International Solid Waste Association

WASTE MANAGEMENT DURING THE COVID-19 PANDEMIC

ISWA's Recommendations

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This is a living document which will continuously be revised and enriched based on the evolving situation and as and when we receive inputs and contributions from members around the world.

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ISWA considers three overall priorities for waste management during the period of the pandemic of COVID-19:

1. Countries, States/Provinces and Cities should ensure that waste management, recycling services, treatment and disposal facilities will not be disrupted and no extra risks for public health will be created by improper waste management. Waste management workers, especially those in waste collection, should take additional precautions and ensure health & safety procedures to be protected by any potential infection by the waste streams and/or the equipment.
2. Recycling activities should be re-adjusted to avoid cross-contamination and infections.
3. The increased quantities of healthcare and medical waste should be safely treated and disposed of, making sure that they pose no risk for further infections and pollution.

Priority 1: Ensure the continuity of the services

Waste Management is one of the most important sanitary barriers to prevent dissemination of illnesses and diseases. It is important to recall that the continuity of the waste services is not only for municipal waste but also for hazardous industrial and healthcare waste. Indeed, among the essential services, pharmaceutical industry, chemical industry, energy sector and incineration (MSW, sludges, health care waste, hazardous waste) produce hazardous waste. The storage capacities of hazardous waste on site are limited (physically and because of the risk of accident), consequently it is important to ensure the service also for the collection and treatment of hazardous waste and it must be clear to all Competent Authorities.

The continuity and continued functionality of recycling are also important during and after the Coronavirus crisis passes, especially in light of the above: if households and businesses massively stop with separating recyclables and delivering them separated to separation containers, the overall waste system will be saddled with between 30 and 50% more materials and there is a risk of system failure. Moreover, if any Authority call a halt to all recycling collection during the crisis, the message to citizens will be that it is not important and restoring the current rates of diversion will be difficult if not impossible.

Recognize the essential role of waste workers and services

It is important to recognize the role of waste workers and services as an essential component, especially in this period. Waste collection is important to prevent a buildup of waste and to

keep areas clear of waste to enable other vital services to continue. This is why waste workers have been granted 'key worker' status by the UK government[1], meaning they will continue to receive educational and care provision for their children during the current coronavirus crisis, so they will be able to continue their essential services, and have been classified as Essential Services by many other countries. ISWA suggests that all governments should recognize the key-role of waste workers and the waste sector this period.

Ensure health and safety measures for waste workers

Accordingly, there is a need to ensure the health and safety precautions of waste workers as they are one of the most important sanitary barriers to keep cities and people safe from several diseases, including COVID-19. Current scientific research has not provided evidence that waste management is a vector for the transmission of SARS-CoV2 virus, but considering waste workers are everyday on the streets despite isolation and quarantine measures that are taken for the whole population, additional measures should be considered as the following:

- Strict adherence to enhanced hygiene norms, including frequent change and cleaning of PPE and professional clothing; replacing professional gloves in the event of breakage or any incident of potential contamination; sanitizing regularly facilities, vehicle cabins and other equipment. An important measure here is to make sure that where masks are usually worn, the workers are removing masks and gloves without getting in contact with them. This means using correct techniques for putting the mask on and taking it off.
- Adaptation (as much as possible and considering the particularities of the waste collection systems) of the behavior in order to avoid contamination between workers in teams like strict respect of the distance between people (>1m), limiting as few as possible workers in the same area (control room, canteens, changing rooms) and all precautionary measures helping at preserving health of workers in safe occupational conditions.
- Direct contact (without gloves) with bins or bags should be avoided in any case.
- Uniforms should be daily changed or cleaned - cleaning of work clothes and shoes is minimizing the possibility of dispersing the virus and limiting its transmission.

[1] https://www.letsrecycle.com/news/latest-news/waste-sector-receives-key-worker-status/

- If possible, put a disposable set of gloves, on a daily basis, in direct contact with workers' skin, before wearing usual work gloves.
- Make sure that there are disinfectants and hand sanitizers available in each and every vehicle.
- Frequent hand-washing and increased cleaning in workers' facilities is a must[2].
- Drivers and collectors should avoid contact with residents and employees from serviced business.
- Sanitize and disinfect the driver's cab of vehicles destined for the collection of municipal waste after each work cycle, paying particular attention to hard surfaces which can represent a site of greater persistence of the virus. The vacuum cleaner must be used only after adequate disinfection. The use of disinfectants (e.g. at least 75% v / v alcohol) in a spray pack is recommended.
- Social distancing practices should be applied at the headquarters, at meeting rooms as well as at changing rooms.
- Where appropriate, encouraging specific working conditions for elderly workers.
- In case of staff shortages leading to reduced service, reducing the frequency of the collection of dry recyclables in order to ensure continuity and sufficient frequency of collection of residual waste and biowaste.

Prepare contingency plans

In addition, each municipality/local authority has to develop contingency plans that will make sure that essential waste services should be uninterrupted in any case, just to make sure that no extra health risks are added on top of the pandemics. Contingency plans should involve alternative solutions for personnel, vehicles, infectious waste, accumulation of waste, washing, disinfection and street cleaning services.

[2] https://www.gov.uk/government/publications/covid-19-decontamination-in-non-healthcare-settings/covid-19-decontamination-in-non-healthcare-settings

Priority 2: Adjusting recycling services

The principle behind the advice is that it is not dangerous for persons to handle their own recyclables in their own homes, because they can only contaminate themselves and their families, in case they are already sick or in any case exposed. The source of danger and cross-contamination is in the interface between the generator -- considered to be an individual discharging or depositing their recyclables and waste into a public system -- and the handler -- the professional who is doing something with the recyclable materials or the residual waste. Under this we include the formal waste and recycling systems but also informal and semi-formal processes ranging from a community or supermarket recycling centre, a take-back machine, to a low-income community where many people are involved in (informal) recycling or a flea markets or internet-based second-hand trade. Some of these processes are directly within the control of governmental institutions or their private sector agents, some can be indirectly addressed by governmental institutions, and some are outside of any governmental or regulation agency influence. In any case, based on the latest scientific information available, the pathogen contamination is minimal after 72 hours even on hard surfaces.

The main sources of infection in relation to waste and recycling will usually come at the interface between the generator and the handler. To be more specific, the moment that a professional has to come in physical contact with waste or recyclables from other persons who might be infected. The guidance needs to be clear that its primary goal is to address processes at the "outside" edge of the interface, that is, at the moment that materials enter the control of professionals, because those are the areas which are also most clearly under the jurisdiction of the local authorities and member states.

For this reason, this recommendation focuses in the first instance, on

- supporting countries, states/provinces and cities to instruct their waste management workers to be clear in identifying the interface and changing their procedures to protect the professionals.
- giving guidance on immediate, required and recommended changes to the interface to protect professionals, and
- giving guidance on how to maintain long-term and legal commitment to waste prevention, recycling and circular economy in the context of the urgent need to shift and clarify procedures at the interface

A secondary recommendation that cities should give their citizens and businesses is in:

- how to change what happen in households or in the private sector, that is, on the private "side" to maintain recycling behavior but
- decrease risks to professionals at the interface.

This guidance will be useful for cities and regions to communicate to their citizens and to counteract the potential negative effect on long-term compliance with existing guidelines for prevention, re-use, recycling and recovery.

Technical Definition of the Interface

The main sites of potential cross-contamination are:

1) cleaners in medical facilities
2) cleaners in commercial or industrial buildings
3) waste management workers in collection crews
4) waste management workers on sorting lines
5) workers in recycling sorting facilities
6) informal and individual collectors of cardboard and other recyclables as a livelihood activity

General Approach at National Level

Instructions to cities and private recycling companies as to the duration of the storage of recyclables has to consider insights from the rapidly developing science as regards the duration of viability of the virus on different surfaces, [ranging from 24 hours on paper to several days [3 to 9 days] on metal and plastics]. Storing closed recyclables bags, in particular with dry recyclables, for a longer period in the households before citizens deliver them for separate collection should be considered.

The continuity of waste collection and treatment services must be ensured, as well as meeting waste minimization and recycling targets while elaborating, testing, and introducing to local authorities and public and private waste management service providers additional measures to ensure the health and safety of workers and the public.

It is important that Authorities also commit to contribute to the epidemiological body of knowledge about the impact of a high consequence infectious disease[3] on waste management systems as well as on the effectiveness of different waste management practices on maintaining hygiene and public health during a pandemic. The core of the advice is to stimulate adjustments and also to communicate clearly and unambiguously that these are temporary and that all targets, practices, and reporting requirements remain in force. SARS-CoV2 and COVID-19 will disrupt in one or another way the waste and recycling services, but Authorities should aim to minimize the disruptions and, as soon as the worst part of the crisis is over, continue the efforts to meet separate collection or recycling targets.

The purpose of this document is to suggest temporary operational adjustments to simultaneously protect the health of professionals handling waste at the interface, as well as to preserve the gains made towards circularity and resource efficiency by cities and regions in member states.

It is further, highly recommended for member states to introduce specific documentation of what they have done, what its impact is on the flows of waste and recyclable materials, and also whether it succeeds in the goal of preventing infection of professionals. Member states are encouraged to share their innovations and approaches and also whether they are effective, and how this is being estimated or measured.

A. What national and/or regional governments should ask of their local authorities and municipal waste service providers?

1. Identify the interface and develop measures focused on the interface.
2. Reinforce existing health and safety norms for all workers.
3. Check that protective equipment is available and in working order. In any case, it should be avoided to compete with the urgent needs of the health sector, thus the relevant personal protective equipment should be properly justified and technically described if it is not already available.
4. Discontinue immediately all manual sorting of mixed waste or commingled recyclables. This includes disabling and substituting the manual stages of handling in mixed mechanical-manual systems.

[3] https://www.gov.uk/guidance/high-consequence-infectious-diseases-hcid

5. Continue and expand existing operations for collection and storage of recyclables coming from household and business separate collection systems.
6. Unless the case of lockdowns, authorities should try to increase capacity of recycling bring stations and especially buffer storage of recyclables before they come in contact with professionals, so that safe "waiting periods" for materials are feasible, under the condition that residents or businesses experience no interruption in services.
7. Adjust emptying procedures for take-back machines and deposit return systems to allow for reduction and where possible elimination of manual contact at the interface.
8. Advise system users/citizens/residents clearly and in advance of any operational or scheduling changes.
9. Communicate advice for additional hygiene and/or precautionary measures that affect the safety of the interface clearly and unambiguously *in all languages which are present in the city, whether or not it is the usual practice to communicate in non-National languages. SARS -CoV2* does not respect language barriers, and failure to inform minority or immigrant groups creates a hazard for the waste management workers and others in the city.
10. Provide mobile hand-washing facilities at multi-material "recycling parks" or recycling that can be used by
11. Keep records of the impacts on health, safety, and on amounts going to recycling and disposal processes.

B. What regional (state, province) and city governments should tell generators – citizens and businesses?

1. Keep separating and recycling. This is important!
2. Take additional measures to support the health and safety of the professionals, as described below.
3. If it's too complicated or difficult to take the additional measures due to quarantines, create a longer-term storage for your recyclables following the instructions .
4. If you don't think you can keep your recyclables, temporarily put your recyclables in the normal trash.

5. Notice what difference it makes, keep a "recycling journal," and tell your city authorities afterwards what difference it made and how it was for you.
6. Minimize transmission of viable virus material on metal and plastic surfaces. Examples of potential advice *to citizens and business generators* includes:
    - give preference to paper bags until the epidemic is over, as the virus has a longer survival time in and on plastic than on paper
    - store recyclable materials in open paper bags or in rigid plastic or wicker containers (bins or baskets) for at least 3 days before you bring them to the collection.
    - if you don't have the space to store the recyclables, bring them in a closed plastic bag and put it inside another plastic bag with the date written on it to the recycling centre or to the recycling container.

In addition to requiring households with COVID19 positive people or people in mandatory quarantine to take precautionary measures when handling their waste, it is appropriate that all citizens are encouraged to follow instructions on safe handling and delivering of waste for collection, in particular:

- All personal waste (including masks and handkerchiefs) should be collected in a disposable plastic garbage bag (Bag1).
- When it is about three-quarters full, Bag 1 should be firmly closed, leaving as little air in it as possible.
- Bag 1 should be placed in a second bag (Bag 2).
- Bag 2 should not be too full in order to ensure that it can be firmly closed and does not break; the waste should not be pressed with hands to make additional space.
- People should wash their hands or disinfect them before and after manipulating the waste bags, and in particular directly before and after closing Bag 2;
- Bag 2 should be firmly closed before being delivered for collection.

- Pets should be kept away from waste bags.

C. What regional (state, province) and city governments should tell cities and private operators of all types of bring stations or recycling centres, as well as to recycling companies and operators.

1. Minimize interface risks by creating increased storage capacity and special storage areas for recyclables from separate recycling containers at the recycling processing facilities
2. Introduce longer storage times prior to any kind of manual handling.

What should be the advice to cities, regions, and private waste collection companies for residual waste collection generated by households or businesses with COVID19 positive people or people in mandatory quarantine?

Separate collection from households with COVID19 positive people or people in mandatory quarantine may be maintained only when the waste management authorities can ensure that separately collected fractions are collected at least after they have been kept for 72 hours stored.

Depending on their waste management system, countries and cities may require that those households deliver all their waste as part of mixed waste collection and therefore temporarily waive the obligation of separate collection from those households, with the exception of waste electric and electronic equipment, waste batteries, and hazardous household waste.

Personal (and potentially other) waste of COVID19 positive people or people in mandatory quarantine can be safely collected and treated with other mixed waste if it is not subject to further manual processing before its final treatment, or where it can be safely stored for a sufficiently long period before such processing (see point (a)).

Depending on the system of collection and treatment of mixed waste, it may required that personal (and potentially other) waste of COVID19 positive people or people in mandatory quarantine should be kept separate until it is incinerated or safely disposed of in controlled landfills. If the person in isolation/quarantine cannot deliver the waste for the collection service, a specific service with specialised staff should be set up.

Priority 3: Ensure safe collection, disposal and treatment of healthcare waste

All countries, states/provinces and local authorities should ensure that all the healthcare waste is safely collected, treated and disposed of and take special extra measures in case the increased quantities do not meet the local capacity in place.

First of all, all those handling health care or other waste in this period should hear frequently and understand that handwashing with soap and water for more than 20 seconds is more effective than gloves or alcogel. Everyone in the hospital, but especially those in leadership positions, need to wash hands frequently and assure that others also do so. If soap has been replaced by alcogel, ensure that it is restored.

During a pandemic, the tendency of most of the hospitals is to manage all their waste as hazardous waste. This can overload the healthcare waste (HCW) capacity of the hospital, and create an emergency associated with a sudden increase in the required capacity for proper collection, disposal and treatment. This is an undesired side effect of over-reaction to Coronavirus: infectious clinical waste is not a vector for this pathogen, people coughing and touching their face after touching common hard surfaces are. So, hand washing and continuing to source separate infectious waste from non-infectious are protecting patients, health care professionals, and the waste system.

All infectious health care waste produced during the care of COVID 19 patients should be treated as infectious waste, "normal" procedures followed for management and safe disposal or treatment, or both, preferably on- site. Correctly segregated healthcare waste (HCW) should have the effect of separating infectious materials from non-infectious; that is the whole point of segregating it at source. If healthcare waste workers are having to change practices for SARS-CoV-19 then they have not been doing it right to date. HCW practitioners are already handling waste contaminated with TB, Hepatitis, HIV, anthrax, norovirus, salmonella, etc and those procedures should continue to be followed.

If waste is moved off-site, it is critical to understand where and how it will be treated and destroyed, requiring traceability measures to register and ensure its adequate destination. All who handle health care waste should wear appropriate personal protective equipment and perform hand hygiene after removing it.

It is also important to highlight that unfortunately many developing countries still lack of infrastructure to treat healthcare and other infectious and hazardous waste. In those cases, and as an exceptional measure, the waste produced in healthcare facilities during the COVID-19 Pandemics shall be send to be stored in sanitary or engineered landfills on a separated area, isolated from the regular waste, and with immediate daily cover.

The main purpose of such measure is to ensure that healthcare waste won't be exposed nor mixed to non infectious waste; waste workers will not be at risk during disposal activities and once healthcare waste is dumped, no human or animal will be able to be in contact with it.

In case healthcare is brought to the disposal site waste workers should be informed and take special precautions like wearing masks and gloves. In any case, workers should keep a distance and avoid any direct contact with the waste.

Then it is recommended to unload the waste as close as possible to the selected area and dump the waste immediately after unloading, taking care to not leave healthcare waste piles waiting to be dumped.

Last but not least, it's important to register that Sanitary Landfills are an indispensable part of any waste management system and in pandemics, in the absence of thermal treatment, those infrastructures are an adequate final sink for healthcare waste, but certain procedures have to be applied. But important to say that even if the right treatment for infectious waste is available, in pandemics the amount of healthcare waste generated is usually much more than usual, so sanitary landfills can provide an alternative route for safe disposal.