

RESPONSE OF INDIAN CITIES TO COVID-19

A SANITATION PERSPECTIVE

NATIONAL INSTITUTE OF URBAN AFFAIRS, DELHI

In collaboration with

ALL INDIA INSTITUTE OF LOCAL SELF GOVERNMENT, MUMBAI

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दुर्गा शंकर मिश्र

सचिव

Durga Shanker Mishra

Secretary



सत्यमेव जयते



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FOREWORD

The impact of Covid 19 has been very harsh on our cities. I am proud that over the last five months, our cities have been able to stand up and push back the pandemic successfully, to a great extent.

Our sanitation workforce, including women staff, have been our frontline warriors in this pandemic, who have ensured that our cities remained clean and our septic tanks and sewers were well maintained during the pandemic. Many cities undertook special measures to train sanitation workers on their own personal hygiene awareness, before deploying them for work.

I am pleased to release this Report : **“Response of Indian Cities towards Tackling Covid 19 – A Sanitation Perspective”**, a collaborative effort of RCUES of AILSG, Mumbai and National Institute of Urban Affairs(NIUA).

The Report documents a range of actions and initiatives taken by 24 Indian cities during the first four months of lockdown period of Covid 19. This documentation forms a rich repository of the timeline of actions undertaken that will serve as a valuable record. It also documents the initiative and collaboration displayed by Urban Local Bodies, the District City and State Administrations, NGOs, SHGs, PSUs, Corporate sector and Citizens and RWAs in fighting Covid 19 pandemic on several fronts.

We witnessed the Independent Command and Control Centres of our Smart Cities, deploying their digital monitoring and planning skills to map out a coordinated response. Digital technology was applied in a creative way in many other cities to map out plan and monitor and contain the virus spread. In addition to the Arogya Setu App, many cities developed their own Apps including GIS Dashboards, Citizens Self Registry Platforms, Quarantine Apps, etc.

Appropriate and innovative sanitation response was undertaken by many cities. This included : mass awareness campaigns through hoardings, posters, pamphlets, public address systems and digital apps to address personal hygiene and hand washing; dedicated vehicles for collecting Covid19 contaminated household and institutional waste; disinfecting and cleaning of public and community toilets more than once a day; creating hand washing facilities in wards and around community toilets; solid waste collection routes used for arranging the outreach of sellers of vegetables, grocery and medicine in a planned way, etc. Deploying of drones and mechanical cleaning of sewers was initiated in some cities.

In summarising the cities sanitation response to Covid 19, this report has used the **Resilient Urban Sanitation Response(RUSR)** Framework. The framework has been developed as an organic process of NIUA and RCUES AILSG engagement in the Covid 19 Urban Sanitation. The framework categorises the city sanitation responses in terms of : swiftness, appropriateness and effectiveness. Thereby providing a practical guidance framework for action. I hope this documentation and the RUSR framework, will be a significant contribution to the effective handling of such pandemics in future, and a learning reference for other countries as well.

(Durga Shanker Mishra)

New Delhi

07th September, 2020

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Covid 19 has impacted many countries and India has not been an exception. The disruption it has caused to livelihoods and lives of the people, specially the migrant workers and informal settlements has been immense. Cities were seen as engines of growth, often overlooking what and how this growth has happened in the last few decades. Questions about who the real drivers are, and their vulnerability to such shocks have come to the fore. Further, a large section of this workforce lives in informal settlements, and this has brought into focus their access to safe water and sanitation infrastructure.

Urbanisation in India has been a focus of attention for the past two decades since the launch of flagship programmes of JNNURM, Smart Cities Mission, AMRUT, HRIDAY and SBM. Urban sanitation has been a focus of the new urban development paradigm. Decentralised and non sewerred sanitation, with focus on Faecal Sludge Management, have also become a focus of sustainable, city wide and inclusive sanitation. Covid 19 struck suddenly and exposed the criticality of urban water, waste water, solid waste, sanitation and hygiene as life saving essential services, as human rights.

This documentation is a collaborative effort of AILSG Mumbai and NIUA. It was undertaken with the intention of document how some of the cities responded to the pandemic, with specific focus on urban challenge. This is perhaps the first large study of Indian cities' sanitation response to COVID-19, for the period between April 2020 and June 2020.

The documentation is an effort to understand the challenges that the cities faced in dealing with Covid 19, the measures taken in the immediate aftermath of the national lockdown and the spread of the pandemic.

The findings of the study of approx. 24 cities of India, is analysed from a **“Resilient Urban Sanitation Response Framework”** lens, for distilling the key response lessons from all cities. It is for use by practitioners and for different units of implementation units – Urban Local Bodies, District Administration – that can be applied to other emergencies as well. Practitioners can use this framework to assess *“How swift, how appropriate and how effective was the sanitation response”*.

The pandemic was fought by the combined efforts of several government and non government efforts, the brave sanitation and health workers, municipal staff, police and para medical staff, Self Help Groups, Community Organisations, CSRs and NGOs. We appreciate the hard work, the life saving efforts put in by everyone who was out there in the forefront of the Covid 19 resistance.

A blue ink signature of Hitesh Vaidya, written in a cursive style.

Hitesh Vaidya
Director
NIUA



FOREWORD



The COVID-19 pandemic has taken a multifaceted and unforeseen toll on cities across the world. Local Bodies are not only at the forefront of the COVID-19 pandemic, they are also likely to see lasting changes from it. Cities in India face varied challenges, often marked by drastic differences in socio-economic and infrastructural conditions, especially due to inequalities in access to core urban services. In large cities, residents of informal settlements and slums are more vulnerable due to the lack of access to safe urban services such as water, sanitation, waste management, that has exacerbated the challenge of responding effectively to COVID-19.

During such times, the Central Government and its various Ministries, including the Ministry of Housing and Urban Affairs (MoHUA) have been at the forefront, sharing guidelines for tackling the pandemic and issuing timely advisories for the State and Local Governments, amidst the coronavirus crisis. These guidelines have been suitably implemented by Local Governments in response to the pandemic. They have been addressing the immediate challenges, involved in the provision of essential services, preventing community spread and creating awareness. In the wake of the pandemic, All India Institute of Local Self Government (AILSG) has been supporting the State and Local Governments through its 30+ centres all over India.

Further, in recognition of Local Governments' efforts in responding to the pandemic efficiently, AILSG Mumbai, in collaboration with National Institute of Urban Affairs (NIUA), New Delhi have developed this document on *"Response of Indian Cities towards Tackling COVID-19- A Sanitation Perspective"* that encompasses some of the noteworthy examples of COVID-19 response systems across Indian cities, with a focus on sanitation. This shall further lead to development of a framework for emergency response system at local level.

I would like to convey our sincere gratitude to the respective State and Local Governments who shared their valuable time and information despite the challenges that they are facing on daily basis. This document would not have been possible without their contribution. We also gratefully note the support extended by organisations including UNICEF, NIUM, IIHS and CSE during the process of information sharing for respective cities.

I congratulate the team of RCUES of AILSG, Mumbai for developing this document successfully, in collaboration with NIUA, New Delhi. I am pleased to announce that this document would encourage other Local Governments to focus their efforts towards developing strategies for emergency response and resilience in the perplexing circumstances of COVID-19. This pandemic has created a major opportunity to build back better, more inclusively and with greater resilience to the future threats.


Rajiv Agarwal, IAS (Retd.)

Director General,
All India Institute of Local Self Government

Introduction

In light of the coronavirus pandemic sweeping across the planet, a severe question has been raised for urban development and planning authorities for better preparedness for such risks. The pandemic is prompting a rethink of the infrastructure priorities of urban centres, and more significantly, bringing forth the vulnerabilities of cities in a globalized and connected world. Despite manifold challenges, in a country like India, COVID-19 is acting as a catalyst in transforming the current practices of water, sanitation and hygiene (WASH) and waste management approaches in homes, communities, and other urban spheres. It is well known that the most cost-effective strategies for increasing pandemic preparedness, especially in resource-constrained settings, is investing in core public health infrastructure, including water and sanitation systems.

National Institute of Urban Affairs (NIUA) along with the National Faecal Sludge and Septage Management (NFSSM) Alliance Partners, has taken up an initiative of creating a repository of important Government advisories and practitioners' guidance material for Urban Local Bodies (ULBs), State Governments, elected representatives, and professionals from private and public bodies, to prepare for and address the urban sanitation challenges in light of COVID-19.

As a part of this initiative, All India Institute of Local Self Government (AIIILSG), Mumbai has developed a resource book on 'Response and Preparedness during COVID-19 Times on Risk Communications and Infection Prevention, Control on Environmental Sanitation and Waste Management in Cities of Maharashtra' in collaboration with Urban Development Department (UDD), Government of Maharashtra (GoM) and United Nations Children's Fund (UNICEF) and Maharashtra Pollution Control Board (MPCB). Through this document, AIIILSG, Mumbai brings forward some of the cases where the ULBs showed proactive initiatives towards tackling the pandemic of COVID-19. It also brings forth the measures that the ULBs and State authorities are undertaking to recover from the crisis in urban service delivery and frontline management, especially in the sanitation sector.

Summary



Image Source: Stock photos – Getty Images

Covid 19, a global pandemic, has wrecked the lives and livelihoods of millions of people across the world. Indian cities, the large metros, faced the first brunt of this pandemic, as it now spreads over rest of India.

With the declaration of the nationwide lockdown on 25th March 2020, initially for 3 weeks but expanded in phases till date(August 2020) with relaxations, some of the metro cities of India are now slowly showing signs of the pandemic peaking out. The situation in many other medium and smaller cities and rural areas, remains grim today, at the time of publishing this report.

The purpose of this documentation was to learn and understand how Indian cities have coped with urban sanitation, how they responded and what lessons we can draw from their experience, and not to judge their work or rank them.

As evident in the response initiatives across 24 cities of India, the impact of the COVID 19-19 pandemic has gone far beyond just the public health and sanitation responsibilities of the ULBs. Hence all response have been recorded.

NIUA Delhi and AILSG Mumbai have partnered in this initiative to document the city response and to develop the RUSR Framework and produce this report as our modest contribution to strengthening city response in future.

Goal

Resilient Urban Sanitation Response to disasters and emergencies.

Objectives

- 1. Contribute to a deeper understanding of Existing Urban Sanitation System Framework** through the practical lens of assessment of COVID 19-Urban Sanitation Response, documented for 10-15 representative cities of India as City Sanitation Response and if possible, for specific innovative sanitation response in some other cities.
- 2. Shared Learning by Cities for an Effective Sanitation-COVID 19 pandemic Response.** Since the COVID 19 pandemic is likely to be with us for a longer time. By learning from each other, from different cities response. The work done by NIUA on developing an effective Emergency Response Proposal and Budget, provides a practical guidance.
- 3. Development of a FRAMEWORK for Urban Sanitation Emergency Response** that will be useful for all future emergency response work related to Urban Sanitation. A simple but practical framework : Swiftiness; Appropriateness; and Effectiveness of City response.

Methodology

This documentation was undertaken in the national lock down condition to document the response in the immediate aftermath of the pandemic (for the period of April to June 2020), on the basis of interviews and telephonic discussion with Urban Local Bodies staff, and data gathered from secondary sources including news reports. No physical visits were possible.

Documentation framework includes :

- **Ten city level responses recorded** : Agra, Ranchi, Delhi, Bengaluru, Pimpri Chinchwad, Hyderabad, Tiruchirapalli, Indore, Surat and Dungarpur.
- **Fourteen specific city level responses recorded** : Bhopal, Ahmedabad, Jabalpur, Chandigarh, Vijaywada, Patna, Bijnor, Paradip, Cuttack, Lucknow, Varanasi, Dhule, Pune and Chopda.

- Developing and applying a Resilient Urban Sanitation Response(RUSR) Framework, to analyse the response of the cities.

We are grateful to all the individuals and staff of government bodies who spared their time and provided input for this report.

Resilient Urban Sanitation Response Framework(RUSR)

The Resilient Urban Sanitation Response Framework (RUSR) has been developed and applied for this documentation. This Framework assesses the sanitation response from the lens of Swiftiness, Appropriateness and Effectiveness. It can be applied to a city or any administrative unit, like a District or a City or a State government - that is engaged in direct emergence response work – to develop a benchmark for understanding and assessing the emergency response.

The RUSR framework is a practitioners guidance tool for assessing a disaster response from an immediate response to an institutional effectiveness scale. Some of the highlights of RUSR are:

- Does not use jargon or indicators that cannot be measured and monitored. It is logical in its approach
- Provides a linear dimension that is missing from most frameworks and indicators – understanding what was done first and later on.
- Easily understandable by practitioners to assess their own work. More indicators can be added for a specific emergency response under the 3 main heads : Swiftiness, Appropriateness and Effectiveness.

The RUSR framework can be applied to not just urban sanitation response but also other disaster response interventions.

RUSR Framework and its application for assessing Covid 19 Response effectiveness

- **Swiftiness** : The timeliness of response, can also be seen as a resilient indicator. How long did it take to initiate the pre disaster urban sanitation works. Was it 3 days or a week or more. Hence 1. Work stoppage Duration and 2. Functional Sanitation Infrastructure are two important indicators of swiftiness of response in terms of resumed operations.
- **Appropriateness** : Resuming operations is not enough. What was done to resume operations in the most appropriate way, to address the sanitation challenges that needed priority attention in a city/ state level. What was done to identify these challenges and how were resources deployed to serve the most vulnerable and risk prone communities. The four indicators that can be monitored are 1. Coverage of priority critical areas/communities and Safety of Sanitation workers, 2. Coordination of stakeholders to ensure an effective and appropriate response, 3. Appropriate deployment of Sanitation workers and Equipment, 4. Appropriate (not indiscriminate) deployment of innovative measures and technologies.
- **Systemic Effectiveness of Response** : How effective were the coordination mechanisms and strategic deployment of resources and sanitation services is the most critical element of a disaster response. Was there any strategic deployment of sanitation workers like the medical professionals were rationed and deployed by hospitals? How were existing systems strengthened during the response to improve their effectiveness. Have the Integrated Command and Control Centres integrate into their routine working, the monitoring of sanitation services with an explicit public engagement protocol of information disclosure and sharing? What measures were taken to ensure sanitation workers safety as a systems effectiveness measure and not a one-time Covid 19 response action.

Swiftness of Response

A nationwide lockdown was announced on 23rd March 2020, initially for 21 days but has continued (with a graded opening up), till the date of writing this report at the end of July 2020.

The sudden lockdown, did disrupt the normal processes and work of sanitation including solid waste and liquid waste management, road cleaning and the operations of septic tank cleaning. This is important given the suddenness of the lockdown that gave only 4 hour notice and led to disruption of all movement and services at a scale never witnessed before. Something that happens during sudden natural disasters like earthquakes (even Cyclones now provide a warning window of atleast 48 hours and don't happen at a country wide level) or a war.

The length and severity of disruption of sanitation was varying across cities and states of India. Ranchi Municipal Corporation had low attendance of sanitation workers in the first 5 days of lockdown. Only 2 out of the 53 wards were being sanitised per day.

In many cities, sanitation workers did not have passes for movement, vehicular movement was blocked leading to difficulties for workers to reach their normal designated work areas, and services of desludging septic tankers, solid waste dumpers was also curtailed. In the absence of clear protocols on emergency response, this disruption in sanitation services occurred in many if not all the cities of India.

Most of the Govt of India Advisories on sanitation came in May 2020 and by then many cities had tried out different measures including public spraying of Sodium Hypochlorite, Spray Tunnels for people (was disallowed later).

In future the ULBs will have to :

- Define the swiftness of their emergency response protocols. Define the time frame within which restoration of essential services is ensured, as part of the standard operating procedure. Whether this is 24 hours or 48 hours, a definitive commitment in the protocols of ULBs to respond to any future disasters and lockdowns, should be done and defined in the ULB mandate and operation guidelines, as a lesson from Covid 19.
- Define what an effective use digital technology can be for an emergency response related to sanitation and other basic services. How this is integrated into the routine working of the Integrated Control and Command Centres of cities (that have them) and for other cities as well.
 - E Passes are issued to all sanitation service providers. For this, a regular system of updated municipal employees and contractual staff will have to be maintained and updated.
 - Information dissemination on sanitation workers in your area, de sludging tankers, waste collecting vehicles, supervisors, etc. – their contact details are available as part of normal functioning of Independent Control and Command Centres

City response :

- In Dharavi Mumbai, the containment of Covid 19 was an outcome of coordinated effort led by Assistant Municipal Commissioner and a team of 20 doctors, 50 nurses, 25 engineers, 170 health care professionals and more than 2000 workers working round the clock. More than 350 community toilets and 100 public toilets were disinfected twice a day and monitored by stakeholders. Several international and national agencies including UNICEF and Tata Trust and several local Dharavi and Mumbai based civil society groups like SNEHA collaborated and supported the city administration in this gigantic effort by bringing the community awareness and engagement through awareness raising and relief efforts.

- All cities, specially “Smart Cities” under the Smart Cities Mission, geared up the use of their Integrated Command and Control Centres for monitoring Covid 19 spread.
- Ranchi Municipal Corporation made a plan to sanitise 800 houses per day. Ward wise teams were deployed and then more fogging machines were acquired. An odd-Even plan was devised to cover different wards for disinfection spraying, with the limited sanitation workers staff.
- Various NGO’s, Private organisations, Trusts, CBO’s, Government organisations have contributed significantly to the ULBs efforts in managing the pandemic by providing safety equipment such as masks, sanitizers, gloves, conducting training, mobilising funds, volunteering etc.
- In Bhopal, Rajput Samaj Sanstha, Jeevan Shakti Yojana and National Students Protection Rights organisation, Punjab national Bank, Bank of Baroda, Central Institute of Plastics and Engineering Technology, Tibetan Sweater Sellers Association and several citizens came forward to donate for Covid 19 relief works.
- In Ahmedabad, SBI and LIC, donated Rs. 45 laksh for PPE kits. Urban Management Centre, Samhita provide cash transfer of Rs. 3000 per worker for 100 sanitation workers and waste pickers on a trial basis and then expanded it to 650 beneficiaries in 4 cities across India.
- In Jabalpur, Indian Red Cross Society and Brahmos Aerospace project donated face masks and infrared thermometers, distributed ration kits and conducted blood donation camps.
- Services were made available through mobile applications such as provision of essentials, health advisory, emergency response etc. The mobile applications were also used for monitoring purpose such as monitoring health of citizens, location of home quarantine patients etc.
- Sanitation workers felicitated in many cities for their work including in Patna, Bengaluru and Ranchi. In Patna by the Councillors and citizen groups. Patna Municipal Corporation has a women driven solid waste collection vehicles that were felicitated.

Appropriateness of Response

Urban Local Bodies were stretched to their limit, in responding to Covid 19 at several fronts, not just sanitation. An APPROPRIATE sanitation response has to factor in the other pressing priorities : 1. Health services provisioning including “Tracing of Infected patients and their Contacts”, Covid 19 Testing at scale, 2. Hot Spots management, 3. Distribution of food to the vulnerable and poor, 4. Managing the lockdown with Police department and above all 5. Community and People engagement to constantly inform, educate and support the people.

Appropriate sanitation response implies that **available resources** of sanitation workers, equipment and services, were well accounted for and deployed in the most appropriate way possible and **additional hiring** and **incentives** for workers were adopted where required. That the available resources were **deployed in proportion to the need and vulnerable communities across a city**. That there was a mapping of and reach out done for the most vulnerable communities specially the slum dwellers and informal settlements, those without shelter or street dwellers who could not access safe water and sanitation. That they were not left out.

Here both the **intent**(measured in terms of a conscious coordinated mechanisms of different stakeholders to reach out to map, plan and implement WASH services for the most vulnerable) and the **evidence** on the ground in terms of most appropriate deployment of sanitation workers and services in the critical wards and zones of the city, are important measurable indicators.

Education, Awareness and Training on Sanitation Workers Safety for different works including using PPEs and hygiene, hand washing and self-cleaning practices – are also a critical element of an appropriate response. You may have deployed your resources well but without adequate awareness and support on how to protect the workers.

Innovative measures for addressing the resumption of services, the use of IT technology including Drones and App based monitoring and mapping of conditions and spread of Covid 19 infection, are important but in themselves don't ensure that they APPROPRIATELY cover the most vulnerable communities where you need to not just monitor movement or fixed app based responses. Direct reach out by ULB staff and volunteers, house to house enumeration and support services are most critical for undertaking any meaningful community based planning and collaborative citizen-administration engagement.

While a lot of proactive actions were visible in terms of setting in place an appropriate response mechanism to address sanitation services in Covid 19 hot spot localities in a city, lessons need to be drawn by ULBs for future responses.

- Identifying most vulnerable and poor settlements, street dwellers, migrant workers and wage labour, and providing shelter services with adequate water and sanitation facilities.
- Ensuring Community and Public Toilets, especially in slums and informal settlements, are cleaned and sanitised at a higher intensity.
- Treat household waste coming out from Covid 19 infected households as Biomedical waste and its disposal as bio medical waste hazard. This has been endorsed by the guidelines issued by GoI.
- How appropriate was the sanitation workers safety trainings – were these understood by all categories of workers, were the PPE use and hygiene measures explained well.
- Use of drones for spraying Sodium Hypochlorite in affected areas in Delhi, Varanasi, Chandgarh, Bhopal, Viaywada.
- “Bandicoot” robot technology employed for cleaning sewers in Dhule, Maharashtra. Saving the lives of sanitation workers from exposure through manual cleaning of sewers.
- Have clear protocols developed with the State disaster Management Agencies, to put in place protocols and coordination with Police department, to ensure that movement of sanitation workers and their vehicles is ensured on par with medical services and support of ambulance services and doctors.
- Coordination mechanisms at different levels at State, ULBs and Districts : Where ULBs can coordinate with Health-Police-State Administration and with CSR and NGO initiatives : to oversee critical areas of coordination of all work, including funding, procurement, norms, distribution and planning. Meetings held regularly and Minutes disseminated.

City responses:

Several cities did take measures to improve effectiveness of emergency sanitation response :

- Special sanitation teams formed in Bhopal, Vijawawada. Bhopal made two verticals of sanitation teams to work in Covid 19 affected zones and the other in non Covid 19 affected zones. Six special teams formed in Vijayawada to carry out Covid 19 related sanitation work.
- Pune Municipal corporation instituted a protocol to clean all Community Toilets specially in the slums at a frequency of 5 times a day.
- A small town Chopda(Maharashtra), their ULB formatted a detailed Standard Operating Procedure for cleaning of Community and Public Toilets including the safety protocols of sanitation workers. Toilet cleaning protocols designed for daily, as per schedule, special and location based monitoring.
- Separate vehicles(500) deployed by Bruhat Bengaluru Mahanagar Palike(BBMP) for Covid 19 waste collection from households.
- ULBs engaged with all stakeholders including Health Sector, Police, CSR and NGOs, to expand the outreach of relief and welfare measures, as well as in planning and implementing responses in a coordinated way. IT companies have worked closely with ULBs to create Apps for planning and monitoring Covid 19 spread and relief works.
- SHGs were engaged in producing face masks for sanitation workers.

- Ward level monitoring of Covid 19 and sanitation works undertaken in Durgapur
- Regular ULB-Health meetings to review the Covid 19 crisis and planning for all works including sanitation
- Special Bio Medical Waste management teams formed and deployed
- Hand washing facility provided by NDMC Delhi for all its employees at its 45 roll call centres.
- Almost all cities took up campaigns to promote social distancing, face masks and hygiene practices. NDMC Delhi promoted an anti-spitting campaign.
- Re-orienting the existing infrastructure and services, such as converting the integrated command and control rooms (ICC) into digitally equipped war rooms to tackle the COVID 19-19 crisis.
- Heat maps, cluster containment plans, hotspot mapping have been carried out to mark the epicentres, isolated areas, facilities etc. These have strengthened response capacity and infrastructure of various clusters for improved resource management.

Systemic Effectiveness of Response

An EFFECTIVE emergency response action is one that not only succeeds in containing the risk. It is also effective in terms of use of limited resources for maximum impact that translates into :

- Effective and updated protocols, systems and records of sanitation workers and material resources at hand with a ULB and state level at all times
- A Strategic deployment of these resources
- Provides a protective cover for the front line workers, as a standard operating protocol that does not have to be applied in an emergency
- And finally the response is complete in terms of a full chain of mitigation, control and safe disposal of infected waste.

During Covid 19 there was a clear risk of the pandemic hitting the hospitals and making the whole hospital systems collapse (this risk also applied to our front line sanitation workers who are most exposed to all communicable disease). Hospitals and medical fraternity undertook a strategic deployment of Doctors and Para Medics to Covid 19 and non Covid 19 wards and patients, and keeping a reserve batch of doctors and para medics at home. This way the whole hospital management system upgraded its functioning to be effective for the emergency.

An EFFECTIVE emergency response therefore never remains a one off response. If it has been effective in mitigating and emergency stress, then it will strengthen and improve the SYSTEM effectiveness of any institutional unit – the ULB, State or District.

Systems strengthening of urban sanitation: Covid 19 sanitation challenge has shown the need for maintaining up to date records of sanitation workers (contractual and permanent). This repository of information on how many permanent and temporary sanitation workers are there in a ULB and also aggregated at the state level. Only if you have this information can you plan and undertake any emergency response at the scale that Covid 19 demanded. Are these records now available at the ULB and State level? Is this integrated into a Sanitation Workers Safety protocol at ULB and state level – to ensure that Medical Insurance for the Workers and their Families, and workers Life and Accident Insurance, is now upgraded and made part of the mandatory ULB and state annual plan and budget?

Procuring PPEs and training workers is also not possible without these basic records, specially at the state level covering all the ULBs in a state. At the ULB level, a strategic deployment of sanitation workers for different priority works in the city is not possible either, without such records.

Sanitation workers alongwith medical staff, bear the brunt of frontline exposure to Covid 19. Hence a **strategic deployment of sanitation workers, like the Health Sector and Hospitals, is required**. This implies hiring a large team of sanitation workers and deploying them for different tasks(some for Hotposts only, others for Public Spaces, etc.) and also keeping a pool of workers as reserve.

Ensuring health and safety of sanitation workers is not a one-time Covid 19 emergency priority. Health and safety of sanitation workers does not only imply only providing PPEs. PPEs are the lowest ladder of workers safety protocols that come after the Infrastructure improvements and safety measures at workplace are there, there are standard operating procedures to improve workers safety in place, and finally providing Health, Medical and Life insurance cover.

PPEs cannot be gender neutral and have to be made so that women sanitation workers can also wear them. Just providing PPEs is not enough, training and awareness on using them is important, alongwith other hygiene and safety precautions. This again cannot be done as a one-time exercise for Covid 19. It has to be integrated into the regular training and awareness work every year.

City responses :

Several cities in this documentation, did take atleast some of these measures for a systemic improvement of their urban sanitation :

- Agra city did a strategic deployment of its sanitation work force by keeping 50% workers as reserve while deploying strategically in different zones of the city. Roster of workers was maintained and daily health checks done for all sanitation workers.
- Health Insurance of NDMC workers (regular permanent staff) was already in place. In addition to this a another medical health facility was introduced for staff for 3 months to get treatment for Covid Covid 19 in any NMDC empanelled hospital.
- Several ULBs made use of the existing Solid Waste Management (SWM) Door to Door collection network, for spreading awareness about COVID 19-19 and some like Indore Municipal Corporation also used for supplying rations and provisions.
- In Maharashtra, Urban Development Department (UDD) and Maharashtra Pollution Control Board (MPCB) took initiatives to impart trainings related to health and safety of sanitation workers with support from AILSG, Mumbai and UNICEF. This was also done in some other states : by Indian Institute of Human Settlements(IIHS) in Tamil Nadu and by Centre for Science and Environment in UP, among others.

Resilient Urban Sanitation Response Framework (RUSR)

Response	Swiftiness : Timeliness of Response	Appropriateness : Scale and Reach	Effectiveness : Systemic Effectiveness
	<p>Work Stoppages</p> <ul style="list-style-type: none"> • How many days Solid Waste Management (SWM) and Liquid Waste Management (LWM) work stopped. Less than 3, more than 7 days • When were Passes issued to sanitation workers • Percentage of Workers who reported to duty within 5 days 	<p>Coverage of critical areas</p> <ul style="list-style-type: none"> • % CT/PTs attended to in x days • % Slums and Informal colonies cleaning in y days • % Hotspots covered in z days • % Other critical areas – Mandis, Markets, attended to in x days • Education of Sanitation Workers for different works and their Safety education and awareness, done through WhatsApp messaging or any Meetings and Trainings 	<p>Strategic Deployment of Sanitation Workers</p> <ul style="list-style-type: none"> • Roaster of all sanitation workers available for a city and for all ULBs of a state • Additional requirements for workers and back up workers requirements for different zones and wards worked out • Strategic Deployment of sanitation workers in different areas done, to ensure that COVID 19 Hotspot areas, Public places and commercial places : workers are separated and deployed
	<p>Functional sanitation infrastructure</p> <ul style="list-style-type: none"> • SWM resumed for x% of colonies in 3 days, Y% colonies in 7 days • STP functional x days • Septic Tanks cleaning started in x days • Community toilets/Public toilets (CTs/PTs) cleaning started in x days 	<p>Coordination at all levels</p> <ul style="list-style-type: none"> • How and with whom : Disaster Management Authority, Health, Police, Social welfare departments • Part of any coordination mechanism. When was it set up – less than 3 days, more than 7 days • Decisions/ Actions taken as a result of coordination Collaboration done with State Disaster Management Authority (SDMA) • Any lessons learnt from previous emergency response now applied to COVID 19 	<p>Emergency Measures Taken & Outcomes</p> <ul style="list-style-type: none"> • Health/Life insurance Policy procured for sanitation workers : within x days • Assessment of sanitation workers safety requirements done. List prepared or available with a ULB for different types of sanitation workers and their Personal Protective Gear • List of PPE vendors and price comparisons ready within 15 days • Any proposal or procurement request made • PPE Procurement orders placed or PPEs received in the first x days • Percentage of sanitation workers falling sick or COVID 19 infected and not reporting for duty
		<p>Appropriate deployment of Sanitation workers and Equipment</p> <ul style="list-style-type: none"> • % Deployment of workers increased or Decreased • % Dumpers and Road cleaning machines functional • % Deployment of Sanitization materials increased or decreased 	<p>Treatment and Safe Disposal of Infected Material</p> <ul style="list-style-type: none"> • Plan developed for treating infected material originating from Households, Hospitals • Plan developed for cleaning PTs/CTs • Implementation done • Outcomes

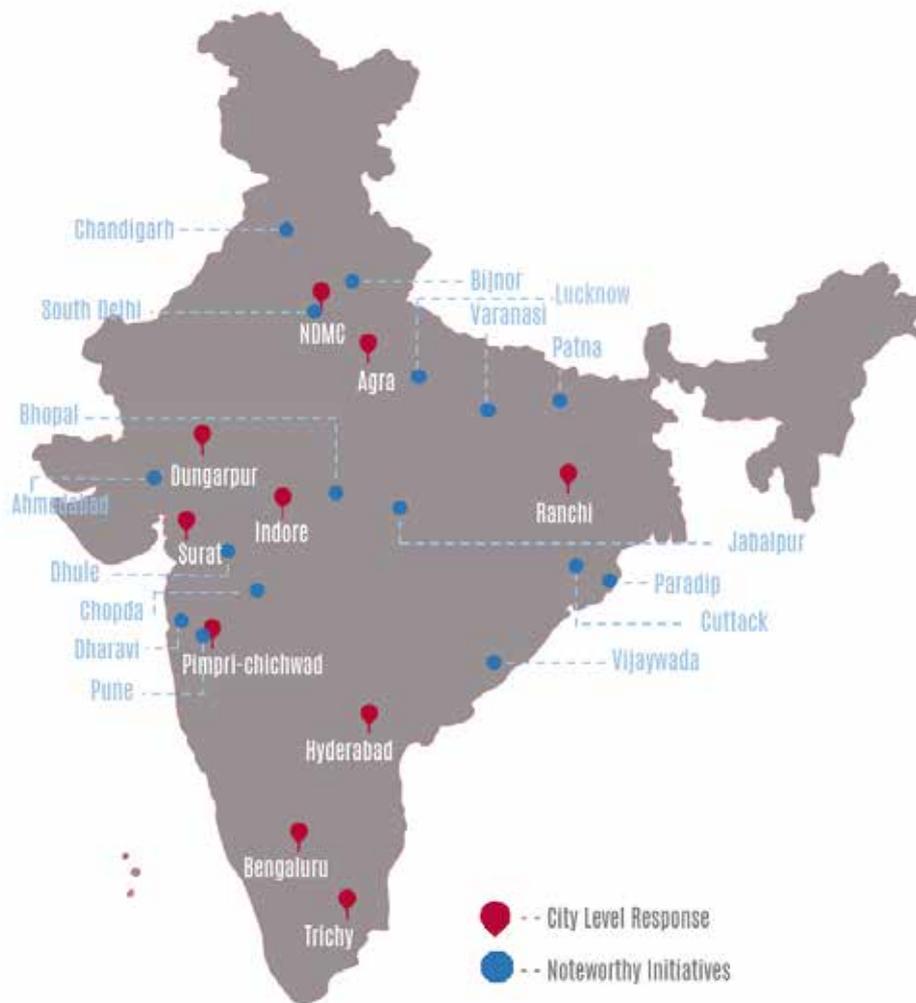
Response	Swiftiness : Timeliness of Response	Appropriateness : Scale and Reach	Effectiveness : Systemic Effectiveness
		Innovation if any <ul style="list-style-type: none"> • SWM • LWM • COVID 19 Hotspots cleaning • Bio Medical Waste management • Behaviour Change Communication work with communities • Monitoring 	Lessons Learnt <ul style="list-style-type: none"> • Documentation done if any of COVID 19-Sanitation response • Systems improvements introduced in Urban Sanitation work – Roasters of employees, Materials – updated and available for easy access at ULBs and State Level • Long term infrastructure improvement priorities identified – safe collection and transportation of infected waste • Workers Health and Safety, Insurance and other welfare Measures institutionalised. • Measures identified for uninterrupted work of SWM and LWM, uninterrupted operations of STPs and SWM plants

Approach

COVID-19 has provided an opportunity to understand how urban sanitation systems exist and operate in India during such a pandemic. Since this has affected all aspects of urban sanitation, it was especially important to look at all sanitation work and workers and how the whole system needs to be geared up in normal time, to be able to effectively intervene in an emergency situation. The goal of this document is to encourage knowledge sharing among cities and thus improve the emergency response for urban sanitation. The documentation aimed towards learning from the experience of sanitation response by ULBs, by focusing on efforts of urban sanitation response to COVID-19. The initiatives and efforts of several Indian cities were tracked during the entire lockdown period of three months, i.e., April and June, 2020.

With the declaration of the nationwide lockdown on 25th March 2020 in a bid to stem the spread of the COVID-19 in the country, AILSG, Mumbai took up the task of documenting efforts of Indian cities. Despite the initial challenge of the lockdown restrictions on travel for recording primary observations from all the cities, this documentation was initiated to record the response efforts in tackling the impact of the COVID-19 pandemic, through secondary sources. AILSG, Mumbai explored various means and channels to connect with the relevant authorities in the cities to get the authentic information from them on the response initiatives undertaken.

AILSG has closely supported State Governments and ULBs in different aspects of governance and urban service delivery, especially in the sector of sanitation. Further, the widespread network of AILSG centres established at 34 locations across the country was beneficial in reaching out to the cities in their proximity. The Regional Centre for Urban & Environmental Studies (RCUES) at AILSG, Mumbai has been closely associated with the State Governments and ULBs in the western and the northeast regions since 1968. Given this extensive network, several cities were contacted to explore and assimilate the efforts of the cities in pandemic management.



Cities documented for exemplary initiatives in COVID-19 response

In the process of documentation, several partner organisations of AIILSG have played a key role in tracking the progress and efforts of the ULBs. UNICEF has been providing technical support to various State Governments and ULBs towards reducing transmission and mitigating the impact of the pandemic on the most vulnerable section of people. UNICEF has been instrumental in connecting with cities such as Surat and Paradip.

Resource organisations, such as National Institute of Urban Management, Hyderabad, and the Indian Institute of Human Settlements have extended their timely support in this process of documentation by facilitating information sharing from the cities. The Technical Support Units of the Centre for Science and Environment, UNFPA, Darashaw and Tata Trusts in various cities, and other project management units and consultants in States and ULBs have made valuable contributions to this report.

Although it was challenging to put together extensive documentation of on-ground efforts of the ULBs from secondary sources due to the restrictions of travel during the lockdown, the ULBs have played the most significant role in providing the necessary information of the efforts taken by them in tackling COVID-19. Despite their daily challenges on the field in the given situation, the ULBs and the respective departments that were contacted for gathering data, have contributed immensely, throwing light on their response strategies and initiatives. ULBs have also made an effort to ensure that the data provided is verified at their end.

Methodology

The COVID-19 response initiatives and efforts of several Indian cities were tracked during the period of April to June, 2020 and the best cases which had taken exemplary efforts in ensuring continuance of sanitation services were identified.

In this document, the efforts of the ULBs have been listed in two categories:

1. City level sanitation strategies and interventions in COVID-19 response: This section provides an overview of the city-wide strategies and response efforts of the ULBs in tackling COVID-19. These cases have been documented keeping the focus on emergency response to understand the timeline over which the interventions were implemented in the cities which provide key learnings from on-ground efforts. In order to elaborate upon the timeline of the response initiatives, the efforts undertaken by the ULBs have been grouped under the following parameters: Immediate (within 1 week), Intermediate (within 2-3 weeks) and Systemic (or the duration of entire lockdown). It is attempted to present the timelines and responses of the cities in detail, however depending on the extent of details shared by the ULBs, it varies case wise.
2. Noteworthy initiatives in sanitation response: This section highlights various innovative/ noteworthy initiatives across India that contributed in the overall effort. Various themes include use of technology, overall sanitisation efforts, stakeholder participation and strengthening of sanitation workers.

Sanitation guidelines issued by Government of India

The Ministry of Housing and Urban Affairs, Government of India had issued an advisory for tackling COVID-19. It is intended for ULBs, sewage practitioners and services providers who want to know more about the risk and practices associated with sewage in the States/UTs. This advisory is based on the guidelines issued by World Health Organization (WHO).

Source: (<http://mohua.gov.in/pdf/5edf84915e23aCOVID%2019%20%20Advisory%20on%20Water%20and%20Sanitation%20Services.pdf>)

1. Safely Managing Wastewater and Faecal Waste:

- As there are evidences of excretion of SARS-CoV-2 coronavirus in an infected person's stool, as a part of an integrated public health policy, it has been advised that the wastewater carried in sewerage systems should be treated in well-designed and well-managed centralized or decentralized wastewater treatment works, with a final disinfection to avoid possible virus contamination.
- It has been emphasized that the already-prescribed protocols to be followed properly in the operations and maintenance of sewage/septage treatment plants (STPs/FSTPs) and monitoring must be strengthened at this juncture.

2. Toilet and Sanitation:

- Consideration should be given to safely managing human excreta throughout the entire sanitation chain, starting with ensuring access to regularly cleaned, accessible and functioning toilets or latrines and to the safe containment, conveyance, treatment, and eventual disposal of sewage.
- For users of community and public toilets (CT/PT), it has been recommended that these facilities are properly maintained and cleaned, and all sanitation workers are protected.
- The toilet should be cleaned and disinfected at least twice daily by a trained cleaner wearing personal protective equipment (PPE). Sodium hypochlorite at 0.5% (equivalent to 5000 ppm) may be used for disinfecting surfaces. Particular care should also be taken to avoid splashing and the release of droplets while cleaning or emptying tanks
- All de-sludging operations, if being carried out to clean on-site tanks and pits, should be done only following the safety protocols and using the occupational safety equipment.

- All disposal of faecal matter must be done in designated treatment facilities (STPs, FSTPs, septage receiving stations, etc.) and not be discharged in water bodies, irrespective of distances.

3. Safe Management of Domestic Health Care Waste:

- The health care waste must not be mixed with the municipal solid waste. It should be collected and handed over separately. Best practices for safely managing health care waste should be followed.
- All health care waste produced during the care of COVID-19 patients should be collected safely in designated containers and bags, treated, and then safely disposed of.

4. Personal Protective Equipment:

- Workers should wear appropriate PPE, which includes protective outerwear, gloves, boots, long-sleeved gown, goggles or a face shield, and a mask; after which the individuals should safely remove their PPE and soiled PPE should be put in a sealed bag for later safe laundering. They should perform hand hygiene with an alcohol-based hand rub or soap and water after removing PPE. They should avoid touching eyes, nose, and mouth with unwashed hands.

In addition to the above-mentioned general guidelines, MoHUA has issued recommendations specific to Indian States, UTs, ULBs and utilities:

1. **Sewage:** A final disinfection step may be considered if existing wastewater treatment plants are not optimized to remove viruses. Appropriate dosage of chlorination may be decided, depending upon the quality of the effluent, as per the Manual of Sewerage and Sewage Treatment Systems, 2013, published by the MoHUA, GoI.
2. **Toilet:** A person who has been suspected or confirmed COVID-19 disease and quarantined should be provided with their own flush toilet or latrine. The toilet should be cleaned and disinfected at least twice daily by a trained cleaner wearing PPE.
3. **Faecal sludge:** Monitoring of the full faecal sludge management chain needs to be strengthened at this juncture, as a measure of precaution. Use of individual and community/public toilets must be ensured, and safety and safe-disposal of faecal wastes from on-site structures must be enforced and monitored.
4. **Provisions in sanitation management facilities:** These facilities – treatment sites or waste management sites (segregation, processing of solid waste, pumping stations, decanting stations, transfer stations for liquid waste, etc.) should have:
 - Facilities for regular hand hygiene using appropriate technique;
 - Provision for regular cleaning and disinfection of facilities, equipment and PPE;
 - Protocols and facilities for safe management of PPE and waste including any domestic hazardous waste and grey water arising from washing of facilities, PPE and equipment;
 - Adequate and accessible toilets facilities for staff, safe excreta management including keeping excreta (faeces and urine) separated from human contact and safe treatment and disposal in the environment;
 - Provision of safe drinking-water to staff; water supply for personal hygiene, laundry and cleaning.
5. **Supply Chain not to be disrupted for chemicals and material needed for WASH Installations:** Discuss with vendors and contractors to ensure supply of material and labour at WASH facilities. While production and transportation of such chemicals should be considered as an essential commodity there is also the need to identify and suggest alternates to commonly used chemicals.
6. **Recycle and reuse of sewage:** Study and develop options for reuse of treated sewage for industries and agriculture to improve water availability and financial sustainability. Considering the hygiene requirements to battle COVID-19, water security across population groups is a necessity and sectoral swaps that ensure clean water availability for residents need to be analysed and worked out in a phased manner.

The Ministry of Health and Family Welfare (MoHFW), GoI, has issued guidelines specific to sanitisation of indoor and outdoor areas, public spaces:

1. The guidelines suggest that civic bodies keep public infrastructure sanitised. These include bus stops, railway platforms, parks, roads, etc. The cleaning and disinfection efforts should be targeted for frequently touched/contaminated surfaces. If contact surface is visibly dirty, it should be cleaned with soap and water prior to disinfection. Prior to cleaning, the workers should wear disposable rubber boots, gloves (heavy duty) and triple layer mask.
2. These guidelines suggest that all areas of public buildings- especially hospitals and offices - entrance lobbies, corridors and staircases, escalators, elevators, security guard booths, office rooms, meeting rooms, cafeteria should be mopped with a disinfectant with 1% sodium hypochlorite or phenolic disinfectants. High contact surfaces such elevator buttons, handrails / handles and call buttons, escalator handrails, public counters, intercom systems, equipment like telephone, printers/scanners, and other office machines should be cleaned twice daily by mopping with a linen/absorbable cloth soaked in 1% sodium hypochlorite.
3. For metallic surfaces like door handles, security locks, keys etc. 70% alcohol may be used to wipe down surfaces where the use of bleach is not suitable. Hand sanitizing stations should be installed in office premises (especially at the entry) and near high contact surfaces.
4. The guidelines suggest using freshly prepared 1% sodium hypochlorite and to deter from the use disinfectants spray on potentially highly contaminated areas (such as toilet bowl or surrounding surfaces) as it may create splashes which can further spread the virus.
5. To prevent cross contamination, the guidelines suggest that the cleaning material (mop and wiping cloth) must be discarded in appropriate bags after cleaning and disinfecting. All cleaning equipment should be disinfected after use and before using in other area. Cleaning buckets must be disinfected by soaking in bleach solution or rinsing in hot water.

General Observations

The guidelines issued by both Ministries have been adopted in the cities as their standard operating procedure (SOP) for tackling the pandemic. Most ULBs have been conducting special sanitation drives at all public places such as markets, bazaars, municipal schools, public toilets, parks, bus stands, railway stations and religious places. Arrangements are being made to provide sufficient quantity of disinfectants like bleaching powder, sodium hypochlorite, cresol, etc. All the fogging machines and sprayers are made functional to take up fumigation. The civic bodies have been procuring sufficient quantities of PPE such as gloves, masks, aprons, shoes, goggles, etc. to the frontline public health and sanitation workers, ward volunteers, and other staff who are in surveillance activities.

As a result of the collective, graded, pre-emptive and pro-active steps taken by the ULBs in tandem with the States/UTs for prevention, the total number of recovered COVID-19 cases has fast outgrown the number of active COVID-19 cases.

In March-end, India's recovery rate stood at around 7% which rose to 26% at the beginning of May 2020. On May 18, the rate jumped to 38% which stood at 47.7% by the end of the month. As of 27th June, the recovery rate touched 58.13% amongst COVID-19 patients and as of July 1, 2020, India's COVID-19 recovery rate was 60%.

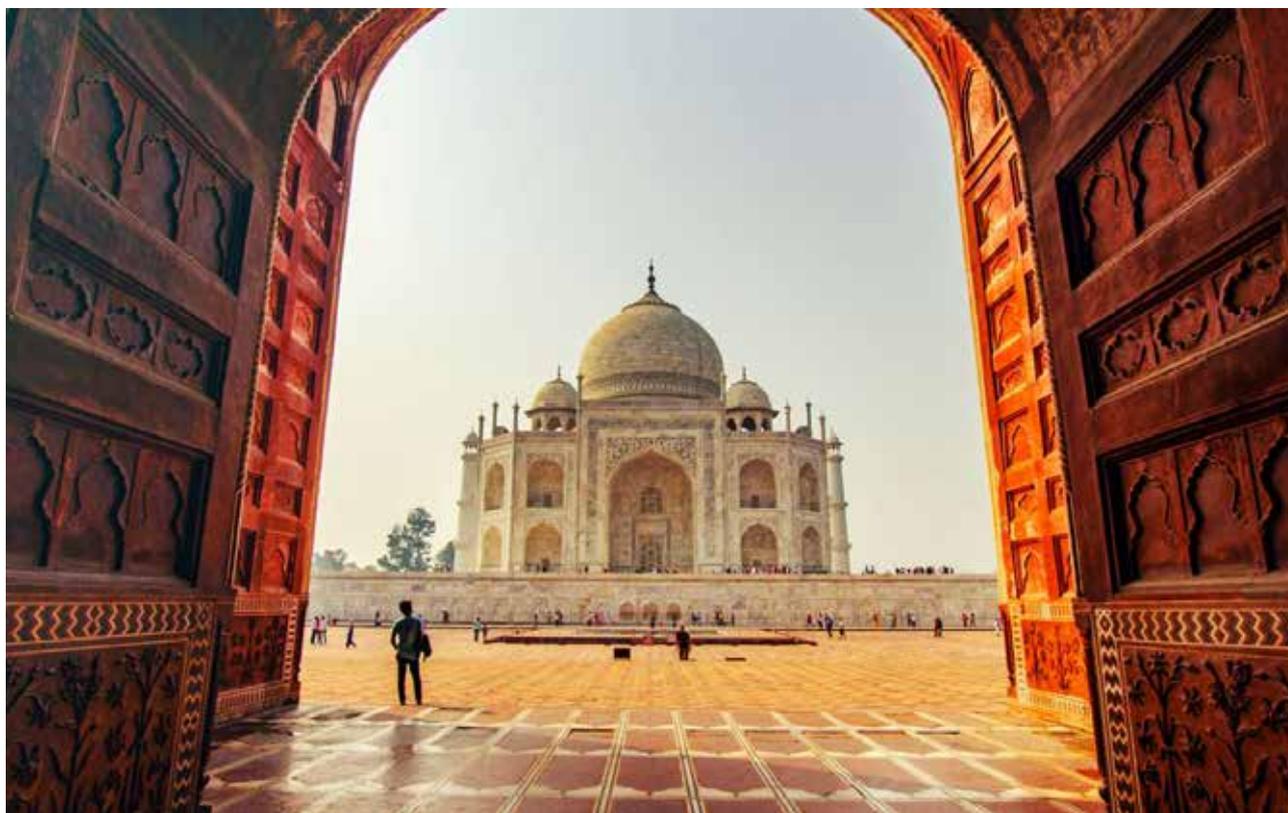
Response of Indian Cities



Source: *Economictimes.com*

This section presents an overview of the city-wide strategies and response efforts of the ULBs in tackling COVID-19. These cases have been documented keeping the focus on emergency response to understand the timeline over which the interventions were implemented in the cities which provide key learnings from on ground efforts.

1. Agra, Uttar Pradesh



Source: www.getyourguide.com

City Overview

Area: 87 sq.km. | No. of wards: 100

Population: 1,585,704 (Census 2011)

No. of workforce: 5000 (approximately)

Information of COVID-19 cases	
Number of cases	1164
Active cases	112
Recovered cases	967
Fatal cases	85



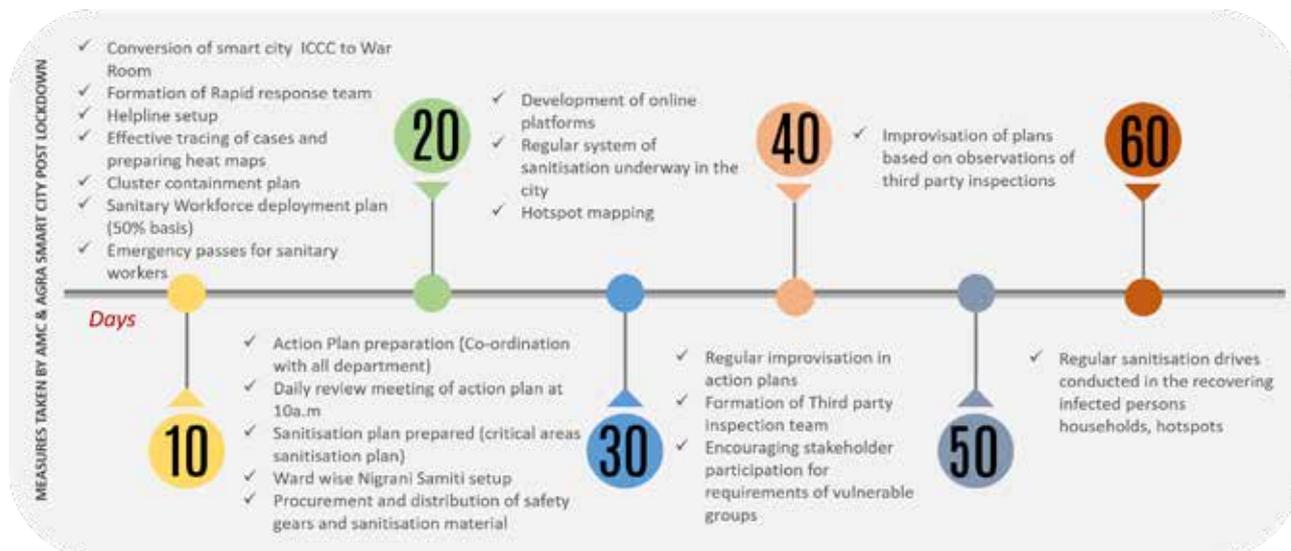
Source: COVID-19 tracker dated as on 25.06.2020 (<https://www.covid19india.org/>)

Introduction

Agra Municipal Corporation (AMC), together with Agra Smart City team, has strategically tried to manage the COVID-19 pandemic by using existing infrastructure with necessary upgrades and modifications. They have made use of digital technology and also incorporated artificial intelligence systems to help in mitigating the situation.

The ULB has demarcated the city into sensitive and non-sensitive zones based on which containment and micro-containment plans have been prepared and action has been taken accordingly.

Overview of actions taken by AMC



Overview of actions taken by AMC and Agra smart city in the 60 days post announcement of lockdown

Administrative / Governance/ Planning Response

Immediate response:

The first case in Agra was detected on 2nd March 2020. The challenge was to re-orient the operations done by the ULB on regular basis and management of staff in terms of creating more teams, backup teams and thoughtful deployment plans. In response to this situation the following necessary actions were taken:



War room set up at Agra

1. Smart City Integrated Command & Control Centre (ICCC) as 24/7 COVID-19 war room was set up under the Smart City Mission.
2. A 25-member rapid response team was formed, working round the clock in the ICCC to integrate various activities of combating COVID-19 including sanitation strategies.
3. All the functions of district administration were integrated in the war room such as district control room, grocery help line, security and surveillance functions, traffic monitoring, monitoring of lockdown, live telecast of advisories through video management software (VMS) systems and public announcement (PA) systems, and video conference facility with relief commissioner in Lucknow.

4. The COVID-19 hotspots in the city were marked and cluster containment plan was prepared daily which helped in formulating action plans for sanitation of these areas.

Intermediate response:

1. Nigrani samitis were formed in the city, as a part of citizen initiative for monitoring at local level.
2. Third party monitoring mechanism was developed wherein a team supervises the actions being undertaken in the sensitive areas such as sanitisation drives, provision of medical aid, imposing necessary restrictions in the area etc. These teams perform inspections every day from 4-6 pm and report the findings and improvements in the review meeting the following day.
3. Monitoring mechanism were developed by setting up CCTV surveillance system throughout the city.
4. PPE kits were procured through various means such as involvement of Self-Help Groups (SHGs) and Corporate Social responsibility (CSR) initiatives for sanitation workers.

Systemic response:

As the cases began to rise in the city, various strategies and plans were devised to tackle the spread of COVID-19:

1. Action plans were made for sanitisation and other activities.
2. Workforce deployment plan was developed, wherein a mechanism was devised to deploy 50% of the total sanitary staff on alternate days to reduce the risk of getting the infection.
3. A mechanism has been devised to conduct meeting every day at 10 am in the presence of all departments involved to monitor and improvise action plans on daily basis.

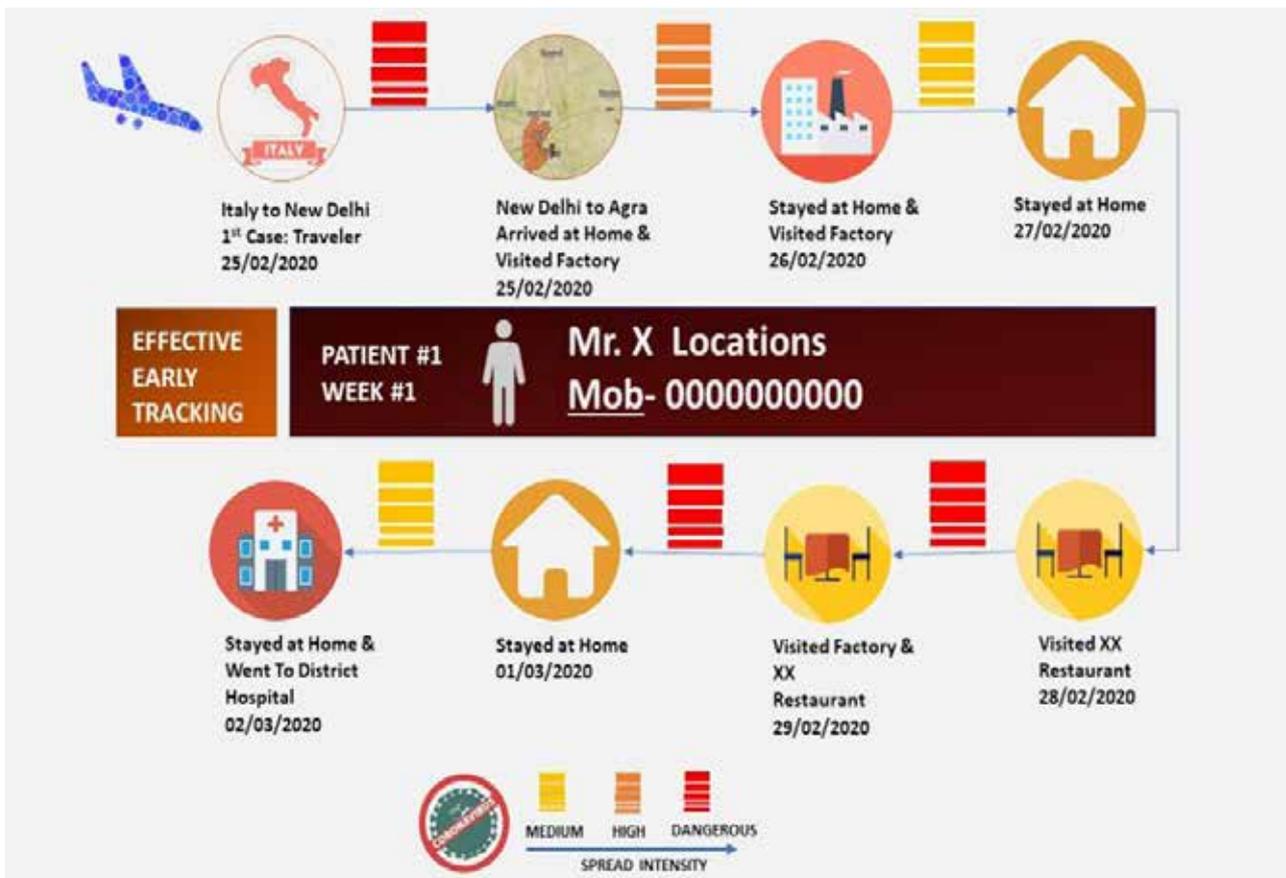
Urban Sanitation Response

1. Limiting the spread:

Upon receiving the information from the Health Department on new cases, a dedicated special team comprising of ULB staff, doctors, police professionals, and sanitisation staff visit the area and isolate the infected house by barricading it. The area around the house is declared a containment zone. The household is sanitised thoroughly twice a day and residents are provided with medication. The households surrounding the infected households are also sanitised and residents provided medication.

Week 1: Reorientation of existing services and developing new action plans

1. Effective tracing of the epicentre was done as represented in the graph below followed by which a cluster containment plan was devised for the city.
2. Action planning for sanitisation and other activities with the help of cluster containment plan was developed. Heat maps were created based on the cases noted every day with the help of geographic information system (GIS). The city was then divided into sensitive and non - sensitive zones. These cluster containment plans are made on regular basis.
3. Strategies were developed and necessary actions were taken according to these zones such as sanitisation, screening, imposing required restrictions, setting up of isolation and medical facilities etc.



4. There were no work stoppages in the sanitation services, even while infrastructure activities such as road construction, repairs etc. were immediately stopped.

CLUSTER CONTAINMENT PLAN
Geographical distribution and micro planning (3km radius from epicentre)

3Km : total area identified within radius of 3km from epicentre on March 2 nd 2020.	15 : Primary health centres included in the 3Km containment area from the epicentre.	9.3 lakh: Citizens contained in the identified zone.	1.6 lakh: Number of households screened	1248: total teams deployed. Each team had 2 members including auxiliary midwife.
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Cluster containment plan for the first identified case in the city

- Existing teams were re-organised and an additional separate team was created for sanitation activities.
- All the sanitary staff were given emergency passes to attend their duty.

Week 2: Monitoring initiatives

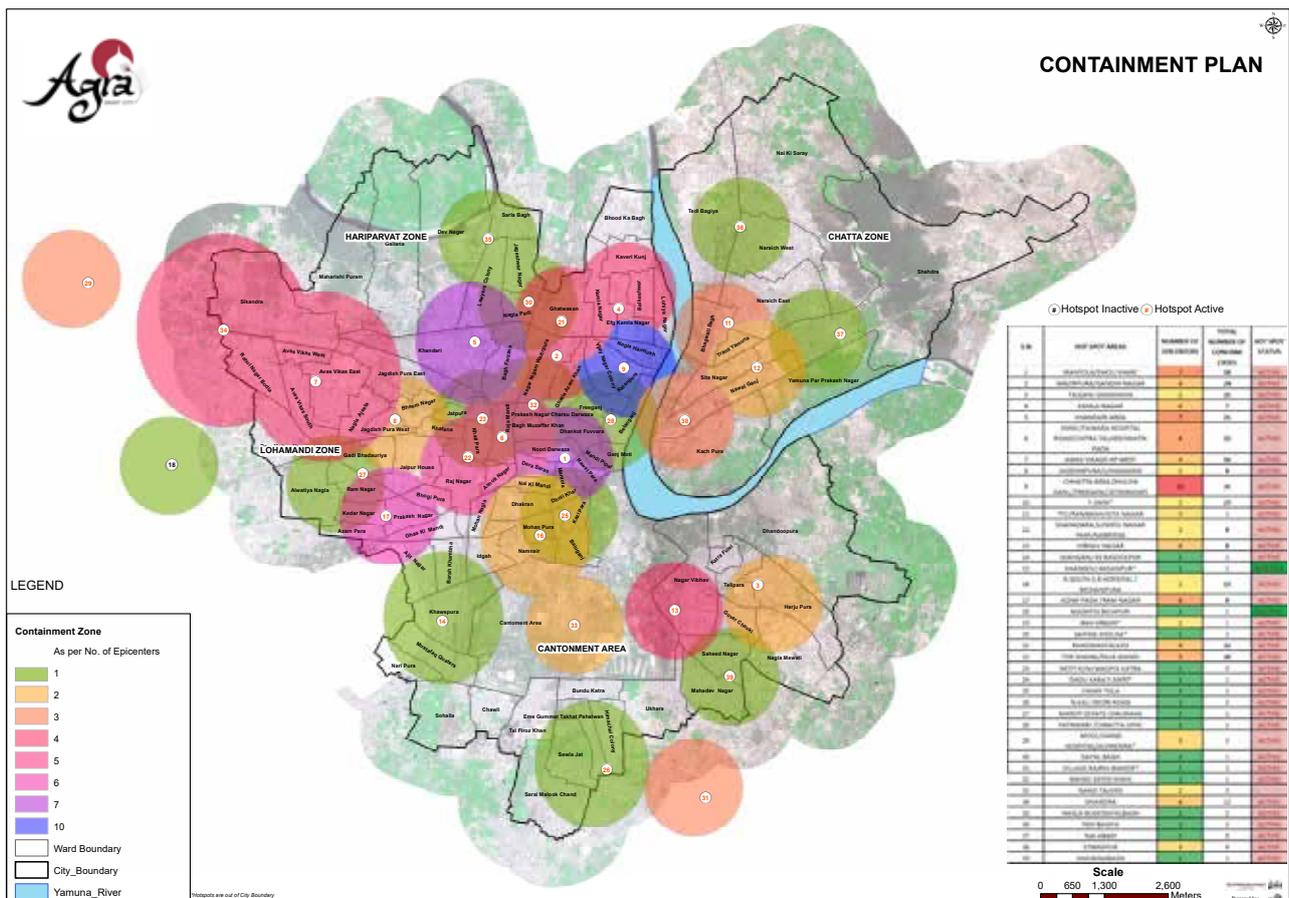
- A back up team of sanitation workers has been formed in case of any emergencies or casualties.
- A roster has been maintained for attendance and regular check-ups of the sanitation workers done before and after field activity.
- AMC has provided PPE kits such as masks, hand gloves to all the sanitation workers. They were procured within 15 days after lockdown was announced. These were procured through various CSR initiatives.
- Through ICCC, spots were identified where people were aggregating and also places where crowding was happening, and inputs were provided to Police Department to take appropriate action. Also e-challans were issued for people violating lockdown and bringing vehicles on roads for non-essential reasons.



Surveillance to ensure complete lockdown

Week 3: Hotspot mapping and safety of sanitation workers

1. Hotspot map of the city was generated on daily basis, which provided information on the sensitive areas in the city. This was done to map response capacity and infrastructure of various clusters for improved resource management.
2. These maps are posted in public domain for citizens to take necessary precautions. Essential services and amenities are marked on map to guide the citizens.



Hotspot map of Agra City

3. More than 100 hand washing facilities installed at various locations throughout the city for sanitation workers as well as citizens.
4. Health insurance of sanitation workers was already in place before COVID-19. An assessment was done to make sure all sanitation workers are benefitting from it.

2. Frequency of sanitisation:

According to the sensitive and non-sensitive zones identified, the sanitisation drives are being carried out in the following way:

- Daily sanitization of the sensitive zones i.e. the complete area and quarantined homes with the sodium hypochlorite solution. Sanitization of households with COVID-19 positive cases was done twice a day.
- Daily sanitization of the CT/PT was done, and periodical sanitization of streets and public places was done once in every 4 days.



Sanitisation of containment zones



Sanitisation of Quarantined homes

3. Solid waste management:

- A separate team is being deployed in sensitive and non-sensitive areas for collection and transportation of waste.
- Quarantined households have been given a separate yellow colour bag for waste disposal.
- The bio-medical waste is being managed by an external agency (from collection till processing) which was already in place before COVID-19.

General City Level Responses

1. Response towards vulnerable groups:

- Along with district administration, cooked food bank has been established which collects cooked food packets from various NGOs. It is being distributed to the daily wage earners, labourers etc.
- Various NGOs such as Bharat Vikas parishad, Maa ki Rasoi, Sai Dham Mandir, Stone Man Association etc. are involved in food distribution. Around 5000 people are provided food every day.

2. Citizen initiatives:

- 100 Nigrani Samitis, one Samiti per ward were formed within a week of the first case. They were supervised by the ward councillor and comprised of citizen volunteers of that particular ward.
- This team has taken up responsibility of spreading awareness, monitoring their respective areas and also barricading the quarantined homes and area around with the help of the officials.
- The migrant workers returning from other cities were guided and quarantined with proper care by the Samiti members.



Regular meetings of Nigrani Samiti

3. Maintaining essential supplies:

Agra District Administration and Agra Smart City have collaborated in ensuring doorstep delivery of daily essentials in all 100 wards of Agra City.

- All wards were surveyed and specific grocery shops and fruit/vegetable vendors were identified ward wise. The contact details of these vendors had been transmitted to various house owners which were collected during the GIS property survey and radio-frequency identification (RFID) tag installation.
- Bulk messages had been sent ward wise about grocery shops and vegetable vendors who were willing deliver at door steps within 24 hours.
- The rates were fixed for various essential items so that hoarding and price rise was prevented.
- Tie up has been also done with Zomato and Big Bazar to deliver grocery at doorstep.
- 1000 street vendors have been mapped with 10 vendors per ward to oversee distribution of fruits and vegetables at doorstep.
- Agra city administration & Smart City has launched a web link regarding door to door suppliers list of groceries, fruits & vegetables online by entering their respective ward numbers. (<http://agramartcity.in/EssentialItemSupplier.aspx>)



Interface of online portal for essential supplies

4. Health advisory and services:

- E- Doctor Seva is a tele-video consultation facility, launched by Agra Smart City Ltd for local population. Consultation facility is available from 10 am to 12.00 pm (Monday to Saturday).
- For consultations, citizens have to log in using the link (<https://tinyurl.com/edoctorrapp>) and schedule an appointment with the doctor.
- Appointments can also be taken using the mobile application. Once appointment is taken through the site/app a particular date and time is allocated for the consultation. The patient can have a tele/video call with the doctor at the scheduled time.
- Doctor is stationed in the command centre. After consultation, online prescription can also be downloaded by patient from the site/app. On request, required medicines are delivered at home from the Smart Health Centre-Pharmacy.



Training/Communication and Behavioral Change

1. The Chief Medical Officer (CMO) addresses the sanitation workers periodically regarding the do's and don'ts for safe practices on field for taking necessary precautions.
2. Smart Health Centre:
 - It is established under Smart City scheme. It helps in spreading awareness about various do's & don'ts for taking precautions.
 - Each patient is given a 3-5 min briefing on the advisory regarding COVID-19 for both the general consultation as well as at the dental clinic so that awareness can be given to as many people coming in contact with health professionals.
 - 1015 sanitizers and 935 masks were distributed to citizens at subsidized rates through the pharmacy at Smart Health Centre.
3. General awareness of do's and don'ts through the PA system installed in 27 major junctions where

advisory is announced 24/7 and monitored through the ICCC.

4. The advisory is also displayed in the 10 VMS installed in prominent places in the city as well as at the ICCC.
5. 100 hoardings have been set up in various unipoles spreading awareness about various do's and don'ts.



Smart Health Centre

Financing

The fund for various activities is mobilised through State Government funding and Smart City Mission.

Stakeholder participation

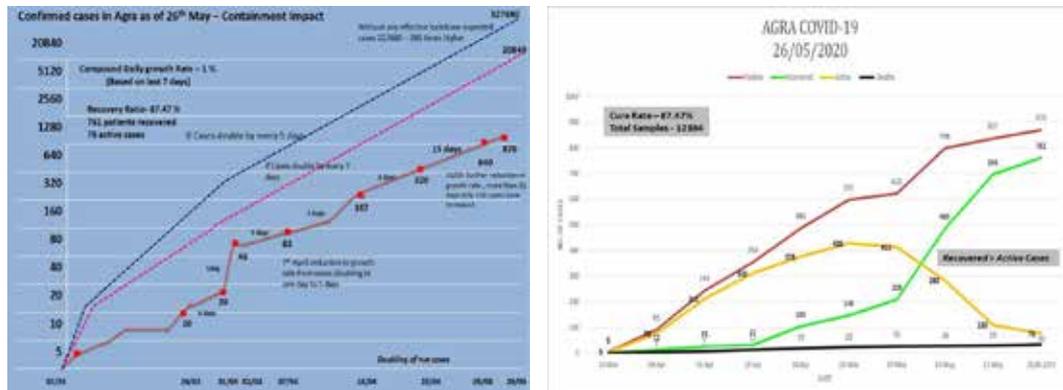
Various stakeholders are involved in carrying out different kind of activities in the city which have already been explained in the sections above. This section gives a summary of various stakeholders and the activities carried out by them:

Organisation	Stakeholder	Activity
NGO	Civil Defence Missionary Volunteers – pro bono	Monitoring, food distribution, sanitisation
SHG	SHGs constituted under NULM	Preparation of masks (10,000 at Rs 10 each)
Private	Scan point Geometrics Ltd (SGL), Microsoft Azure, Gaia Smart Cities Solutions Pvt Ltd, Secura	Development of mobile applications
Government	LIC housing finance	Provision of 1000 masks
NGO	Bharat Vikas Parishad, Maa ki Rasoi, Sai Dham Mandir, Stone Man Association	Food supplies to vulnerable groups
Private	Big Bazaar, Zomato	Door to door delivery of essential items
Citizen	Street vendors	Supply of essentials

Use of digital technology

1. Time series analysis:

Based on regular updates on the cases, analysis is carried out to take necessary actions accordingly. This is done to understand the trends and get insights for targeted intervention and actions. The sensitive areas are identified, sanitation measures and BMW strategies are improvised in those areas.



Containment impact analysis

2. Agra COVID-19 tracker:

Agra Smart City in association with Scanpoint Geometrics Ltd (SGL) have created a GIS dashboard which shows information such as various hotspots, heat map, positive cases, recovered cases etc. The trends observed through this platform helps in assessing the measures taken and also taking additional measures for sanitation.

3. Citizens self-registry platform:

- This platform is created for citizens to assess their health risk, and create PIN code based early risk assessment matrix for authorities. This app, based on smart feedback SaaS platform, is powered by Microsoft Azure.
- Data comes to Azure cloud, and inbuilt analytics and reports enables authorities to see the daily picture of high, medium, low, or no risk self-assessments, as well as, trends over time to see early patterns if certain localities start emerging as hotspots. Based on this data, analysis is done and rigorous sanitation measures are taken in these areas.

4. Sarvam Setu App- A help portal for citizens by citizens:

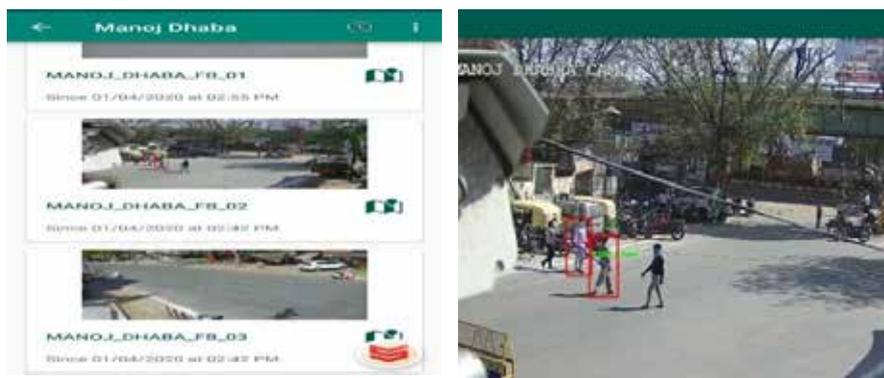
- It is a CSR initiative by Gaia Smart Cities Solutions Pvt Ltd. It is an AI driven hyper local SOS and emergency response management platform by the Government for citizens. Civil Defence personnel have been signed up to respond to citizen requests.
- The use of Sarvam Setu app allows citizens to raise geo-tagged requests for emergency help in 9 categories such as food, medicine, medical help, fumigation, case reporting etc.
- It is also a single interface to access all emergency information, local alerts, nearest medical centres, and connect with local suppliers of essentials.
- The citizens can press the SOS button, immediate alert is sent to the civil defence volunteers who are in the 300 metres radius of the citizen.
- The registered personnel can receive, accept, and close incoming requests from their Smart Cadre Sarvam Setu app.
- The city gets real time data, analytics, and GIS dashboards of emergency requests and response management status.



Sarvam Setu App interface

5. Lockdown monitoring app/crowd monitoring app - A Secura (CSR Initiative):

- Agra Lock down Monitoring App was launched by Divisional Commissioner, Agra at ICCC in the presence of IG, Agra Range; SSP Agra; Municipal Commissioner, SP Traffic and other official of Agra Police and Agra Smart City.
- This innovative video surveillance solution is in use to effectively monitor the various locations in Agra city for managing the crowd, maintaining social distancing and lockdown.
- The AI based Analytics is the first of its kind to combat COVID-19 in Agra. The latest ground-breaking technology adopted by AMC is provided by the existing surveillance vendor under CSR initiative.
- As a provider of this technology, Secura is rendering technical assistance to effectively use the crowd management algorithm w.e.f. 02.04.2020.
- The pre-eminent AI enabled video analytics helps the administration/ authorities to monitor and implement lockdown in an effective manner. It detects groups, crowd, and close proximity of people. An alert is instantly generated to help the authorities to strictly maintain social distancing in Agra. The alerts are configured through a mobile application on the field staff mobile phones and help the police administration on ground.
- The main objective of this app is to track the accumulation of crowd at various places and also to detect places where social distancing is not practiced.
- App named Agra lockdown monitor is available to all police station in charges and any other police personnel as required.



Interface of down monitor application

Summing Up

AMC adopted some unique practices such as the citizen initiative of Nigrani Samiti, use of digital technology incorporating artificial intelligence, involvement of quick response Civil Defence team, which helped in bringing the pandemic under control.

2. Ranchi, Jharkhand



Source: Twitter @WeAreRanchi

City Overview

Area: 652 sq.km. | **No. of wards:** 53
Population: 1,126,741 (Census 2011)
No. of workforce: 2500

Information of COVID-19 cases	
Number of cases	204
Active cases	50
Recovered cases	149
Fatal cases	5

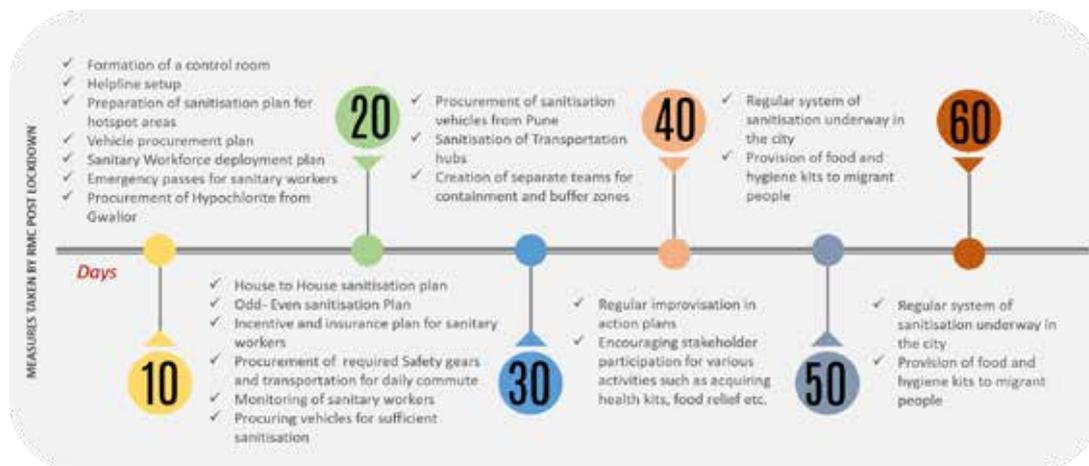


Source: Official website as on 25.06.2020 (<https://www.covid19india.org/>)

Introduction

The capital city of Jharkhand, Ranchi is one of the major industrial cities of Eastern India. Ranchi Municipal Corporation (RMC) is taking extensive initiatives to focus on rigorous sanitisation of the city. RMC is focussing their efforts on the health and safety of its citizens and sanitation workers. By implementing the right measures RMC is striving to control the spread of COVID-19.

Overview of actions taken by RMC



Overview of actions taken by RMC in the 60 days post lockdown

Administrative / Governance/ Planning Response

Immediate response:

As soon as the nationwide lockdown was declared and COVID-19 cases started rising, RMC started taking preventive measures of screening and sanitising the entry-exit points of the city. Guidelines on COVID-19 preparedness and control in Ranchi district were formulated at district level and published on 20th March 2020 before any cases had appeared in the district.

Two COVID-19 cases were detected on 31st March 2020 in Hindpidhi area of Ranchi city, following which necessary steps were taken by the RMC within a period of 3-5 days.

1. The guidelines prepared by district office were adopted by RMC to take the necessary measures to tackle COVID-19.
2. A control room was set up at the ULB office to coordinate all the activities related to COVID-19. The control room co-ordinates with the district level control room and is operational 24x7 with 6 teams in place to concentrate on different activities such as sanitisation, monitoring and updating and addressing grievances, etc.
3. A dedicated helpline number was launched for citizens.
4. A plan for sanitization and immediate screening within 3 km radius of active cases was prepared at an early stage.

Intermediate response:

1. Plan for ensuring safety and regular attendance of sanitation workers in terms of provision of safety equipment, insurance, incentives was put in place.
2. A dedicated system for collection and disposal of bio-medical waste was established.
3. Supervisors were allotted to monitor the daily sanitisation activities.

Systemic response:

Two weeks following the lockdown, COVID-19 response plans and strategies were developed such as:

1. A workforce deployment plan was devised wherein separate teams were created for specific areas such as containment and non-containment zones.
2. As RMC had insufficient sanitisation vehicles, a procurement plan was prepared.
3. Door to door screening with the help of 6 teams was initiated in the city.
4. Sanitisation plans were prepared for the city which were improvised daily as per availability of resources.

Urban Sanitation Response

Out of the 53 wards in the ULB jurisdiction, initially only 2 wards were being sanitised per day with the help of fire fighting vehicles. Low attendance among the sanitation workers was observed in the first 5 days for regular duty. To overcome the challenges as well as devise new strategies for controlling the spread of COVID-19, RMC took necessary interventions, with weekly targets.

1. Limiting the spread:

- A process was devised to identify and tackle the most vulnerable areas where new COVID-19 cases were being detected.
- After receiving the information on new cases from the Health Department, RMC seals the area around the location and declares it a containment zone.
- Strict lockdown is imposed in the area, and door to door screening is initiated.
- Sanitisation is practised three times a day in the identified containment zones.

This process is in effect till date.

In the first week after the nationwide lockdown, RMC procured 50,000 litres of sodium hypochlorite worth Rs. 15 lakh from Gwalior for sanitisation of public spaces.

Week 1 (1st April-8th April): Arrangement of vehicles within a week

1. On April 8, 7 fire-fighting vehicles were used for sanitisation to curb the spread of COVID-19. 1 fire fighting vehicle from each fire station was being used for sanitisation work.
2. RMC started the sanitisation drive of public spaces with a 6-member team, comprising of 2 trained staff from fire-fighting department along with 4 sanitation workers of RMC.
3. With the help of these vehicles, 14 wards were being covered daily. All the wards were sanitized on a rotational basis.
4. All the sanitation workers were issued with emergency services passes.

Week 2 (9th April-15th April): House to house and sanitisation drive

1. A plan was made to sanitise 800 houses per day. A team of 6 professionals were deployed in each ward, with spray pumps, who report to one supervisor daily.
2. The interior of the apartments along with apartment gates, parking areas, cars, lifts and railings all were being covered under this drive.
3. The ULB monitored the house to house drive by collecting geo-tagged pictures from the supervisors.
4. To reduce the shortage of sanitisation machines, RMC installed motors on water tankers to disinfect the city.
5. In addition to existing vehicles, 15 thermal fogging machines were acquired making the total to 24 vehicles.



House to house sanitisation drive

6. Due to the challenge of human resources and equipment, an odd-even mechanism was devised for the sanitisation of the city to cover all parts of the city.
 - On Monday, Wednesday, Friday the odd numbered wards were sanitised.
 - On Tuesday, Thursday, Saturday the even numbered wards were sanitised.
 - This plan was functional for the second week.



Sanitisation of market area and Hospital

Week 3 (16th April- 23rd April): Fast tracking sanitisation

1. 20 sanitization machines costing Rs. 27,000 each, were procured from a private company in Pune.
2. With the help of all the machines RMC is able to sanitise each ward on daily basis till date. Regular sanitisation of railway stations, bus stands also being carried out.
3. The containment zones are sanitised three times a day.



Sanitisation of railway station and bus stand

2. Safety of sanitation workers:

- Since RMC already had 2500 sanitation workers employed, additional staff was not appointed in response to the pandemic. During the first week after the nationwide lockdown, due to fear of the spread of COVID-19 and also unavailability of public transport, RMC observed poor attendance among the sanitation workers. To tackle this issue, RMC came up with a plan to encourage the sanitation workers to carry out their duties within 10 days of the first reported case.
 - In case of a casualty, RMC has been offering a compensation of 10 lakh rupees. All the medical expenses for treatment of COVID-19 are being taken care of by the ULB.
 - RMC has also offered an incentive of Rs. 2000 per month to all the sanitation workers.
 - All the sanitation workers are being given food grains by RMC and the ward councillors.
 - Sanitation workers involved in conducting sanitisation in containment areas are given Rs.200 per trip.
- All the sanitation workers have been provided with safety gear such as mask, hand gloves, sanitizers, suit etc. These kits were procured before the COVID-19 cases appeared in Ranchi. Various organisations have contributed in procurement of the PPE kits.

- IDBI Bank has donated sanitizers and PPE kits for the staff and sanitation workers to RMC.
- The employees at Arvind Mills have been making PPE kits for the frontline workers under their CSR initiative.
- Nimmita – an organisation working for women and child development have distributed soaps to all frontline workers in the city.



Contribution by IDBO bank and Nimmita organisation

- To overcome the transportation issues faced by sanitation workers, RMC has arranged for 10 buses for them. All buses are regularly sanitised.



Bus facilities arranged for sanitation workers by RMC, food grains being distributed to sanitation workers in their wards

3. Frequency of sanitisation:

After deploying required staff and procuring adequate equipment the frequency of sanitisation decided was as follows:

- Community and public toilet, portable toilets: twice a day
- Public areas including parks, streets, railway station, bus stands, market areas: twice a day
- Hotspots and containment zones: thrice a day
- Hospitals and quarantine households: twice a day



Sanitisation of toilets

4. Training:

- RMC conducted training for officials in the Health and Sanitation Departments which was organised by the WHO team. The team briefed the officials in taking necessary steps to prevent the spread of COVID-19. This included the standard operating procedure of safety measures, appropriate use of PPE kits, do's and don'ts, measures to be taken at organisational level etc.



Training organised for officials

- The elected representatives of each ward have actively participated in carrying out door to door awareness in their wards. They informed the citizens about WASH safety guidelines and precautionary measures for COVID-19, importance of segregating waste especially masks and gloves, for health and hygiene.
- The sanitation workers are being periodically trained by their supervisors for standard operating procedure, safety practices and precautions for COVID-19 such as use of PPE kits, social distancing, and precautions to be taken at home.



Briefing of sanitation workers by the supervisors

5. Monitoring:

- There are 53 supervisors responsible for one ward each who are responsible for closely monitoring the sanitisation drives in their respective wards. The sanitation workers have to click geo-tagged pictures of their daily work and submit to their supervisor.
- Daily rosters are being maintained for the attendance of the sanitation workers.

6. Solid waste management:

A special team of bio-medical waste collection has been deployed to carry out the task of collection and disposal of waste from quarantine homes and hospitals. The collection vehicles are being sanitised daily.

7. Motivating the sanitation workers:

Garlands, clapping etc. by the ward members to appreciate the work undertaken by them during the pandemic.



Felicitation of Sanitation workers

General City Level Response

1. Response towards vulnerable groups:

RMC has been conducting food distribution drives on regular basis in all 53 wards to the daily wage earners and slums dwellers supervised by the ward councillors, mayor and RMC officials.

- On 10th May 2020, rice, pulses and vegetables were distributed among the slum dwellers, daily wage earners etc.
- On 15th May 2020, 1000 daily wage earners were given food packets by the RMC in the presence of the Mayor who also boosted their morale and addressed them on the safety measures that should be to be followed daily.
- Food distribution campaign is being periodically arranged at Ram Lakhan Singh Yadav College, Ranchi by RMC.
- In all the wards, people without a source of income and ration card are being identified and supplied with food grains.



Food distribution across all wards in Ranchi

Various initiatives were also taken by private organizations towards vulnerable groups as follows:

- Central Mine Planning and Design Institute (CMPDI) has distributed food packets and water bottles to the migrant workers travelling in special Shramik trains at Ranchi railway station.
- Reliance Foundation under its CSR initiative has distributed hygiene kits to the residents of the containment and buffer zones in Murung Toli, Namkum.
- Feeding India organisation has distributed 100 ration kits to auto drivers in the Birsha chowk, Tipuana and Dhurwa area in the city.



Contribution by various organisations for the vulnerable groups

Financing

1. Mayor and deputy mayor of the city have released Rs 1 crore each from the RMC's citizen welfare fund for intensifying the fight against COVID-19.
2. Rajya Sabha MP Shri. Mahesh Poddar has also sanctioned Rs 3 lakhs from his MP fund.

Stakeholder participation

Various stakeholders are involved in carrying out different kind of activities in the city which have already been explained in the sections above. This section gives a summary of various stakeholders and the activities carried out by them:

Organisation	Stakeholder	Activity
Private	IDBI Bank	Donation of PPE kits for sanitation workers
Government	Central Mine Planning and Design Institute (CMPDI)	Food packets for migrants
NPO	Reliance Foundation	hygiene kits to the residents of the containment and buffer zones
Private	Arvind Mills	PPE kits for the frontline workers
NGO	Feeding India	100 ration kits to auto drivers
NGO	Nimmita - organisation working for women and child development	Distributed soaps to all sanitation workers.
ER	Elected representatives	Funding

Summing Up

RMC has taken steps in ensuring health and safety of their sanitary workers, with the introduction of incentives and health insurance. They have taken extensive efforts in managing with the existing sanitation infrastructure and boosting them when required during the pandemic.

3. New Delhi Municipal Council



Source: flickr.com

City Overview

Area: 43.7 sq.km. | No. of wards: 14

Population: 257,803 (Census 2011)

No. of workforce: 2300

Information of COVID-19 cases	
Number of cases	Not Available
Active cases	Not Available
Recovered cases	Not Available
Fatal cases	Not Available

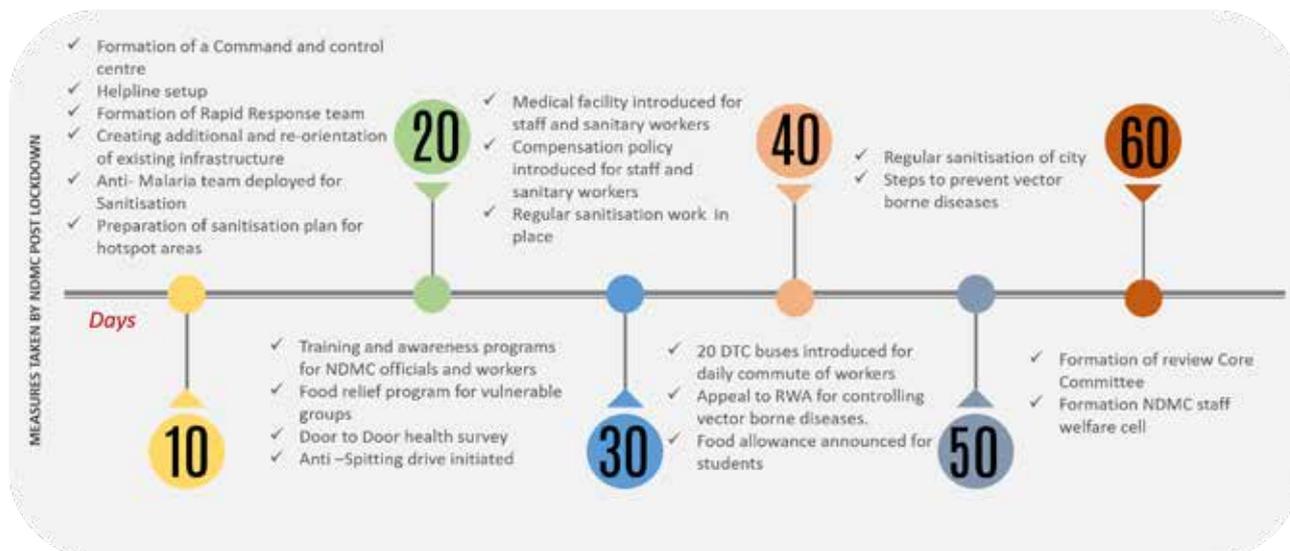


Source: COVID-19 tracker as on 17.06.2020 (<https://www.covid19india.org/>)

Introduction

The New Delhi Municipal Council (NDMC) comprises of 3 percent of the total area of National Capital Territory but due to its strategic geopolitical location, the efficient functioning of the municipal body is of utmost importance locally and nationally. In the current situation, NDMC is taking all necessary actions to overcome the COVID-19 pandemic. Rigorous sanitation and solid waste management measures are adopted by the council to mitigate the spread of the virus. Many initiatives are being taken to safeguard the health and safety of NDMC staff and sanitation workers.

Overview of actions taken by NDMC



Overview of actions taken by NDMC in the 60 days post lockdown

Administrative / Governance/ Planning Response

Immediate response:

As the nationwide lockdown was announced the following actions were taken by NDMC:

1. Re-orientation of existing infrastructure and services was undertaken to ensure quick response to emergencies.
2. Command and control centre (CCC) was formed under Smart City Mission where necessary actions were taken on real-time basis.
3. On detection of first positive case, two rapid response teams were formed.
4. These teams comprised of doctors, paramedical staff, and public health specialists and ULB staff to take necessary actions to tackle COVID-19. One team was responsible for screening of the citizens and contract tracing while the other team for setting up of isolation wards and generating awareness.

Intermediate response:

1. Action plan was prepared to take necessary steps to deploy sanitation workers, provide necessary equipment, acquire back up team and additional workforce.
2. A separate mechanism has been established for collection till disposal of bio-medical waste. Route mapping has been done for collection of waste from quarantined and non-quarantined zones.

Systemic response:

1. Various initiatives in terms of medical facility, incentive plan etc. were made for health and safety of sanitation workers.
2. Sanitisation plan for the city was prepared.
3. A core committee has been setup for daily review of the activities done for mitigating COVID-19.
4. A NDMC Staff Welfare Cell has been s setup for supervising the health and safety of staff and workers.

Urban Sanitation Response

1. Limiting the spread:

As soon as the lockdown was imposed, sanitisation across the city had been implemented by NDMC. Screening of people returning from abroad was being done thoroughly, hotspots were marked and necessary actions and restrictions were put in force. The actions taken are described in a timeline below:

Week 1 and 2 (25th March – 3rd April 2020): Re-orientation of existing infrastructure and services

- 3 home isolation centres for positive cases, 5 hotels for people returning from abroad and a COVID-19 isolation centre for suspected cases were set up.
- Separate team was created of 7 sanitation workers to collect the municipal solid waste from quarantine zones.
- The anti-malaria team, comprising of 250 members is being specially deputed for sanitisation purpose as they have prior experience in fumigation.

Week 2 and 3 (4th April – 18th April 2020): strengthening awareness amongst officials and citizens

- Development of online portals, awareness drives in the city were undertaken.
- On 11th April, provisions were made for food relief towards vulnerable groups by setting up various centres throughout the city.
- On 12th April, door to door health survey was initiated by a medical team throughout the city.
- Provision was made for PPE kits for sanitation workers.
- On 18th April, an anti-spitting drive was introduced, wherein any person violating the directive shall be fined Rs. 1000. This drive is active until further notice of withdrawal.

Week 4 and 5 (19th April – 3rd May 2020): Health benefits for workers

- On 29th April medical facility for all contractual and regular employees was introduced by NDMC, effective for a period of three months.
- On 2nd May, compensation was announced for sanitation workers in case of casualties.

Week 6 and 7 (4th May – 18th May 2020):

- On 4th May, 20 DTC buses were arranged especially for NDMC staff and sanitation workers for their daily commute to work.
- On 11th May, an initiative was taken to control the vector borne diseases with the help of Resident Welfare Associations (RWA) present in the city.
- On 15th May, food allowance was announced by the Education Department of NDMC for the various schools under NMDC.

Week 9 (4th June 2020):

- A core group set up at NDMC to deal with critical cases and emergency situation which arises during the management of COVID-19 for the staff.
- Formation of “NDMC Staff Welfare Cell” to facilitate the requirements of infected official/staff and their family.

2. Safety of NDMC staff/officials and sanitation workers:

- All sanitation workers have been provided with PPE kits such as masks, gloves, aprons, protective suits.



PPE kits being provided to sanitation workers and officials

- Standard operating procedure is being followed for replacing rubberised gloves and cloth masks every 15 days.
In the month of May, close to 20 cases had been detected in the NDMC staff/ officials/ sanitation workers, of which one sanitary worker lost his life. Hence, many initiatives have been taken following the crisis.
- **Medical health facility plan:** The health insurance facility was already in place for the workers pre COVID-19. In addition to this, medical health facility has been introduced. In case of any medical expenses currently, NDMC is providing complete reimbursement. Key features of the medical plan are:
 - Expenditure on test in any authorised hospital/test labs.
 - Expenditure on treatment in any authorised Government/ private hospital notified by Govt. of India/ Government of National Capital Territory of Delhi (GNCTD).
 - In case of treatment from any NDMC empanelled hospital under liberalised medical health scheme such NDMC empanelled hospital/diagnostic centres/labs will charge such employees and their dependent family members at the Central Government Health Scheme (CGHS) rates for treatment of COVID-19 infection on production of valid ID card or certificate issued by NDMC.
 - The facility is applicable for three month which could be extended depending upon the situation.
 - On 18th June 2020, the medical facility was made cashless.
- In case of casualty of any worker or official - permanent or contractual, NDMC has announced a compensation of 15 lakhs. This facility is valid from 2nd May 2020 up to three months. Staff members not attending duty are exempted from this facility.
- Hand washing facility is made available at all 45 roll call centres for the sanitation workers, they are daily supplied with immunity boosters and medicines.
- **Core Committee:** On 4th June 2020, the Welfare Department created a core committee to deal with critical cases and any emergency situation which arises during the management of COVID-19 cases relating to NDMC officials/ officers.
 - The members of the committee are Medical Health Officer, Director (MS), Director (Welfare), Director (COVID-19 cell).
 - The core group are to meet every alternate day to review the situation of COVID-19 cases and will be responsible to brief the chairman/secretary on regular basis on the status of COVID-19 cases in NDMC and its management.
 - The core group is also mandated to suggest means and ways to further contain the spread for better management of such cases.
- **NDMC Staff Welfare Cell:** On 4th June 2020, the Welfare Department also setup a “NDMC Staff Welfare Cell”, for facilitating treatment and providing all necessary assistance for COVID-19 positive NDMC officers/officials as a part of welfare measures.
 - The cell comprises of 8-member team from the Welfare Department, who will look after the cell in addition to their existing work.
 - On getting the intimation, the NDMC Staff Welfare Cell will immediately record data of affected/ suspected officers/ officials and one of the member of the cell will immediately contact the patient or his family members for facilitating treatment for COVID-19, including organising testing, consultancy and hospitalisation based on the requirement of the employee.
 - The cell will maintain Department wise detail of all such officers/officials and follow up with them on regular basis till the time they are recovered.
 - They are also responsible for sharing the details of the cases with the State Welfare Nodal Officer and taking action on their advice.
 - The cell will also ensure that the families of the infected employees have access to supply of essential goods/ services/ medicines. In case they require any assistance in this regard, the cell will supply these essentials either through NDMC or through respective District Administration.

- The cell is also responsible for arranging psychological counselling, moral support and experience sharing with infected employees and their family members through Director (MS), Charak Palika Hospital, New Delhi.

3. Sanitisation:

- All public places, streets are being sanitised once a day by two horticulture tankers and fire brigade vehicles.
- All Government offices are being sanitised periodically.
- The CT/PT, slum areas are being sanitised once a day.
- All hospitals, quarantine centres and homes are sanitised twice a day.



Sanitisation of streets



Sanitisation of bus stops



Sanitisation of Government offices



Sanitisation of slum areas

- Hand washing facilities have been installed at various places including market areas, toilets, Government office premises etc.



Hand wash facility at Khan Market, Palika Bhavan



Sanitation of CT/ PT

4. Solid waste management:

NDMC has devised a separate door to door collection mechanism for quarantined homes in which COVID-19 positive, patients/immediate family of patients are residing within its jurisdiction.

- Separate teams have been dedicated for collecting waste from quarantine and non-quarantine homes.
- Bio-medical hazardous waste is collected daily from quarantined homes. Collection starts at 7 a.m. daily.
- The list of the houses is being provided by the District Magistrate, New Delhi office in advance on a daily basis.
- A driver of the vehicle and two other employees have been deployed for this purpose and they have been equipped with complete PPE kits.
- The waste is being collected in yellow bags which are already treated with sodium hypochlorite solution. After filling the bag, it is sealed by a tight tag and loaded on the vehicle designated for transportation of BMW.
- By 10 a.m., all these collected garbage bags weighing approximately 150 kg to 200 kg are being given to Biotech Solutions agency for final disposal in a scientific manner as per guidelines of Delhi Pollution Control Committee (DPCC). This agency has also been collecting the waste from Birla Mandir Dharmshala quarantine centre and YWCA isolation centre.



Collection of bio-medical waste

5. Training:

1. Hands on training on handling COVID-19 waste have been given to the sanitation workers.
2. A workshop was organised for NDMC officials for awareness about COVID-19.

General City Level Response

1. Maintaining essential supplies:

Food security allowance to students:

- Introduced on 15th May 2020 by the Education Department, food security allowance is being granted to students of NDMC/NDMC aided and Navyug schools in lieu of cooked mid-day meal for nursery to class 12th students.
- All schools have been requested to create the database for relevant details of the students.
- This is being given under Direct Benefit Transfer (DBT) through RTGS in the bank account of the students to meet their nutritional requirements during the lockdown period for safeguarding their immunity.

Details of food security allowance to students

	Amount	Period
Primary and Nursery	Rs. 193.93 per child	06.03.2020 to 30.04.2020 (41 days)
Upper Primary	Rs. 226.44 per child	19.03.2020 to 30.04.2020 (32 days)
Secondary and senior Secondary	Rs. 269.44 per child	19.03.2020 to 30.04.2020 (32 days)

Vulnerable groups:

- 4 NDMC schools have been identified wherein 60 staff members have been distributing wheat & rice to beneficiaries identified by the Government of National Capital Territory of Delhi (GNCTD). These 4 centres have been integrated with Central Command & Control Centre of NDMC.
- NDMC has set up 2 centres for cooked food (lunch & dinner) distribution for daily wage earners at Sanjay Camp & Bapu Dham area of New Delhi.
- In addition, NDMC has set up 12 Food Relief centres in its 12 schools where cooked food is being provided by New Delhi District.



Food distribution at various centres of NDMC

2. Health advisory and services availability:

- Flu corner: A 24x7 flu corner has been designed and setup at NDMC Charak Palika Hospital to provide protection to the healthcare workers while saving on PPE used.
- The design involves a temporary structure made of canvas with a glass partition, equipped with a microphone for interacting with the patients.
- It is constructed in an open area of the hospital premises. It is monitored by the CCC with CCTV cameras.



24x7 Flu corner for citizens

Training / communication and behavioral change

1. 10,000 posters have been put up across the city and 75,000 pamphlets have been distributed to the citizens.
2. A comic book has been created to attract the attention of citizens, especially children.
3. Online portal has been created for dissemination of information.
4. Regular updates are also available on the official social media pages of NDMC such as Twitter and Facebook.
5. An appeal has been made to Resident Welfare Associations (RWA) to reduce the spread of other vector borne diseases and lessen the burden on medical infrastructure already engaged in controlling COVID-19, NDMC has been taking regular initiatives.
 - To help in coping with the situation Medical officer of Health, NDMC issued a notice to all RWAs requesting for their active participation to monitor their respective areas and identify vulnerable spots which can be a breeding ground for mosquitoes.
 - NDMC has committed to take requisite action within two days of reporting any such vulnerable spots.
 - NDMC has asked the RWAs for participating in the campaign to create awareness amongst citizens on precautions of COVID-19 and other vector borne diseases and more suggestions were welcomed from the citizens regarding initiatives to be taken to control the spread of the disease.



Hoardings put up across the city



Pamphlet distribution for awareness



Online web portal of NDMC



Snapshot of comic book created for children; contribution done by SBI

Stakeholder participation

1. Private organisation - Vivo India donated 15000 masks to NDMC for its frontline staff and healthcare workers.
2. Government - SBI "STREEDHAN" contributed by ladies has donated 20,000 facemasks & 20,000 gloves to NDMC. "STREEDHAN" is contributed by Ladies of State Bank of India family.

Summing Up

NDMC has recognized the need to prioritize the health and safety of the sanitation workers and staff which is evident from the various health facilities introduced, core committees formed, workforce deployment strategies introduced to control the pandemic.

4. Bengaluru, Karnataka



Image Source: The native planet

City Overview

Area: 741 sq.km. | **No. of wards:** 198

Population: 8,443,675 (Census 2011)

No. of workforce: 16000 (approximately)

Information of COVID-19 cases	
Number of cases	1791
Active cases	1206
Recovered cases	506
Fatal cases	78



Source: COVID-19 tracker dated as on 25.06.2020 (<https://www.covid19india.org/>)

Introduction

Bruhat Bengaluru Mahanagara Palike (BBMP), is the administrative body responsible for Greater Bangalore metropolitan area. It is the fourth largest Municipal Corporation in India.

While initially, COVID-19 cases were reported only in Bengaluru, the city's share in the total reported cases in the State has fallen since the imposition of the lockdown on March 24. Bengaluru had also reported the lowest number of cases among the major Indian cities. Bengaluru has recorded just 1791 cases as of 25th June even as Mumbai, Delhi and Chennai have contributed 38% of the country's over 4.73 lakh cases.

Bengaluru was recognised by the Union government, alongside Jaipur, Indore and Chennai for being role models in pandemic management, from creating containment zones to contact tracing and other containment measures.

Administrative / Governance/ Planning Response

Immediate response:

Since the first positive case on March 9th, 2020, Bengaluru has taken rapid measure to check the spread. Bengaluru had initially experienced a spike in the number of cases. As a response, the ULB administration and the Health Department took proactive measures to limit the spread of the disease and to comparatively lower the number of COVID-19 cases and casualties. In response to this situation the following necessary actions were taken:

1. Bengaluru began early monitoring and screening at the airports and initiated institutional quarantine for international passengers to limit the spread of the disease as early as 2nd March, 2020.
2. BBMP was one of the first ULBs to set up a War Room in response to COVID-19 outbreak in the city as early as 24 March, 2020 for effective monitoring over the containment zones, infected areas and positive cases in the city and managing real time information. The two-month-old command centre has been helping the authorities in identifying gaps and decision making to contain the spread of coronavirus. The War Room has also been helpful in identifying gaps and forecast a sudden increase in the number of positive cases in a particular area. The War Room daily bulletin gives information on containment zones, infected areas and positive cases in the city.
3. Swift and Efficient Containment: Since the first positive case on 9 March, 2020, Bengaluru has taken rapid measure to check the spread. On 11 March 2020, the State Government notified the Karnataka Epidemic Diseases, COVID-19 Regulations, 2020, giving it extensive legislative powers to set a containment plan in place. Among 198 wards in the city, only 61 wards had reported COVID-19 positive cases. A team of police constables and health workers were formed, to visit people under home quarantine for daily follow-up.



BBMP War Room Dashboard (BBMP official website)

Intermediate response:

1. BBMP has done extensive contact tracing in the ratio of 47 traced contacts for every positive case. It has also conducted surveillance on people within 8-km radius of a confirmed patient, so as to contain the spread of the virus. Surveillance and tracing were carried out stringently, to restrict the cases and check the spread at the community level. Volunteers were sent to pharmacies to track and trace people who were buying cough medication, paracetamol or antibiotics and they were followed up with on a regular basis, for COVID-19 symptoms.

2. The State Government also procured about 1,000 ventilators from a Mysuru-based firm, and purchased 10 lakh masks and five lakh PPE kits.
3. Sample Survey and Effective Testing - Door-to-door surveys were conducted and random samples were tested in the containment areas. A large number of Bengaluru's households have been surveyed to check for vulnerable populations. The survey exercise was initiated to identify populations who may be vulnerable to coronavirus infections. The survey divided vulnerable populations into senior citizens, comorbid conditions (diabetes, cardiac ailments), symptomatic patients and pregnant/lactating women. Once identified, this population was given special attention by the Health Department in follow-up rounds.
4. BBMP used apps and drones to monitor the movement of people and ensure that the spread of the infection was limited to the containment zones.

Systemic response:

1. The administration prepared comprehensive action plans for Sanitation, SWM and LWM, as a response to COVID-19.
2. To help people get medical consultations at their home during the lockdown, the civic body on launched TeleHealth Line, where doctors provide service over the phone. The doctors diagnose patients using various technology platforms, including video consultation whenever needed. The initiative will help COVID-19 Rapid Response Teams to screen and track suspected cases more efficiently.
3. Strategic workforce deployment plans were prepared for the city.
4. Regular monitoring mechanism through mobile applications have been developed.
5. A review meeting conducted every day in the presence of all departments involved to monitor and improvise action plans on daily basis.

Urban Sanitation Response

1. Limiting the spread:

- On March 21, teams of police constables and health workers were formed, to visit people under home quarantine for daily follow-up. The ULB ensured that the spread of the infection was limited to the containment zones. The movement of people in these areas was also restricted and monitored through mobile applications and drones to make sure they do not venture out of their homes.
- To set up quarantine centres at the earliest, BBMP identified several non-air-conditioned hotels and utilised them as institutional quarantine centres in the initial weeks since the first reported case in the city; State Government bore the cost of logistics for the patients in quarantine. State-wide residential schools and hostels of the Social Welfare Department were being used as quarantine facilities.

2. Sanitisation response:

- All community toilets and public toilets are cleaned and sanitized twice a day.
- Users of CT/PT are mandated to practice hygiene, cleanliness and physical distancing norms to avoid contamination.
- After disinfection, the liquid waste is released in the public sewer lines of the city which carry it for further treatment at the centralized sewerage treatment plant of where the waste undergoes all further stages of treatment and disinfection.
- At least 5 hand wash facilities are installed in every ward for sanitation workers as well as citizens.
- Hand washing facilities at entry points of all CT/PT have been arranged.
- For sanitization of the COVID-19 Hospitals, quarantine centers and containment areas, a dedicated team of 5000 sanitation workers is carrying out day to day internal and external sanitization of these areas, using 100 sanitization machines, 75 pressure jet machines for the said purpose. Sanitization is done through biological sanitizers and 2% hypo-chlorite solutions.



BBMP workers sanitize public spaces (Image source: BBMP SWM Consultant)

3. Safety of frontline workers:

- BBMP has deployed 16000 sanitation workers on COVID-19 duty, after effectively training them in handling COVID-19 waste and for the appropriate use of safety gear along with its disposal.
- 4000 workers above the age of 50 years have been sent on leave to avoid the risk of contracting the disease.

4. Sanitation workers Insurance and compensation:

- The sanitary staff in the ULB is already provided with health insurance.
- The State felicitated sanitation workers, home guards, ASHA workers etc. in Bengaluru on May 10, along with Municipal Commissioner, BBMP to encourage them and thank them for their frontline role in COVID-19 management.



Felicitations of Frontline workers in Bengaluru (Source: Business Standard)

5. Management of solid, liquid and bio medical waste:

- BBMP has introduced a three-bin collection system in the city – vehicles deployed by BBMP have three compartments for wet waste, dry waste and hazardous waste.
- 500 door to door vehicles have been deployed by BBMP to collect waste from containment areas and these have a separate compartment to collect the COVID-19 waste. The vehicles for other residential areas have a separate compartment for domestic hazardous waste.
- 50 dedicated vehicles are deployed for collection of COVID-19 waste from all the COVID-19 hospitals and quarantine centers.
- The liquid waste generated from COVID-19 hospitals and quarantine centers is disinfected with 1% sodium hypochlorite solution as precaution to avoid risk of spread through this waste.
- The bio-medical waste is disposed through the already existing common bio-medical waste treatment and disposal facility of Bengaluru. This facility is managed by an external contracted agency. It is used for the disposal of bio-medical and domestic hazardous waste where it is incinerated.

6. Training:

The sanitation workers and officers are trained on SOPs on field and measures to be taken at their respective homes.

General City Level Responses

1. Monitoring and updating:

- Bengaluru has managed to keep the number of positive cases relatively low as BBMP had adopted a 'Leave No Case Untraced Approach'. This included identification of cases, aggressive contact tracing, visualization of scenarios case by case and using simulation models to understand the spread of the pandemic.
- Apart from tracking and tracing the contacts, the civic authorities also kept a tab of those quarantined, especially at home, through the mobile applications.
- The BBMP also developed a strategy called 'anti-contact tracing' to detect new clusters where the virus may be spreading quickly. According to this plan, samples from crowded places are merged with those taken from residential areas to cull out information on likely clusters.
- The War Room monitors the entire city's COVID-19 response, containment zones, active cases and daily updates are published in the War Room Bulletin.

2. Response towards vulnerable groups:

- The Karnataka State Government ensured that Indira Canteens provide food to street vendors, daily wage workers, and others who fall in the low-income category. The canteens provided hygienic food three times a day and were taking precautions to ensure cleanliness and safety.
- 'With Bengaluru', a citizens' initiative has come together to support vulnerable groups during the lockdown, and have raised Rs 1.4 crore raised and delivered over 11,000 ration kits to under-privileged families.
- Local NGOs on the ground include Swaraj Abhiyan, SJSK, Payana, Sparsha Trust etc. Funds for ration kits have been raised from the public using online crowdfunding as well as through grants from Wipro Foundation and HBS Foundation.

Financing

BBMP has taken a decision to allocate Rs. 20 lakh per ward for COVID-19 from the programme of work funds.

Stakeholder participation

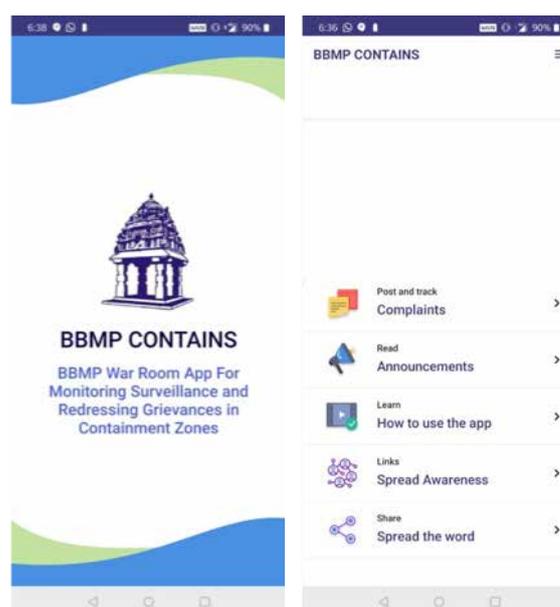
Various stakeholders are involved in carrying out different kind of activities in the city which have already been explained in the sections above. This section gives a summary of various stakeholders and the activities carried out by them:

Organisation	Stakeholder	Activity
Citizen	Citizen volunteers	Tracing people visiting medical stores for cold and cough
NGO	Indira Canteens	Food for street vendors, Low income groups, daily wage workers
Citizen initiative	'With Bengaluru'	Raised 1.4 Cr and supplied 11000 ration kits to families
Government	LIC housing finance	Provision of 1000 masks
Private	Google, Infosys, Microsoft, PWC India, ESRI India, Quantella – Probono	Deployed employees for War Room
Government	The Indian Institute of Science (IISc)	Development of apps, analysing data, monitoring infected areas and suggesting actions
Private	Tata Group	Conversion of C.V. Raman Nagar Hospital a COVID-19 isolation hospital
Private	The University of Trans Disciplinary Health Sciences and Technology and Bosch	Providing a 100-bed hospital for COVID 19.

1. Google, Infosys, Microsoft, PWC India, ESRI India, Quantella have deployed their data analysts, app developers, information technology specialists to work pro-bono for BBMPs War Room. Public health professionals are also part of the 100-member team.
2. The consortium of companies along with the Indian Institute of Science (IISc) professors and a few city-based start-ups have been working on various fronts including the development of apps, analysing data, monitoring infected areas and suggesting actions. The entire exercise presents a classic case of Public-Private Partnerships and Technological interface for public health in fighting the COVID-19 pandemic and it has recently received recognition from the Ministry of Health.

Use of digital technology

1. BBMP, with the help of the consortium of companies has launched three mobile applications such as Quarantine App, BBMP Contains and Sahaya Setuve, for various purposes. It plans to develop another app to monitor quarantine facilities and collect feedback from those who are quarantined in private hotels and hostels.
2. BBMP Contains app is developed to empower people to stay updated on important government circulars, media bulletins, FAQs. Citizens in sealed areas can also use it to raise complaints against people breaking home quarantine rules, defying social distancing norms, breaking down barricades, etc with the option for the users to upload photos and videos of such violations.
3. Officials attribute real-time access to data, quick decision making among other measures that helped the city to contain the spread of coronavirus even in thickly-populated areas.



Sarvam Setu mobile application

Summing Up

Bengaluru has managed to mitigate the spread of the virus by taking some proactive measure very early. BBMP's promptness in contact tracing and quick action to seal down areas where cases were reported were key to its success. Effective measures in mobilizing stakeholder participation and effective use of technology has also helped the city in monitoring the spread and in containment of the pandemic.

5. Pimpri Chinchwad, Maharashtra



Source: Hindustan times archives

City Overview

Area: 181 sq.km | **No. of wards:** 32

Population: 1,727,692 (Census 2011)

No. of workforce: 4000 (approximately)

Information of COVID-19 cases	
Number of cases	2324
Active cases	955
Recovered cases	1329
Fatal cases	40



Source: COVID-19 tracker as on 25.06.20 (<https://www.covid19india.org/>)

Introduction

Pimpri Chinchwad Municipal Corporation (PCMC) has taken undertaken various measures to ensure sanitization and cleanliness of the city from the early stages of COVID-19. Trainings and standard operating procedures (SOPs) have been provided to sanitation workers on precautions to be taken while working to tackle COVID-19.

PCMC has updated and modified infrastructure created through Smart City Mission to tackle COVID-19 pandemic. Various technologies have been integrated by PCMC to tackle the challenges on emergency basis.

Administrative / Governance/ Planning Response

Before nationwide lockdown:

1. The city took early measures in generating awareness by conducting door to door awareness campaigns on steps to be taken to avoid spread of the COVID-19 in their home and neighbourhood.
2. Anti-spitting drive was conducted throughout the city wherein people were fined on violation of rules.
3. Entry-exit points of the city were restricted to ensure no unnecessary movement of people takes place to and from the city.
4. Guidelines were developed and issued for home isolation for the citizens.

Immediate response:

1. A war room was set up with dedicated team equipped with digital tools and human resources to tackle the COVID-19 crisis.
2. A dedicated helpline platform SARATHI (System of Assisting Residents and Tourist through Helpline Information) was set up to assist citizens on issues faced by them.
3. Provision of health infrastructure was made in terms of dedicated hospitals, ICU beds, isolation centres, shelter homes etc.
4. 11 shelter centres were setup for foreigners, homeless and unemployed. There are 96 rooms with a capacity of 1000 people.
5. Mandatory health feedback was taken from citizens returning from abroad to identify possible cases.
6. Mobile clinic was launched to take doorstep swab samples of the COVID-19 suspected cases to provide medical facilities.

Intermediate response:

1. Door to door supply of daily essentials was made available with stakeholder participation for the vulnerable groups.
2. Active awareness campaigns were conducted for the citizens through posters, social media platforms with active involvement of Municipal Commissioner and Elected Representatives.
3. Monitoring measures were taken by installing CCTV cameras, geo-tagging of isolated patients by mobile technology, movement tracking of ambulances, garbage vehicles etc.
4. PPE kits were provided to the sanitation workers.

Systemic response:

1. A 'COVID-19 Healthcare and Patient Tracking Dashboard' has been developed for real-time updates and information on the ongoing situation which enables the ULB officials to undertake necessary interventions.
2. Daily GIS analysis for preparation of containment plans, door to door survey in the containment zones and for taking other necessary steps.
3. Various mobile applications have been developed for daily updates, information dissemination and to check health status of citizens etc.

Urban Sanitation Response

1. Limiting the spread:

A system of smart GIS has been developed where in the new cases identified in the city are being mapped, the 1km area surrounding the COVID-19 infected person or family is declared as a containment zone. Henceforth, the following activities are undertaken:

1. Various services such as hospitals, dispensaries, essentials suppliers, ambulances, shelter homes, are marked on the map.
2. Surveillance teams conduct door to door survey to check the health status of the citizens and identify the probable cases and high-risk contacts.

3. Analysis is being done based on the situation in terms of action planning for provision of necessary infrastructure and services such as availability of quarantine centres, hospital beds, provisions of essential supplies, carrying out sanitisation drives etc.
4. These maps are being published on public domain whenever updated.

2. Safety of sanitation workers and staff:

1. All Government offices are being disinfected daily, along with measures like restrictions on public entry to the ULB office premises.
2. PCMC has suspended thumb/ biometric screening of employees.
3. To ensure safe working conditions for sanitation workers, PPE kits such as hand sanitizers, soap, mask and gloves were procured and distributed at the early stage of COVID-19.
4. Sanitation staff are given regular instructions with provision of guidelines and Standard Operating Procedures (SOPs) for conducting disinfection in common public places including offices, door to door waste collection and handling of waste.

3. Sanitisation measures:

1. All public places like bus stops, market areas, identified COVID-19 hotspots, containment areas and quarantined societies/ areas are being sanitized through spraying of disinfectant solution once a day.
2. Building with quarantined households are being sanitised using Bactodex, sodium hypochlorite. This has been provided to all ward offices along with required equipment like mist blower pumps and soaps.
3. A team of SKF India under CSR initiative contributed by conducting disinfection, minor repair and servicing of 30 plus ambulances, police van and doctors' emergency vehicles.



Sanitisation of vehicles

4. Monitoring:

1. A total of 298 'point-tilt-zoom' surveillance cameras have been installed at 85 locations across PCMC jurisdiction to monitor the activities. A dashboard of this surveillance system has been set up at ICCC and is being jointly monitored by PCMC and Pimpri-Chinchwad Police.
2. The movement of isolated patients and home quarantined families is being tracked through live geo-tagging mechanism with the help of mobile application at the ICCC.



Surveillance cameras at PCMC

5. Solid waste management:

1. PCMC has established a separate waste collection mechanism for quarantined households.
2. All the waste generated from the quarantined households is collected by the bio-medical waste team and not through regular waste collection mechanism. This is to avoid any infection spreading while handling of waste.
3. All quarantined households have been provided with a litre of sodium hypochlorite solution, separate garbage disposal bags and procedure for disposing of waste with necessary instructions is given.

6. Training:

Training is being given to sanitation workers on safety precautions to be undertaken and do's and don'ts to be followed to safeguard themselves against COVID-19. These trainings are conducted while taking adequate care of social distancing.



Trainings provided to sanitation workers while maintaining social distancing

7. Medical equipment procurement:

1. Bhosari based Faurecia India Pvt Ltd. Company donated the medical equipment worth Rs. 2,80,000 to Yashwantrao Chavhan Memorial Hospital to preclude COVID-19 virus infection in the city. Equipment includes 12 stretcher trollies, 5 special stretcher trollies, and 2 wheelchairs. These have been donated through CSR funds.
2. Hindustan Petroleum donated 10 wheelchairs to PCMC.



Donations made by organisations

General City Level Response

1. Response towards vulnerable groups:

- PCMC had appealed to various charitable organizations to cooperate and contribute to the shelter centers and people who do not have basic essentials in the city.
- 44 cooking centers have been set up in the city by PCMC with the help of various NGOs. Food is being supplied to 97 places and provided to about 52,470 citizens through 13 organizations.
- “CREDAI” a builders’ organization, distributed 3kg of rice, 1kg of tur dal, sweet oil, 1kg of potato and chilli masala for 1200 citizens each and distributed it at various places.

2. Health advisory and services availability

Mobile clinics: PCMC in collaboration with Krsnaa diagnostics has developed a system of mobile clinic which enables health care professionals to take doorstep swab sample collection. A mobile van equipped with all necessary materials and healthcare professionals is dedicated for this activity.



Mobile clinic

Training/Communication and Behavioral Change

1. PCMC has been spreading awareness through various communication mediums such as PCMC’s website - www.pcmcindia.gov.in, social media platforms like Facebook, Instagram, Twitter, and through print media like newspaper, television, and Short Message Services (SMS) service, Whatsapp messaging and public announcements.
2. Daily dissemination of video messages on precautions for COVID-19 by the Municipal Commissioner, involving various television actors, elected representatives, health professional is being done.
3. PCMC has been using the door to door collection vehicles to daily play the audio clip on COVID-19 awareness and precautionary hygiene measures to be taken by the citizens.
4. During the early days of the spread, PCMC undertook cleanliness drives to maintain hygiene in the city. One of the cleanliness drives was against spitting in which about 200-300 people were fined daily.

Along with this awareness measures on adoption of hygiene measures were undertaken.

5. A WhatsApp group of medical practitioners, various private pathology practitioners has been formed for exchange of developments in the daily activities and awareness is being spread through Facebook and Twitter.
6. Awareness about COVID-19 has been raised by distributing hand leaflets during door-to-door surveys.



PCMC is using social media to create awareness and disseminate crucial information regarding COVID-19.



Door to door awareness campaign by PCMC officials before the spread of virus



7. Awareness activities by Municipal Commissioner, Elected Representatives and famous personalities

Stakeholder participation

Various stakeholders are involved in carrying out different kind of activities in the city which have already been explained in the sections above. The following table gives a summary of various stakeholders and the activities carried out by them:

Organisation	Stakeholder	Activity
NGO , Private	NGOs, IT professionals, civil society	Development of SARATHI App
Private	CSR - SKF India (Swedish bearing and seal manufacturing company)	Disinfection, minor repairs, servicing of ambulances
Government	Hindustan Petroleum Corporation limited	Donation of 10 wheelchairs
Private	Confederation of Real Estate Developers Associations of India (CREDAI), Pune	Donation of medical equipment
Private	Faurecia Private limited	Donation of medical equipment
Private	Tech Mahindra	Digital technology partner
ER	Elected representatives, television actors	Awareness programs
Private	Krsnaa Diagnostics	Mobile clinic

Use of digital technology

PCMC has used technology as a tool to combat the pandemic situation. From the use of citizen app to monitor using GIS tools and monitoring dashboard, PCMC has utilized digital technology for proper monitoring and tracking of the COVID-19 situation in the city in order to make the decision making more effective.

- COVID-19 GIS dashboard:** Location-based information system is used to geo-tag people who are home quarantined, last location of COVID-19 positive persons, area cordoning, lane closure, etc. Action plan and resource allocation is prepared based on the real time information received.
- COVID-19 Healthcare and patient tracking dashboard:** PCMC has developed a dashboard which provides real-time information on COVID-19 cases, testing and healthcare arrangements. Each hospital has been provided access to the dashboard via a dedicated online portal form wherein, the information is filled by each of the hospital unit which gets updated on real-time basis on the dashboard at ICCC.
- SARATHI:** Public grievance system of PCMC 'SARATHI' rolled out a COVID-19 control program on 11th March 2020. The key features are:
 - Prepared standardized information in simple language to avoid miss-information about the cleanliness and hygiene measures to be taken to tackle COVID-19, which is disseminated through multiple channels for easy and free access.
 - Provision of helpline :
 - A dedicated interactive service platform for any assistance related to service delivery with a dashboard which provides analytics on major requests/ complaints from citizens, request/ complaint redressal status, zone-wise request/ complaints etc.
 - All calls received through helpline are saved as audio file and are also documented with respect to date and nature of request, responsible department and zone and status of closure of request.
- PCMC Smart Sarathi:** It is the official mobile application and web portal of Pimpri Chinchwad Smart City Ltd. To protect the citizens from the COVID-19 outbreak, PCMC Smart Sarathi has launched various features for citizen welfare.

The key features for Mobile application are as below:

- COVID-19 Self-Assessment Test: PCMC Smart Sarathi has launched an online self-assessment test for the citizens. The test has been framed with 'Risk Assessment Criterion' through which depending on the answers to the questions, the health risk of the citizen can be identified. This test is beneficial not only for citizens but also for the ULB as they can effectively gather data online which can be then analysed properly to design an action plan and effective response to mitigate the risks. As on 8th April 2020, around 1,000 people had filled the self-assessment survey.
- Quarantined movement check: Online engagement & survey with quarantine patients with the intent of capturing their geographic location is undertaken. If the location of the patient is more than 100 meters from the identified location, an automatic update is sent to the concerned health worker.
- Enrolment of volunteers: PCMC Smart Sarathi started a campaign to appeal to the citizens to volunteer towards relief measures in order to control the COVID-19 outbreak. This online campaign collects the data of volunteers, which will be helpful for PCMC in formulating action plans. In the initial 2 days around 672 volunteers had registered.
- "Near Me": It shows the nearby places like hospitals, Government offices, markets etc. PCMC is also planning to add more information in this section like address and contact details of shops providing the 8 essentials like grocery, medical shops, vegetables & hospitals having permission as COVID-19 test centre and doctors. It also displays the nearby free food distribution centres, home shelters (stay facilities). Currently more than 2,500 Merchants have already been listed on the application.

5. **Sobati app**: The app is being used for door-to-door survey of citizens under the survey team appointed by the medical department. The key features are:

- It categorizes citizens aged 60 years and above and pay special attention to them.
- If there are any COVID-19 symptoms among the citizens they are noted in the app. The app runs on both Android and iOS phones to determine the extent of COVID-19 prevalence in the city and to implement the right measures.
- This will also record the citizens of private hospitals with symptoms of COVID-19.

Summing Up

PCMC has effectively modified and upgraded infrastructure created in SMART city mission to tackle the COVID-19 pandemic. Technology is used to monitor and track real time updates which has led to comprehensive action planning and prompt decision making.

6. Hyderabad, Telangana



Source: Treebo

City Overview

Area: 625 sq. km. | **No. of wards:** 150

Population: 6,809,970 (Census 2011)

No. of workforce: 2500 (approximately)

Information of COVID-19 cases	
Number of cases	1461
Active cases	1133
Recovered cases	305
Fatal cases	23



Source: GHMC Dashboard as on 25.06.2020

Introduction

The Greater Hyderabad Municipal Corporation (GHMC) has been working towards tackling the pandemic effectively. The Initiatives taken by GHMC in identifying suspected cases, facilitating 16,000 isolation wards, undertaking awareness programmes and simultaneously implementing welfare measures for migrant workers has been recognized by Inter-Ministerial Central Teams (IMCTs) as best practices in addressing the pandemic situation. It is evident that sanitation workers having direct contact with virus-laden waste collection are at a high risk and get affected adversely. GHMC is also taking all necessary measures to ensure the safety of frontline sanitation workers during the current crisis.

Administrative / Governance/ Planning Response

Immediate response:

As soon as the first few cases were detected, citywide restrictions were declared and as the cases started rising, GHMC started taking preventive measures of screening and sanitising the entry-exit points of the city.

First COVID-19 case was detected in the city on 2nd March 2020, following which the following steps were taken by the GHMC.

1. Control room for COVID-19 emergency was established with 4 helpline numbers and with inter-departmental offices viz., GHMC, medical, civil supplies, ambulance services etc. for coordination.
2. Isolation wards were formed in Gandhi Hospital for suspected COVID-19 patients.
3. The contact details of isolated households were collected and tracked. Essential supplies were provided as per their requirement.
4. Along with GHMC, officials were made alert in neighbouring villages to take precautions against the spread of COVID-19.

Intermediate response:

1. Standard operating protocols and guidelines on use of safety gear were given to all the departments of GHMC.
2. The sports complex has been converted into isolation and treatment centre with revamped infrastructure having 1500 beds.
3. With respect to the containment zones, a special team has been deployed for facilitating daily needs of citizens and collection of solid waste. The spraying of disinfectant is carried out twice every day in these areas. These activities are monitored by the Additional Commissioners, transport coordination team, Deputy Executive Engineers and nodal officers of respective circles.

Systemic response:

Over the period of time, COVID-19 response plans and strategies were developed.

1. The authority ensured spraying of disinfectant in public toilets.
2. SHG women were engaged to stitch cloth masks there by providing them an opportunity to sustain their livelihood.
3. Disaster Response Force (DRF), Directorate of Enforcement Vigilance and Disaster Management (EV&DM) and GHMC are responsible for spraying of disinfectants across city. This activity is monitored continuously through geo-mapping. Teams were formed with an objective of 24 hours surveillance and also for awareness creation, monitoring the sanitation measures etc.

Urban Sanitation Response

1. Limiting the spread:

The measures taken in GHMC are described below:

Week 1 & 2 (March 2nd to March 14th): Sanitization and strict lockdown for public spaces

1. Tracing of all positive case contacts and shift them to the designated health facility for further testing & treatment if required, was undertaken the district rapid response teams.
2. Spraying of disinfectant carried twice every day in the containment areas. This practice continues till date.
3. Sealing establishments/institutions by enforcement, vigilance and disaster management teams to ensure public safety.
4. Focus on IEC programmes for generating awareness on COVID-19.

Week 2 & 3 (March 15th to March 27th): Solid waste management

1. Dedicated waste collection vehicles i.e. Swachh auto tippers were allocated to collect the waste from containment clusters. Also, a dedicated place has been allocated at transfer stations for waste from containment clusters.
2. This initiative has been done in compliance with the guidelines issued by WHO and CPCB in March 2020. In this regard, other instructions or guidelines issued from time to time by the Central as well as State Government has been followed.

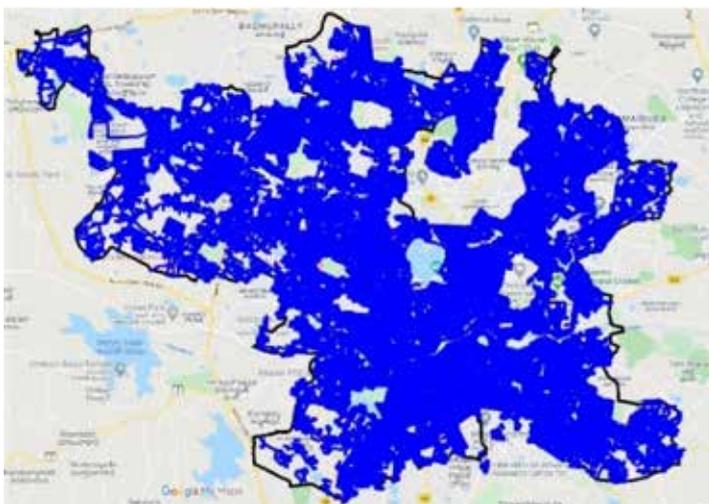


Sanitation workers wearing safety gear while discharging their duties

3. Door to door disinfectant spraying in colonies by DRF teams. All areas and localities covered by multiple specialized teams.

Week 4 & 5 (March 28th to April 11th):

1. 125 Units with 2375 workers from the Entomology wing of GHMC were deployed in spraying of disinfectants across the city. The workers were equipped with 1,000 power sprayers, 817 knapsack sprayers, 63 vehicle mounted fogging machines and 305 portable fogging machines.
2. DRF, EV&DM and GHMC held responsible for spraying of disinfectants across city.
3. 675 personnel from DRF were divided into 19 teams and carried spraying of disinfectants at major streets, public spaces, all wards (door to door) etc. across the city. The staff worked round the clock in 3 shifts.
4. The team completed spraying entire city in three phases by using 10,000 litres of sodium hypochlorite every day. This activity is monitored continuously through geo-mapping.



Map of disinfectant spraying in internal roads

Week 6 onwards (from April 12th)

1. GHMC control room staff provided food and essential supplies to the vulnerable citizens in the city through the Annapurna scheme.
2. Distribution of other essential services to all the shelters
3. Awareness training conducted for all the sanitation workers.



COVID-19 control room working to provide essential amenities to the poor migrants

2. Safety of sanitation workers:

- The sanitation field staff working in containment zones have been closely monitored by COVID-19 monitoring cell to ensure their safety and attendance. No casualty has been reported till date.
- GHMC has arranged Telangana State Road Transport Corporation Buses (TSRTC) in order to ensure safe transport facility for workers to commute to their workplace. Maximum of fifteen workers are allowed in each bus so as to ensure physical distance during travel. Environmental Engineers of respective zones have been engaged to monitor the activity of commuting workers each day. The buses are disinfected after every use and the spraying of disinfectant is done with manual sprayers.
- NGOs have played a key role in distribution of clothes, masks, PPE kits, fruits, and ration to sanitation workers amidst COVID-19.
- The Urban Community Development Wing (UCD) of GHMC has engaged its SHG women in stitching cloth masks. These cloth masks were distributed to sanitation workers at the rate of Rs 4 per mask.
- A citizen, Mr. Niranjan Rao Garu donated an amount of Rs.5 Lakh for the welfare of sanitation workers.



Transporting daily sweepers to their workplace using TSRTC Buses

3. Training:

- Orientation & surveillance training was given by Indian Institute of Health & Family welfare, Hyderabad to 350 field officers and sanitation staff for safe handling COVID-19 waste. Various awareness campaigns on COVID-19 were carried out.



Training and awareness program

General City Level Response

1. Response towards vulnerable groups:

- Various NGOs were engaged in providing meals to the sanitation workers. This initiative has strengthened the motivation of workers towards their work besides ensuring their health.
- In GHMC, UCD Wing employees provided handholding support to the NGOs in distribution of necessary goods to urban poor and migrant workers.
- Gujarati Seva Mandal distributed food to approximately 5000 persons every day.
- Citizen development forum provided breakfast to the sanitation workers and other homeless people.
- Udaya Heights Pvt. Ltd provided food supplies for the sanitation workers.
- Ahaar restaurant provided food for the people at the shelter homes.



Ahaar restaurant and Gujarati seva mandal providing food

2. Maintaining essential supplies:

- GHMC with the help of elected representatives is supplying essentials to the vulnerable groups.
- Delhi Public School, Nacharam distributed 1100 food grain packets to the vulnerable groups and also distributed sheets and blankets to the homeless poor.



Food grains being provided to the vulnerable groups



Distribution of blankets

Training/Communication and Behavioural Change

1. 265 hoardings were erected at important locations creating awareness on COVID-19.
2. Total of 15 Lakh pamphlets in various languages were distributed.
3. Standees stickers were also used to disseminate information.

Financing

1. A one-time monetary incentive of Rs. 7,500 was given by the Telangana Government to all regular and outsourced sanitation employees of GHMC as an encouragement for their commitment during these hard times.
2. All regular, contract and outsourced staff members of Medical and Health Department, at 10% of their gross salary/remuneration.

Stakeholder participation

Gujarati Seva Madal, Delhi Public School, Ahaar Restaurant, Udaya Heights Private limited, Citizen Development forum – Provision of PPE kits, food for vulnerable people.

Use of digital technology

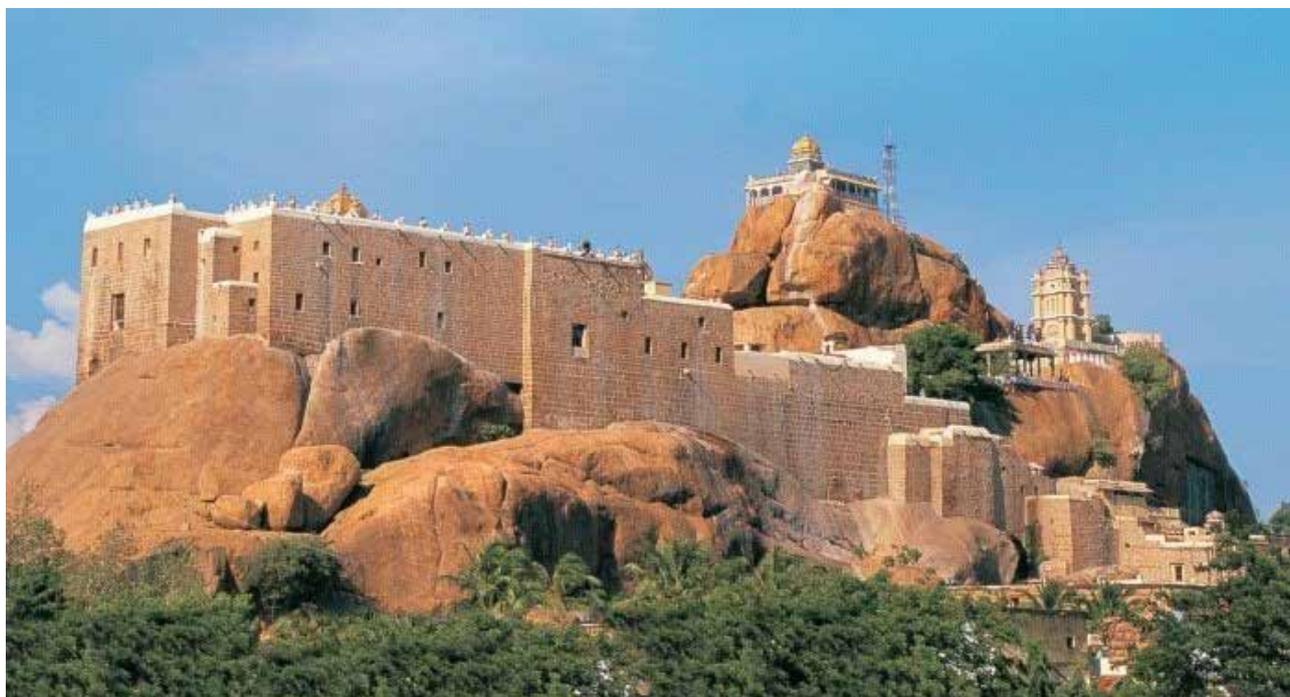
1. Surveillance teams were formed with an objective of 24 hours surveillance and also for awareness creation, monitoring the special sanitation measures etc. These teams are responsible for reporting and isolating the COVID-19 cases and home quarantine of suspected cases.
2. Control room for COVID-19 Emergency was established with 4 helpline numbers and with inter-departmental officers viz., GHMC, Medical, civil supplies, Ambulance services etc. for coordination.



Summing Up

The Cluster Containment Strategy implemented in Telangana and its strict enforcement in Hyderabad has significantly contributed in breaking the transmission chain of virus across the city.

7. Tiruchirapalli, Tamil Nadu



Source: Trawell.in

City Overview

Area: 167.2 sq.km. | **Number of wards:** 65

Population: 847,387 (Census 2011)

No. of workforce: 3000

Information of COVID-19 cases	
Number of cases	546
Active cases	343
Recovered cases	199
Fatal cases	4



Source: COVID-19 tracker as on 29.06.2020 (<https://www.covid19india.org/>)

Introduction

Tiruchirappalli also called Tiruchi or Trichy, is a major tier II city in the Indian state of Tamil Nadu and the administrative headquarters of Tiruchirappalli district.

The city has also ranked as a leading city in Swachh Bharat Missions Swachh Survekshan 2019 as a bin-free city. Trichy was able to successfully contain the spread of COVID-19, as for two weeks in the month of May there were zero cases noted. Post lifting of lockdown, rise in the number of cases has been observed. Trichy City Corporation (TCC) is taking all necessary steps to contain the spread of COVID-19.

Administrative / Governance/ Planning Response

Immediate response:

As the nationwide lockdown was announced the following actions were taken by Trichy City Corporation (TCC):

1. An exclusive task force under the leadership of the District Collector was formed to carry out COVID-19 related tasks.
2. Deputation of personnel, resources, monitoring and daily submission of reports to the State is being undertaken by a special task force.
3. A control room has been setup at TCC which comprises of two medical officers, a Sanitary Inspector and field workers.
4. A common toll-free district level COVID-19 helpline has been setup.
5. Mass screening has been carried out in the hotspot areas.
6. The local medical facilities have been identified for sample collection (11 private and 18 public health centre). 3 private hospitals have been designated to treat COVID-19 cases.
7. Private vendors have been designated for sanitisation of the city.
8. List of backup team of sanitation workers has been created in case of an emergency situation.
9. Door to door health survey had been initiated.
10. Re-organisation of market spaces has been done. A common space has been designated for all the vendors to monitor effectively.

Intermediate response:

1. PPE kits were provided to all the sanitation workers through SHG initiatives.
2. Purchase of all essential materials in quarantine zone is being supported by the Sanitation Inspector of the area.
3. Wireless networks and WhatsApp groups are being used for real-time information sharing among the staff.
4. A supervisor has been designated for every 25 to 35 sanitation workers.

Systemic response:

1. Action plan has been made to take necessary steps in order to deploy sanitation workers, provide necessary equipment, acquire back up team and additional workforce.
2. Zone wise sanitisation plan for the city has been developed.
3. The summary of the activities is submitted to the District Level Committee. The District Collector submits a consolidated report to the State.
4. Random sampling is being done in hotspots that attract significant public movement.

Urban Sanitation Response

1. Limiting the spread:

- When a person/family tests positive, they are admitted in hospital and the entire street is kept under quarantine for 14 days. The area is marked as containment zone.
- Similarly, any person who comes into the city is mandated to stay under home quarantine for 14 days.
- A card has been provided to each household with the scheduled dates to purchase essentials. Thus, avoiding crowding and ensuring social distancing. The households are only allowed to buy essentials on the designated days.

2. Safety of staff/officials and sanitation workers:

- The sanitation workers are temperature tested thrice a week.

- An immunity boosting drink is being provided on daily basis to the sanitation workers.
- All sanitation workers are provided with necessary PPE kits.
- Periodical procurement of Personal protective gear has been undertaken by the District Administration. Tamil Nadu Urban Sanitation Support Programme – City wide inclusive sanitation (TNUSSP-CWIS) supported procurement in the initial stages.



PPE, sanitizer, disinfectant and cleaning agents supplied to community toilets

- The District Administration conducted meeting with representatives from local business firms, non-profit organisations and committees and mobilised more fund for supply of PPE kits and ration needed during lock down.
- The District Administration also held a meeting the vendors to standardise the cost of PPE kits.
- The State Government has also provided with health insurance for all sanitation workers.
- As there are restrictions in the operation of public transport, the ULB has organized a pickup and drop service for the sanitation workers.

3. Sanitisation:

There is a zone-wise sanitation plan developed for the city according to which:

- The hotspots are being sanitized twice a day. The workers are willing to sanitize indoors on request of individuals irrespective of the quarantine status.



Spraying of disinfectant across the city

- The quarantine areas are sanitized twice a day.
- All Government offices have installed hand washing facility (with taps having extended handles) at the entrance of the building. Additional hand washing facilities have been installed in market and common place. Censor and foot operated hand sanitizers and hand wash facilities have also been installed at various places.

- CT/PT are sanitized twice a day. The women SHGs in the locality take-up the responsibility of maintaining community toilets during lock down.
- A larger programme run by the Indian Institute for Human Settlements (IIHS) in Bengaluru, has been supporting the Sanitation and Health Education (SHE) teams, which run and manage paid-for CT/PT. These teams have been carved out of SHGs in the region to manage the financial sustainability of these toilets.
- They maintain at least 130 out of the 400-odd CT/PT in the city. 48 of these are being cleaned by sanitation workers employed by the TCC. The rest are being cleaned and maintained by 61 sanitation workers employed by the SHE teams, who pay their salaries. The number of SHE team members who maintain a toilet varies from 5 to 20, including cleaners and caretakers.



A TNUSSP member distributes personal protective equipment and disinfectants to a caretaker at a Community Toilet



SHG volunteering for toilet cleaning



Social distancing being practised at community toilets



Pedal operated hand wash facilities

- The slums are being sanitized once a week. It has been commonly found in most of the slums that people have taken up the practice of spraying turmeric and neem water in front of their house.



Many residents sort to spraying neem and turmeric water as disinfectants on their own accord

4. Solid waste management:

Solid waste from quarantine facilities and hospitals is collected safely by trained staff in colour-coded bins. Designated waste collection vehicles have been assigned to collect bio-medical waste from containment zones and hospitals. The bio-medical waste is transported to the Sengipatti waste treatment facility (Medicare enviro systems near Vallam). Hospitals are being charged Rs.80/bed for collection of waste. The waste collected from isolated wards is packed in double-layered bags and labelled as COVID-19 waste which is incinerated separately.

5. Training:

- A seven-member team from the State Government have trained officials in regards to precautions of COVID-19.
- There are multiple awareness and motivational programmes which are conducted for the sanitation workers on a regular basis.
- Caretakers and the Sanitation and Health Education (SHE) teams have also been trained to ensure that users maintain adequate social distancing at the CT/PT.

- There is a supervisor designated for every 25 to 35 sanitation workers. These supervisors have been given training, who in turn periodically train sanitation workers on safety measures, safe collection of waste from quarantine zones, how to handle them, disposal of their PPE etc.



Daily briefing of sanitation workers

General City Response

1. Maintaining essential supplies:

- TCC along with various NGO's has been providing essentials to the vulnerable groups. 21 settlements have been identified under this initiative.
- 4 hostels have been designated for the homeless people where accommodation and free food is being given. 600 to 700 people can be accommodated in these hostels.



NGOs and volunteers providing ration support to the poor income settlements



TCC providing essentials to the vulnerable groups

Training / Communication and Behavioral Change

1. TCC has spread awareness amongst citizens through door to door visits and distributed pamphlets regarding safe practices for COVID-19.
2. Various main roads in Trichy have been freshly painted for COVID-19 awareness campaign. The eye-catching paintings have been done using traditional Tamil Nadu painting techniques, combining the Kolam painting methodology which is popular in Tamil Nadu villages. The paintings portray the slogans like "Stay aware, keep distance and remain at home". The paintings have been sponsored by the Red Cross Society and TN Artists Association.



Street paintings for awareness

Financing

The industrialists were approached in regard to financial support. NGOs, Lions club, Rotary clubs etc. have mobilized funds for supply of ration, awareness, etc.

Stakeholder participation

TCC has been actively coordinating with communities, NGOs and CBOs and private organisations. They have been approached for support in distribution of ration, masks, cleaning agents, etc.

1. NGO- Red Cross Society, TN Artists Association – Awareness
2. SHG- Sanitation and Health Education – maintenance of CT/PT.
Private - CWIS project – Provision of PPE kits



Volunteers supporting supply and distribution of masks

Summing Up

TCC has been actively incorporating stakeholders for spreading awareness, maintaining cleanliness in toilets, providing essentials etc. to overcome the crisis of COVID-19. SHGs have been very effective at the local level for maintaining hygiene at the CT/PTs.

8. Indore, Madhya Pradesh



Image Source: Thrillophilia

City Overview

Area: 130 sq.km. | **No. of wards:** 85 wards

Population: 1,994,397 (Census 2011)

No. of workforce: 7000 (approximately)

Information of COVID-19 cases	
Number of cases	4507
Active cases	952
Recovered cases	3344
Fatal cases	211



Source: COVID-19 tracker as on 25.06.2020 (<https://www.covid19india.org/>)

Introduction

Indore is located in the western region of Madhya Pradesh. It is the largest city in the state as well as its commercial capital. Indore Municipal Corporation (IMC) has been ranked India's cleanest city since 2016. Indore has also been awarded 5-star rating of Garbage Free City in 2019-20.

The city has sustainably worked towards cleanliness and sustainable solid waste management practices, access to sanitation services, eliminating garbage dumps and ensuring 100 per cent household waste segregation. These steps have ensured the ULB to be able to keep the city neat and clean round the year.

Administrative / Governance/ Planning Response

Immediate response:

1. Action plans have been prepared for strategic deployment of existing infrastructure facilities for sanitation, solid and liquid waste management.
2. Swift mobilization of dedicated staff was undertaken in various sectors to deal with the situation.
3. Hygiene management and sanitization of spaces was undertaken even before evidence of COVID-19 cases.
4. Command and control centre (CCC) was formed under Smart City Mission where necessary actions are taken on real-time basis.

Intermediate response:

1. The civic body demarcated geographic area of containment zones based on the mapping of cases and contacts. The containment zones had a well-demarcated perimeter and lockdown was strictly enforced.
2. IMC has used mobile applications and CCC for effectively reaching out to citizens and monitoring real time data.
3. Door to door awareness was done through existing waste collection system.
4. Mobilization of various stakeholders to take part in the response to support the efforts by the ULB.

Systemic response:

1. To deal with the COVID-19 pandemic, Indore has prepared action plans for mobilization of existing infrastructure and facilities for sanitation, solid and liquid waste management.
2. Dedicated human resources are deployed both at management and on-field level to handle the situation.
3. The measures taken by the officials and the staff of the ULB for the management of COVID-19 cases are reviewed daily.
4. Regular monitoring is undertaken based on several parameters such as high-risk factors, confirmation rate, fatality rate, doubling rate, tests per million people.
5. The updates are sent on a daily basis from Health Department, IMC, and Pollution Control Board to Centralized Data Centre in the DM Office.

Urban Sanitation Response

1. Sanitisation:

- All CT/PTs were being sanitized and cleaned twice a day.
- Users of CT/PT were encouraged to practice hygiene, cleanliness and physical distancing norms to avoid contamination.
- The liquid waste generated from COVID-19 hospitals and quarantine centers was being disinfected with 1% sodium hypochlorite solution as precaution to avoid risk of spread through this waste.
- The liquid waste was released in the public sewer lines of the city, after disinfection, and underwent further treatment at the centralized sewerage treatment plant of IMC.
- In every ward, dedicated hand wash facilities were installed by IMC for sanitation workers as well as citizens.
- Hand washing facilities at entry points of all CT/PT was arranged.
- For sanitization of COVID-19 hospitals, quarantine centers and containment areas twice a day, a dedicated team of 250 sanitation workers, 20 numbers of 360 sanitization machines and 20 pressure jet machines were deployed.
- IMC also deployed drones to sanitize public spaces in the city. These drones would be set off with 16 liters of chemicals in each flight, having sprayed sanitizers in areas spanning 8-10 km. Special efforts are taken to do this at durations which does not affect the citizens.



Drones used by IMC to sanitize public spaces (Image source: NDTV Swachh India)

2. Management of solid, liquid and bio-medical waste:

- IMC has introduced a three-bin collection system in the city – vehicles deployed by IMC have three compartments for wet waste, dry waste and hazardous waste.
- Door to door vehicles have been deployed by IMC to collect waste from containment areas which have separate compartment to collect the COVID-19 waste. Vehicles for other residential areas also have a separate compartment for domestic hazardous waste.
- 14 dedicated vehicles have been deployed for collection of bio-medical waste from all COVID-19 hospitals and quarantine centers.
- All the contaminated waste is being disposed through the already existing common bio-medical waste treatment and disposal facility of Indore.
- This facility is managed by an external contracted agency. The facility is used for the disposal of bio-medical and domestic hazardous waste. At this facility the waste is incinerated.



In the year 2004 this project of 'Effective Biomedical Waste Management' has been awarded GOOD PRACTICE AWARD by UN HABITAT.



Bio-medical treatment facility of IMC (Image Source: IMC presentation for Swachh Bharat Mission)

3. Safety of sanitation workers:

- PPE kits and gloves were given to all the sanitation workers on the field.
- The sanitation workers and officers were being trained on standard operating procedures on field and measures to be taken at their respective homes.
- The sanitary staff in the ULB have been provided with health insurance.

4. Training:

- All the sanitation workers have been trained for appropriate use of safety gear along with their disposal.
- The sanitation workers have undergone training on weekly basis by rotation through various audio-visual means conducted by NGOs and doctors.
- As IMC has a strong household connect through door to door waste collection system, it has helped substantially to create awareness about COVID-19.
- Every household has been made aware of the three bin collection system and safe disposal of all safety equipment through third bin.

General City Level Response

1. Maintaining essential supplies:

- IMC's waste collection vehicles operate on 467 routes that cover the entire city, where every vehicle collects waste from 1,000-1,200 households on each route.
- The civic body leveraged this data to convert these routes into units for door-to-door delivery. The ULB has deployed 222 loading autos and 700 handcart vegetable sellers to cover five lakh households.
- 467 nodal officers have also been assigned to supervise the working of the system and are managing their respective routes. The sellers have been issued essential service passes.
- To ensure that citizens stay at home, the ULB is delivering groceries, vegetables, and medicines.

2. Response towards vulnerable groups:

- Post lockdown, some NGOs have been working to ensure supply of food grains to the vulnerable population and have taken the initiative to provide ration to underprivileged households.
- One such initiative has been taken by Shri Shankar Lalwani, MP wherein food packets are being prepared and sent to people's homes as per their needs. In order to facilitate the drive, the initiative has employed volunteers to deliver the packets to the needy.
- Robin Hood Army, another NGO that regularly works for channelizing surplus food from commercial joints to underprivileged households and slums is trying to provide food by directly connecting the donor based on the proximity to the area where it is required and ensuring that the physical distancing is maintained



Food distribution drives by NGOs in Indore

Training / communication and behavioral change

Participation of NGOs for IEC/awareness creation:

1. IMC has mobilized NGOs and 600 volunteers are trained and working on field for creating awareness about the following:
 - Good hygiene practices, appropriate hand washing techniques and self-cleanliness
 - Correct use of masks and other PPE kits
 - Physical distancing
 - Safe disposal of used safety gear through third bin.
 - The volunteers have been especially focussing on undertaking awareness drives in slum areas.

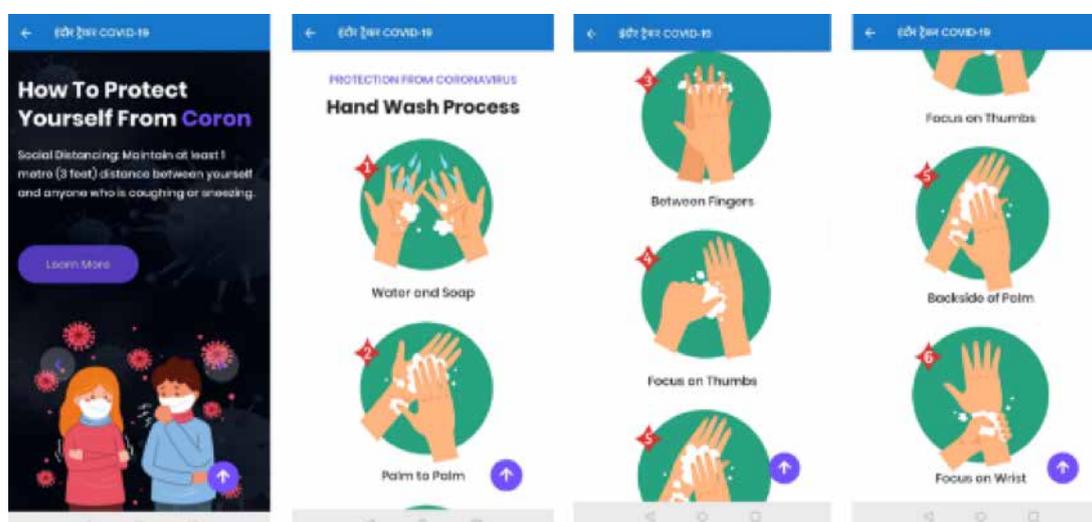
Stakeholder participation

Various stakeholders are involved in carrying out different kind of activities in the city which have already been explained in the sections above. This section gives a summary of various stakeholders and the activities carried out by them:

Organisation	Stakeholder	Activity
NGO	NGOs	Provision of food supply
NGO	Robin Hood Army	Supply of essentials
NGO	NGOs and citizen volunteers	Awareness
ER	Elected representatives	Supply of ration
Private	Private contractors	Sanitisation , supply of essentials

Use of digital technology

1. A dedicated CCC has been developed by IMC for mapping and monitoring all these activities on real time basis.
2. IMC has updated its existing civic app 'Indore 311' with features to respond to COVID -19.
3. The app has information on COVID -19 such as list of quarantined areas, labs, hospitals, essential services etc. It also demonstrates appropriate hand washing process practising strict hygiene measures. Since this app is already in use by the citizens, it is easier to convey information through this medium.
4. The citizens have also been using Arogya Setu App and Indore 311 helpline set up for public grievances.



App interface of 'Indore 311'

Financing

The ULB has made use of CSR, its own resources and State Govt. funds for the pandemic management.

Summing Up

Indore is one of the worst hit cities due to COVID-19 in the state of Madhya Pradesh due to its scale and population. The municipal corporation has been effectively able to capitalize the existing infrastructure to help respond effectively to the situation of COVID-19. Strategic deployment of resources, along with effective leadership has created an enabling atmosphere in the city to address the challenges in the current circumstances.

9. Surat, Gujarat



Image source: The native planet

City Overview

Area: 327 sq.km. | **Number of Wards:** 29

Population: 4,462,826 (Census 2011)

No. of workforce: 3000 approximately

Information of COVID-19 cases	
Number of cases	3876
Active cases	1152
Recovered cases	2582
Fatal cases	142



Source: COVID-19 tracker dated 25.06.2020 (<https://www.covid19india.org/>)

Introduction

Surat Municipal Corporation (SMC) has worked efficiently to change the face of Surat city after the plague in 1994. Surat has been in the top 15 rank of cleanest city since 2016. The city has been practicing sustainable solid waste management and sanitation practices to maintain the cleanliness of the city and health and hygiene of the citizens.

Surat has efficiently used technology and human-power by creating applications, help lines and support teams to create a comprehensive enabling system for tackling COVID-19.

Administration / Governance / Planning

SMC has adopted a three-pronged approach '3-T Strategy' – **track, test and treat** – to fight COVID-19. The following steps are being taken to manage the pandemic by the civic body:

Immediate response:

1. SMC has developed and implemented a rapid crisis management plan that has become the blueprint for the State Government to follow.
2. SMC has launched the COVID-19 tracker for tracking all people with travel history or who have come in contact with positive cases within 48 hours of the first reported case in the city.
3. SMC has also put a grievance redressal system in place for quick response in the current situation.
4. The Smart City ICCC has been converted to a War Room for COVID-19, for real time updates and monitoring by SMC officials.
5. Hygiene management and sanitization of public spaces and provision of temporary sanitation infrastructure like wash basin and disinfectant stands in slums and high-density areas.

Intermediate response:

1. Dashboard has been created for information dissemination to citizen on COVID-19.
2. House to house ARI (Acute Respiratory Infections) Survey has been carried out by SMC, to track and test people who have come in contact with patients.
3. Corona Yodha committee has been constituted to supervise and monitor slum areas to maintain social distancing and to attend any health issues of concern etc.
4. 100 new teams have been deployed specifically for Limbayat area which is the major hotspot of Surat (50% cases of the city are from this area) to maintain social distancing, installed temporary wash basins and monitor the sanitation of the area.
5. COVID-19 helpline number has been setup by SMC at zonal and district level.

Systemic response:

1. SMC has made optimum utilization of all technology available through web portals, mobile applications and command centres for tracking, coordinating and creating awareness of all COVID-19 related information and updates.
2. SMC has established waste management practices to handle bio-medical waste generated and spread awareness through the network of pre-established door to door collection system.
3. SMC has organized training programmes for building capacities of frontline workers as well as creating awareness amongst citizens through online courses.

Urban Sanitation Response

1. Limiting the spread:

Surat deployed a COVID-19 tracker mobile application (app) within 48 hours of the first reported positive case of COVID-19. The app tracked people with a history of foreign travel and monitored infected patients' health vitals by regularly reminding patients to feed in their health stats along with providing their comorbidities details.

- Upon submission of details on the Self Declaration Form, individuals were given a unique Tracker ID. SMC has also shared a helpline number for citizens to share their travel details or any suspects.
- Following the verification of the user details, a team from SMC including health officials visits the user following which the individuals are put under quarantine. They have to fill questionnaire on their health vitals, twice a day through the SMC Tracker app. In case, any individual mentions any health issues in their questionnaire, at first, a follow up is done over the phone and if required, individuals are asked to visit a nearby health facility for necessary check-up and treatment.
- The individuals have also been asked to send their locations on an hourly basis to confirm that they

are following home quarantine on a regular basis. SMC monitors the location history of individuals and if any individual is found not following the home quarantine guidelines, strict actions are taken against the violators.

- The team also conducts a daily house-to-house follow up for every individual asked to stay in home quarantine and that is also captured through the system. Moreover, necessary MIS reports are prepared in the system and new reports are being developed when in need as per the Health Department.

2. Sanitisation & hygiene management:

- SMC has distributed approximately 2.0 million masks to SMIMER hospital and 200 Tonnes of 10% sodium hypochlorite disinfectant further diluted to 1%.
- Safety gear like face mask, hand gloves and other equipment's have been distributed by SMC to the sanitation workers.
- Approximately 4440 public places are being disinfected daily.
- 168 hand washing foot operated equipment are developed and maintained regularly in different areas out of which 18 are placed in slum areas.
- 29 public and community toilets are daily disinfected through hand sprayers with sodium hypochlorite solution.



Hand wash equipment installed in the city



Sanitisation of public spaces by SMC

3. Management of solid, liquid and bio-medical waste:

SMC has efficient infrastructure available for solid and liquid waste management of the city. Some additional initiatives for addressing COVID-19 related waste are:

- Bio-medical waste management committees constituted in all the health care facilities to ensure safe disposal COVID-19 related waste.
- SMC's processing facility for treatment of bio-medical waste with capacity of 6500 kg per day is used to treat the COVID-19 waste generated from the hospitals.
- The daily door to door waste collection, transportation, segregation and treatment is monitored closely at the control room.

General City Level Response

1. Response towards vulnerable groups:

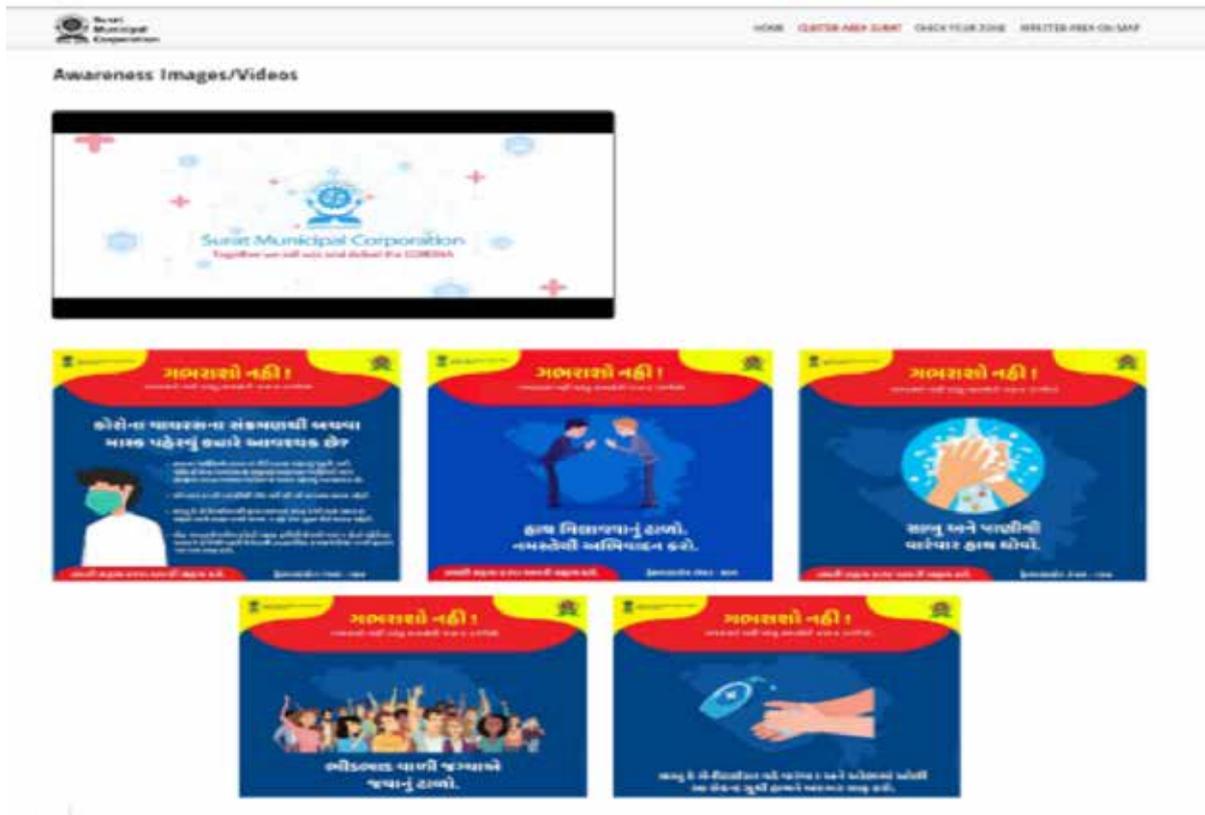
- Wash basins for hand washes and sanitation stands were placed in various slum areas of the city as to prevent infection and increase public hygiene.
- Sai Roti Charitable Trust, Bhagal, Surat has been supporting SMC by supplying food twice a day to the needy elderly people with dal, rice, vegetable and bread free of cost.



Food distribution drives for the elderly

Training / communication and behavioral change

1. The website dashboard provides with resource materials (Pamphlets, Videos, Advisory and Guidelines) for COVID-19 awareness. The awareness pamphlets detail out measures of hygiene management and protection using PPE kits for individuals.



Dashboard showing awareness pamphlets and videos (Image source: SMC Website)

2. Courses on COVID-19, use of safety gear, handling of bio-medical waste are being offered in Gujarati through Integrated Government Online Training (iGOT) platform for officials.
3. 'Corona commando' - 36 online lessons on Corona are being offered in Gujarati, English, and Hindi for Asha workers, anganwadi workers and for public as well to create awareness.
4. The ULB also uses the bulk messaging tool for creating awareness.
5. As part of COVID-19 prevention and awareness efforts by the SMC, paintings on Udhna Zone Road were made to educate the people.



6. Engagement of radio partner has been done for awareness.
7. 500 banners and 84 hoardings put up for awareness in the city.
8. SMC has engaged in distribution of around 10 lakh pamphlets and conducted around 2802 door to door campaign for awareness related to physical distancing, sanitization, hygiene management and dissemination of COVID-19 related information.
9. Auto rickshaws and door to door waste collection vehicles that have a pre-established route and network are used for spreading awareness across the city.



Auto Rickshaws used for awareness generation

Stakeholder participation

Organization	Stakeholder	Activity
Multilateral Organisation	UNICEF	Risk communication and community engagement, capacity building of key stakeholders, frontline workers and partnership with Corporate Social Responsibility (CSR) organizations towards COVID-19 response.
CSO	CSO	Awareness generation of hygiene management and contributing in provision of safety gear, meals etc. in dedicated zones
NGO	NGO	Making and distribution of masks.
NGO	Shyaam Prachar Mandal, Sai Roti Trust	Donation of food packets and PPE kits for sanitation workers
SHG	Sakhi Mandal	More than 1 million masks were made and distributed by about 300 women



IEC posters



Masks produced by the women of the SHGs

Use of digital technology

SMC has emerged as a frontrunner in providing service delivery and information sharing using the latest online/mobile technology for COVID-19. The various initiatives taken are as follows:

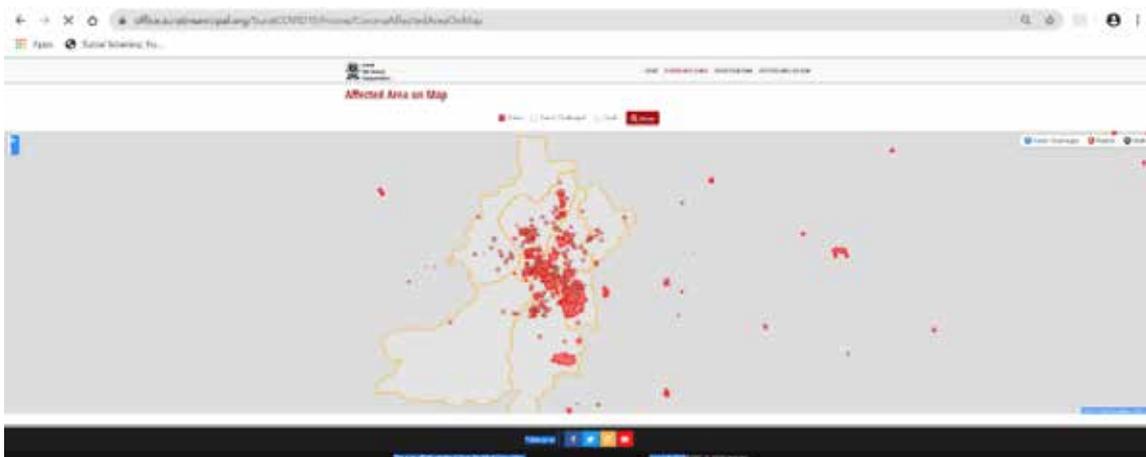
1. The ICC established under Surat Smart city initiative is converted into COVID-19 war room. The war room is used:
 - To integrate data dashboards, developed by the data analysts and data experts.
 - The geotagged waste collection vehicles are used for collecting bio-medical and municipal solid waste which are closely monitored on the map through geo location.
 - To monitor real-time data using the central data dashboard to provide information about the status of COVID-19 positive cases in various administrative zones of these cities.

2. SMC has published an online dashboard on its municipal website to provide regular updates to the citizens.
 - The dashboard has overall statistics on tested, confirmed, active, recovered and death cases. It also provides the trends and patterns on the spread of COVID-19 within city, in terms of cumulative cases (each day), number of new confirmed cases reported (date wise), age-wise distribution of cases, zone-wise distribution and gender-wise distribution. The Municipal Commissioner of SMC gives the daily update of Corona related situation, monitoring done by SMC and precautionary steps required in various zones of the city through audio/video messages on the dashboard.



Dashboard showing COVID-19 data analysis (Image source: SMC Website)

- SMC in addition has upgraded two previously existing applications to use for COVID-19 response. In the citizen mobile application called 'My SMC', a new tab for COVID-19 has been added where the dashboard details can be viewed. The 'Jaimini' application used by health officials during 'Swine-Flu' in 2015 has been upgraded so that the private medical officials can update the patient details and conditions on the application for monitoring by health officials of SMC.
3. SMC has an existing GIS based spatial mapping of the corporation area being used for various purposes in the city.
 - This has been upgraded to mark the affected areas with the number of active cases, deaths, information of the cases and aerial distance from the affected area and is made available to citizens through the map on dashboard and mobile application.



GIS map with affected areas (Image source: SMC Website)

- This GIS based map is used to plan for resource deployment, service requirement and preparation of action plan.

4. SMC has developed a tracking system for citizens which includes a web portal and mobile application named “SMC COVID-19 Tracker” to track people who have abroad or interstate travel history and persons who have come in direct contact with positive COVID-19 individuals through which 3800 individual’s details are being monitored.

Summing Up

Due to its past experience of the bubonic plague, SMC has made consistent efforts in maintaining hygiene and cleanliness in the city with efficient waste management practices, construction of new infrastructure, required human resource deployment. The ULB city has also upgraded its infrastructure with technological advancements, created efficient mobile and web-based systems that helped the city in its preparedness prior to the first case in the city. The awareness and tracking systems helped Surat control the growth of COVID-19 cases, and it has been appreciated by the Central Government team and reviewed by Government of Gujarat for implementing throughout the state.

10. Dungarpur, Rajasthan



Image Source: Rajasthan direct

City Overview

Area: 3.5 sq.km. | **Number of Wards:** 30

Population: 47,706 (Census 2011)

No. of workforce: 250 (approximately)

Information of COVID-19 cases	
Number of cases	7
Active cases	1
Recovered cases	6
Fatal cases	0



Source: Dungarpur Municipal Council as on 25.06.2020

Introduction

Dungarpur Municipal Council (DMC) is the administrative headquarters of Dungarpur and is the fastest developing town in southern Rajasthan, sharing its border with Gujarat. Dungarpur has ranked first for cleanliness among all the civic bodies, in its population category (within 25-50 lakhs) across the country in Swachh Survekshan 2019. The city has achieved stellar results in maintaining ODF status and improving solid and wet waste disposal. The first city from Rajasthan to have achieved ODF status, it is one of the four cities in India to have been selected as a model for research study on sanitation and behavior change by the Bill & Melinda Gates Foundation.

Dungarpur has taken proactive steps in checking the spread of the COVID-19 and thus ensured that number of cases are limited.

Administrative / Governance/ Planning Response

Immediate response:

1. The ULB undertakes sanitation of the city on a daily basis for the city on daily basis from 16th March 2020 to manage the pandemic, even before evidence of COVID-19 cases.
2. From 21st March 2020 onwards, the civic body started sanitisation in all the 30 wards in the ULB.
3. Swift mobilization of dedicated staff in various sectors to deal with the situation.
4. Deployment of dedicated teams for tracking and regular monitoring for COVID-19 patients in all 30 wards.

Intermediate response:

1. The ULB administration started screening for COVID-19 cases at all entry points to the city, railways stations, and bus stops. Passengers and were advised home quarantine and it was ensured that they complied with the orders.
2. Two quarantine centres were set up in the city with facility for 40 beds by 30th March 2020.

Systemic response:

1. After 25th March 2020, the ULB deployed ward level monitoring teams for checking of COVID-19 symptoms for all members in all the households in the city. These teams have been systematically monitoring all the 30 wards with daily reports to the ULB.



Temperature checks carried out at the household level

2. A helpline number has been put in place for citizens for COVID-19 response and for delivery of essential commodities for senior citizens.
3. The ULB has distributed masks and sanitisers to all citizens.

Urban Sanitation Response

1. Sanitisation & hygiene management:

- The ULB administration took a pro-active decision to start sanitising the city and disinfecting of the public places with sodium hypochlorite solution since March 16th, 2020.
- All the roads, footpaths, bus stops and other public places have been covered under this initiative.
- 5 dedicated vehicles and fire tenders are utilized for the same.
- In the slums and hard to reach narrow streets / by-lanes, disinfection is being carried out with the help of 20 trained professionals with spray pumps which have been specially procured during this pandemic.



City level sanitisation efforts by the ULB

- The CT/PTs are cleaned twice daily.
- Waste from quarantined households is being collected separately in yellow bags and transported for disposal at the treatment plant in Udaipur.
- 18 community drinking water facilities with potable water have been placed at various locations for the citizens and staff.

2. Safety of frontline workers:

- All 200 sanitation workers have been provided with PPE kits such as masks, gloves, aprons and protective suits.
- Standard protocol is followed for replacing rubber gloves and cloth masks every 15 days.

3. Sanitation workers insurance and compensation:

- There is a health insurance facility already in place for the workers, by the State Government, with a cover of Rs. 50 Lakhs. In addition to this, the ULB has given each sanitation worker an additional Rs. 1000, as a token of appreciation and encouragement for their work.
- No casualties have been reported so far among the sanitation workers.

4. Training:

- All the sanitation workers have been trained for appropriate use and donning doffing of safety gear along with their disposal.
- The sanitation workers and officers are trained on standard operating procedures on field and measures to be taken at their respective homes.
- The ULB has made use of the existing door to door waste collection system to create awareness about COVID-19 at a faster pace, with help of audio messages.

General City Response

1. Monitoring and updating:

- The civic body made use of drones for monitoring the movement of people in the city for strict enforcement of lockdown to prevent the spread.

Training / communication and behavioral change

1. Every household is made aware of the three-bin collection system and safe disposal of all safety equipment through third bin.
2. The ULB Chairman has shared important messages and circulars for public health and hygiene and general do's and don'ts on various social media platforms.
3. 35 hoardings have been erected at important locations creating awareness on COVID-19.

4. 12000 pamphlets have been distributed along with the Ward level monitoring teams.

Financing

The funds for various activities have been mobilised through the ULB's own resources.

Stakeholder participation

Participation of SHGs in mass production of masks:

1. The ULB engaged women from SHGs to stitch approximately 1000 cloth masks daily, thereby providing them an opportunity to sustain their livelihood.
2. These masks were distributed free of charge to all the citizens at various public spaces by the ward level teams.



Masks distributed by the ULB at various locations across the city

Use of digital technology

The ULB has made use of drones for monitoring the movement of people and to ensure that people are obeying the conditions of the lockdown.

Summing Up

DMC has been able to effectively control the spread of the pandemic with the informed decision for early screening and sanitisation of the city.

Noteworthy Initiatives in Sanitation Responses



This section highlights various innovative and noteworthy initiatives across India that contributed in the overall effort for tackling COVID-19 at the city-level. Various themes include- use of technology, overall sanitisation efforts, stakeholder participation and strengthening of sanitation workforce.



1. Stakeholder participation Initiatives

Various stakeholders such as SHGs, CBOs, private sectors, banks etc. have made their valuable contributions in the response efforts of ULBs in terms of provision of necessary funds, equipment, PPE kits, deployment of human resources etc.

1. Bhopal, Madhya Pradesh

Population (Census 2011): 1,798,218, | Area: 285.9 km²

Fund Mobilisation: Financial as well as other institutions such as Punjab National Bank (PNB), Bank of Baroda (BOB), Central Institute of Plastics Engineering & Technology (CIPET), Tibetan Sweater Seller Association and individual citizens have offered monetary donation to the ULB in response initiatives to tackle COVID-19.

PPE kits:

- Madhya Pradesh **Rajput Samaj Sanstha** contributed **500 masks** made by women to the ULB. They have also helped in setting up 4 quarantine centres in Bhopal.
- **Jeevan Shakti Yojana**, is an initiative by the ULB to involve the women of Bhopal in producing **masks**. The women can make masks and handover to the ULB at their designated Jeevan Shakti Yojana centres. The ULB sells the masks for a subsidised rate of Rs.11 and the money is directly transferred to the producers account.
- **National Students protection Rights (NSPR)** donated **2000 masks** to the ULB.
- **100 double sheet masks** worth Rs.200 each were donated by two individuals to the ULB for the sanitation staff.



Donation made by PNB, Jeevan shakti yojana centre, Rajput Samaj Sanstha donation (left to right)

2. Ahmedabad, Gujarat

Population (Census 2011): 5,633,927, | Area: 464 km²

- **State Bank of India Life Insurance Company** donated **5000 PPE kits worth 45 Lakhs** to the Mayor of Ahmedabad for the frontline workers.
- **Urban Management Center (UMC)**, Ahmedabad in partnership with **Samhita** (through corporate CSR funding) financially supported the sanitation workers and waste pickers. A **cash transfer for Rs.3000** was provided to **100 beneficiaries** in Ahmedabad as a pilot. After the successful implementation, second round of direct cash is being made available to 650 beneficiaries in 4 cities of Odisha and Telangana. This was possible with the support of NULM team at Ahmedabad Municipal Corporation and Municipal Commissioners of Odisha and Telangana.



CSR initiative, Beneficiaries of CSR funding by UMC

3. Jabalpur, Madhya Pradesh

Population (Census 2011): 1,081,677 | Area: 367 km²

Indian Red Cross society is actively helping Jabalpur Municipal Corporation (JMC) in fighting COVID-19 crisis by taking up various initiatives. Few contributions made by the society are:

- Donated **3000 facemasks and 100 sanitizers**, provided food supply for migrant labourers.
- A COVID-19 recovered citizen of Jabalpur donated **self-made 1000 cotton face masks** to the JMC via Indian Red Cross society.
- They also provided **ration kits to 280 small business** persons affected by the lockdown.

A blood donation camp was organised with the help of **Yogmani Trust, NCC open unit, Rani Durgavati University**, where 32 units of blood was collected to help in treatment of COVID-19.

BrahMose Aerospace project donated total **60 infrared thermometers, 4500 N-95 masks, and 700 PPE kits** to JMC.



Contributions made by BrahMose aerospace and Red Cross society



Blood donation camp and provision of essentials to migrants

4. Dharavi, Mumbai

Dharavi is Asia's largest slum with estimated 8.5 lakh to a million people living over 2.5 square kilometres area and has a population density of 2,77,136 people per square kilometre.

- Active administration led by Assistant Municipal Commissioner.
- A team of 20 doctors, 50 nurses, 25 engineers, 170 health care professionals and more than 2000 workers are working around the clock.
- Total 350 Community toilets, more than 100 Public toilets are cleaned and disinfected twice a day and monitored by stakeholders.
- Hand wash systems, masks, food packets (21000 daily), grocery packets (25000 daily) have been mobilised by stakeholders.
- MCGM, UNICEF, number of local NGO's and other stakeholders are working day and night to tackle the pandemic in Dharavi.

*As there are number of Government and private organizations, NGOs, individuals etc. involved in various initiatives taken up for Dharavi no specific names have been mentioned.



5. Chandigarh, Punjab

Population (Census 2011): 1,081,677 | Area: 114 km²

- A private organization 'Jai Prakash Association' donated Rs. 5 lakhs to the CMC for procuring drones for sanitization of the city.
- A private organization 'Chandigarh Business Control' has donated 2 fogging machines to the ULB.
- 'Chandigarh Pollution Control Committee' donated 17 sanitization vehicles to CMC.
- 'Rotary club' of Chandigarh donated 1 sanitization vehicle to CMC by.
- An organization with special consultative status under United Nation ECOSOC -Association of Professional Social Workers and Development Practitioners (APSWDP) provided essentials to the vulnerable groups.



Donation made by Jai Prakash Association, Vehicles procured by CPCC

6. Vijaywada, Andhra Pradesh

Population (Census 2011): 1,534,358 | Area: 61.88 km²

- Anantapur Rural Development Trust (RDT) has joined hands with the Vijayawada Municipal Corporation (VMC) by donating 50000 handmade masks for frontline workers.
- 10 thousand masks prepared by Self-Help Group 'Sangam' were given to VMC in Phase -1 with help of "Moshma State manager".



Mask Distribution to sanitation workers



2. Strengthening Sanitation Workforce

The health and safety of the frontline workers is of topmost priority during such a time of COVID-19 crisis. The Urban Local bodies are taking various initiatives to train and motivate the sanitation workers to ensure their safety from COVID-19.

1. Patna , Bihar

Population (Census 2011): 1,683,200 | Area: 99 km²

- The United Nations Population Fund (UNFPA) has conducted training and awareness programmes for the sanitation workers of Patna Municipal Corporation for standard operating procedure in waste **collection and disposal** during COVID-19 times.
- Training was conducted on topics such as personal hygiene, bio-medical waste collection from hospitals and quarantined homes, preventative measures to stop transmission of the virus in slum areas etc.
- The Municipal Commissioner has appealed to the citizens through videos for **segregating masks, gloves and any other medical waste** at household level to ensure safe disposal as well as safety of the sanitation workers on various social media platforms.
- Sanitation workers were honoured on Labour Day by Municipal Commissioner, Additional Municipal Commissioner and team for their dedication and selfless service.
- Sanitation workers are being **felicitated** in their areas of service by the citizens and councillors for their dedication towards the welfare of the city.
- Patna Municipal Corporation has special **women driven solid waste collection vehicles**. To recognise the efforts made by these women in maintaining health and hygiene of the city, they were felicitated with 'My City My Pride' badges.



Training sessions conducted regularly for sanitation workers



Felicitation of sanitation workers

2. Bijnor, Uttar Pradesh

Population (Census 2011): 115,381

The Sanitation workers received training for COVID-19 response as soon as the pandemic started.

- Trainings were conducted on demonstration of the SOP to be followed regularly. Sanitation workers were instructed on important steps to combat the disease, precautions that need to be taken care of before and after their working hours, to keep everyone safe and away from infection and maintaining social distancing.
- In this training session, Bijnor Municipal Council, supported by **Centre for Science and Environment (CSE's)** Technical Support Unit distributed **300 Sets of PPE Kits**.
- The Council also undertook dissemination of information related to COVID-19 response through **posters in both Hindi and Urdu** to convey the message of steps to be taken to combat COVID-19.



Training session conducted for sanitation workers



Thermal scanning, distribution of PPE kits

3. Paradip, Odisha

Population (Census 2011): 68,585

- 221 sanitation workers including official staffs and sanitary supervisors, underwent training for COVID-19 in all 19 wards. They were given training on safe practices for collection and disposal of solid waste, personal hygiene.

Awareness initiatives:

- Microphone units mounted on municipality vehicles takes several rounds to disseminate information on do's and don'ts of COVID-19.
- Market places, RWAs and slums are covered to communicate the intent and steps taken by administration to tackle the pandemic.
- Creative methods are adopted like **educative songs are sung by the sanitation workers** to spread the messages encouraging citizen to follow safe practices for sanitation.
- Public areas with utilities such as markets and ATMs are demarcated with circles on the ground to maintain physical distancing.
- **Hoardings** are displayed at prominent places conveying the messages on awareness of COVID- 19.

4.Lucknow, Uttar Pradesh

Population (Census 2011): 2,815,601 | Area: 349 km²

- CSE Programme Support Unit – Lucknow has set-up a COVID-19 Knowledge Resource Desk at Lucknow Nagar Nigam. Regular training sessions are being held for health and safety of sanitation workers during COVID-19. 5 sessions have been organised from May till June.

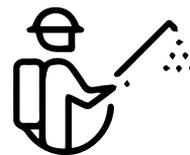
The following topics are being covered during the orientation:

- Introduction on COVID-19, precautions and symptoms, myths over facts.
- Hand washing with live demonstration with ink and gloves.
- Using PPE and demonstrations related to how to wear masks and making homemade masks.
- Physical Distancing (minimum distance of 1 Meter).
- Waste management from quarantined homes.
- Precautions for sanitation workers while at work.



Training sessions conducted for sanitation workers

3. Sanitisation of Cities Safety for all



Maintaining hygiene, keeping the surroundings clean has become the priority in the pandemic situation. Therefore ULBs are taking maximum efforts to keep their cities sanitized to prevent the spread of virus.

1. Bhopal, Madhya Pradesh

Population (Census 2011): 1,798,218 | Area: 285.9 km²

- The Bhopal Municipal Corporation (BMC) has around 7,000 sanitation workers.
- **Action plan:**
 - **2 verticals** have been created by BMC under which the sanitation staff has been divided. One vertical is designated for sanitisation of the containment and buffer zones and the other vertical is designated for the non- containment zones.
 - **Toilet mapping** has been done in densely populated areas. Each family is designated a particular toilet for their use so that every family is responsible for maintaining hygiene. This activity is monitored by the caretaker responsible for the toilet.
- The sanitation workers are working in double shifts to ensure safety of the citizens.
- **Anti- spitting drive** is conducted in full force throughout the city, fines are imposed on people violating the rule.
- Road sweeping machines are cleaning 200 km of stretch each day. This is monitored at the Smart City Command and Control Centre.
- **Foot operated hand wash equipment** have been installed at various parts of the city for the use of sanitation workers. All ward offices and transfer stations are equipped with these machines.



Sanitisation and anti-spitting drive in the city

2. Vijaywada, Andhra Pradesh

Population (Census 2011): 1,534,358 | Area: 61.88 km²

- Vijayawada Municipal Corporation (VMC) has formed **6 special teams** to carry out sanitisation work throughout the city. These teams cater to specific areas such as quarantine zones, hospitals, non-quarantine areas, public spaces.
- Places of high congregation such as public places, markets, banks, ATMs, slum areas are being disinfected once a day.
- Streets, residential areas, Government offices are disinfected every day.
- Drones, tractor vehicles, fire brigade vehicles are being used for this purpose.
- VMC has installed hand **sanitising booths** at market places.



Sanitisation of streets, banks, and hand sanitising booth at the market (left to right)



Sanitisation of public places by fire brigade team and sanitisation of ambulance at quarantine hospitals (Left to right)

3. Pune, Maharashtra

Population (Census 2011): 1,534,358 | Area: 61.88 km²

- Pune Municipal Corporation (PMC) has taken up the initiative to clean the Community Toilets, especially the ones in slums, 5 times a day.
- There are total 155 toilets in the containment zone. Healthcare centres are involved by the PMC for close monitoring of sanitisation of these CTs in their respective areas.
- The supervisors upload pictures on the PMC's mobile application daily.
- PMC has installed hands-free wash basins at the containment zones, slums, Covid Care Centres viz. Patil Estate slums, Parvati Darshan.

4. Chopda, Maharashtra

Population (Census 2011): 72,783

- Chopda Municipal Council has formulated a detailed Standard Operating Procedure (SOP) after the COVID-19 outbreak regarding cleanliness, maintenance and repairs of CT/PT.
- This SOP includes detailed instructions on monitoring, safety of workers, use of materials and equipment, cleanliness of toilet premises, use of sufficient water for cleaning and keeping toilet dry after cleaning and redressal of citizen complaints.
- A detailed description of cleaning each component of the toilet (e.g. mirrors, doors, floors, taps etc.) has been explained with the required material to be used and frequency of cleaning to be followed.
- CT/PT cleaning has been divided into four parts such as daily, as per schedule, special and location based.
- The interiors of the toilet are to be cleaned every one hour. A checklist has been prepared to monitor the cleanliness.
- A list of do's and don'ts has been given for maintaining the CT/PT.



4. Use of Technology

ULBs across India have responded quickly to the challenge posed by the COVID-19 pandemic with a host of new innovations and use of technology, some emerging from start-ups.

1. Varanasi, Uttar Pradesh

Population (Census 2011): 1,435,113 | Area: 163.8 km²

- Varanasi Municipal Corporation (VMC) has made use of drones to sanitize COVID-19 affected sensitive areas.
- The ULB has engaged 'Garuda Aerospace Private Limited, a Chennai Based company for spraying of sanitizer in the identified areas of Varanasi City under Smart Cities Mission.
- Spraying of sanitizer through drones were prioritized for hotspots and containment areas identified by the Chief Medical Officer. This was followed by Isolation areas, quarantined areas, shelter homes and other places where manual spraying was difficult.
- The drone were filled with the chemical solution consisting of 1% sodium hypochlorite and were deployed using a remote-control device by the experienced drone pilots in a planned flight path, simultaneously spraying the sanitizer through its four nozzles.
- The flight path of the drones and the area covered were controlled and recorded in a handheld device with GIS maps on the backend which is plugged to the remote controller.
- The capital costs of the equipment were provided by the agency concerned, and the city administration bore the operational expenses (service costs and chemical costs). The average cost of operations range from Rs.8, 000 to Rs.12, 000 per day per drone and is dependent on area covered in acres.



Varanasi uses drones to sanitize COVID-19 affected sensitive areas (Source: The Statesman)

2. South Delhi Municipal Corporation

Population (Census 2011): 2,731,929 | Area: 250 km²

- South Delhi Municipal Corporation (SDMC) has deployed a drone to spray disinfectant over the Nizamuddin area which was identified as one of the epicentres of COVID-19 outbreak.
- SDMC used drone to spray 1 per cent sodium hypochlorite solution as a disinfectant in Nizamuddin East, Nizamuddin Basti and the surrounding areas.
- The drone took 18 rounds of 20 minutes each with a 5-liter solution of the disinfectant.



Drone deployed to sanitize Nizamuddin Markaz (Source: The New Indian Express)

3. Chandigarh

Population (Census 2011): 1,081,677 | Area: 114 km²

- Chandigarh Municipal Corporation (CMC) has installed a comprehensive '**fight COVID station**' with facilities of thermal screening by taking temperature, pedestal operated hand-wash and soap dispenser, mist spray of sodium hypochlorite solution and hand dryer facility. It has been installed in the main market in, Chandigarh and all visitors to market are expected to pass through the station.
- CMC has made use of drones to sanitize COVID-19 affected and sensitive areas.
- The ULB has engaged 'Garuda Aerospace Private Limited, for spraying of sanitizer in the selected areas of the city.
- The drones are filled with the chemical solution consisting of 1% sodium hypochlorite and flown using a remote-control device by the experienced drone Pilots in a planned flight path, simultaneously spraying the sanitizer through its four nozzles. After every flight (approximately 15 to 20 minutes) the drones are refilled and the battery pack is replaced.
- The flight path of the drones and the area covered are controlled and recorded in a handheld device with GIS maps on the backend which is plugged to the remote controller.



4. Bhopal, Madhya Pradesh

Population (Census 2011): 1,798,218 | Area: 285.9 km²

- When the nationwide lockdown was announced, the State Government converted the Bhopal Integrated Control & Command Centre (ICCC) into a COVID-19 war room and data centre to consolidate all COVID-19 related information coming from across Bhopal.
- Under the aegis of Bhopal Smart City, it has activated the start-ups from its incubation centre, BNeST, to come up with **innovative solutions** in their respective fields of specialisation, such as :
 - i. **Vizbee** – A start-up has been successfully able to sanitise across large areas of land, public spaces, and vehicles etc. using drones. The same drones are also being used for surveillance.
 - ii. **The Kabadiwala** – A startup, which was into GPS based waste management is now delivering food supplies based to all the requests. There are 200 vehicles who are delivering supplies, which can be tracked by the phone GPS co-ordinates.
- Bhopal Municipal Corporation with the help of a city-based start-up company has **developed Smart Restroom Monitoring System (SRMS)** which consists of smart supervising equipment for the public washrooms to ensure cleanliness, hygiene and social distancing amidst the COVID-19 pandemic.
- The system indicates the occupancy in the public toilets/restrooms at the entrance which helps in maintaining social distancing in the times of COVID-19. It helps prevention of the spread of COVID-19.
- The company, Beyondsmart Technologies, has installed the system at two toilets—the first at the Bhopal Smart City office and the second at a public toilet in Bhopal.

5. Dhule, Maharashtra

Population (Census 2011): 776,093 | Area: 142 km²

- The sanitation workers had to work at the risk of their lives to clean the underground sewers in Dhule city. However, now the state-of-the-art **automated robot** has been provided to the Municipal Corporation from the assistance fund of Bharat Petrol Corporation.
- The robot named '**Bandicoot**' will be used especially for cleaning underground sewers.
- Gen 'Robotics, a company founded by nine young engineers of Thiruvananthapuram has created this 'Bandicoot' robot.
- The robot lifts heavy metal cover, puts its hand in the main gutter and removes the solid waste.



6. Vijaywada, Andhra Pradesh

Population (Census 2011): 1,534,358 | Area: 61.88 km²

- The Vijaywada Municipal Corporation (VMC) has pressed into service drones to sanitise the premises of the Government General Hospital (GGH) where the COVID-19 treatment centre has been set up.
- The drones were used to spray sodium hypochlorite disinfectant on the premises of the hospital. The Municipal Commissioner supervised the drone operations.
- The drones were further used for monitoring the containment zones and COVID-19 hotspots in the city where the movement of the public is forbidden.



Vijaywada uses drones for sanitisation efforts (Source: ULB's Twitter)

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NIUA is a premier national institute for research, capacity building and dissemination of knowledge in the urban sector, including sanitation. Established in 1976, it is the apex research body for the Ministry of Housing and Urban Affairs (MoHUA), Government of India. NIUA is also the strategic partner of the MoHUA in capacity building for providing single window services to the MoHUA/states/ULBs.

About SCBP

The Sanitation Capacity Building Platform (SCBP) is an initiative of the National Institute of Urban Affairs (NIUA) to address urban sanitation challenges in India. SCBP, supported by Bill & Melinda Gates Foundation (BMGF) is an organic and growing collaboration of credible national and international organisations, universities, training centres, resource centres, non-governmental organisations, academia, consultants and experts. SCBP supports national urban sanitation missions, states and ULBs, by developing and sourcing the best capacity building, policy guidance, technological, institutional, financial and behaviour change advice for FSSM. SCBP provides a unique opportunity for:

- Developing up to date learning content, training modules and advocacy for FSSM. As the national anchor for the NFSSM Alliance partner for capacity development.
- Technical assistance and support to cities for FSSM.
- Dissemination of FSSM research, advocacy and outreach to State governments and ULBs.
- State level engagement and support for FSSM in Uttarakhand.

Its strength is its ability to bring together partners to contribute towards developing state sanitation policy, training of trainers and training content development, technical and social assessments, training programme delivery, research and documentation.



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