Training on

**Response & Preparedness during COVID-19 Times**

on Risk Communications and Infection Prevention,
Control on Environmental Sanitation and Waste Management
in Cities of Maharashtra

**Resource book**

All India Institute of Local Self-Government, Mumbai with
United Nations Children’s Fund, Mumbai
Maharashtra Pollution Control Board
in collaboration with
Urban Development Department, Government of Maharashtra
Title

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Content
This material is developed as ‘Training of Trainers’ module for web-based trainings prepared by All India Institute of Local Self Government, Mumbai and United Nations Children’s Fund, Mumbai.

Disclaimer
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The outburst of the COVID-19 has put the world in a public health crisis. The State Government under the able leadership of Honorable Chief Minister of Maharashtra Shri. Uddhavji Thackeray has taken numerous dedicated measures to combat this unprecedented situation.

Under Swachh Bharat Mission, launched by the Ministry of Housing and Urban Affairs, Government of India, the State Government and Urban Local Bodies across Maharashtra have undertaken multiple initiatives which have been crucial for managing the pandemic. ULBs have created COVID healthcare facilities including care centers & isolation wards, supplying PPE & medical equipment, facilitating safe disposal of biomedical waste, categorization of zones and testing of suspected COVID cases.

Smart Cities have been effectively dealing with the ongoing pandemic aided by various IT tools such as MIS, Dashboards, GIS Mapping, AI and data analytics to monitor COVID-19 cases, extrapolate trends/patterns, create modular medical facilities, access nursing staff / doctor availability, arrange supplies, monitor outbreak hotspots etc. to ensure the situation is critically managed. Some of these initiatives like Command Control Room, Hospital MIS, Central sanitation & waste management dashboard have been replicated in few other ULB’s which has helped in mitigating challenges and ensure better preparedness towards future pandemic.

Moving forward, Health and safety will now remain one of the top priorities and for this, efficiency of urban public health system in cities is being strengthened and revamped. Technological interventions will be critical and instrumental in mapping the trend of this virus and enable quick response to developing situations. All the stakeholders involved in this crisis including the government, private sector and donor agencies are now rethinking on their strategies to revamp policies, approaches and ways of working for safe future in the new normal.

With the mammoth support from the citizens I am confident that Maharashtra will successfully overcome the COVID-19 crisis and be an inspiration to other States in India.

Mahesh Pathak, IAS
Principal Secretary,
Urban Development Department,
Government of Maharashtra
In the backdrop of the ongoing COVID-19 pandemic, Hon’ble NGT (Principal Bench), Delhi in its order in the matter OA 72/2020, dated 24th April 2020 underlined need for scientific management and handling of COVID-19 waste strictly in accordance with BMWM Rules, 2016 and the CPCB guidelines. The order noted that “there is need for orientation/training of persons responsible for compliance in Local Bodies and Health department by an online mechanism”.

MPCB, UNICEF and AIILSG Mumbai, in collaboration with UDD, Govt. of Maharashtra, organised an online training programme in 4 batches on the 19-22nd May 2020 on "Response & Preparedness during COVID-19 Times on Risk Communications and Infection Prevention, Control on Environmental Sanitation and Waste Management for ULBs in Maharashtra” to train the trainers at Municipal Corporations and Councils in Maharashtra.

The programme included modules/sessions on A) Public Health Aspects of COVID-19 B) Precautions and Preventative Measures and Good Practices for WASH and C) Biomedical Waste Management with special reference to COVID-19 BMW.

Experienced resource persons from the World Health Organisation (WHO), MCGM, CPCB Vardhman Mahavir Medical College and Safdarjung Hospital, New Delhi, National Institute of Public Health Training & Research (NIPHTR), Tata Trust, National Environmental Engineering Research Institute (NEERI), in addition to the MPCB, UNICEF, and AIILSG, Mumbai contributed to actual training.

In view of the demand from various stakeholders, it is decided to disseminate the training material and other resource reference, for enabling further roll out of trainings to the frontline health and sanitation workers. Once restriction under the lockdown are relaxed, we propose on-site training for the Public Health officers, Para Medical staff in Government and Private Hospitals, House Keeping and Sanitation Workers, Asha Workers, and common Biomedical Waste treatment facilities who handle biomedical waste, on waste handling and biomedical waste management.

I sincerely appreciate the support extended by the Urban Development Department and Environment Department, Government of Maharashtra. I thank the Directorate of Maharashtra Urban Development Missions (MUDM) for making the ToT possible in a short time and I further congratulate the sincere efforts made by the team of AIILSG Mumbai, UNICEF Mumbai and MPCB in developing the ToT Module and conducting the training programmes successfully.

E. Ravendiran, IAS
Member Secretary,
Maharashtra Pollution Control Board
The ongoing COVID-19 pandemic and the escalation of cases have put the world in multi-sectorial crisis. The crisis is expected to have a social as well as economic impact. Such a drastic situation calls for the World to fight together against the invisible enemy. UNICEF at a global level has been working on various sectors like public health, WASH, health emergencies etc. and continues to work and support the government’s initiatives to tackle the crisis.

UNICEF, India is pleased to assist Government of India (GoI) by supporting several states and local bodies in COVID-19 management by channelling their existing multi-sectorial teams comprising of experts in health, water and sanitation, disaster risk reduction etc. UNICEF also brings national and international experience to assist GoI in reducing the impact of COVID-19.

UNICEF Mumbai continues to support Government of Maharashtra during the pandemic times. As per Hon’ble NGT’s order dated 24th April 2020, need for conducting training for municipal officials was established. In response to this, Maharashtra Pollution Control Board, UNICEF Mumbai and All India Institute of Local Self Government, Mumbai in collaboration with Urban Development Department, Government of Maharashtra organised web based training programmes for all the urban local bodies in Maharashtra 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’. The objective of these training programmes was to share the updated knowledge and create a platform for discussing solutions to the field level challenges faced by the municipal officials and frontline workers; in public health, water-sanitation, municipal solid waste management and biomedical waste management, while tackling the pandemic.

This resource book has been prepared in continuation to these web based training programmes with an objective of further dissemination of this vital information on response and preparedness during COVID-19 times, within other cities and states.

I would like to appreciate the support extended by UDD, GoM to this timely initiative. I also take this opportunity to thank the panel of resource persons and field experts from World Health Organisation, Central Pollution Control Board, National Institute of Public Health Training & Research-MoHFW, National Environmental Engineering Research Institute, Municipal Corporation of Greater Mumbai and Tata Trust, for their valuable contribution and inputs which have helped in making the training programmes successful.

Lastly, I thank and congratulate the team of MPCB, UNICEF Mumbai and AIILSG Mumbai for their sincere efforts and the great partnership in making this initiative a success.

Rajeshwari Chandrasekar,  
Chief of Field Office,  
UNICEF Maharashtra
Across the globe, COVID-19 is intimidating cities and societies posing a grave danger to public health. This has impacted communities from all strata of the society. This situation is already having a multidimensional impact on the functioning of urban local bodies and their coping mechanisms. In large cities, residents of informal settlements and slum are more vulnerable as these areas lack access to infrastructure and basic services including water, sanitation, waste management and access to affordable health care facilities.

During such times, updating the ULB officials and relevant decision makers who are involved in the provision of these services with adequate information is crucial which will help them in taking appropriate decisions in addressing the immediate challenge. All India Institute of Local Self Government has been involved in providing capacity building and technical support to the State and local governments through its more than 30 centers all over India. AIILSG has been conducting Sanitary Inspectors’ courses for the candidates aspiring to join health and sanitation departments, many of whom are now sanitation taskforce in urban local bodies all over the country.

Given this extensive experience, AIILSG Mumbai with United Nations Children’s Fund UNICEF and Maharashtra Pollution Control Board MPCB, in collaboration with Urban Development Department UDD, Government of Maharashtra GoM have developed this 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’. Based on the ‘training of trainers’ module of this resource book, web-based trainings were conducted for all the urban local bodies in Maharashtra in the month of May 2020, witnessing more than 1200 participants with overwhelming positive feedback.

Based on these trainings, I am pleased to announce this resource book which can be a guiding document for ULBs to deal with the perplexing circumstances of COVID-19. I hope that this resource book helps in disseminating valuable information related to environmental sanitation and waste management and benefit the officials in responding effectively to these challenging times.

I congratulate the team of MPCB, UNICEF field office of Mumbai and RCUES & CSG at AIILSG Mumbai for this most required timely initiative, supported by the UDD, GoM and further extend our sincere thanks to the resource organisations for supporting this initiative, including World Health Organisation, Central Pollution Control Board, National Institute of Public Health Training & Research- MoHFW, National Environmental Engineering Research Institute, Municipal Corporation of Greater Mumbai and Tata Trust.

Rajiv Agarwal, IAS (Retd.)
Director General
All India Institute of Local Self Government
In January 2020, the World Health Organization (WHO) declared that the outbreak of a novel coronavirus in China constituted a public health emergency of international concern. After a sudden surge in cases since then, WHO has recognized it as a pandemic affecting more than 115 countries around the world. Despite containment efforts, the rapid outbreak of Corona Virus Disease (COVID-19) has caused an alarming health crisis that leaders around the world are struggling with. The situation is no different in India and thousands of city officials and on-field staff are working at battling the virus, putting their own lives at risk. National, state and local governments are working together to understand and address the challenges posed by this situation. Government of India (GoI) with it’s various ministries, including Ministry of Housing and Urban Affairs (MoHUA) and Ministry of Health and Family Welfare (MoHFW) are leading the way for state governments and Urban Local Bodies (ULBs) to tackle the obstacles arising out this pandemic in cities.

The provision of safe water supply, sanitation and waste management services is essential to protect human health during all infectious disease outbreaks, including the COVID-19 outbreak. Ensuring evidence-based and consistently applied WASH and waste management practices in communities,
homes, schools, marketplaces, and health-care facilities will help prevent human-to-human transmission of the virus that causes COVID-19. (WHO, April 2020) Thus, it is crucial that the officials and workers of ULBs who are involved in provision of these services be acquainted with appropriate measures for self-precautions and infection prevention and control, while dealing with response to COVID-19. Improvement in knowledge of such stakeholders will assist them in taking appropriate decisions in effectively addressing the immediate challenge. Once this is done, these officials can further disseminate this information to their Front Line Workers (FLW).

In the backdrop of the ongoing COVID-19 pandemic, Hon’ble National Green Tribunal (NGT) in their order dated 24th April 2020 has noted that while the Central Pollution Control Board (CPCB) has issued updated guidelines on biomedical waste management in the specific context of COVID-19, gaps continue to exist in compliance of BMW Rules in terms of capacity to scientifically dispose of generated waste and non-compliance of procedural and monitoring aspects. The judgment noted that ‘there is need for orientation/training of persons responsible for compliance in Local Bodies and Health departments by an online mechanism’.
Based on this context, All India Institute of Local Self Government (AIILSG) Mumbai, Maharashtra Pollution Control Board (MPCB) and United Nations Children's Fund (UNICEF) Mumbai have jointly developed this module of web-based Trainings of Trainers (ToT) on 'Response and Preparedness during COVID-19 Times on Risk Communications and Infection Prevention, Control on Environmental Sanitation and Waste Management for ULBs in Maharashtra'. These trainings were a result of response to mandate to MPCB from Hon'ble NGT to conduct trainings for ULBs, UNICEF as key working organization in response to COVID-19 in the state, AIILSG Mumbai with its extensive background of capacity building and demand from ULBs themselves for such trainings.

**About the module**

The module is intended as web-based ToT for ULBs and health care facilities operators to help them identify the risks and hazards involved in management of services in these times and provide guidance through various subject experts.
Target group
The module is targeted for a mixed group of policy makers/administrators and executors/service providers of ULBs involved in sanitation and waste management of COVID-19, who can further disseminate the information to their front line workers. These include:
- Commissioners, Chief officers and Engineers.
- Sanitary Inspectors and operators of public toilets, STPs, FSTPs & ETPs.
- MSW collectors, transporters and disposal site managers/operators.
- Health care facilities operators.

Objectives of the training
- Imparting latest knowledge and practical ground level solutions in COVID-19.
- Risk communications and community engagement under environmental sanitation, waste management and public health.
- Precautions and preventive measures under waste management and disinfection process.
- Understanding challenges of FLW and service providers engaged in sanitation and waste management at slums, densely populated areas and containment zones.
- Regulatory, ethical and mandatory reporting requirements.
- Understanding on safety gear for FLW and service providers.
- Available technologies/DO's and DON'Ts/good practices.

Development of the module
The module is developed with combined efforts and support from multiple organizations involved in dealing with COVID-19 in environmental sanitation, waste management and public health. These include WHO, MoHUA, MoHFW, CPCB, National Institute of Public Health Training & Research (NIPHTR), National Environmental Engineering Research Institute (NEERI), Municipal Corporation of Greater Mumbai (MCGM) and Tata Trust. Extensive experience of a panel of experts and resource persons from these organizations in the sector helped in adding value to the training and made it effective and beneficial to the target audience.

Format of the module
The module contains all the sessions to be covered while conducting the training. Each session is divided in two parts:
- Notes/description of the session.
- Session slides.

Duration of the module
Total time of the training: 120 minutes

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Session 1: Public Health Aspects of COVID-19

Duration: 20 minutes

Need of the session

The WHO states COVID-19 as an infectious disease caused by a newly discovered coronavirus. Since the coronavirus is highly transmissible, precautions has to be taken at individual as well as at community level to contain the spread of the virus. It is essential to understand the common symptoms of COVID-19, routes of transmission, and precautions to be taken in order to tackle it. Since the world is facing a never seen before issue there are high probabilities of stigma being associated with it which makes it even more difficult to contain the virus. To avoid spreading of the virus it is crucial that the right information is disseminated to the citizens. Hence this session addresses these factors related to COVID-19.

Key points covered

The session aims to cover the following:

- Facts on COVID-19, its routes of infection, modes of transfer, meaning of containment zone and home quarantine and how to practice it.
- Norms for physical distancing, coughing etiquettes and hand washing practices.
- Categories of COVID-19 cases (Mild, moderate and severe) and different arrangements for them.
- Methods to address stigma and rumors attached to the pandemic.
- Psychosocial health care of FLW and initiatives taken by government authorities to assist FLW to tackle them.
- Agencies involved in COVID-19 pandemic prevention and control - global, national and local level.
Reference notes

COVID-19 is a highly contagious virus, caused by Severe Acute Respiratory Syndrome (SARS). Common symptoms of COVID-19 are fever, cough, and difficulty in breathing. The virus is not airborne but is spread through the infected droplets landing on surfaces. Since the virus is transferred through contact, it spreads rapidly. The report on 'WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19)' maps the pattern of progression of the disease. The report suggests that to reduce mortality rate of the disease it is essential that immediate testing and treatment is provided to the COVID-19 patients.

Modes of transmission

To contain the spreading of COVID-19 it is crucial to understand the modes of transmission of the virus. MoHUA has published infographics which depict the nine common means of spread of the virus. Type of contacts for the spread of the virus can be divided in two categories i.e. high risk contact and low risk contact. A person is at a high risk when he/she has been in direct exposure to any confirmed or asymptomatic patient of COVID-19. Individual who has touched body fluids, touched or cleaned linens, lives in the same house as the patient or is in close proximity to confirmed cases of COVID-19 without precautions is at a high risk. A person is at low risk contact, if he/she has shared the same space with a COVID-19 positive patient but has not had a high-risk exposure mentioned above.

Measures to be taken to reduce transmission of COVID-19

To reduce transmission of COVID-19, restrictions on the movement have to take place at individual as well as at community level. For individual movement restrictions, persons who are believed to be exposed to the infection have to quarantine i.e. separation and restriction of movement from the community for 14 days from the date of exposure. During the quarantine period, COVID-19 suspects have to stay in well ventilated specific room, keep distance with other people in the house, avoid visitors in the house, seek immediate health care, notify the authorities accordingly, avoid going to public areas and wear masks when they are around other people. Strict community movement restrictions are formulated for specific areas known as 'containment zones' to prevent further spread of the virus.

According to the MoHFW, GoI, a containment zone refers to a specific geographical area where positive cases of COVID-19 are found. The boundary of the containment zone shall be defined by district administrations as per MoHFW guidelines. Containment zones shall be demarcated with red (hotspots) and orange zones by States/ UTs and district administrations based on the guidelines of MoHFW. Districts shall be defined as Red Zones or Hotspot districts by MoHFW, GoI, taking into account total number of active cases, doubling rate of confirmed cases, extent of testing and surveillance feedback. Districts with zero confirmed cases till date or districts with no confirmed case in the last 21 days are demarcated as green zones, whereas, districts which are neither demarcated as red or green are demarcated as orange zones. Individuals living in the containment zone are at a higher risk for getting infected by the COVID-19 virus. Hence, it is essential that they follow hygiene practices like wearing a mask, hand washing, change and washing of clothes after coming home from outside and other measures prescribed as precautions against COVID-19.

Hand and respiratory hygiene measures to be followed

MoHFW, GoI has published guidelines for hygiene measures to be undertaken to contain further spreading of the virus. Respiratory hygiene measures are a combination of measures taken to stop the spread of germs through respiratory behaviors like coughing or sneezing. MoHFW guidelines illustrates do’s and don’t’s for appropriate respiratory hygiene. Use of mask and hand hygiene are crucial to contain spreading of the virus. Using a mask incorrectly may hamper its effectiveness to reduce the risk of transmission. It is essential that masks are worn properly and adequate precautions are taken while
wearing and removing it. Similarly, appropriate procedure must be followed while washing hands. Suitable procedure for use of masks and hand hygiene are illustrated by MoHFW, GoI published in ‘COVID-19: Response and Containment Measures’.

FLW have to take additional hygiene measures when they reach home to ensure the virus does not reach their home. Before reaching home, the workers should ensure that the door is left open for them to enter. If not, the door has to be sanitized after opening. FLW have to remove their shoes outside the house and sanitize their hands and belongings. The clothes and mask worn by them have to be washed and the worker has to take a bath immediately. Since these workers are at risk from working outdoors in the pandemic situation, these crucial measures have to be followed by them to safeguard themselves and their families from the virus.

**Stigma attached to COVID-19 and measures to be taken to tackle it**

COVID-19 is a novel virus about which many new things are still being discovered. The uncertainty of dealing with something unknown may lead to fear among people which may be escalated by rumors, fake news or incorrect information. This has lead to a certain level of stigma being attached to COVID-19. This may refrain the people from timely approaching health services or adopting healthy behaviors. Hence it is essential to address this stigma for which FLW can play a crucial role. These workers can sensitize people by helping them understand the severity of the virus. They can advise people to engage in relaxing activities and to stay away from romours and fake news. Community influencers can be engaged so that correct information on COVID-19 is shared with people. FLW have to be sensitive about the terminologies they use in front of the people so as to avoid any negative implications of it. The FLW who are performing their duties in such sever times deal with tremendous psychological and social pressure. Special efforts have to be made to reach out to the senior citizens and younger children.

**Psychosocial health care of service providers**

The world is facing a never seen before situation and ULBs are working to make sure services are seamlessly provided to the citizens. The FLW who are performing their duties in such sever times deal with tremendous psychological and social pressure. To help the FLW in dealing with stress MoHFW has launched a toll free helpline. Stress Management Training modules are available on the website of MoHFW, GoI. Government of Maharashtra also launched a toll free helpline for mental health known as SAMVAAD. This assistance has been laid out by the government institutes for psychological wellbeing of service providers as well as citizens.

Toll free helpline for healthcare workers facing stress launched by MoHFW: 8046110007
Toll free mental health helpline for citizens launched by GoM: 1800-102-4040
Reference link for stress management training module by MoHFW:
https://www.mohfw.gov.in/index.html
The following section gives a brief understanding about COVID-19 and global situation of the pandemic.

**What is COVID-19?**

Commonly referred to as Coronavirus, COVID-19 is Coronavirus Disease 2019

- Caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)
- Commonly presents with flu like symptoms
- Is highly contagious

**What are Common Symptoms of Covid-19?**

The etiologic agent responsible for present outbreak of COVID-19 is SARS-CoV-2 which is a novel coronavirus. Transmission of coronaviruses can occur via respiratory secretions. Most common symptoms include fever, fatigue, dry cough and breathing difficulty. Upper respiratory tract symptoms like sore throat, rhinorrhea and gastrointestinal symptoms like diarrhea and nausea/vomiting are seen in about 20% of cases. COVID-19 is a highly contagious disease.

Global Situation

First widely reported in Wuhan Province of China, Covid-19 has rapidly spread across the world

- Globally 79,41,791 confirmed cases and 4,34,796 confirmed deaths as on 17th June 2020¹
- India has 3,54,000 confirmed cases and 11,903 confirmed deaths as on 17th June 2020²
- Maharashtra has (As on 17th June 2020)
  1,10,744 confirmed cases and 4,127 confirmed deaths
- Area under the Municipal Corporation of Greater Mumbai (MCGM) reported 60,228 confirmed cases and 3,167 confirmed deaths as on 14th May 2020³

2: Source: MoHFW, GoI: https://www.mohfw.gov.in/
3: Source: PHD, GoM: https://arogya.maharashtra.gov.in/1175/Novel--Corona-Virus

First widely reported in Wuhan Province of China, Covid-19 has rapidly spread across the world. Globally 79,41,791 confirmed cases and 4,34,796 confirmed deaths as on 17th June 2020. India has 3,54,000 confirmed cases and 11,903 confirmed deaths and Maharashtra has reported 1,10,744 confirmed cases and 4,127 confirmed deaths as on 17th June 2020. During same period, 60,228 cases and 3,167 deaths are reported from Mumbai.

Reference links:
2. https://www.mohfw.gov.in/

1.2. Disease Epidemiology

The following section analyses the patterns of the virus and the possible modes of transmission.
As novel coronavirus is a droplet infection, it spreads via/through infected droplets. Infected droplets >5µm travel <1m and aerosols <5µm travel >1m and infect surrounding surfaces, The virus gets transmitted to a person if he/she comes in contact with the virus droplets. Current estimates of the incubation period of COVID-19 ranges from 2-14 days. This is the basis of social distancing, coughing and sneezing etiquettes, hand hygiene and isolation/quarantine for 14 days.

Early diagnosis and treatment is the key to successful recovery for COVID-19 patients. Mortality can be reduced by prompt contact tracing, testing and timely management.

Reference links:
Modes of transmission are as mentioned in the diagram above. The droplets from the sneeze/cough of infected person are transferred to surfaces. The virus gets transferred when someone touches the surfaces where the infected droplets have landed. Thus, the primary mode of transfer of infection is through contact.


1.3. Prevention and Control - Quarantine & Containment Zones

The following section illustrates methods to be followed at individual as well as community level through which the spread of the virus can be controlled.
Types of Contacts

High Risk Contact
1. **Touched body fluids** of the patient (Respiratory tract secretions, blood, vomit, saliva, urine, faeces)
2. Had **direct physical contact** with the body of the patient including physical examination without PPE
3. **Touched or cleaned** the linens, clothes, or dishes of the patient
4. Lives in the **same household** as the patient
5. Anyone in **close proximity** (within 3 ft) of the confirmed case **without precautions**
6. Passenger in **close proximity** (within 3 ft) of a conveyance with a **symptomatic person** who later tested **positive** for COVID-19 for **more than 6 hours**

Low Risk Contact
1. Shared the **same space** (Same class for school/worked in same room/similar and **not having** a high risk exposure to confirmed or suspect case of COVID-19)
2. Travelled in **same environment** (bus/train/flight/any mode of transit) but **not having** a high-risk exposure

Identification of Red (Hotspots), Green and Orange Zones:
Government has strategically categorized districts/urban areas in green and red zones for control of COVID-19. Areas with high prevalence of the disease are labelled as red zones with stringent restrictions to stop spread of the disease. Districts/urban areas with no cases at all or no cases for at least 21 days are categorized as green zones. Rest of the areas are considered orange zones.

Source: Presentation on COVID-19 by Dr Vivek R Pardeshi, Surveillance Medical Officer, WHO India
MoHFW, GoI has given containment zones guidelines for implementation of strict perimeter control of areas with multiple COVID-19 infected persons. Strict movement restrictions are put in place in such areas to prevent further spread of the virus. Perimeter control is primarily an administrative measure – Enhanced surveillance within the perimeter is a part of the larger administrative response in containment zones. Containment zones shall be demarcated within red (hotspots) and orange zones by States/UTs and district administrations based on the guidelines of MoHFW. BMC has also issued a guideline.

- Containment Zones shall be demarcated within Red (Hotspots) and Orange Zones by States/UTs and District Administrations based on the guidelines of MoHFW. BMC has also issued a guideline.
- The boundary of the Containment Zone shall be defined by District Administrations taking into account the following factors: mapping of cases and contacts; geographical dispersion of cases and contacts; area with well demarcated perimeter; and enforceability
- The boundary of the Containment Zone will be a residential colony, mohalla, municipal ward, municipal zone, police station area, towns etc., in case of urban areas
- There is a need to link ward level micro planning with Containment zone planning

The boundary of a containment zone shall be defined by district administrations taking into account the following factors - mapping of cases and contacts, geographical dispersion of cases and contacts, area with well demarcated perimeter and enforceability. The boundary of the containment zone may be a residential colony, mohalla, municipal ward, municipal zone, police station area, town etc. In case of urban areas there is a need to link ward level micro planning with containment zone planning.

Rapid Response Teams (RRTs) need to be oriented on the enhanced surveillance and contact tracing in containment zones. Daily surveillance on health status of persons is needed for early detection, laboratory testing and timely treatment of the detected cases.
It is vital to quarantine and restrict movements of individuals who might have been in contact with COVID-19 patients so as to arrest spread of the disease. If separate toilet facility and physical distancing is manageable, persons in contact can be quarantined at home. If any person does not have such facilities they are quarantined at quarantine facilities which are managed by health workers and dedicated volunteers. If symptoms are detected, quarantined persons are treated as per government protocols. As incubation period of COVID-19 ranges from 2-14 days, quarantine for 14 days is essential.

Those individuals who are home quarantined have greater responsibility as they are not under direct supervision of support team for 24 hours. Hence they must follow norms set by the government very strictly.
1.4. Physical Distancing, Respiratory Hygiene, Handwashing Practices

The following section explains the practices to be followed for physical distancing, respiratory hygiene and hand washing practices.

Physical Distancing – Do’s & Don’ts

Social distancing means deliberately increasing the physical space between people to avoid spreading illness. Staying at least one meter away from other people lessens your chances of catching Covid-19.

**DO**
- Stay at home unless absolutely necessary
- Keep a distance of at least one meter between yourself and another person

**DON'T**
- Do not hold events where people have to gather (even if it is a corner meeting with three or four friends, or an evening chat on the chaupal)
- Do not go to crowded places like markets, shopping, melas, parties
- Do not use public transport

As droplets spread 3 feet around infected individual, it is important to maintain physical distancing. Events/festivals, gatherings/meetings and travel by public transport must be avoided. Public transport also must be avoided. Government guidelines on restricted number of individuals attending inevitable events like cremation, burial and functions like marriages must be strictly followed to help control spread of the virus.

Source: MoHFW, GoI: https://www.mohfw.gov.in/pdf/2COVID19PPT_25MarchWithAnimation.pdf
While coughing and sneezing one must always cover face with tissue paper or handkerchief immediately discard used tissue paper in a covered dustbin. If tissue paper or handkerchief is not available, arm/armpit should be used to control spread of droplets. In case bare hands are used to cover face while coughing or sneezing, they must be immediately washed thoroughly. Covering face with any worn material should be strictly avoided as it becomes an infected medium for spread of the virus. Spitting in the open must be strictly restricted and a spitoon or a wash basin must be used instead.

During COVID-19 pandemic, hand hygiene has become a key preventive measure. Hands must be washed for at least 40 seconds, scrubbing all areas on the hand and wrist, and for at least 20 seconds if alcohol based hand sanitizer is used. One must never touch face/eyes/nose with unwashed hands. Due care must be taken while and after coming in contact with commonly touched surfaces. Awareness about appropriate habits, hand hygiene and preventive measures are essential for protection against COVID-19.
Appropriate safety measures must be taken by FLW while at work and after finishing work to prevent the spread of virus in their homes. Care should be taken to avoid touching doors, latches, keys etc. and if touched should be immediately sanitized. Footwear should be removed outside before entering and a bath should be taken immediately. Workers should avoid carrying their work clothes/mask and other apparel home. If this is unavoidable, they should be immediately washed with disinfectant and dried completely.

1.5. Management & Categorisation of COVID-19 Cases

The following section describes the types of facilities created for treating COVID-19 patients.
Types of COVID dedicated facilities

Three types of COVID dedicated facilities

COVID Care Centre (CCC)  |  Dedicated COVID Health Centre (DCHC)  |  Dedicated COVID Hospital (DCH)

1. COVID Care Centre (CCC) - Suspected and confirmed cases clinically assigned as mild and very mild.
   COVID care centers-1 (CCC1): Contacts of positive patients kept under observation for 14 days.
   COVID care centers-2 (CCC2): Asymptomatic positive patients without comorbidity and age less than 60 years kept under observation for 14 days.

2. Dedicated COVID Health Centre (DCHC) - Suspected and confirmed cases clinically assigned as moderate are admitted.

3. Dedicated COVID Hospital (DCH) - Suspect and confirmed cases clinically assigned as severe. This categorization helps proper management of COVID-19 suspects and patients requiring critical care.

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1.6. Stigma and Rumour Monitoring

The following section addresses the issue of stigma linked to COVID-19 and measures to be taken against it.
Corona is a novel virus with newer evidences being discovered everyday leading to myths and misinformation creating fear among people. People tend to conceal their problems and symptoms under fear of taboo and social outcast. This leads to hesitancy in approaching health services and support at the right time and ignorance in following precautions and preventive measures. This must be addressed with appropriate publicity and positive reinforcement through social media, advertisements and counseling as appropriate.

**Why Is There Stigma?**

The level of stigma associated with Covid-19 is based on three main factors:
- Covid-19 is a **new disease** about which many things are still being discovered
- When something is unknown people are worried **which leads to fear**
- Rumours or fake news give wrong information and spreads the fear

**What Does Stigma Do?**

- Makes people hide their problems
- Keeps people away from accessing health services and seeking help
- Discourages them & may at times prevent them from adopting healthy behaviours


FLW can play a major role in spreading positive and correct information on COVID-19 with their reach. Health workers can get support of influential leaders and social mobilizers to reduce fear and stress in people’s minds. Youth groups and other organizations can help vulnerable senior citizens and children as and when needed.

**What Can The Field Level Worker Do?**

Field Level Workers and Frontline Staff should be instructed to:

1. Sensitize people and help them to understand that it is a simple infection and **80% of the cases are mild cases**
2. Covid-19 can happen to anyone, speak to people, be available to listen to how they feel
3. Advise people to engage in **relaxing activities** like indoor games, reading, gardening, home-cleaning, etc.
4. Ask people to stay away from watching negative things on the TV and also fake news
5. **Engage community influencers**, share correct information on Covid-19 with them.
6. Brief them on specific support required by you. Guide Whatsapp groups to help in giving hope and positive news to help people handle stress.
7. Publicly, use terms like **“People who have Covid-19”** instead of **“Covid-19 cases”** or **“Victims”**. Similarly, use terms like **“People who may have Covid-19”** instead of **“Suspected Cases”**
8. Emphasize that **most people do recover** from Covid-19, amplify the good news about local people who have recovered from Covid-19, or who have supported a loved one through recovery
9. Make special efforts to reach out to **high risk groups** including senior citizens and younger children.

The following section explains the need of addressing the psychosocial issues of health care and service providers and ways in which the same could be addressed.

1.7. Psychosocial Health Care of Service Providers

FLW deal with added stress while performing their duties in this pandemic. Thus, it is essential for them to maintain good health, be physically and mentally fit and adhere to a wholesome diet. Digital media can be effectively used to be in contact with families in case personal visits are restricted. Smoking, consumption of alcohol and tobacco and any such addiction must be strictly prohibited as they may increase susceptibility to the infection. Workers should not hesitate in using help line services provided for psychological counselling as needed.

Reference link: https://www.who.int/docs/default-source/coronaviruse/mental-health-considerations.pdf
COVID-19 pandemic is a global emergency and multiple agencies are working together for prevention and control of this pandemic. Above mentioned agencies are working together at global, national and state/local levels.

### References

- World Health Organisation (March 2020), *Mental health and psychosocial considerations during the COVID-19 outbreak*.
Water Sanitation and Hygiene - Precautions, Preventive Measures and Good Practices
Session 2: Water Sanitation and Hygiene—Precautions, Preventive Measures and Good Practices

Duration: 20 minutes

Need of the session

Provision of safe water supply and sanitation services to protect human health during the pandemic of COVID-19 is one of the crucial aspects to avoid indirect human to human transmission of the virus. Various government advisories have been issued by Central and State governments to address the emerging challenges in Water, Sanitation and Hygiene (WASH). In the context of the situation posed by the pandemic, officials and staff of ULBs have been incessantly working on ground for provision of consistent services. Sanitation and allied FLW are one of the most vulnerable due to their exposure to the virus. Thus, these officials and workers while dealing with such scenario, should have appropriate training of Standard Operating Procedures (SOPs) and precautions while working on ground as well as a good understanding on the facts and myths associated with COVID-19 and WASH.

Key points covered

The session aims to cover the following:

- Precautions and preventive measures under sanitation and waste management for sanitation workers/ toilet operators/ cleaners/ waste collectors while operating in slums/ high density areas, containment zones etc.
- Hygiene/cleanliness measures to be taken at community toilets/ public toilets (CTs/PTs) and community water points.
- Sanitization / disinfection: Preparation of safe concentration, storage and handling.
- Safe management of water supply services.
- Safe management of sanitation services – Sewerage Treatment Plants (STPs) and Faecal Sludge Treatment Plants (FSTPs).
- Appropriate safety gear for sanitation workers and it’s donning doffing.
Reference notes

Cleanliness of surfaces, community water and sanitation points
The most effective way of containing the disease in areas where common facilities such as bathrooms and toilets are shared, is to implement measures that can catalyse behaviour change and promote strict adherence to hygiene and sanitation practices. (Office of the Principal Scientific Adviser to the GoI, April 2020). Simple precautions and interventions by community members as well as caretakers implemented appropriately can help control the spread of the disease.

Community hand wash stations
Common surfaces at shared hand wash facilities like handles, knobs, doors etc. are major source of disease spread in a community. It is recommended to use foot operated pedaled handwashing stations at shared community spaces to enable the residents to wash their hands frequently without touching the tap. These hand washing stations will control the spread of disease while reducing the amount of water used. To eliminate the use of soap, chlorine can be added to the water. Two design options of such foot operated stations are given in the 'Guidelines for Hygiene and Sanitation in Densely Populated Areas, during the COVID-19 Pandemic'. Foot operated handwashing stations are globally adopted measures during epidemics for controlling the spread of disease.

Community/public toilets
Lack of hygiene and ill-used and ill-maintained CTs may lead to spread of the disease. To prevent this, users must maintain physical distancing at all times and avoid touching the surfaces as much as possible. If any surfaces are touched, they should be immediately washed with soap and water. Caretakers of CTs should ensure that soaps or hand sanitizers are available at the toilet premises and encourage its usage by toilet users. Caretakers should also clean frequently touched surfaces (door handles, armrests, table tops, light switches, water tops) frequently (once every 2-4 hours) with disinfectant. While doing all this, caretakers must strictly adhere to wearing all the recommended safety gear i.e. mask, gloves, apron and boots and keep work and home clothes separate.

Precautions and preventive measures for sanitation workers
Government of India has released multiple guidelines and advisories to be followed by state governments as well as contractors employing sanitation workers. Local governments are advised to put in place SOPs to ensure health and safety of sanitation workers including lists of DO’s and DON’T’s to be practiced while performing their duties on field every day. Sanitation workers are to be provided with appropriate safety gear like masks, gloves, boots, aprons and the usage of these must be ensured by ULBs and contractors to minimize their risk to the virus. Sanitation workers must be orientated on the procedure of donning and doffing of the safety gear. It should be made sure that the sanitation workers are aware that safety gear is not an alternative to basic preventive public health measures such as hand hygiene, respiratory etiquettes etc. which must be followed at all times.

Sanitization and disinfection
WHO has prepared a guide with recommended handrub formulations which can be used by local manufacturers to prepare accurate hand rubs to be used by the communities. Apart from this, ULBs should ensure clean toilets, walls and surfaces with chlorine containing disinfectant by thorough floor mopping, spraying or wiping three times a day. Sanitary workers must use separate set of cleaning equipment for toilets (mops, nylon scrubber) and separate set for sink and commode. Guidelines on disinfection of common public places released by central government must be followed.
Safe management of water supply and sanitation services

WHO on 19th March 2020, released an interim guidance document which supplements the Infection Prevention and Control (IPC) documents by summarizing WHO guidance on water, sanitation and health care waste relevant to viruses, including corona viruses. Based on this, Ministry of Housing and Urban Affairs (MoHUA), Government of India published an Advisory on ‘Safe Management of Water Supply and Sanitation Services during COVID-19 Crisis’ in April 2020. It is intended for ULBs and water supply and sewage practitioners and services providers for awareness about the risk and practices associated with water supply and sewage.

Water supply

The COVID-19 virus survival time depends on a number of factors, including the type of surface, temperature, relative humidity, and specific strain of the virus. It was reported that effective inactivation could be achieved within 1 minute using common disinfectants, such as 70% ethanol or sodium hypochlorite. (MoHUA, April 2020). Based on existing evidence, the virus is not detected in drinking water supply. Hence risk to water supply is low. Nonetheless, evidence has suggested that the virus remains active in faeces 11.2 days after recovery. As many Indian cities have intermittent water supply, there are high chances of sewage inflow in water supply routes.

As per the advisory, conventional, centralized water treatment methods that use filtration and disinfection (chlorine, ultraviolet (UV) light, and other oxidants) should inactivate the virus. WHO guidelines recommend, a residual concentration of free chlorine of ≥0.5 mg/L after at least 30 minutes of contact time at pH<8 shall be applied for the centralized disinfection during the outbreak.

Sewerage and septage treatment

There have been evidences of excretion of SARS-CoV-2 coronavirus in an infected person’s stool. Though it is unlikely that sewerage systems become an important route of transmission of the virus, as the number of cases increase in communities, it may also increase the amount of viruses flowing in the sewerage systems. Strict operation and maintenance protocols which are already prescribed must be followed in all STPs. Appropriate dosage of chorination must be ensured in the STPs for disinfection as suggested in Manual of Sewerage and Sewage Treatment Systems, 2013, published by MOHUA.

For majority of Indian cities who do not have centralized sewerage treatment systems, the entire sanitation service chain from collection to treatment and disposal need to be strictly monitored as measure of precaution. All sanitary workers must be mandated to use safety gear and physical distancing must be followed. It must be ensured that vehicles for transportation of septage should not have any leaks.
2.1 Cleanliness of surfaces and community sanitation

The first section of this session starts with cleanliness of surfaces and precautions to be taken in community sanitation.

Cleanliness of surfaces and community sanitation points

For USERS of community toilets

- Ensure safe physical distancing near toilets. Users should be asked to avoid touching surfaces as much as possible and put soap, water on the surfaces if touched
- Never enter a toilet with bare feet and always wear a footwear
- Avoid overcrowding at the wash area

Source: Guidelines for Hygiene and Sanitation in Densely Populated Areas, During the COVID-19 Pandemic, Office of the Principal Scientific Adviser to the Government of India, April, 2020

Many slum dwellers in dense urban areas use CTs where risk of transmission of virus is high. Users of CTs should strictly avoid spitting, blowing nose etc. and ensure safe physical distancing near toilets. All the users should use masks and wash hands with soap before and after use of toilet. Users should also strictly wear footwear, avoid unnecessarily touching any surfaces, their mouth, nose or eyes.

Reference link: http://164.100.117.97/WriteReadData/userfiles/PSA_DenseAreaGuidelines_Version8.pdf.pdf
Users should avoid crowding, spitting, sneezing, blowing nose and avoid touching surfaces like railings, walls etc. Such precautions will help in avoiding transmission of virus in the community.

As CTs have high footfall, they are with one of the most vulnerable spots in dense communities. The caretakers of CTs play an important role by regular cleaning and maintenance of toilets. First and foremost, the caretakers should protect themselves by wearing appropriate safety gear. Frequently touched surfaces like walls inside toilets, wash basin, counter, taps, door handles, armrest, light switch, toilet tools, buckets, broom, duster, mop, walls, railings etc. should be disinfected regularly.

Reference link: https://scbp.niua.org/content/practitioners-resources-part-b
Caretakers should clean toilet pans, floor and side walls at least 2-3 times a day by using detergent, disinfectant or any cleaning agent. While on duty, caretakers must wear boots, hand gloves, apron, and mask. After use of safety gear for cleaning, they need to be disinfected, dried and stored in an appropriate location.

Caretakers should clean soiled hand gloves, disinfect door handles, taps, shower, mirrors and soap dispensers in the toilet with a wet cloth and disinfectant. Cleaners/clothes used for cleaning can be soaked in hot water with disinfectant and dried in sun.
Dust bins in the CTs should have a cover and be lined with plastic bags. These bags should be easily removable and leak proof. They should be properly tied/closed before giving for disposal to avoid contamination. After disposal, worn hand gloves must be washed and disinfected followed by cleaning of hands up-to elbow with soap and water.

After cleaning and disinfecting the entire toilet at the end of the day, Caretakers should have a bath and wash their clothes used during the day. These clothes should be disinfected and dried well. Footwear should also be cleaned. Apparel used throughout the day should not be carried home. Work wear and regular wear should be kept separate.
A set of SoPs for operation and maintenance of CTs are being developed by MCGM based on information available on SBM urban, secondary information and field experience. These provide step-by-step actions to be taken for cleaning of CTs either by Community Based Organizations (CBOs), their own staff or through private contractors for providing better services with appropriate prevention measures. 

The document contains SOPs along with checklists for users as well as caretakers of CTs related to hand hygiene practices, cleaning of toilets, physical distancing norms and DO's and DON'T's before leaving home, at workplace and after leaving workplace. This document can be used by CTs as a reference document and can be adapted based on site-specific requirements.
2.2 Good Practices of Community Sanitation

The following section shows some practices followed by ULBs to avoid transmission of virus in dense communities in the urban areas. These can be replicated as suitable.

Sanitary facilities management - community/ public toilets

Social Distancing in community toilets have been maintained in many cities in Maharashtra by demarcating circles approx. at 1 meter. San workers, care takers appointed to monitor

Pachora, Maharashtra
Nasrapur, Andhra Pradesh
MCGM, Maharashtra

Source: Compendium of Good Practices for Small and Medium Towns – Focus on sanitation by Center for Water and Sanitation (C-WAS), CRDF, CEPT University April 2020
Safely Managed Sanitation Good Practices By Nasrapur, Andhra Pradesh State, Compiled by AID

The above images show physical distancing norms in CTs followed by ULBs in Maharashtra and Andhra Pradesh. Physical distancing should be strictly followed by all users while using the CTs.

Reference link: https://scbp.niua.org/emergency-response
'Necessity is the mother of invention'. During the Pandemic local innovations are observed which are simple to use and less expensive. The above images show hand cleaning techniques which have been adopted by ULBs in Maharashtra.

Innovative hand washing techniques have been developed by communities in Nandyal Municipal Corporation in Andhra Pradesh. Hand basins have been installed on mobile trolleys with a water tanker.

The above images show involvement of volunteers to help deal with the situation in the Dharavi slum in Mumbai. Volunteers have contributed in activities like spreading awareness in CTs, distribution of disinfectants, sanitizers and medical check-up of sanitation and allied workers.

Use of safety gear is extremely crucial for all the sanitation workers. Appropriate gear like boots or shoes, masks, hand gloves, plastic face sheets etc. should be provided which are washable and reusable. Training on donning doffing of safety gear should be provided to the workers.
Medical camp and awareness of COVID-19 to workers is very helpful to build their moral and confidence while working on ground. Medical check-ups can include blood sugar, blood pressure, pulse check and thermal screening. Workers who require further medication are referred to clinics to avail suitable treatment. Provision of supplements for immunity boost as per Ayush guidelines is also valuable.

2.3 DO’s and DON’T’s for Sanitation workers

The following section details out things to be done and things to be avoided for sanitation workers based on their type of work on field.
**Dos and Don’ts for Safai Karmacharis – CT/PT cleaners**

<table>
<thead>
<tr>
<th>When you reach the workplace, you must</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wash hands for 20 sec with soap</td>
</tr>
<tr>
<td>2. Wear PPEs as per recommendations</td>
</tr>
<tr>
<td>3. Draw circles outside the toilet block to make users maintain distance</td>
</tr>
<tr>
<td>4. Clean the toilet block by wearing PPEs</td>
</tr>
<tr>
<td>5. Maintain distance of at least 1 m &amp; to wash hands with soap after using toilet</td>
</tr>
<tr>
<td>6. Collect user charges while wearing gloves</td>
</tr>
<tr>
<td>7. Clean and disinfect frequently touched objects and surfaces.</td>
</tr>
<tr>
<td>8. Wash hands with soap before having any food</td>
</tr>
<tr>
<td>9. Remove gloves and masks, clean them thoroughly with soap water</td>
</tr>
</tbody>
</table>

Source: Urban Management Centre, Practitioners resources by NIUA, 2020, SCBP Portal - Response to COVID-19

For **CT/PT cleaners**: Caretakers of the CT/PTs must wash their hands, feet and face frequently, and wear safety gear as recommended. They should ensure physical distancing norms and use coins for money as far as possible which can be cleaned later. All the frequently touched surfaces must be disinfected.

Reference link: https://scbp.niua.org/content/practitioners-resources-part-b

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**Dos and Don’ts for Safai Karmacharis – Desludging operators**

<table>
<thead>
<tr>
<th>When you reach the workplace, you must</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Wash hands with soap for 20 sec</td>
</tr>
<tr>
<td>2. Wear PPEs as per recommended steps (if damaged, ask officer to replace)</td>
</tr>
<tr>
<td>3. Pick cleaning equipment and vehicle only after wearing PPE</td>
</tr>
<tr>
<td>4. Sit at opposite corners of the seats to maintain distance</td>
</tr>
<tr>
<td>5. Avoid touching your eyes, nose, and mouth and mask while wearing it</td>
</tr>
<tr>
<td>6. Carry water in the vehicle, soap/ alcohol-based sanitizer</td>
</tr>
</tbody>
</table>

Source: Urban Management Centre, Practitioners resources by NIUA, 2020, SCBP Portal - Response to COVID-19

For **Desludging Operators**: Desludging operators must use their tools and use the vehicle only after wearing safety gear as recommended. They must wash their hands, feet and face frequently, and carry self-cleansing kit like water, soap and sanitizers in the vehicle to be used as needed. During desludging operation, they should clearly barricade the area and use lime powder in case of any spillage. Desludging pipe should not be touched without wearing gloves and after emptying the sludge, the pipes and barricades must be thoroughly cleaned with disinfectant. Desludging vehicles and tools should also be disinfected every day.
For Door to door waste collectors: Waste collectors must not touch dustbins and waste with bare hands and as far as possible, ask citizens to throw waste directly in the bin or waste collection vehicle. Waste from quarantined households should be collected separately. Extra care should be taken while collecting waste which may carry saliva e.g. ice cream sticks etc.

For Drain Cleaners: Drain cleaners should also follow similar instructions while working on ground. Care should be taken that everything is touched by equipment only and not with bare hands.
Dos and Don’ts for Safai Karmacharis – FSTP operators

When you start your work, follow these steps...

1. Maintain safe distance with co-workers, don’t sit together if possible.
2. Collect sample with caution when receiving faecal sludge.
3. Do not touch unnecessary objects.
4. Disinfect high touch surfaces – water taps, stair rails, door handles etc. once every 2-4 hours.
5. Wash eyes, nose, face in case waste touches.
6. Spillage of faecal matter to be sprinkled with lime powder and disinfected.
7. Wash hands with soap before and after having lunch. Also, after having performing any task with possible exposure to faecal sludge, touching register or cleaning the surrounding.

Source: Urban Management Centre, Practitioners resources by NIUA, 2020, SCBP Portal - Response to COVID-19

For FSTP operators: FSTP operators should also follow similar instructions while working on site. All surfaces must be regularly sanitized and in case of spillage of faecal matter, lime powder should be sprinkled and the surface should later be disinfected.

Dos and Don’ts for Safai Karmacharis – Before and after work

Before leaving home for your work, you must

1. Wear full sleeve and full-length clothes
2. Cover wounds with water-proof band-aid
3. Carry the Emergency pass issued by ULB
4. Carry water and soap to wash hands
5. Gloves, mask, apron (if mask is not available, then use a clean cloth in 2-3 layers to cover your nose and mouth)
6. Carry extra set of clothes

When you finish your work

Remove safety gears, Wash hands and face, Change clothes and put all in a bag, Wear mask/cloth and return to home, Before meeting anyone in the family, first wash clothes and PPEs with soap and hang them in a sunny dry place

Source: Urban Management Centre, Practitioners resources by NIUA, 2020, SCBP Portal - Response to COVID-19

Before leaving for work: All workers must wear full length clothes and safety gear over the clothes. Extra set of clothes should be carried in case of contamination. Essentials like water, food, soap/sanitizer, Band-Aid etc. must be carried. After finishing work: Safety gear must be removed appropriately and disinfected. Hands, feet and face should be washed with soap. Mask should be worn even while travelling to home after work.
Chowkis where workers assemble every morning need to be equipped with good hand wash facilities, toilets, safe drinking water, sanitizers, dust bins, safety gear, provision of water for washing clothes, shoes etc. Chowkis should also be disinfected regularly and cleanliness should be maintained.


2.4 Sanitization/ Disinfection

The next session deals with sanitization/ disinfection preparation as per guidelines recommended and practices for hand hygiene in communities.
Given the pandemic, a number of hand rub solutions are available in market. Supervising staff who are directly involved in site operations should be aware about contents of approved hand rub solution. There are guidelines available by WHO on recommended hand rub formulations (2010) which can be distributed among the relevant staff as needed.

Reference link: https://www.who.int/gpsc/5may/Guide_to_Local_Production.pdf?ua=1

The WHO recommended hand rub formulations are divided in two parts. The first part deals with materials required, production of volume up to 10 liters and storage facilities. The second part deals with technical information on distribution, safety and cost. The liquid so produced should follow prescribed safety standards and should be cost effective so that same can be used in public areas.
The spread of the virus is mainly through hands hence alternative systems to conventional handwashing are recommended. Pedal operated handwashing facilities are suggested to be installed in communities with shared facilities to enable handwashing without touching the taps by hands. Innovative solutions for different techniques should be encouraged.

Reference link: http://164.100.117.97/WriteReadData/userfiles/PSA_DenseAreaGuidelines_Version8.pdf.pdf

For smaller scale of ULBs, it is advisable to go for low cost technique of pedal operation which can be quickly installed in communities for use. It should be ensured that the material used should be available easily.
As suggested in 'Guidelines for hygiene and sanitation in densely populated areas during COVID-19 pandemic' by GoI, simple mechanisms can be used for installation of foot operated handwashing stations. These mechanisms can be developed by using lever, brakes wires, etc.

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Cleanliness of surfaces and community sanitation points

**Disinfectants**

Clean streets, toilets and walls with chlorine containing disinfectant by thorough floor mopping, spraying or wiping three times a day.

<table>
<thead>
<tr>
<th>Concentration of Chlorine based Disinfectant Solution to be used:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Available Hypochlorite Solution (Bleach, Phenyl)</strong></td>
</tr>
<tr>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td>5%</td>
</tr>
<tr>
<td>10%</td>
</tr>
</tbody>
</table>

- Authorities may consider spray cleaning of specific areas as needed.
- Authorities may consider providing a alternative to soap-based handwashing, using a chlorine based hand rub solution, dispersed in controlled conditions in public areas. This measure will reduce the amount of water needed.

It is advisable to clean streets, toilets and walls with the help of Hypochlorite solution mixed in proper concentration with water. This should be done at least 3 times a day. It should be noted that these precautions should not be treated as relaxation from appropriate hand hygiene and physical distancing norms as far as prevention of COVID-19 is concerned.
2.5 Safe management of water supply and sanitation services

The following session deals with delivery of safe management of water supply and sanitation services in ULBs.

Safe management of water supply and sanitation services

- The provision of safe water supply and sanitation services is essential to protect human health during all infectious disease outbreaks, including the COVID-19 outbreak.
- The application of good and consistently water and sewage management practices at Urban Local Body will help to prevent indirect human-to-human transmission of the COVID-19 virus.
- The COVID-19 virus survival time depends on a number of factors, including the type of surface, temperature, relative humidity, and specific strain of the virus.

Source: Advisory on Safe Management Of Water Supply And Sanitation Services During Covid-19 Crisis, MoHUA, GoI, April 2020

Without safe management of water supply and sanitation, control of any infectious disease is difficult. Provision of safe water and sanitation services is essential in prevention of indirect transmission of the virus. Hence these services need to be monitored closely.

As on April 2020, there is NO evidence of COVID-19 virus in drinking water supplies. There has been evidence of the virus remaining active in faeces for 11 days as per reports published by LANCET. As many cities have intermittent water supply, there are high chances of sewage influx in water supply pipelines. Conventional, centralized water treatment methods that use filtration and disinfection should inactivate the virus.

In places where centralized water treatment and safe piped water supplies are not available, a number of household water treatment technologies are effective in removing or destroying viruses as shown in the figures.
Sewage can be a potential carrier of most of the diseases including COVID-19 hence sewerage services are always deemed as hazardous. Regular operation and maintenance protocols should be strictly followed and additional care should be taken by way of sanitation/ disinfection etc. 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. Workers should be mandated to use safety gear at all times.

Septage is more complicated than sewage in terms of treatment and handling. Entire chain of fecal sludge management shall be monitored closely with all necessary safety precautions. All households should compulsorily make use of toilets and keep them clean. Safe disposal of septage must be enforced.
Safe management of water supply and sanitation services

Faecal sludge and septage management

- Desludging of Septic Tanks/Holding Tanks to be done only if unavoidable
- Manual desludging to be strictly avoided
- All safety measures to be followed by the sanitary workers including physical distancing
- In case of holding tanks: Extra precaution is necessary. It is recommended to give lime treatment (1 part lime solution with 10 parts of sludge)

Transport of Sludge

- Safety precautions to be followed by workers & drivers
- Vehicle should be in sound condition. No leakages / splash
- Monitoring of vehicles : Should reach the designated sites

Treatment of Sludge

- Ensure that a proper FSTP exists with all its parameters functional

Desludging of septic tanks and transportation of sludge can prove fatal if necessary precautions are not taken and hence need to be monitored closely. Manual desludging should be strictly prohibited. Vehicles for transportation should be well maintained and regularly disinfected. Operation and maintenance of FSTPs should be done by monitoring all parameters.

Safe management of water supply and sanitation services

Operational Plan for FSTP under COVID-19 Emergency: Interim Guidance

1. **Routine cleaning**
   - Disinfecting all frequently touched surfaces such as workstations, pumps and valves, tools, toilets, floor, countertops, switchboards and door handles.

2. **FSTP operators’ health and hygiene**
   - Usage of disinfectants (hand sanitizers, hand wash etc.) at frequent intervals.

3. **Encourage sick employees to stay home and ensure health care access**

4. **Mandatory PPE usage at sites**

5. **Garbage disposal**
   - Put the waste like scum, waste from screening units, used gloves, masks and paper towels in suitable garbage bags.

6. **In case of spillage**
   - The spill has to be cleaned either by sucking up the spill by the vacuum pump into the tank or if that is not possible to cover it with lime.
   - In case that is not possible, then the spill should be washed and the wash water should be directed to a covered drain and chlorine should be sprayed on the spilled area.

All SOPs for FSTP should be strictly followed with additional measures of sanitization and disinfection. Frequently touched surfaces such as surfaces of workstations, tools of workers, toilets at FSTP, door handles etc. need to be disinfected regularly. Sick employees should be encouraged to stay at home as precaution. Workers should be mandated to wear safety gear as recommended at all times. Potentially hazardous waste from the site like scum, waste from screening units, used safety gear must be disposed in separate garbage bags and indicated likewise to waste collectors. Spillage should be cleaned immediately either with vacuum pump back into tank or covered with lime.

Reference link: https://scbp.niua.org/liquid-waste-management
The last session deals with safety gear and equipment to be used by sanitation workers while working on field.

Safety gear should be selected as per work requirement. Maintenance of these equipment shall be carried out periodically based on type of safety equipment. Safety gear shall be of prescribed standards. The following slides show different types of safety gear and requirement for various type of work.


### 2.6 Appropriate combination of PPE and donning/doffing

<table>
<thead>
<tr>
<th>Type of PPE</th>
<th>Description</th>
<th>Liquid Waste Management (Desludging staff, mechanized sewer cleaning staff and treatment plant staff involved in O&amp;M activities)</th>
<th>Solid Waste Management (Workers involved in door to door collection, working in transfer station, segregation line and at SWM plant)</th>
<th>Solid Waste Management (Workers involved street sweeping)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hard hat</td>
<td>Hard Hat with shell made out of polypropylene co - polymer with headband, harness, sweatband, peak and chinstrap. Recommended for use only when hazard off altering object, working at height or near open chambers.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ear plugs</td>
<td>Corded, flanged shaped ear plugs made out of non irritant and non allergic material. The ear plugs should be washable and reusable. Recommended for use only in case of noise hazard.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Face shield</td>
<td>Face shield made out of clear polycarbonate having size 8.0” x 15.5” and thickness of 1.0 mm. The shield should be compatible with the safety hard hat.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Source: By Saniverse, Environmental Solutions, Practitioners’ resources by NIUA 2020, SCBP Portal - Response to COVID-19
### Appropriate combination of PPE

<table>
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<tr>
<th>Type of PPE</th>
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<th>Solid Waste Management</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td>Workers involved in door to door collection, working in transfer station, segregation line and at SWM plant)</td>
<td>(Workers involved street sweeping)</td>
</tr>
<tr>
<td>Safety goggles</td>
<td>Safety goggles must be light weight made out of clear polycarbonate material offering high impact resistance and 99.9% UV protection.</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full Sleeves Shirt</td>
<td>High visibility full sleeves shirt made out of high wicking polyester for comfortable use in hot and humid conditions. Presence of reflective strips for high visibility in low light conditions is optional.</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Cargo Pants</td>
<td>Full length Cargo pants made out of polyester and cotton. The pants should have gusseted crotch, wide belt loops and reinforced front and Cargo pockets. Presence of reflective strips is mandatory. The full length pants protects the worker from coming in contact with dusts and harmful substances.</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Full Length Pants</td>
<td>High visibility full length pants made out of polyurethane coated breathable polyester for comfortable use in hot and humid conditions and easy cleaning. Presence of reflective strips for high visibility in low light conditions is optional.</td>
<td></td>
<td>✓</td>
<td></td>
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</tbody>
</table>

Source: By Saniverse, Environmental Solutions, Practitioners’ resources by NIUA 2020, SCBP Portal - Response to COVID-19
### Appropriate combination of PPE

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<th>Solid Waste Management (Workers involved street sweeping)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foot protection</td>
<td>Protective footwear having steel toe with upper body made out of grain leather and polyurethane sole for protection against physical hazards. Ankle length shoes when paired with full pants provides complete protection from incidental splashes of hazardous liquids.</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Foot protection</td>
<td>Protective footwear made out of poly vinyl-chloride and has energy absorption heel. Anti-skid highly flexible and extra strong for protection against physical hazards. These shoes are recommended for jobs in SWM where the worker is going to come in continuous contact with liquid. Ankle length shoes should be paired with full pants provides complete protection.</td>
<td></td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

Source: By Saniverse, Environmental Solutions, Practitioners' resources by NIUA 2020, SCBP Portal- Response to COVID-19

### Appropriate combination of PPE

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<th>Solid Waste Management (Workers involved street sweeping)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N 95 Face Mask</td>
<td>N 95 Face Mask with exhalation valve and straps made out of Thermo plastic Elastomer, Aluminium nose clip, Polyurethane nose foam, polypropylene filter, polyester shell and cover web.</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Face Mask</td>
<td>Foldable respiratory half mask made of non-woven polypropylene wide adjustable elastic straps, Aluminium nose clip, Reinforcement nose foam.</td>
<td></td>
<td>✓</td>
<td>Recommend to use in case of sweeping activity to protect from dust particles</td>
</tr>
</tbody>
</table>

Source: By Saniverse, Environmental Solutions, Practitioners' resources by NIUA 2020, SCBP Portal- Response to COVID-19
It is important to train the sanitation workers on correct donning and doffing of safety equipment and to make them understand that these are not alternative to basic preventive public health measures such as hand hygiene, respiratory etiquettes which must be followed at all times. Detailed procedure on donning doffing of each equipment should be conveyed and made available to the workers. There should also be strict protocols on disposal of the equipment once it is used.
References

3

Biomedical Waste Management
Need of the session

Biomedical Waste Management (BMW) Rules, 2016 states that the BMW Rules are applicable to a person who has control over the institution and/or health care establishment. Also, it is the duty of every occupier of an institution who generate, collect, receive, store, transport, treat, dispose, or handle biomedical waste in any form. As the COVID-19 virus is spread through the infected droplets landing of the surfaces, crucial care has to be taken to make sure that the infection is not spread from the waste generated by patients and during the treatment of COVID-19 patient. This session covers the types of waste generated and collected from the hospitals, health care centers, quarantined households, proper procedure to handle each category of waste and type of disposal based on BMW Rules, 2016 and guidelines issued by MoHUA, MoHFW, National Centre for Disease Control (NCDC), CPCB and MPCB.

Key points covered

- Rules and responsibilities of authorities managing COVID-19 facilities in dealing with waste generated.
- Safety precautions and standard operating procedures to be followed by healthcare workers.
- Categories of waste generated from different facilities and their disposal methods.
Reference notes

Rules and responsibilities of authorities for proper management of COVID-19 waste
Officers who are responsible for the management of healthcare establishments that are testing and treating COVID-19 patients, quarantine facilities and local authorities are responsible for the proper management of the waste generated. Responsibilities of these establishments are as mentioned below:

Responsibilities of the Healthcare establishments
- The occupier has to inform MPCB and Common Treatment Facility (CTF) operator about the establishment and operations of the institute.
- BMW has to be segregated at source and labelled as COVID-19 with a BIOHAZARD symbol.
- Laboratory & microbiological waste, blood samples/bags etc. has to be pre-treated on-site and then sent to the CTFs for final disposal.
- BMW has to be stored at a safe, disinfected, ventilated and secured location.
- Liquid chemical waste has to be segregated at source and to be stored separately after neutralization.
- Liquid waste/sewage has to be treated with 2% Sodium Hypochlorite for 30 minutes.
- Training and immunization to be undertaken for all health care workers and others employees for Hepatitis B and Tetanus at the time of induction. Records of the same has to be maintained.
- All major accidents/COVID-19 infections have to be reported to MPCB.
- Report daily waste records on MPCB/CPCB web portal/ mobile app.
- Local MPCB office has to be reported immediately if CTF operator fails to collect/dispose off BMW within 24 hrs.
- Infection control committee to be established to review, monitor & record effectiveness of BMWM.

Roles and responsibilities of local authorities
- Ensure application for authorization is made by hospitals/institutions run by local authorities.
- Continue collection and transportation of segregated non-biomedical solid waste generated in hospitals and nursing homes.
- Provide suitable common disposal/incineration sites for biomedical waste generated in the municipal limits.
- Periodical interaction with medical associations, PCB, facility operator to be conducted to achieve better results.
- Evolve a mechanism to ensure that all the generators become members of a common facility.

Roles and responsibilities of person operating quarantine camps/homes
- Municipal solid waste (household waste) generated should be handed over to waste collector identified by the ULB and shall be disposed as solid waste as per provisions under SWM Rules, 2016
- Biomedical waste generated, if any, from quarantine centers/camps should be collected separately in yellow coloured bags provided by the ULB. Yellow bags should be handed over to authorized BMW waste collectors or be deposited at designated deposition centers established by ULBs.
- Persons operating quarantine camps/centers should call the Common Biomedical Waste Treatment Facility (CBWTF) operator to collect biomedical waste as and when it gets generated.
- Used masks and gloves generated from home quarantine or other households should be kept in paper bag for a minimum of 72 hours prior to disposal of the same as general waste. It is advisable to cut the masks prior to disposal to prevent reuse.
Precautions and safety measures
Healthcare workers working at a COVID-19 facility or in close proximity to COVID-19 patients are at a high risk of getting infected by the virus. Hence they need to follow below stated appropriate hygiene procedure stated to protect themselves from getting infected by the COVID-19 virus.

For hand washing, workers have to make sure that they use the appropriate product and technique. Hands have to be washed for 40-60 seconds with soap and water. If water is not available, alcohol based hand sanitizer has to be used. The sanitizer has to be rubbed on hands for 20-30 seconds. During the line of work, if hands get visibly dirty or contaminated, they have to be washed under running water and antiseptic soap and dried with single use towel. Appropriate safety gear has to be used by the workers.

SOPs for healthcare workers
Healthcare workers have to take precautions while handling medical equipment to prevent any kind of injury. Before removing equipment from patient’s room it has to be cleaned and disinfected. While transporting used equipment, gloves have to be worn at all times. Safe handling of patient equipment should be strictly followed.

If there is spillage of chemical/s, the waste has to be attended immediately. The area where the spillage has taken place should be isolated, neutralized and cleaned thoroughly. The waste has to be collected separately for incineration. If there is body fluid spillage, the same procedure of isolation needs to be followed. The waste has to be cleaned with absorbent cloth or paper and disinfected appropriately. The waste has to be collected in separate liner for incineration.

The linen used by COVID-19 patients could have traces of the virus and hence if not handled in an appropriate method could become a cause of transmission of the virus. The laundry and surfaces used and touched by the patient have to be cleaned once a day and when the patient is discharged. The staff dealing with soiled bedding, towels and clothes from the patient should wear appropriate PPE. The soiled linen should never be carried against the body. It should be, at all times be carried in a leak-proof bag or bucket. Hand hygiene should be followed after blood/body fluid exposure and after PPE is removed. The discarded PPE and soiled linen should be placed in a clearly labeled, leak-proof bag or container for proper disposal. For cleaning of surfaces, established cleaning strategies are to be used. Surfaces can be divided into two categories, those with minimal hand contact (e.g. floors and ceilings) and those with frequent hand contact known as high touch surfaces. High touch surfaces in patient care areas like doorknobs, bed rails, light switches, toilet surfaces and privacy curtain should be cleaned and disinfected more frequently.

Biomedical waste categories
Biomedical waste generated is categorized for segregation, collection, transportation and disposal. The biomedical waste is categorized in recyclable plastic waste, recyclable glass waste, metal strap waste and other hazardous waste demarcated by red, blue white and yellow colors respectively. The type of disposal procedure to be followed is based on the category and type of the biomedical waste generated.

Disposal of waste from quarantined homes and containment areas
The Municipal Solid Waste (MSW) is categorized in three ways, i.e. hazardous, recyclable waste and biodegradable general waste which is demarcated as black, blue and green color respectively.

The facemasks, hand gloves and other protective equipment used by the citizens, health workers and laboratory personnel dealing with/from the quarantined households shall be collected separately in yellow plastic bags with a biohazard symbol and marked as “COVID-19 Waste”. These yellow bags should be handed over to CBWTF operator after spraying disinfectant at the point of generation. The yellow waste bag shall further be collected and transported through a dedicated vehicle for treatment at CBWTF. The ULB officials and CBWTF operators shall maintain the records of handing over of the yellow waste bag/s. Further the CBWTF operator shall share the daily disposal records to MPCB on it’s web portal.
The other municipal waste generated from quarantined homes/area will be collected in black bags after on-site disinfection. The on-site disinfected black waste bag shall be collected and transported through small closed vehicles to the designated municipal solid waste landfill site. The vehicles after unloading shall be sanitized thoroughly after every use. At the landfill site, such waste will be sprayed with Sodium Hypochlorite before burying in a trench of 2m x 1m x 1m (L x B x D). The trench should be covered with the same excavated material. The personnel handling yellow and black bags shall be provided with appropriate personal PPE and sufficient disinfectant at the point of generation as well as disposal.
The following section explains the BMW Rules, 2016. These rules are promulgated by MoEF &CC, Govt. of India in suppression of Earlier BMW (Management & Handling) Rules, 1998. These rules are made under the provision of Environment (Protection) Act, 1986.

Reference links:
1. http://mpcb.gov.in/

**Biomedical Waste Management Rules, 2016**

*Biomedical Waste* means any waste, which is generated during the diagnosis, treatment or immunisation of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

**APPLICATION**

1. The BMW Rules are applicable to a person who has control over the institution and/or Health Care establishment.

2. It shall be the duty of every occupier of an institution who generate, collect, receive, store, transport, treat, dispose, or handle bio-medical waste in any form.

Biomedical waste means any waste generated during the diagnosis, treatment or immunization of human beings / animals, in research activities or in production or testing of biological or in health camps. These rules are applicable to ‘Occupier’ i.e. Every person/institute who generates, stores, transports and /or treats and dispose the BMW generated. The ‘Occupier’ is legally bound to comply with these rules.
COVID-19 waste has to be handled as per provisions of BMW Rules, 2016, amended and as per specific guidelines of CPCB. It is crucial that the rules are followed to the core to avoid health hazards caused due to exposure to the waste.

ULBs have to ensure a facility is provided for treatment & disposal of BMW or ensure HCEs join the common treatment facility within 75 km radius as per allocated jurisdiction to CTF.
3.2. SOPs for BMW Management

The following section illustrates SOPs for handling and disposal of biomedical waste.

Precaution & Safety measures

Hand Hygiene (Use appropriate product and technique)
- Soap and water: Wash hands for 40–60 seconds!
- Alcohol-based hand rub: When tap and running water is not available - Rub hands for 20–30 seconds!
- When hands are visibly dirty or contaminated with proteinaceous material, always use antiseptic soap, running water and single use towel

PPE according to the risk (Recommended PPEs used during COVID-19 Management)

For effective and safe handling of waste, handler must ensure use of recommended PPE and follow the hand hygiene protocol.
In addition to the use of PPE, it is essential to ensure disinfection and safe handling of all items to be used in the diagnosis and treatment of COVID-19 patients. Spills of chemicals and body fluids need to be managed following protocol. Linen /bedding must be handled and disinfected as per guidelines and soiled /unusable laundry should be disposed off as yellow waste.

Housekeeping surfaces are to be divided into high and low touch surfaces based on their usage. Surfaces likely to be in high contact, for example door handles, bed, electric switches, toilet walls etc. must be disinfected at regular intervals.
Biomedical Waste is to be segregated in four colour coded bags/ containers as per the BMW, 2016. Waste generated needs to be segregated, collected, transported and disposed as per the categories.

For Covid-19 common quarantine / home quarantine, general waste which has not been in contact with patients shall be treated as MSW following disinfection at source and at deep burial site. It has to be transported in a dedicated vehicle and records of the same should be maintained.

Biomedical waste i.e. masks and hand gloves from these areas (both patient/non patients) must be collected in yellow bag as BMW and should be handed over to authorised BMW CTF collection vehicle. Records of the same should be maintained. Biomedical waste from a COVID-19 ward must be collected and treated following BMW norms and should be disposed through BMW CTF operator only.
COVID-19 waste should be handled while wearing appropriate PPE and with disinfection protocols for bins, trolley and waste transfer routes.

Responsibilities of person in-charge of quarantine centre, COVID-19 hospital include ensuring proper segregation of general and BMW waste and disposing the waste as per applicable in MSW and BMW rules.
Disposal of waste from quarantined homes & containment areas

1. The facemasks, hand gloves and other protective equipment used by the citizens, health workers, laboratory personnel dealing with/from the quarantined households shall be collected separately in yellow plastic bags with biohazard symbol and marked as “COVID-19 Waste”.
2. The ‘Yellow’ bags will be handed over to the Biomedical Waste Common Treatment Facility (CTF) operator after spraying disinfectant at the point of generation.
3. The Yellow bag waste shall be collected and transported through dedicated vehicle for treatment at CTF.
4. The officer in charge of urban local body and CTF shall maintain the records of handing over of such Yellow bag waste and CTF operator shall share the disposal records on a daily basis to MPCB web portal.
5. The other Municipal Waste generated from quarantined homes/area will be collected in ‘black’ bags after on-site disinfection.
6. The on-site disinfected ‘black’ bag waste shall be collected and transported through small closed vehicles to the designated Municipal Solid Waste landfill site. The vehicles after unloading shall be sanitized thoroughly after every use.
7. At the landfill site, such waste will be sprayed with Sodium Hypochlorite and same shall be buried deep in a trench of 2mx1mx1m (LxBxD) and same shall be covered with the same excavated material.
8. The personnel handling Yellow and Black bags shall be provided with personal protectives and sufficient disinfectant at both the point of generation and disposal.

Source: Maharashtra Pollution Control Board.

Household Waste which has not been in contact with COVID-19 patient shall be treated as MSW following disinfection at source and at deep burial site. Biomedical waste i.e. Masks and hand gloves from these areas (both patient/non patients) must be collected in yellow bags as BMW and handed over to authorised BMW CTF collection vehicles and records for the same should be maintained. BMW waste from COVID-19 ward must be collected and treated following BMW segregation and disposed through BMW CTF operator only.

Cleaning soiled bedding, towels and clothes from patients

Clean laundry and surfaces in all environments at least once a day and when a patient is discharged with hospital disinfectants:
- 70% ethyl alcohol for reusable dedicated equipment
- Sodium hypochlorite at 0.5% (5000 ppm) for surface disinfection
- Staff dealing with soiled bedding, towels and clothes from patients should Wear appropriate PPE (heavy duty gloves, mask, eye protection (goggles/face shield), long-sleeved gown, apron (if gown is not fluid resistant), and boots/closed shoes
- Never carry soiled linen against body; place soiled linen in a leak-proof bag or bucket. Perform hand hygiene after blood/body fluid exposure and after PPE removal. Soiled linen should be placed in clearly labelled, leak-proof bags or containers.

Washing machine: Wash at 60-90°C with laundry detergent followed by soaking in 0.1% chlorine for approximately 30 minutes and dried.

Non machine washing: Soaked in hot water with soap/detergent in a large drum. Use a stick to stir and avoid splashing.
- Empty the drum and soak linen in 0.1% chlorine for approx. 30 minutes.
- Rinse with clean water and let linens dry fully in the sunlight.

Source: Maharashtra Pollution Control Board.

Disinfection of Linen/Laundry: Disposable linen should preferably be used for COVID-19 patients. Soiled linen must be disposed in yellow bags. Linen should not be collected against body even while using PPE. Trolleys should be used to handle the same. Non soiled linens must be washed in washing machine at 60-90-degree Celsius water temperature followed by detergent and 0.1% chlorine. For manual wash, the linen should be immersed in hot soapy water for 30 min and dried in sunlight after rinsing with clean water.
3.3. BMWM Service Chain

The following session talks about the biomedical waste management service chain and precautions and preventive measures to be taken at each level.

Biomedical waste segregated in colour coded bags/containers and appropriately labelled should be handed over to the dedicated BMW CTF transport vehicle. Records of the same should be maintained. Yellow waste should be disposed by incineration designed for the BMW and ash generated is to be sent to landfill. Red waste should be disposed by autoclaving/microwaving complying with standards of disinfection followed by mutilation sent to authorised plastic waste recyclers. Blue and white waste is to be treated with chemical treatment/autoclaving and sent to recyclers authorised after mutilation.
Waste water from COVID-19 hospitals to be disinfected with primary treatment and then treated in STP to meet discharge standards including chlorination.

3.4. Government Guidelines & Advisories on BMWM

The next session lists the various guidelines and advisories published by the Central and State Government on biomedical waste management.
The listed agencies in the slide have released specific guidelines for BMWM and specifically COVID-19 waste managements.

### Government Guidelines & Advisories on BMWM

**Rules and Guidelines applicable**

1. **MoEF&CC**: Bio-Medical Waste Management Rules 2016 as amended
4. **CPCB**: Guidelines for Handling, Treatment and Disposal of Waste Generated during Treatment/Diagnosis/Quarantine of COVID-19 Patients – Revision 2 dated 18/04/2020
5. **CDC**: Manual for BMW Mgmt. – Hospital Administrator, Doctors and Nurses (HCW), Waste Handlers
6. **SBM MHUA**: COVID-19: Additional advisory for maintaining cleanliness during lockdown period

Source: Maharashtra Pollution Control Board

The listed agencies in the slide have released specific guidelines for BMWM and specifically COVID-19 waste managements.

### Government Guidelines & Advisories on BMWM

**Rules and Guidelines applicable**

7. **MPCB**: Guidelines for Management of Bio-Medical Waste Contaminated / Suspected to be Contaminated with COVID-19 dated 20.03.2020
   1. Guidelines for Bio Medical Waste Treatment facilities
   2. Guidelines for Healthcare Establishment and Pathology / R&D Laboratories handling COVID-19 cases
   3. Guidelines for HCEs not handling COVID-19 cases and General Public / Large Establishments (Airports, Railway Stations, Bus stands, Malls, Theatres, Banquet Halls, Industries, IT Centre etc.)
8. **MPCB**: Guidelines for collection, transportation and disposal of suspected COVID-19 waste and solid waste from quarantined homes and containment areas on 4th April 2020
9. **CDC**: Guidelines for Quarantine facilities COVID-19 dated 20/03/2020 & 4/04/2020
10. **AIIMS Rishikesh**: Infection Prevention & Control Policy For COVID-19

Source: Maharashtra Pollution Control Board

The listed agencies in the slide have released specific guidelines for biomedical waste management and specifically COVID-19 waste managements.
COVID-19 waste generation and disposal must be reported on daily basis by all stake holders, hospitals, ULBs, BMW CTFs and SPCB. CPCB has developed a mobile application for the same. Data has to be uploaded on this app to maintain daily records.

The above slide show steps involved in reporting of COVID-19 waste in CPCB app.
3.5. Good Practices for BMWM (UNIDO Video)

The session concludes with showcasing a video developed by United Nations Industrial Development Organization (UNIDO) to the participants on safe practices in biomedical waste management.

References

  https://phfi.org/covid19/covid-resources/
- Central Pollution Control Board (April 2020), *Guidelines for Handling, Treatment and Disposal of Waste Generated during Treatment/Diagnosis/ Quarantine of COVID-19 Patients*.
- Maharashtra Pollution Control Board (March 2020), *Guidelines for Management of Bio-Medical Waste Contaminated / Suspected to be Contaminated with COVID-19*.
Conclusion and way forward
Strategy for roll out of the module to subsequent level

To date, a large number of population has been affected by COVID-19 and governments all around the world are struggling to cope with and address the immediate challenges due to this pandemic. This module has been developed as a ToT module for ULB officials/decision makers involved in sanitation and waste management in the wake of COVID-19. The module is kept precise, given that the officials are actively engaged and deployed in their demanding jobs in this situation. After the training, the officials/participants are expected to further disseminate this information to the other relevant staff of their respective ULBs and the frontline sanitation workers working on field to provide essential sanitation and waste management services in this situation.

Following strategy can be followed for rolling out the training to the next level:

01. Specific slides from the presentation along with infographics to be shared with participants after the programme based on feedback

02. Participants to arrange for print out and distribution of these materials at the chowky or beat level

03. Participants to ensure that the material and brief explanations are shared with frontline personnel at the beat level during convenient times of the day
Links of important web pages
As the situation is rapidly evolving, officials and staff are expected to regularly keep themselves updated with guidelines, advisories, circulars etc. which are regularly published on the following websites:

- World Health Organization, India
  https://www.who.int/india/emergencies/coronavirus-disease-(covid-19)
- Ministry of Housing and Urban Affairs, Government of India
  https://mohua.gov.in/
- Ministry of Health and Family Welfare, Government of India
  https://www.mohfw.gov.in/
- Central Pollution Control Board
  http://www.cpcb.nic.in/
- Indian Council for Medical Research
  https://www.icmr.gov.in/ctechdocad.html
- Maharashtra Pollution Control Board
  http://mpcb.gov.in/
- Public Health Department, Government of Maharashtra
  https://arogya.maharashtra.gov.in/Site/Home/Index.aspx

Response from ULBs of Maharashtra on trainings conducted based on this module
Feedback from participants was very positive, with the four sessions recording 1200+ participants. The feedback indicated that participants felt the modules were effectively covered, most relevant issues were addressed, and they would be able to effectively pass their training to the frontline health and sanitation workers. FAQs from the participants were also listed and answered post the trainings.

Conclusion and way forward
The training has been developed with the flexibility to allow for suitable alterations as deemed necessary in response to the emerging learning needs of the participants. The conducting state/agency can modify the content to make it more state specific so as to make the material and handouts more relevant and relatable to the participants. The training agency can use any suitable online platform to conduct the trainings. On-field experiences of subject experts would be most valuable while explaining concepts to the participants. In view of the challenges posed by the virus described in the document, good dialogue with the participants through active engagement in the QA session will further help in adding significance to the training.

The COVID-19 crisis has put the resilience of our people to the test. During such time, updating the ULB officials and relevant decision makers with adequate information is crucial. Thus, this ToT module aims to help disseminate information related to environment sanitation and waste management and benefit the officials in response and preparedness to the circumstances in a better manner.
Partners and Resource Organizations

Partner Organizations

**Maharashtra Pollution Control Board**
- Dr. Amar Supate, Principal Scientific Officer, MPCB
- Mr. Chetan Sawant, Jr. Sci. Asst., MPCB

**All India Institute of Local Self Government, Mumbai**
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