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COVID-19: Disinfection of public spaces in Smart Cities

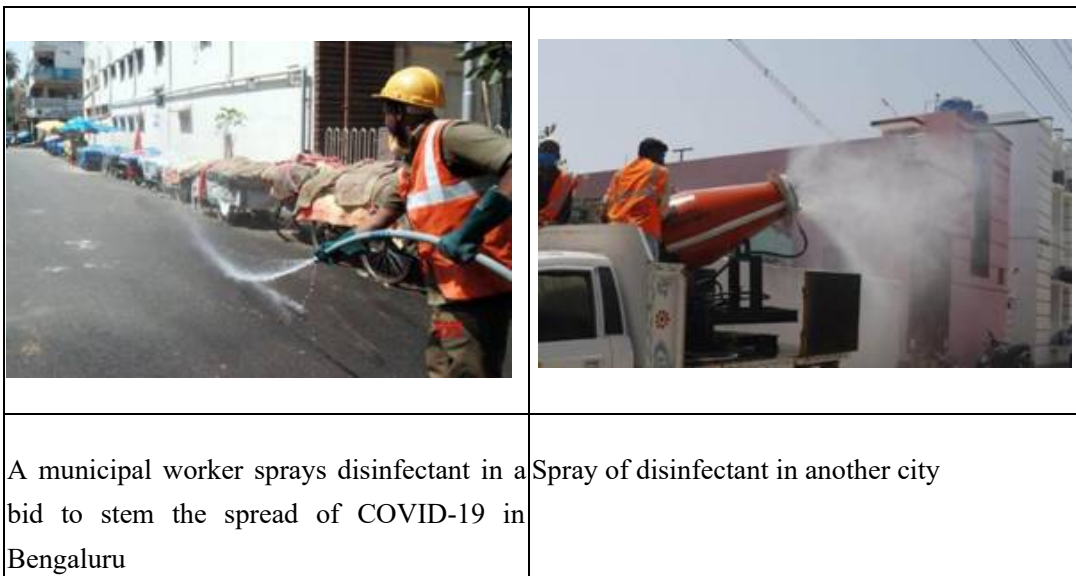
Public spaces (including streets, markets, shopping precincts, community centres, parks, playgrounds, and neighbourhood spaces in residential areas) play a vital role in the social life of communities.

Corona virus Disease 2019 (COVID -19) is an acute respiratory disease caused by a novel Corona virus (SARS-CoV-2), transmitted in most instances through respiratory droplets, direct contact with cases and also through contaminated surfaces/objects. Though the virus survives on environmental surfaces for varied period of time, **it gets easily inactivated by chemical disinfectants.**

Ever since COVID-19 outbreak was declared as global pandemic, Indian Cities have been making significant efforts in sanitizing the cities, especially the **public spaces** which are considered risk prone areas for local spread of virus. Since the nation-wide lockdown was announced on 25 March 2020, Cities have been adopting numerous approaches to disinfect the public spaces including the bus/railway stations, streets, markets, hospital premises, banks, etc.



City Governments have collaborated with Fire Departments and used fire-tenders, water wash pumps, etc., to sanitize all the streets in the city by spraying disinfectants.



To facilitate availability of essential supplies such as fresh vegetables the agricultural markets were made operational in cities and measures have been taken by City Governments to keep these places safe. Hand-washing facilities are being provided at vegetable markets and other public places.

Cities are taking up innovative approaches for disinfection of public places using sodium hypochlorite, for example Tiruppur has recently implemented a disinfection tunnel, which is now replicated in numerous cities at their agricultural/ vegetable markets. Modeled on this, various establishments entrusted with provision of essential services are deploying the disinfection chambers.



For efficient geographical coverage in disinfection of public streets, Cities of Rajkot and Surat have adopted high-clearance boom sprayers.



Smart Cities such as Chennai, Bengaluru, Raipur and Guwahati have prepared themselves to use technology solutions such as Drones to disinfect the public spaces in the situation where human access gets difficult.

Some of the key measures adopted by Smart Cities include:

City	Initiative
Guwahati	Sanitation activities are carried out across the city. Anti-bacterial is being sprayed in all corners of the city to keep it safe from any kind of infection. 1,200 workers assigned duty, door-to-door garbage collection will be carried in the morning hours, sanitation workers will be deployed across the city after sundown to spray disinfectants
Muzaffarpur	Disinfectant spray - Sanitization of whole city is under way using Fogging, anti-larva spray and disinfectant spray.
Patna	City Administration (Patna Municipal Corporation) has ensured disinfection of all public places in the city using Jetting Machines since 24 March 2020. Sanitization of all the public utility buildings such as banks, hospitals, etc. has been undertaken. Bihar State Road Transport Corporation buses were sanitized by Patna Municipal Corporation. This step has been taken as a precautionary measure against corona virus outbreak.
Dharamshala	Fire tenders used for spraying sodium hypochlorite (bleach) solution for comprehensive disinfection of public places.
Dharamshala	All goods vehicles which are engaged for delivery of essential commodities in completely quarantined area of McLeodganj, they are being regularly sanitized by MC Dharamshala at exit point.
Jammu	Sanitizing key areas of Jammu city at war footing. In the sanitization drive the allied material Spray pumps and Sodium hypochlorite sent to all 75 councillors for spraying in every ward on war footing
Ranchi	1% hypochlorite solution is used for sanitization of whole city using fogging machines.
Kavaratti	All activities are being carried out by the UT administration and its respective Health Department. Sanitization activities are being carried out by the city like regular cleaning

Shillong	Sanitization of the city by regular spray and awareness campaigns aided with strict monitoring by City Police. Lockdown issued and curfew imposed prohibiting assembly of 5 or more people in public places
Aizawl	For safety of officers working in essential services, a hand washing basin has been installed at the main entrance of premises.
Kohima	Use of road cleaning vehicles to sanitise the city
Bhubaneswar	Some BSCL officers are monitoring sanitisation and cleaning of each and every city facilities and utilities being carried out by the Bhubaneswar Municipal Corporation.
Amritsar	Sanitization of whole city is under way using chemicals as specified. Help from fire brigade is taken for such sprays.
Chennai	Use of Drones in disinfection process.
Coimbatore	Drones are used to sterilise public spaces
Madurai	Providing Public taps with wash basins for hand wash in important locations - 30 Numbers. Hand Sanitizer prepared by Madurai City Municipal Corporation and applied to public and official while entering in Government office.
Madurai	Daily twice, a solution with 5% Lizol is being applied in public places, markets, schools, roads, using 7 numbers of Jet Roding Machines. Also 100 Numbers of hand sprayers are used for application of 5% of lizol solution in streets covering 100 wards of Madurai Corporation
Thanjavur	Jet rodding machine is used as disinfection vehicle using sodium hypo chloride in big streets. Similarly water wash pumps are used in small streets
Thanjavur	Closely working with fire service departments, use their resources for disinfection works

Vellore	All entry points to city are controlled and separate checking and sanitizing arrangements are made.
Tiruppur	Hand wash facilities are arranged at important places with proper social distancing.
Greater Warangal	Sanitization of whole city is under way. Services of fire departments are used for the same. All MLAs and senior officers themselves monitoring this.
Karimnagar	Sanitization of whole city is under way using tractor mounted jets and bleaching powder as chemical.

City	Initiative
Agartala	The entire city has been sanitized. 30,000 litres of disinfectants everyday day night till April 6. Massive disinfection of all public places 10pm to 06 am daily - roadsides, shops, hospitals, ATMs, International check post etc., using 1% hypochlorite spray. The city has modified our suction jetting machines normally used for covered drain cleaning for this purpose
Lucknow	Fogging & sanitation work of all wards, Solid waste vehicles used for awareness of important messages to citizens.
Aligarh	Modification of exiting vehicles for sanitization/fogging of the entire city. Massive disinfection of all public places - roadsides, shops, hospitals, ATMs etc.
Bareilly	Anti labba fogging all wards, twice a day cleaning of city.
Moradabad	Sanitization of home and locality of incoming travelers, fogging of entire city done periodically.
Moradabad	Vishesh Safai Abhiyaan program been run in city for sanitation of entire city.
Saharanpur	Deployed six heavy vehicles and over 100 hand-held machines to spray the

	disinfectants across the public spaces.
Tiruppur	<p>Tiruppur gets a unique disinfection tunnel to fight against COVID-19. This tunnel was set up by the District Administration in collaboration with Young Indians, the youth wing of the Confederation of Indian Industry. The 'disinfection tunnel' is part of efforts by the Tiruppur District administration to prevent further spread of corona virus. People who enter the market are asked to wash their hands and walk through the 'disinfection tunnel' for three to four seconds during which sprayers overhead sprinkle protective substance on them. Once they come out of the 'disinfection tunnel', the visitors are allowed into the market.</p>
Rajkot	<p>Rajkot uses high-clearance boom sprayers for disinfection of public streets and public places. Four High Clearance Boom Sprayers (used in Agricultural Fields) are being used by Rajkot Municipal Corporation to spray disinfectants on the roads and streets of Rajkot. We will soon be procuring 14 more such machines. Thus covering all 18 wards of the City.</p>



RJ/RP