor, has become highly visible in the past few years and has helped to attract appreciation for the work. As a goodwill gesture, a cross-section of citizens applauded this project. This, in turn, resulted in the initiative receiving appreciation letters for the good work.

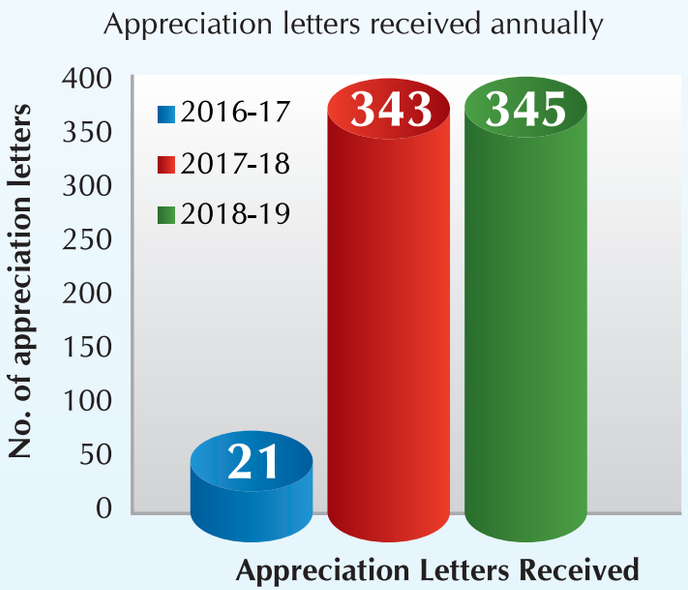


Figure 13 Appreciation letters year-on-year

Table: Awards received so far

Sr. No.	Awards Name
1	Prime Minister Letter
2	Pune Running Sport Foundation Award
3	Navbharat Health Care Award
4	(TMC) Top Management Consortium Award
5	Pune Pride 2018 (By Residency Club)
6	Ministry of Urban development (Swatch Bharat mission)
7	Smart Cities India Award - 2017
8	SKOTCH order of Merit award
9	CSR Health impact Award (Paras Health Care)
10	ABP News Award
11	CNBC IBLA Award 2018
12	VNRA (Viman Nagar Resident Association) Award
13	PM Nominated Adar Poonawalla As Brand Ambassador for Swatch Bharat Mission

APCCI's Contribution to the Nation's "Swachh Bharat Mission"

Objectives of Swachh Bharat Mission

The Swachh Bharat campaign launched by the Government of India aims to fulfil the vision of "Clean India" by 2nd October 2019, which was the 150th birth anniversary of Mahatma Gandhi. The investment was over Rs. 62,000 crore (US$ 9.7 billion).

Objectives of the Swachh Bharat Mission:

- To eradicate open defecation
- To convert in sanitary toilets into pour-flush toilets
- To stop manual scavenging
- To generate awareness about sanitation and its linkage with public health
- To bring about behavioural changes in people through awareness
- To empower urban local bodies to design, execute and operate all systems related to cleanliness
- To start scientific processing, disposal, reuse and recycling of municipal solid waste
- To create a conducive environment for the private sector to participate in capital expenditure, and operational and maintenance expenditure

APCCI's Contribution

APCCI in collaboration with Urban Local Bodies (ULBs) is adding value through

- Collection of street waste
- Cleaning of chronic spots
- Waste transportation
- Creating awareness

सत्यमेव जयते

प्रधान मंत्री
Prime Minister

MESSAGE

I am pleased to note about the continued contribution of Adar Poonawalla City Movement towards the cause of Swachh Bharat Abhiyan. Swachh Bharat is truly a mass movement. Jan Bhagidari makes it a unique initiative involving people from all walks of life.

I fondly remember my visit to Serum Institute of India in November, 2016. Steps towards timely and affordable vaccination of our children are always important for a healthy nation, and so is Swachhta. Your city movement will surely inspire others to take up the cause.

Pune has made a mark in the list of 'Smart City' initiative aimed at urban rejuvenation. We are committed to develop these cities by promoting healthy competition and creating an ecosystem of self-reliant and clean cities.

Our mission to dedicate a 'Clean India' to Mahatma Gandhi on his 150th Birth Anniversary can only be realised with these collective and sustained efforts.

Best wishes for your future endeavours.

(Narendra Modi)

New Delhi
08 March, 2017

APCCI's contribution to Swachh Bharat Mission is illustrated below:

Select Objectives of Swachh Bharat Mission	APCCI Activity	How APCCI Contributed?
■ To make people aware of healthy sanitation practices by bringing behavioural changes in people	Promotional activities for dry and wet waste segregation at the source Increasing door-to-door collection and segregation	■ Information and outreach programs to educate citizens regarding the importance of segregation of waste and disposal using waste litter bins ■ Health initiative through PPE for waste warriors
■ To empower urban local bodies to design, execute and operate all systems related to cleanliness	Cooperation, collaboration, capacity building and resources sharing	■ The activities of APCCI were planned with a focus on the environment and economy ■ Resource efficient system ■ Service operations optimisation ■ Timely waste pickup ■ Tracking fleet machines by use of App technology
■ To scientifically process, dispose, reuse, and recycle them municipal solid waste	Capacity building of ULBs' waste helpers for segregation at chronic spots	■ Helping ULBs' helpers on site through information and building capacity for the scientific way of segregating wet and dry waste at all the chronic garbage spots under APCCI
■ To provide the required environment for the private sector to participate in the capital, operational, and maintenance expenditure	The private-public partnership of APCCI and ULBs Cleaning of streets, chronic waste spots	■ APCCI independently functioning in the mutually decided areas ■ Total number of litter bins installed by APPCI across the city–2500+, which are also cleaned daily ■ Total number of chronic spots under APCCI activities–1044+, where waste is collected and transported to waste transfer stations ■ Total on-road fleet machines–227 ■ Total Manpower–481 ■ Mr Adar Poonawalla's pledge funds APCCI activities ■ Contributed through mechanized cleaning of streets with the help of 'Electric Glutton' deployed

5.Planet

APCCI's transformative operating model is not just about cleaning the city. It equally emphasises caring about our planet. This involves improvement in environmental performance and managing waste economically.

Low-Carbon Fleet Machines

From the planning stage, APCCI aimed to reduce greenhouse gas emissions in its waste management operations. It invested in low-carbon, technology-based fleet machines. It endeavours to continue these efforts even as it expands its activities and will explore options to reduce the carbon footprint further.

Energy consumption

The table below illustrates the fleet-machine-wise energy mix and annual fuel consumption:

Parameters	Unit	2016-17	2017-18	2018-19
Fleet machines on road	No's	147	191	227
Road length covered	km/day	160	340	455
Total fleets travel	km/day	910	3,320	5,353
Electric Gluttons travel	km/day	293	755	868
Diesel Fleet machines travel	km/day	618	2,565	4,485
Electricity consumed by Gluttons	kWh/year	19,755	50,130	58,590
Diesel consumed by Diesel Fleet machines	kL/year	36	111	190
Petrol consumed for various operations[9]	kL/year	3	5	5

Currently, 227 fleet machines cover 455 kilometres per day. The total distance covered by all fleet machines is 5,353 kilometres per day. The electric glutton machine runs 5.3 kilometres per kilowatt-hour of electricity, and the performance of diesel operated fleet machines is 8.5 kilometres per litre of diesel.

9: Operations like pothole repair, jetting machine

Carbon Footprint of Fleet Machines

The carbon emission footprint comprises the following:

- Emissions from diesel consumption (scope-1) for transportation of waste
- Emissions from petrol consumption (scope-1) for operations of the jetting machine and pothole repairing machine
- Emissions from electricity consumption (scope-2) used for the charging of electric gluttons

The data of route travelled by every fleet and respective fuel consumption are recorded and reported regularly for continuous analysis and improvements.

APCCI regularly monitors and calculates its carbon footprint and follows a gate-to-gate approach. The direct emissions (scope-1) include emissions from the overall fleet machines, and the indirect emissions (scope-2) include emission from the use of electricity from the grid.

Table: GHG footprint ($MTCO_2$ Equivalent)

Emissions	2016-17	2017-18	2018-19
Scope-1 Emissions (Diesel)/year	99.6	303.9	521.8
Scope-1 Emissions (Petrol)/year	7.8	12.4	12.0
Scope-2 Emissions (Electricity)/year	19.4	49.9	57.4
TOTAL Emissions/year	126.7	366.2	591.2

Note: (scope-3) Business travel not considered

Use of low-carbon fleet technology has helped in streamlining fleet travel and reducing fuel usage.

APCCI's carbon mission's sustainability goals are integrated into the operation strategy with a focus on planning, life-cycle approach and evaluating GHG emissions works to reduce the impact on climate change.

The emission reduction options adopted include:

- Investment in low-carbon fleet machines
- Improving operating efficiency by optimising routes and timely waste collection
- Improving operating efficiency by tracking all fleets, and sharing tracking information with drivers and supervisors to facilitate distributed decision-making.

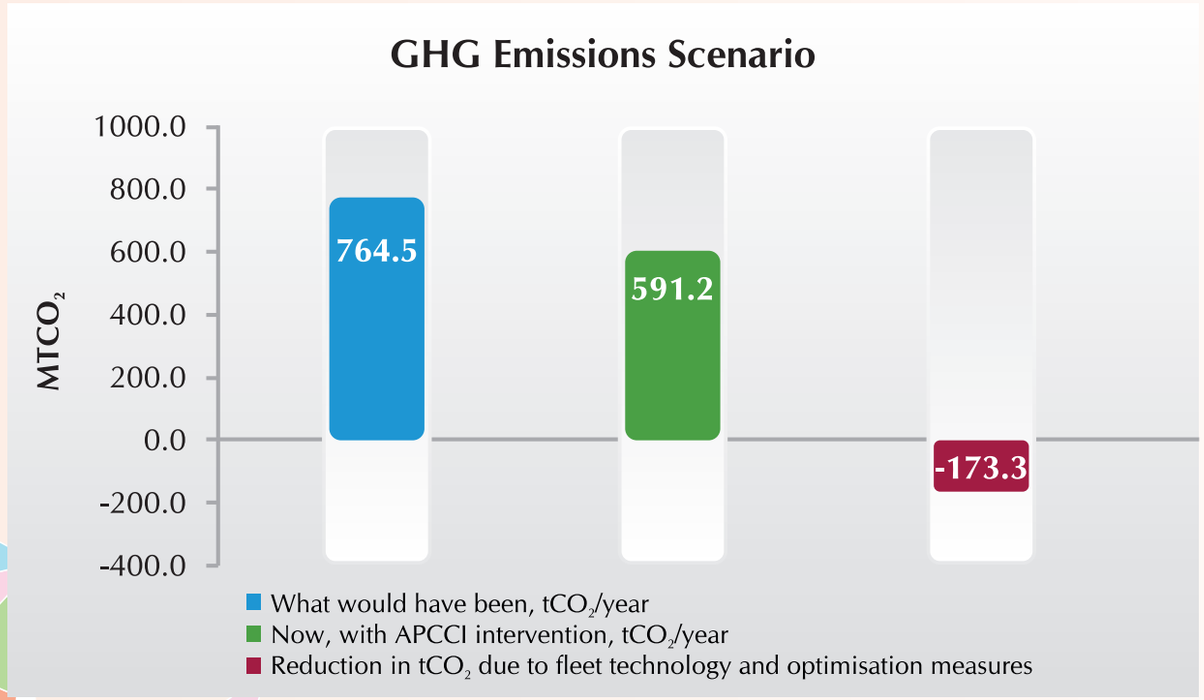


Figure 14 GHG emissions scenario

APCCI has also focused on training fleet machine drivers to cover routes more efficiently. This training includes imparting knowledge on regulating speed limit, avoiding sudden brakes and acceleration.

In the reporting year, the carbon footprint illustrates two scenarios *"What would have been"* if low carbon fleet machines, planning and optimization options were not adopted and *"Now"* with these options adopted.

As compared to 764 $MtCO_2$ in business as usual scenario in the reporting period, all these efforts have led to an almost 23% reduction in APCCI's carbon footprint emissions.

6.People

Citizens Outreach

The importance of public engagement cannot be emphasised enough in APCCI's achievements. Public work done by a private entity requires acceptance from all stakeholders. Citizens of the city are key stakeholders. APCCI takes special efforts to reach out and educate citizens.

Citizens outreach activities follow monthly plans. Janwani takes the lead in organising such events. Feedback from citizens and comments of appreciation are indicators of the success of these programs.

The table below shows the yearly data on the events held by APCCI

Sr.No	Event Name and Activity	Location	Date	Outreach
1	Awareness Campaign - House to House Campaign	PCB	10/10/2017	2,000
2	Volunteers Workshop - Awareness Campaign	Janwani Office	11/12/2017	10
3	ATP Tennis Tournament - Awareness Campaign	Balewadi Stadium	12/29/2017	5,000
4	Awareness Rally and Cleaning Drive	Kharadi	1/26/2018	200
5	Awareness Drive - House to House Awareness Campaign	Sadesatranali	1/2/2018	4,500
6	Volunteers Workshop - Awareness Campaign	Janwani Office	2/3/2018	20
7	FICCIO Flo 2018 - Route Cleaning and Water Station Point	Magarpatta City	10/28/2018	5,000
9	Cleaning Drive - Cleaning at the Kawdi Paat Bird Sanctuary and Mula River bank	Kawdi Paat, Theur	10/28/2018	70
10	Marathon -Route Cleaning using APCCI Machines	SB Road	10/28/2018	500
11	Cleaning Drive - Mumbai HY Service Road	Pune-Mumbai HY	11/3/2018	
12	APCC Marathon - Cleaning Balewadi Ground & All Marathon Route	Balewadi Ground	11/18/2018	15,000
13	Cleaning Drive at the Kawdi Paat Bird Sanctuary and Mula River bank	Kawdi Paat, Theur	11/25/2018	100
14	Kids Mararhon - Cleaning Balewadi Ground & All Marathon Route	Balewadi Ground	11/25/2018	5,000
15	Cleaning Drive at the Kawdi Paat Bird Sanctuary and Mula River bank	Kawdi Paat, Theur	12/2/2018	60
16	Cleaning Drive - Waste chronic spots	Tarapur Road PCB	12/4/2018	
17	Cleaning Drive at the Kawdi Paat Bird Sanctuary and Mula River bank	Kawdi Paat, Theur	12/9/2018	80
18	Cleaning Drive at the Kawdi Paat Bird Sanctuary and Mula River bank	Kawdi Paat, Theur	12/16/2018	50
19	Marathon - Route & Water Station Point Cleaning	Baner-Pashan	12/16/2018	6,000
20	Cleaning Drive at the Salim Ali Bird Sanctuary Park	Gunjan Corner	12/23/2018	70
21	Cleaning Drive - Waste chronic spots	CTC Road	12/28/2018	100

Felicitation of Waste warrior

Cleanliness awareness programme in school

Waste segregation display material distribution

Cleanliness drive by APCCI volunteers

Citizens Connect Through MyAPCC Mobile App

Citizens can raise concerns, request for collection of street waste, and request for cleaning of garbage spots through a mobile app called "MyAPCC".

Year	App Downloads	Waste pickup Concerns Reported and Responded
FY 2016-17	619	4,664
FY 2017-18	3,406	9,514
FY 2018-19	6,296	4,664
Total	**10,322**	**18,841**

App ratings and percentage of users	
Google Play and Play Store Average Rating	4.6/5
Total Number of Reviewers	138
Percentage of Android Users	80.79%
Percentage of iOS Users	19.21%

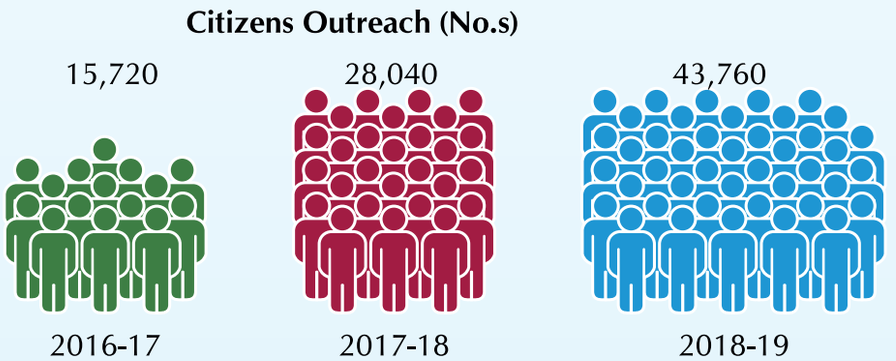


Figure 15 Citizens outreach

Citizen's Feedback

Ms. Shankha Chaudhuri, Working at Indecomm Global Services

"Every day your vacuum cleaners are working on the roads and waste collectors humbly responded after interacting with them".

Ms. Rashmi Narayan, Vimannagar Resident

"Your efforts and generosity are highly acknowledged and also appreciate the work your employees are doing in Pune".

Mr. Vijay Jangam, Resident

"Your work is outstanding and you have set new benchmarks for civic waste cleaning services. The professionalism and commitment towards waste pickup concerns and cleaning are great".

Mr. Sahil Ballani, Salisbury Park Resident

"APCCIs team doing their job with full dedication and thank you for keeping area livable and cleaner."

Mrs. Babli Singh, Salisbury Park Resident

"Your supervisors and waste workers are so humble and are open to suggestions which make a big difference".

Mr. Chandrakant Shetty, Fatima Nagar Resident,

"APCCI team maintaining the clean environment in our area is highly appreciated."

Case Study: Zero-Garbage Drive

The amount of waste generated needs to be reduced, and the reduced waste needs to be recycled instead of creating more landfills in and around the city.

Segregation of waste was as much a challenge as it was necessary. It was extremely difficult to segregate waste at the chronic waste spots, and also at the garbage bins. The first step to overcome this challenge was to sensitize citizens from the very beginning. Chronic waste spots primarily consisted of household waste. APCCI started the zero-garbage drive from 2017 to initiate 'waste segregation' at the source. This zero-garbage activity started with Pune Cantonment Board from April 2017, from Yerwada area in December 2017, and from Tadiwala Road in December 2018.

The following two graphs depict the increase in the coverage of zero-garbage activity and an increase in waste segregation at the source.

The graph below depicts the increase in waste collection in number of properties in the respective area covered under this drive, hence making the area cleaner.

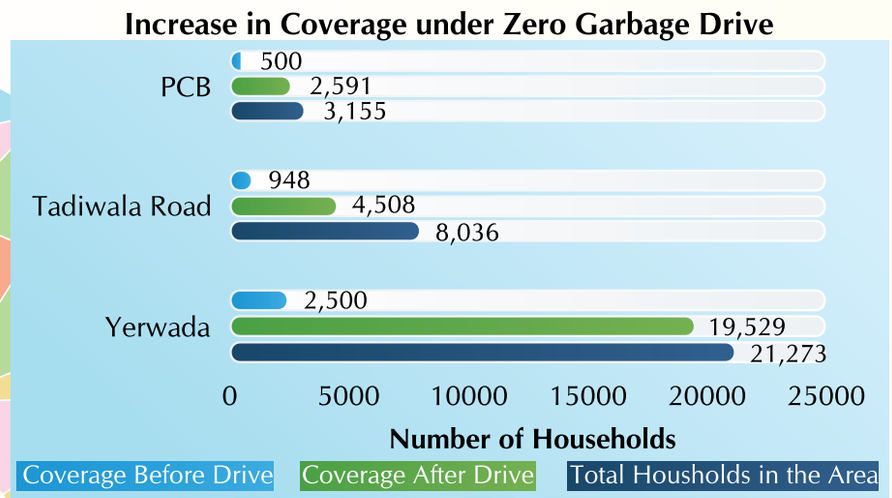


Figure 16 Increase in coverage under zero garbage drive

Despite a waste collection mechanism in place by the ULBs, citizens were not aware of the door-to-door waste collection efforts. This led to an increase in chronic waste spots. As seen from the graph above, initially few households took part in door-to-door waste collection. APCCI urged citizens to understand the need and value of the door-to-door waste collection and helped them to participate in the collection drive actively. The citizens' involvement in the cleaning of their neighbourhood has resulted in a successful zero-garbage drive. The graph below illustrates an increase in the number of properties and the behavioural change in citizens towards waste management through segregating waste at source.

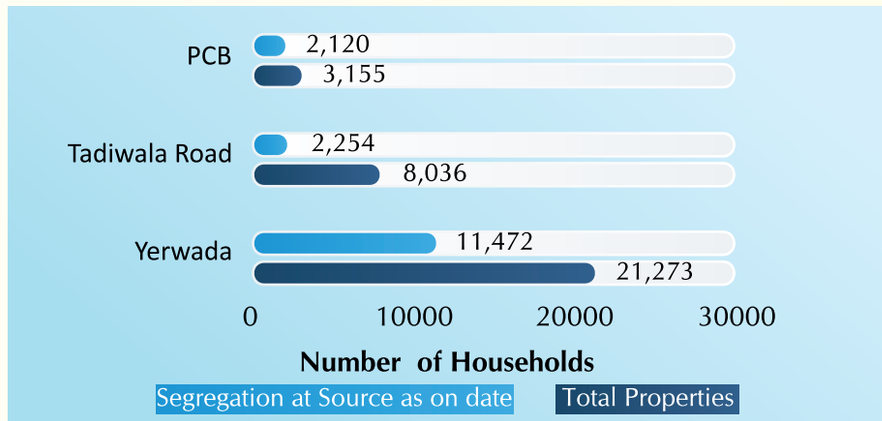


Figure 17 Success in waste segregation

The graph above shows that the zero-garbage drive resulted in the segregation of waste at the source. Educating citizens about waste segregation is a crucial element of the drive. Approach to waste management can be changed through positive reinforcement. APCCI has successfully brought a change in perspective.

Educating Future Generations

APCCI believes that the future citizens, the younger generation, need to handle waste more responsibly. APCCI conducts sessions on waste generation, its impact and management for a better planet in schools, colleges and communities. The awareness sessions include an overview on is the definition of waste, types of waste, the impact of waste, what is happening in the citizens' area, the transformation from linear to a circular economy, the challenges faced in getting waste segregated, alternatives to plastics, recycling methods and laws, waste management and APCCI activities.

Actual samples of waste are shown to students during the session to enable the identification of the type of waste like banana peels, food packets, milk pouches, battery cells and so on.

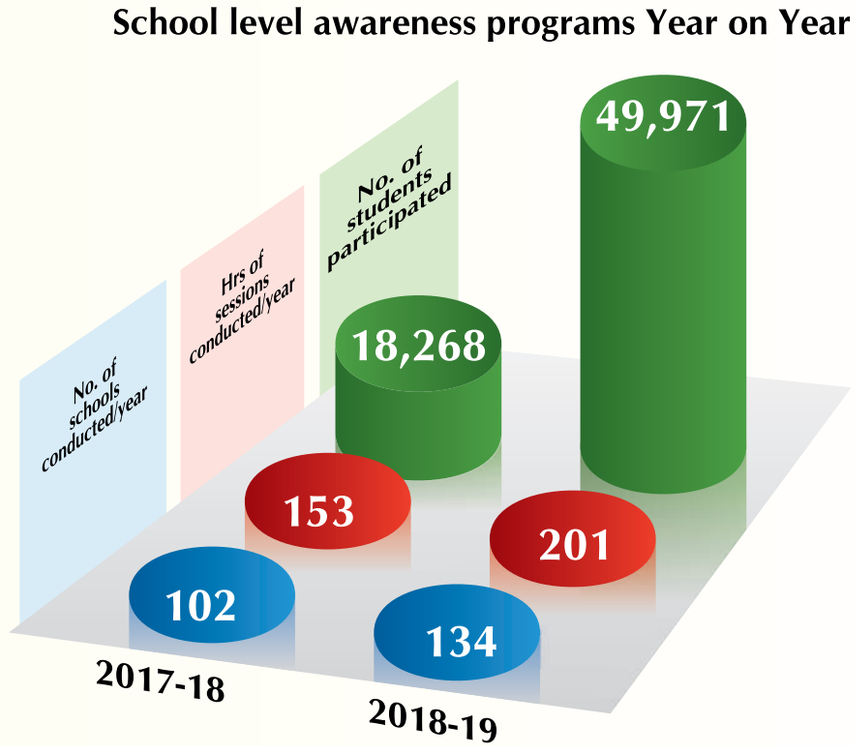


Figure 18 School level awareness programs

Waste Warriors – Change Makers

APCCI believes that its people are the ambassadors in keeping the city clean with the help of urban local body and their various partners in its endeavour. One of the main partners, Janwani was associated since the beginning and has helped to streamline the process of mapping the roads, route planning and coordination with ULBs for all support services. They also conduct regular work performance audits. This year *Janwani* has dedicated resources for volunteer engagement and mobilisation. A small support team of MIS and documentation staff keeps a record of activities and provides information for decision making.

Janwani deployed 49 staff members for APCCI activities during the reporting period. It is worthwhile to note that the same team has covered more area, as the productivity of the team has increased.

APCCI has used technology while connecting with citizens. The APCCI app has more than 10,000 registered users.

APCCI has strategically involved third party manpower. Outsourcing allows APCCI to remain lean and take quick decisions. Also, APCCI can focus more on technology and waste collection.

The third-party manpower service providers are selected based on formulated guidelines.

Supervisors	Fleet Drivers	Helpers	Glutton Operators
38	161	172	110

Contractual manpower receives on-the-job training at the time of joining. Periodic training is also provided to ensure the safety and hygiene of the employees.

Operational Training hours invested for each category 2018-19

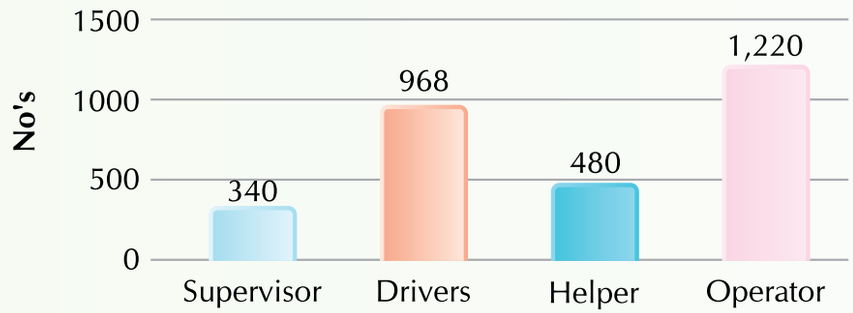


Figure 19 Operational training to employees

On-the-job training is being provided at regular intervals to operators, drivers, technicians and supervisors.

Table: Operational training to waste warriors

Training Number	Title and Content of Training to Waste Warriors	Outcome
Module-1	**Ethics and Best Operating Procedures:** The first training module covers - ethics, values, daily operating procedure, routine checks, technical aspects of APP technology, fleet machine technology, symptoms, protective and preventive maintenance, anti-corruption.	■ Deeper awareness and knowledge ■ Improved moral responsibility, pride and happiness at the workplace ■ A complete and better understanding of on-job activities and practices
Module-2	**Safety–Importance and Personal Protection Equipment:** The second training module covers–why human safety and health is important, know your safety gears, use of safety gears, hazards identification and risk assessment (HIRA).	■ Increase in safety and ease of doing activities ■ Good health and rare sick leaves ■ Higher retention and courage at work
Module-3	**Awareness of Behavioural Change Communication for further development:** The third training module covers–why change is desirable, manner and appearance at the workplace, ways of communication, reporting, and use of technology for change and better judgment, feedback and performance reviews.	■ Higher awareness and knowledge ■ Innovative, polite, patience in approaching and judgement ■ Better and patient cooperation with citizens ■ Motivated and sustained behaviours

Dignity through Technology

Typical street cleaning activity involved street cleaners using a long, stick broom and with no protective gear. The street cleaning was tedious and yet marginally effective. Even worse, it created several health issues for waste warriors.

APCCI changed that by introducing state-of-the-art machinery. Street cleaning became an activity which brought in ease and dignity to the operators. Longer stretches of streets now could be cleaned in less time due to the machines.

The Electric Glutton needs just one operator to clean 8 kilometres, where as four personnel were required to clean the same stretch manually.

Pavements cleaning with the help of Electric Glutton

Mobile App Technology

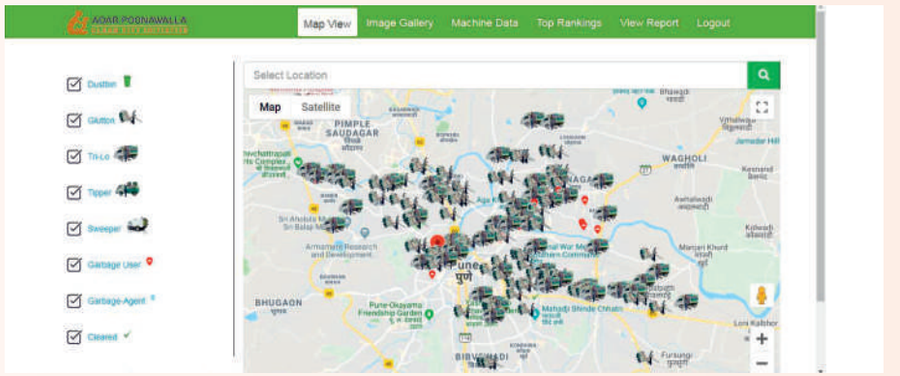
The second mobile app “MyAPCC Operator" is used by the waste warriors like supervisors, operators, drivers and helpers.
The functioning of the app is as seen below:

Figure 20 App function process flow

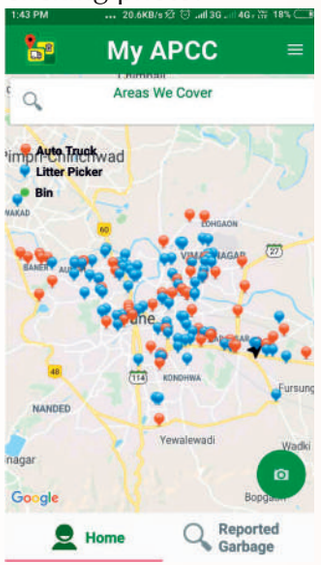
This mobile app helps to clear the garbage spot. A citizen can raise a waste pickup concern by clicking a photograph of the garbage spot. The GPS-enabled app locates and routes the nearest vehicle to clean the spot. After the spot is cleaned, the operator sends a photograph of the cleaned spot to the citizen who raised the concern.

Log in page for user

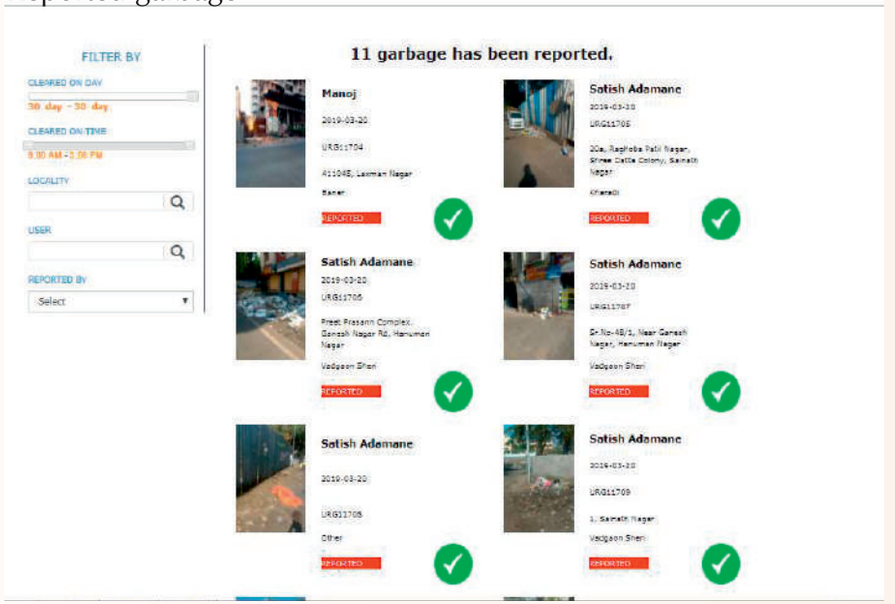
Vehicle location



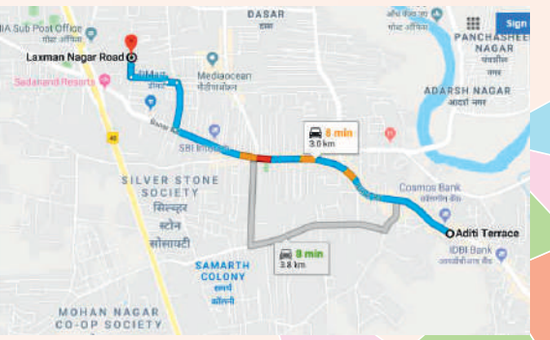
Reporting of garbage by clicking photo.



Reported garbage



Garbage reports are allocated to nearby machines. The app shows the direction of the garbage spots. The spot is cleaned and the photograph is uploaded using MyAPCCI operator app, after which the citizen receives the photograph of the cleaned spot.



Economic Welfare

Other than tangible results like clean streets, APCCI has had an economic impact in the livelihood of over 450 employees, NGO partners along with other indirect employment opportunities.

Waste Warriors

APCCI provides all statutory benefits and meets all statutory compliance requirements. APCCI provides other benefits over and above those prescribed by the government.

ULBs

ULBs have gained good will due to the support of APCCI in keeping the city clean. This result in healthy surroundings and the citizens feel a sense of pride.

Society Contribution - Volunteers

APCCI is also a citizen driven activity and has attracted numerous volunteers across cross-sections of the society. Interested citizens go through a process of screening and then become volunteers as groups or as individuals. Regular meetings are held for various activities. Some of the volunteering activities include: Clean-up drive

1. Awareness campaign
2. Programs in schools
3. Coordination of events like marathon or cycle rally

The following photo depicts the volunteers activities. APCCI has been most successful in gaining volunteers and is working on volunteer data.

Cleanliness drive by APCCI volunteers

Testimonials from Volunteers

Shreya Mathur, resident of Kalyaninagar

"I saw the machines of Adar Poonawalla Clean City (APCC) roaming around in the city and I was curious which led me to the website of APCC. There I read about the noble initiative and the 100 crore wealth that was invested in this initiative. I was awestruck by this whole thing and immediately applied on the website for Volunteering, it seemed like a golden opportunity to make that beautiful difference to our society……. It feels really proud to be part of an organisation that is so advanced, innovative and working for the betterment of society."

Wg. Cdr. Puneet Sharma, resident of Sopan Baug

"I belong to team Swachha Pune Swachha Bharat. We have been active in city space for last about 5 years chasing the Swachha wave. One of the main collaborator has been Adar Poonawalla Clean City Initiative. Due to APCCI landscape has seen a see change. Number of places we have worked together. Mr. Adar Poonawalla is putting such a excellent team which is working day and night to help Swachha cause."

Mrs. Anu Dubey, resident of Kharadi

"Two years back, there was garbage everywhere in Kharadi. In order to stop open garbage dumping, we local residents got together and contacted local PMC sanitary inspector and APCCI to organise cleaning drives. Educated local residents and conducted awareness sessions in the societies. APCCI helped a lot in this and also brought in 6 Glutton (automatic road cleaning machines) for Kharadi. Now situation is much better. Similar initiatives can be replicated in other parts of the city. Thanks you Mr Adar Poonawalla for this wonderful initiative."

Sudhir Mulay, resident of Sinhagad road

"I take the opportunity to complement you and your organisation APCCI for the outstanding efforts being imparted to the Indian Community, specially your approach, attitude and commitment towards the Swaccha Bharat Abhiyan lead by the Prime Minister of India, we also appreciate your eagerness in inception of new technologies during your process."

7.Prospects

The Way Forward and Sustainability Targets

Pune is the first city to adopt the APCC initiative. While the APCCI is a first step towards achieving the vision of making cities livable, the initiative's long term goal is to ensure that more and more cities adopt this initiative and urban India becomes cleaner, greener, healthier and happier.

Environment-friendly fleet operations, reducing carbon footprint, involving citizens, resident welfare associations, NGOs, civic officials have been hallmarks of this initiative.

1) **Promote the private-public partnership model in other cities by 2023**

   APCCI has engaged with the local communities using digital technology platforms like apps, blogs, emails, feedback and through various campaigns organised in collaboration with ULBs and NGOs

2) **Revamp the existing mobile app by 2020**

   The new app will not only educate, inform and engage with citizens, it will also include a circular economy framework (Details in a subsequent section.)

   The waste management practices of APCCI are one of the best in Pune. These methods will enhance the Swachha Bharat Mission and Climate Action Goals.

3) **Invest and operate waste-to-energy (electricity) plant of 600 TPD for 8 MW by 2022-23**

   As an extension of the waste collection initiative, the APCCI is taking a plunge into waste processing to generate electricity and proposing to set up a WtE facility in Pune with installed capacity of 600 TPD. APCCI has jointly worked with M/s. IVL Swedish Environment Research Institute, Stockholm and conducted a pre-feasibility study for a waste-to-energy plant in Pune. IVL's team and their local partner carried out an extensive study of waste generation in Pune. The plant shall be operational from 2022-2023.

8.Circular Economy in the Waste Sector will Reduce the Need for Landfills

Large amounts of trash that we generate go into landfills. Not all of it needs to. A lot of the waste we create can be reused and recycled.

Currently, the trash that ends up in landfills consists of used and unused everyday items, product packaging, food scraps, etc. Decomposition of some of this material takes very long in some cases, several thousand years. The land used as landfills is therefore made useless. And of course, a landfill site tarnishes the city's beauty, pollutes air and groundwater and affects the health of humans, animals and marine life. The idea is to reduce waste generated and reuse or recycle the waste created. This will reduce the need for landfills.

Reduce, reuse, repair, retain and recycle are the most common methods in a circular economy to reduce landfills.

Citizens are adept at conserving and recycling. Through the mobile app technology, APCCI is planning to develop "a circular economy framework for citizens". Citizens can actively contribute to the circularity. APCCI's mobile app will educate citizens. The app will also help them to locate the needy and donate items, eventually creating a positive impact in waste management. Here are some examples of how this would work.

1. Reduce:

a. Use cloth bags to reduce the usage of plastic bags

b. Rethink and rework requirements which have a shorter life cycle impact. For example

   i. use and throw items used for food, packaging, toys and clothes

   ii. reduce food waste

c. Eat healthy food, pick up food items that use recyclable packaging material.

2. Retain:

a. Increase the product life cycle of items

   i. using shoe polish for shoes

   ii. using protective coating for furniture

   iii. cleaning clothes smartly

b. Use clothes that last longer

c. Use rechargeable batteries

3. Repair:

a. Repair electronic equipments, shoes, kitchen appliances and furniture

b. Repair old items and donate it to the needy

4. Reuse:

a. Donate old clothes and items in good condition such as sweaters, toys, bicycle, kitchen items and appliances

b. Use reusable containers for food

5. Recycle:

a. Glass bottles, plastic bottles, papers, damaged toys, metal items, aluminum bottles, electronic items, batteries, rubber items can be segregated for recycling at the time of disposal

b. In-house composting of food waste

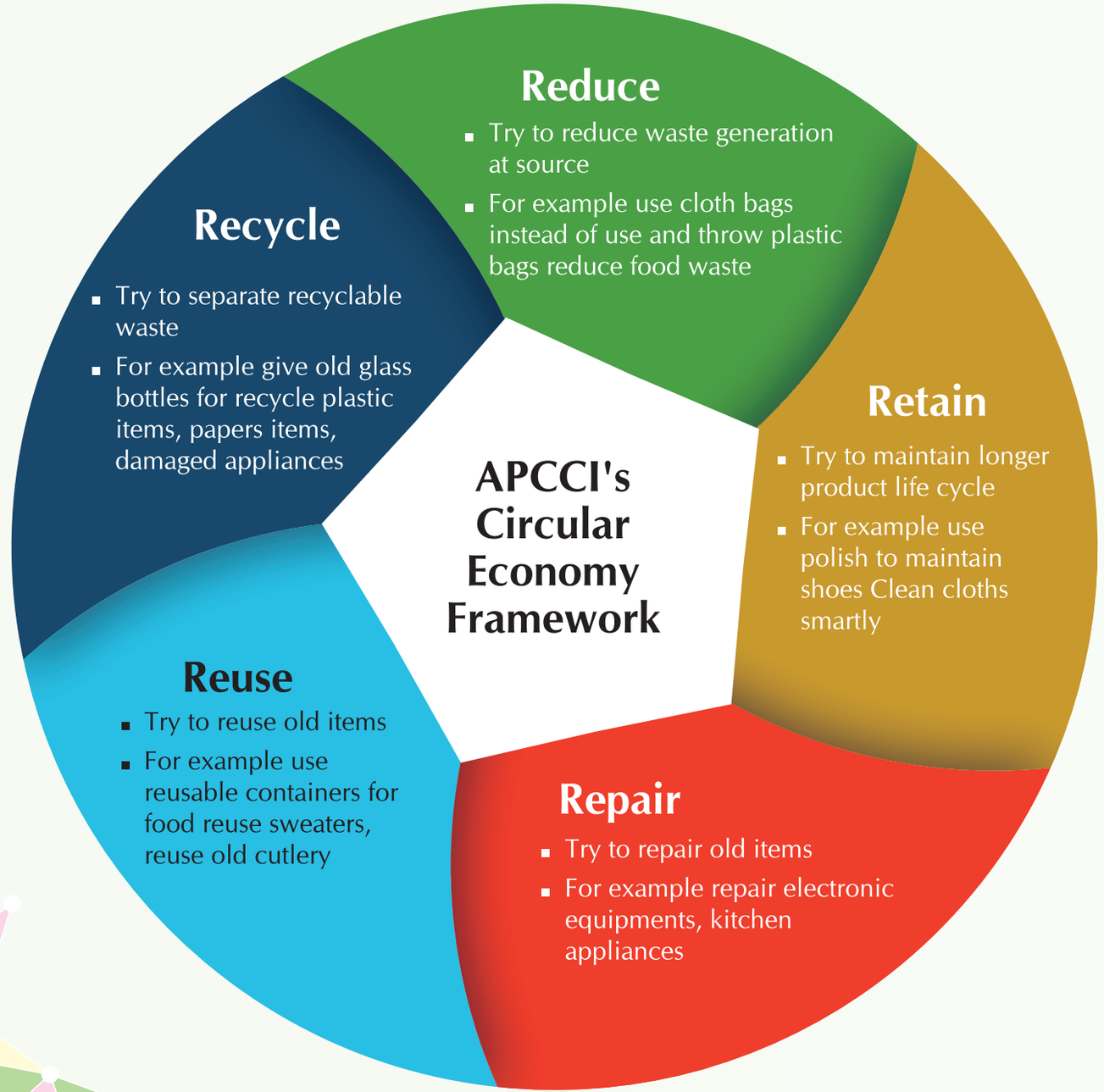


Figure 21 Circular economy framework by APCCI

App - Features and Steps for Users

Donate old items to needy

Step1: Download APCCI app and register with your e-mail ID and mobile number.

Step2: Open by clicking on the donate button

Step3: Click on the "Take a photograph of the old item in good condition" link

Step4: Click on upload

Step5: Select convenient time window to pick up items

Step6: Waste warrior collects the item

Step7: Feedback to the old-item donor by the recipient

Step8: Thank you email from APCCI

Donate waste for recycling

Step-1: Download APCCI app and register with your email id and mobile no.

Step-2: Open by clicking on donate mark

Step-3: Click on take a photograph of the waste to be recycled

Step-4: Click on upload

Step-5: Select convenient time window to pick up the waste that is recycled

Step-6: The waste warrior will collect the recyclable item

Step-7: Feedback to the recyclable-waste donor by the needy recipient.

Step-8: Thank you email from APCCI

Donate money

Step-1: Download APCCI app and register with your email id and mobile no.

Step-2: Open by clicking on donate mark

Step-3: Click on donate funds or CSR money

Step-4: Fill information in three boxes

Step-5: Select convenient mode of donation transfer

Step-6: Receive confirmation of transfer

Step-7: Receipt of donation made along with thank you email from APCCI

Appendix

Mapping UN's Sustainable Development Goals (UN's SDG)

Sustainable development goals (SDGs) mapping of how the initiative is adding value to

Sustainable Development Goals (SDGs)	Significant Sustainability actions by APCCI
1 NO POVERTY	**Contributing to target 1.b** ■ APCCI provided employment to 450+members of low-income families ■ APCCI pays more than minimum wages
3 GOOD HEALTH AND WELL-BEING	**Contributing to target 3.c** ■ Cleaning streets directly impacts health ■ 8 types of personal protective equipment to waste warriors ■ Strategic activities to change citizen behaviour ■ Skill development training to fleet drivers, helpers, Glutton operators and supervisors
4 QUALITY EDUCATION	**Contributing to targets 4.4, 4.7** ■ 450 skilled jobs made available to youths ■ Skill development training including technical and vocational skills for creating decent working conditions and experience ■ Various procedures and innovative approach adopted for citizens engagement, volunteers, coming generation for providing deeper knowledge and skills required to promote sustainable development

Sustainable Development Goals (SDGs)	Significant Sustainability actions by APCCI
6 CLEAN WATER AND SANITATION	**Contributing to targets 6.2, 6.3, 6.b** ■ Waste segregation processes for better sanitation ■ Conserving water for cleaning of fleet machines by use of wet cleaning cloths
7 AFFORDABLE AND CLEAN ENERGY	**Contributing to target 7.a** ■ Invested in clean and fossil-fuel friendly fleet machines like Glutton and others which are advanced, efficient and has low carbon technology base
8 DECENT WORK AND ECONOMIC GROWTH	**Contributing to targets 8.6, 8.8, 8.b** ■ Provided state-of-the-art technology-based fleet machines for ease of work ■ No physical contact with waste while collection, cleaning and transport ■ Faster feedback system to enhance productivity ■ Direct employment for more than 450+ persons
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	**Contributing to targets 9.1, 9.2, 9.4, 9.5** ■ Public-private partnership ■ Use of innovative approach and advanced fleet machines ■ Optimum coverage due to innovative operating procedures

Sustainable Development Goals (SDGs)	Significant Sustainability actions by APCCI
	**Contributing to targets 10.2, 10.3** ■ Promoting socio-economic growth ■ Empowering all people who are connected and are benefiting due to services ■ Provided outcome driven opportunities for stakeholders involved
	**Contributing to targets 11.1, 11.6, 11.7, 11.a** ■ Directly impacts the city's health and hence that of its citizens ■ Cleaning activity ensures waste management
	**Contributing to targets 12.2, 12.4, 12.5, 12.6, 12.8, 12.a** ■ Low carbon fleet machines and optimisation of fleet route ■ Use of IT interventions for operations efficiency ■ Environmentally sound waste management procedures (SOPs) ■ Awareness campaigns on waste reduction and management kills required to promote sustainable development

Sustainable Development Goals (SDGs)	Significant Sustainability actions by APCCI
	**Contributing to target 13.3** ■ Climate action by investing in low-carbon electric fleet machines and BS-IV diesel fleet machines ■ Optimum fleet travel lowers emissions
	**Contributing to targets 16.5, 16.6, 16.7** ■ Training on various topics including anti-corruption and transparency at work ■ Inclusive development and decisions by participatory way
	**Contributing to targets 17.6, 17.7, 17.8, 17.9, 17.15, 17.16, 17.17, 17.18** ■ Collaboration with stakeholders like ULBs, Gram panchayats ■ Partnership with NGOs like Janwani, Swachh, Poornam ■ Partnership with service providers like BP, Mtech (TATA)

GRI Standards Content Index

GRI Standards Content Index

For the GRI Content Index Service, GRI Services reviewed that the GRI content index is clearly presented and the references for all disclosures included align with the appropriate sections in the body of the report.

GRI 101: Foundation 2016

GRI 102: General Disclosures 2016

Disclosure		Page Number(s) and/or Direct Answers	Omissions – Reasons and Explanations
Organizational profile			
102-1	Name of the organization	15	
102-2	Activities, brands, products, and services	03-04, 06	
102-3	Location of headquarters	15	
102-4	Location of operations	15, 17	
102-5	Ownership and legal form	15, 17, 18	
102-6	Markets served	15, 43-44	
102-7	Scale of the organization	03-04, 06	
102-8	Information on employees and other workers	37, 61	
102-9	Supply chain	17-19	
102-10	Significant changes to the organization and its supply chain	No Changes since this is a first sustainability report of APCCI	
102-11	Precautionary Principle or approach	23, 26-30, 35-39, 42	
102-12	External initiatives	27-28, 56, 58	
102-13	Membership of associations	15	
Strategy			
102-14	Statement from senior decision-maker	03-04, 06	

Disclosure		Page Number(s) and/or Direct Answers	Omissions – Reasons and Explanations
Ethics and integrity			
102-16	Values, principles, standards, and norms of behavior	17-19	
Governance			
102-18	Governance structure	17-18	
Stakeholder engagement			
102-40	List of stakeholder groups	20-21	
102-41	Collective bargaining agreements	09-10, 12, 17, 38, 58	
102-42	Identifying and selecting stakeholders	20-21	
102-43	Approach to stakeholder engagement	21	
102-44	Key topics and concerns raised	22-24	
Reporting practice			
102-45	Entities included in the consolidated financial statements	15	
102-46	Defining report content and topic Boundaries	15, 22-24	
102-47	List of material topics	22	
102-48	Restatements of information	No Changes. Since this is a first sustainability report of APCCI	
102-49	Changes in reporting	No Changes. Since this is a first sustainability report of APCCI	
102-50	Reporting period	15	
102-51	Date of most recent report	15	
102-52	Reporting cycle	15	
102-53	Contact point for questions regarding the report	15	
102-54	Claims of reporting in accordance with the GRI Standards	15	
102-55	GRI context index	73-78	
102-56	External assurance	Not Taken. Report is not externally assured	

Topic Specific Standards

GRI 200: Economic Topics

Disclosure		Page Number(s) and/or Direct Answers	Omissions – Reasons and Explanations
GRI 103: Management Approach 2016			
103-1	Explanation of the material topic and its Boundary	22-24	
103-2	The management approach and its components	03-04, 09-12	
103-3	Evaluation of the management approach	17, 23-24, 67-70	
GRI 201: Economic Performance 2016			
201-1	Direct economic value generated and distributed	03, 34	
201-2	Financial implications and other risks and opportunities due to climate change	29, 53-55	
201-3	Defined benefit plan obligations and other retirement plans	37, 40, 49	
201-4	Financial assistance received from government	Financially supported by Mr. Adar Poonawalla	
GRI 202: Market Presence 2016			
202-2	Proportion of senior management hired from the local community	17-18	
GRI 203: Indirect Economic Impacts 2016			
203-1	Infrastructure investments and services supported	34	
203-2	Significant indirect economic impacts	34, 37, 46-47, 65	
GRI 204: Procurement Practices 2016			
204-1	Proportion of spending on local suppliers	34, 37, 46-47, 59-60	
GRI 205: Anti-corruption 2016			
205-1	Operations assessed for risks related to corruption	61-62	
205-2	Communication and training about anti-corruption policies and procedures	62	
GRI 206: Anti-competitive Behavior 2016			
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	APCCI is an example of public-private collaboration	

GRI 300: Environmental Topics

Disclosure		Page Number(s) and/or Direct Answers	Omissions – Reasons and Explanations
GRI 103: Management Approach 2016			
103-1	Explanation of the material topic and its Boundary	22-24	
103-2	The management approach and its components	03-04, 09-12	
103-3	Evaluation of the management approach	17, 23-24, 67-70	
GRI 301: Materials 2016			
301-1	Materials used by weight or volume	No materials are used and APCCI is providing waste management services	
301-2	Recycled input materials used	No materials are used and APCCI is providing waste management services	
GRI 302: Energy 2016			
302-1	Energy consumption within the organization	53	
302-4	Reduction of energy consumption	54-55	
302-5	Reductions in energy requirements of products and services	54-55	
GRI 303: Water 2016			
303-1	Water withdrawal by source	23	
303-3	Water recycled and reused	23	
GRI 304: Biodiversity 2016			
304-3	Habitats protected or restored	APCCI providing services to keep city clean	
GRI 305: Emissions 2016			
305-1	Direct (Scope 1) GHG emissions	54	
305-2	Energy indirect (Scope 2) GHG emissions	54	
305-3	Other indirect (Scope 3) GHG emissions	54	
305-4	GHG emissions intensity	55	
305-5	Reduction of GHG emissions	55	
305-6	Emissions of ozone-depleting substances (ODS)	APCCI is providing waste management services	
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	29	
GRI 306: Effluents and Waste 2016			
306-1	Water discharge by quality and destination	Marginal use of water, just for cleaning of vehicles by wet cleaning cloth	
306-2	Waste by type and disposal method	16-17, 33, 41, 43, 69-70	
GRI 307: Environmental Compliance 2016			
307-1	Non-compliance with environmental laws and regulations	11, 29	

Disclosure		Page Number(s) and/or Direct Answers	Omissions – Reasons and Explanations
GRI 308: Supplier Environmental Assessment 2016			
308-1	New suppliers that were screened using environmental criteria	37, 38	
308-2	Negative environmental impacts in the supply chain and actions taken	27-28, 35-36, 39, 41-42, 46-47, 56, 58-60	

GRI 400: Social Topics

Disclosure		Reference Page Number	Omissions – Reasons and Explanations
GRI 103: Management Approach 2016			
103-1	Explanation of the material topic and its Boundary	22-24	
103-2	The management approach and its components	03-04, 09-12	
103-3	Evaluation of the management approach	17, 23-24, 67-70	
GRI 401: Employment 2016			
401-1	New employee hires and employee turnover	61	
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	49	
GRI 403: Occupational Health and Safety 2018			
403-1	Occupational health and safety management system	19, 22, 35, 37, 39	
403-2	Hazard identification, risk assessment, and incident investigation	19, 22, 35, 37, 39	
403-3	Occupational health services	19, 22, 35, 37, 39	
403-4	Worker participation, consultation, and communication on occupational health and safety	24, 62	
403-5	Worker training on occupational health and safety	24, 62	
403-6	Promotion of worker health	37, 61	
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	19	
403-8	Workers covered by an occupational health and safety management system	37	
403-9	Work-related injuries	02	
403-10	Work-related ill health	62	
GRI 404: Training and Education 2016			
404-1	Average hours of training per year per employee	61-62	
404-2	Programs for upgrading employee skills and transition assistance programs	42, 62	
404-3	Percentage of employees receiving regular performance and career development reviews	40, 62	

Disclosure		Page Number(s) and/or Direct Answers	Omissions – Reasons and Explanations
GRI 405: Diversity and Equal Opportunity 2016			
405-1	Diversity of governance bodies and employees	17, 37-38	
GRI 408: Child Labor 2016			
408-1	Operations and suppliers at significant risk for incidents of child labor	65	
GRI 409: Forced or Compulsory Labor 2016			
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	65	
GRI 410: Security Practices 2016			
410-1	Security personnel trained in human rights policies or procedures	62, 65	
GRI 411: Rights of Indigenous Peoples 2016			
411-1	Incidents of violations involving rights of indigenous peoples	03-04, 06	
GRI 412: Human Rights Assessment 2016			
412-1	Operations that have been subject to human rights reviews or impact assessments	17, 19	
GRI 413: Local Communities 2016			
413-1	Operations with local community engagement, impact assessments, and development programs	27, 46-47, 50-52, 56, 58, 60	
413-2	Operations with significant actual and potential negative impacts on local communities	46-47, 59, 66	
GRI 414: Supplier Social Assessment 2016			
414-1	New suppliers that were screened using social criteria	65	
GRI 416: Customer Health and Safety 2016			
416-1	Assessment of the health and safety impacts of product and service categories	24, 64-65	
GRI 419: Socioeconomic Compliance 2016			
419-1	Non-compliance with laws and regulations in the social and economic area	19, 43, 65	

List of Figures

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