



**ONLINE DISCUSSION
FORUM ON
CARIBBEAN WASTE
MANAGEMENT AND
COVID-19.**



FRIDAY APRIL 08, 2020
10AM-12 PM

Facilitator # 1: Mr. Adrianus (Ton) Vlugman (Pan American Health Organization, PAHO) – *COVID-19 & Safety and Hygiene Guidelines for Sanitation Workers.*

A) What is COVID-19 and how does this inform our protocols? What do we know and what do we need to know?

The Symptoms of COVID-19

- Sore throat
- Dry cough (runny nose)
- Fever
- Shortness of breath
- Pneumonia

1. Two main routes of transmission are by **inhalation** and **contact**:
 - a. Close contact with an infected person
 - b. Coughs and Sneezes
 - c. Touching eyes, nose and mouth
2. Who are the most at risk?
 - a. The elderly
 - b. Persons who have other conditions such as:
 - i. Diabetes
 - ii. Chronic Obstructive Pulmonary Disease (COPD)
 - iii. Smokers
 - iv. Heart Disease
 - v. Depressed Immune Systems
 - vi. Auto immune diseases
3. There is NO treatment or vaccine specific to COVID-19 at the present moment. Only the symptoms are being treated.
4. What precautionary measures should be taken?
 - a. Washing of hands frequently with soap and water (but at the same time do not waste water). Washing hands with water is better than using alcohol-based hand sanitizer.
 - b. Cover your mouth and nose with a flexed elbow or tissue when coughing and sneezing and put the tissue in a bag and dispose. Never reuse tissues.
 - c. Don't touch the T-zone (eyes, nose or mouth)
 - d. Social-distancing is important. Keep 6ft (+/- 2 meter)

- e. If anyone has a fever, cough AND difficulty breathing, call the **COVID hotline in your country and follow their instructions.**
- B) COVID-19 and sanitation
 - a. **Sanitation saves more lives than vaccination**
 - b. The virus that causes COVID-19 is made up of an envelope or layer of a fatty substance containing the RNA or genetic material that is injected into other cells using the glycoprotein spikes. The RNA or protein is injected into healthy cells which proliferates the spread in the body.
 - c. The destruction of the virus lies in the destruction of the envelope and is broken down by a mixture of water and soap, chlorination and alcohol.
 - d. Therefore adjustments need to be made to personal/ professional hygienic behaviour and use appropriate PPE's (personal protective equipment).
 - i. Solid waste contains inherent dangerous substances and pathogens
 - ii. Waste from the homes of COVID-19 infected patients should be treated as infectious waste
 - iii. There needs to be established protocols to deal with general infectious waste as well as medical waste.
 - e. Disposal of Non-hospitalised COVID-19 patient's waste should follow:
 - i. Be stored in dedicated plastic bags (preferably red bag or if not with a red ribbon for distinguishing) which are then placed in dedicated containers with a fitted lid
 - ii. It should be kept separate from other household waste
 - iii. When the bag is $\frac{3}{4}$ full, it should be tied and carried (preferably on a designated trolley) to a storage room and placed in a container.
 - iv. This should be collected 2 times a week
 - v. The container should be disinfected with 0.1% chlorine solution and the bag itself before being placed in the container should be sprayed with the same chlorine solution. The bag should also be double-bagged and the second bag disinfected also.
 - vi. The infected waste, it is suggested, should not be collected by the general household collection truck. There should be a designated truck with a trained crew with PPE for infectious waste management to collect from identified COVID-19 homes.
 - f. Disposal of Infectious Waste
 - i. Autoclave (for countries who have one)
 - ii. High temperature incinerator (above 1100°C)

- iii. Dedicated pit on the landfill that is fenced (to prevent scavenging by both people and animals) and covered daily.
- g. PPE for Solid Waste Workers
 - i. Heavy Duty Clothing (pants, shirt or overall) – Company approved
 - ii. Puncture Proof Gloves - sharp objects from needle use etc.
 - iii. Safety boots
 - iv. Face & Eye Protection (i. Goggles or face shield (risk of wet waste or splashes), ii. Face mask)
- h. PPE for Handlers of Health Care Waste
 - i. These persons evidently need more protection
 - ii. A separate crew should therefore deal with medical waste
 - iii. They should be equipped with - heavy duty gloves, face masks, long-sleeved shirts, plastic aprons, durable trousers, rubber boots as well as goggles and/or face shields if splashes are possible.
- i. Collection vehicle specifics
 - i. Areas of the truck that are often touched should be disinfected often - steering wheel, shift stick, door handle, arm rests, switches)
 - ii. Not more than 2 persons in the truck. If crew is larger than 2, persons can stand at the back of the truck.
 - iii. Drive with the windows open
- j. Personal hygiene for Sanitation Workers
 - i. Wash hands with soap and water
 - 1. After handling waste
 - 2. Before eating, drinking
 - 3. At the end of work
 - 4. After using the bathroom
 - ii. Do not use hand-sanitizer for dirty, soiled hands. Hand sanitizer is only effective when the hands are already clean!
 - iii. Only eat in clean, designated areas
 - iv. Do not smoke or chew gum
 - v. Do not touch the T-zone. Keep in mind not to touch face with dirty gloves!
 - vi. Always wear gloves especially when hands are damaged. Other pathogens and bacteria can get into cuts and wounds.
 - vii. Bandage wounds
 - viii. Separate work and civilian clothing - Come to work in civilian clothes and change into work clothes that should be stored in a separate locker.

- ix. Launder clothes at work if possible or use a uniform service. Work clothes should not be taken home.
- x. Report any injuries or illnesses
- xi. Get regular medical check ups
- xii. Make sure that vaccinations are kept updated –tetanus, diphtheria, hepatitis A & B and possibly typhoid.
- k. Janitorial Services at home, office, hotels and environments **WITHOUT** COVID-19 patients
 - i. Objects and surface that should be cleaned frequently are:
 1. All door handles and push-plates
 2. Staircase and stairwell railings
 3. Taps, faucets and water dispensers
 4. Toilet flush bathrooms
 5. Office desktop services
 6. Light switches, telephones, dial-pads and speaker horns, computer keypads and mouse
 7. Shared electronic equipment –office printers & light switches
 8. Company vehicles - steering wheels, control buttons, shift sticks etc.
- l. Adopting a healthy lifestyle increases resiliency to diseases. Some key features of a healthy lifestyle are:
 - i. Healthy food
 - ii. Regular physical exercise
 - iii. No smoking
 - iv. Moderate alcohol
 - v. Positive thinking and attitude – especially in this time when information overload on the negative information can have a negative impact on mental health.
- m. Training on the use of PPE is important –why, the proper way to use it and follow the routine protocols.

If the above is followed, it will not only better the COVID-19 situation, but overall standards in the sanitation sector for other risks that may arise.

Post Presentation Q&A

Q1: Is open burning acceptable as a way of disposal for medical infectious waste?

A1: It is never okay as a waste disposal method. On the other hands, COVID-19 will not be spread by burning of the related waste. Open burning is not recommended and the alternatives should be used: autoclave, high temperature incinerator or burying in pits.

Q2: With quarantine facilities, collection of this infectious waste is easy. However, do you suggest we treat with the collection from persons who are self-quarantined?

A2: It is recommended that waste from persons who are self-quarantined with or without diagnosis of COVID, should be double-bagged and both bags sprayed with 0.1% chlorine solution. Once this waste is collected separately, then the waste collectors with the appropriate PPE will take them up. When collected, it should be taken to the landfill and covered.

Q3: What about disposable cover-ups instead of aprons as PPE?

A3: Yes, these are good and can be used.

Q4: Is the reusable, washable fabric masks fine?

A4: The WHO has a guideline on appropriate masks (shared). Masks that do not filter out the viruses can give a false sense of security. Persons who are suspected of having the virus should wear the appropriate mask. With gloves, this can also be the case. Gloves do get contaminated and persons who touch other surfaces with gloves on can infect themselves and others. Only the recommended disposable masks should be used.

Q5: What are the specifications for PPE's? The minimum barriers for masks etc.?

A5: The N95 masks are recommended for the waste sector.

Q5: How frequently should the infectious waste pick-up be carried out? In some cases, this happens once a week given that there are stipulations to double bag and the bins have more than sufficient volume? What are the recommendations/guidelines here?

A6: If food leftovers or other organic material are being discarded with the infectious waste, then twice weekly would be best because of the possible smell. But if it is double bagged and in a proper lidded container, once a week is acceptable.

Q7: What are the specifications for gloves?

A7: They should be puncture proof. The latex gloves have a greater water repellent capacity and can be worn under or over puncture-proof gloves if the waste is very wet.

Facilitator # 2: Mr. Gilroy Lewis (Inter-American Development Bank, IDB)
– COVID-19 Pandemic - Handling Waste

The Solid Waste Sector is an essential service and as such collection and disposal needs to continue in this time. However, there is an increase in the generation of COVID-related waste which requires greater safety measures for collection, transport and disposal. Studies have shown that the virus survives for 2-8 hours on aluminium, 4 days on glass, 4-5 days on paper, 5 days on plastics, 2 days on wood and 8 hours on clothing with some variation depending on the source and is vital knowledge for the management of waste and the methods employed to quarantine certain waste streams. For example, recyclables can be quarantined based on the viability of the virus on that particular material and placed in temporary sites.

There is therefore significant risk to waste sector personnel and waste pickers and can lead to the shortage of personnel to provide services if some of them are diagnosed positive for the virus. Therefore, business continuity is key for the sector. In the region, the lack of financial resources during this time by governments due to general economic decline and overall lost revenue makes the provision of solid waste management services even more challenging.

The IDB is working to support the sector and is directed in 3 main focus areas:

1. Operations and Maintenance – to provide financing to continue the solid waste service; personnel, equipment, collection systems and the construction of final disposal sites. This final point is crucial since there is foreseen to be a surge in ordinary municipal solid waste in addition to COVID-related due to persons being home and temporary disposal sites may be needed for the 'extra' production of waste.
2. Attention to the Health Sector and Vulnerable Groups: this is related to the final treatment of COVID-19 related waste such as autoclaving, incineration as well as a controlled cell within a landfill. Many countries still lack a fully functioning sanitary landfill, but an area can be designated specific for COVID-19 generated waste.
3. Emergency Plans: Financing for PPE's, washing of trucks and containers and even micro-credits for the recyclers and waste pickers since their livelihood has been suspended. In addition there is funding available for the communication of the safe handling of waste.

At the household level there are special requirements on:

1. Communicating to persons how to safely handle the waste from the households and dispose of COVID-19 related waste specifically (which is similar to medical infectious waste).
2. Ordinary municipal waste can become contaminated by persons who are asymptomatic and therefore run this risk.
3. The COVID waste stream should be handled by the ministry (Ministry of Health or contractor) responsible for medical waste where possible for hospitals and health centres. For households, however, a coordination mechanism is required between the solid waste management authority and ministry of health to work out the responsibility for collection from houses identified as COVID-19 infected.
4. Setting out the waste – time the arrival of the trucks so that the waste is not scattered by animals.
5. There needs to be on-going communication with the public to communicate the changes to the frequency of service and other general customer service questions.

Before work starts, the suggestions are:

1. The supervisor should screen employees when they arrive for fever, coughing etc. to detect any indication of the presence of the virus.
2. There should be temporary suspension of elderly employees and those with pre-existing conditions
3. Run-through of safety and hygiene measures with employees
4. Determine and train employees on suitable PPE's.

Collection and Transportation from households or organizations. Points to note:

1. Disinfection of vehicles and heavy equipment after every shift. They should be washed as well at the end of the day.
2. Crews should avoid physical contact with the persons in the households that they are dealing with.
3. Direct contact with waste should be avoided, especially at communal dirt boxes
4. Modifications of the collection routes, frequency of collection and shifts for crews as a function also of the dwindling resources that may be available.
5. The operations of MRF's should be temporarily suspended for the duration of the emergency.
6. Workers should shower and change at the end of the day before leaving for home.
7. Transfer stations should be washed down at the end of the day.

8. COVID-19 waste to be treated with the same protocol as infectious medical waste

In terms of final disposal:

1. Weighbridge attendants should use PPE's for ticketing and social distancing
2. Landfilling – recommended that a special working face be established with a trench or pit. Some jurisdictions recommend the co-disposal of regular waste with waste from households and organizations with quarantined persons in this trench. At the end of the day this trench/pit should be covered to isolate that waste from the surrounding environment.
3. Completely ban waste pickers and other non-essential personnel from the disposal sites to decrease their exposure. Social programs can be established to assist waste pickers.
4. COVID-19 waste should be disposed of by incineration or in an emergency cell separate from other waste. In comparison to point no. 2 regarding mixing of waste and trenches, the decision here will need to be a local decision based on the resources available, space in the disposal site, availability of autoclaving and incinerators etc. At least 12 inches of soil should be placed on top of the waste in covering it.

Post Presentation Q&A

Q1: Did the different countries/facilities have a consideration of wastes from hospitals to be collected, handled and disposed of separately?

A1: Roach from TT affirmed that locally, there was a reasonably robust system of collection of hospital waste from the large public hospitals, however there is a concern over the collection and handling of waste from private hospitals and doctor's offices. This would be an area of concern for the spread of infectious diseases.

A2: Cellibon – Bonaire – Waste is stored frozen before burning to accumulate volume.

Q3: Should they burn immediately, or can they accumulate first and when the load is of a good quantity, then incinerate?

A3: It is acceptable to freeze while building volume.

Q4: How does one accept the financing offered by IDB?

A4: Starts with evaluating the status of any existing loan operations in the particular country with the IDB. If there are, the "uncommitted funds" are reviewed under each loan, then if there are uncommitted funds, then they coordinate with the relevant Ministry(s) who would indicate

what the needs are for the use of those funds. A reformulation of the loan operation would be reviewed to access those funds. The Bank could also see how the request could fit into the current scope of the operation, then also go to a reformulation. The govts need to communicate to the bank their needs under the three focus areas aforementioned: (i) Operations and Maintenance (ii) Emergency Planning (iii) Health Care Sector. The bank has developed fast track processes to make available funds under those three categories. In TT, there was an existing health sector loan which had uncommitted monies which were redirected into the emergency purchase of PPE, etc from China.

A5: Susana Fortes – EU/Barbados - The EU has signed a contract with CARPHA & PAHO to support the actions in the region to combat the COVID impact in the region.

Also contacted some of the regional governments to reformulate some of the ongoing programs in health and add actions in other sectors at the macro-economy level. Suggestion to first contact their govt who are in direct contact with the EU delegations in the region. Dominican Republic and Jamaica are two of the other countries that have delegations. Susana can be emailed directly or accessed through the Waste chat on WhatsApp. For example, in Dominica there is a reformulation of ongoing support to support the waste management agency. There are also plans to support ongoing plans at regional level in waste management.

Comment: CWWA can and will help as part of our advocacy mandate.

A6: Regine St Croix: "Final Disposal" Treatment of COVID -19 waste. An incinerator is best. Autoclaving and microwaving should be considered as alternative technology, as incineration is not recommended by the UNDP/WHO as the best disposal strategy, because of the impact on the environment and public health.

A7: Some countries do not even have incinerators or autoclaves, so an emergency cell would be a practical strategy. Once funds become available, the upgrade of the equipment and strategies could be accomplished.

Q5: Celestina: If COVID infected waste is to be collected separately from private homes, there is an issue of privacy, and neighbours would know. How can this privacy issue be dealt with?

A8: Roach: It is not practical to have that waste segregated and collected at the residential level. It, however, can be accomplished at the larger institutions where larger volumes are generated and handled separately. Residential customers should package the waste properly for disposal, so there is limited opportunity for transmission.

A9 Antigua: In the quarantined area, there is a 3 times weekly collection of waste using a special crew and truck. Residentially, the regular crews operate as usual.

Facilitator # 3: Mr. Justin Sealey – GM - St. Lucia Waste Management Authority

From a management perspective, this came on rapidly. Handling of waste from residences, quarantined locations, etc. had to be solved quickly. Quarantined locations were asked to segregate the bio-medical waste and the bio-medical waste collector would collect and take to autoclave. At the landfill they try to cover every day for safety. Double-bagging, protection from stray animals are all requested. Safety training to the crews was delivered. PPE was a problem as masks became impossible to obtain. Reusable masks were used in the short term. Financing from the govt only covers collection contracts. Taxes from visitor arrivals have dived down to almost zero. Management is looking at what is the minimum service they could at least provide (or ask contractors to do with a reduction of revenue), when the maximum is required.

CWWA: COVID is an emergency/disaster which requires the same level of attention as environmental disasters. These disasters will continue to occur, and strategies are required as part of a comprehensive management plan.

Shavonne Ifill – SWMCOL TT: Sanitising, cleaning of offices. Landfill would segregate the infectious waste and bury separately. Workers received PPE. Numbers of “salvagers” have decreased thankfully. Private medical offices/clinics also have their disposal companies which may not identify their waste as possibly being infectious, so there is a risk there for the salvagers. They have, for the most part, understood this so their presence on site had decreased. A separate company handles hospital waste.

Justin Sealey: Business continuity is also of importance. Personnel in the offices are as necessary as the outside crews. Decentralised operations and working remotely has increased in importance. Laptops, etc became items of need, etc.

Antigua: Decreased landfill hours, now closed on weekends. Landfill staff hours have been reduced to 6hr days (same pay though). One shift system. Eliminated waste pickers on the site and put a stop to recycling and only handling incoming waste. Also reduced administrative hours of the admin staff. Those that can work from home are working from home.

Q1: Roach: Was the reduction of collection frequency due to an exposure point of view, or as a result of decreased revenues?

Q2: Solid waste management should be a key candidate/activity eligible for emergency funding. Are you looking at the sources?

A1: The Govt prescribed once a week collection. SLU has also shortened landfill daily hours and closed on Sundays. They anticipate a savings of \$20k of equipment rental.

Comments - Osuji TT: Agreed that this pandemic should be considered in the category of a disaster. For us in the region, we generally have not put much effort into disaster planning. Going forward, there should be a greater emphasis on disaster planning, as it relates to pandemics, etc. As we do not have that experience, we should borrow from the experiences and lessons learned by countries such as Taiwan (MERS, SARS) who has published and implemented robust and comprehensive policies. On top of that, the hurricane season is soon upon us. We need to cultivate a culture of planning, as a region, to reduce the tendency of a disaster either natural or anthropogenic in the region. We can find utility from the International Development Banks/Agencies for this critical planning component rather than the usual "knee-Jerk" and ad-hoc responses, usually predicated on cost (and other things). Given our unique challenges, we should come together as a region to do more robust disaster planning.

Susana/EU: After the hurricanes Maria and Irma and Jose, EU strengthened relations with CDEMA (and regional govts) to respond to climate change caused disasters and also towards preparedness to the sum of \$300m Euros. Also working with the World Bank in the region.

Jordi Pon/UNEP: Two separate issues: (1) Operational needs utilities are dealing with currently as a result of the response to the COVID waste situation (2) How to position the waste management sector as an essential service, and how to technologically upgrade the sector. In the short term, agencies are learning from those that are at ground level/front line, as to what the needs are. UNEP is working with the other partners/agencies in the region and facilitating the flow of information, sharing and channelling through the CWWA as a short-term approach. Planning is started on the medium and long-term strategies.

CWWA: It is not business as usual anymore. Many emergencies have the same repercussions at ground level. The value of the administrative staff cannot be understated, even simply for the issuance of salaries and wages, all play a key part in the machinery.

Q2: Santana/CWWA: During this time, are the operators still collecting data?

A2: Yes, in SLU weighbridges still in use.

Q3: Has there been a change in the quality and quantity of the waste collected; in our consumption patterns – the reduction of solid waste?

A3: SLU – The hotel waste has been reduced to zero, but the citizenry have consumed almost at the same levels. With decreasing incomes, that may change in time.

A4: Antigua: Has stopped the collection of bulky waste. No hotel waste, as they are closed. Bars, restaurants, etc. are closed. Supermarkets have the most waste. A reduction has started, generally. Residential waste volumes have increased from “stay at home” restrictions.

Closing Comments

1. CWWA – Has made available an chat platform on the CWWA website to foster continued interaction and information sharing between members.
2. CWWA address for content to be shared regionally cwwattsecretariat@gmail.com.
3. Visit the social media sites as well.
4. CWWA Instagram address is cwwa_caribbean.
5. There is also a WhatsApp chat for waste practitioners. Those that would like to join, send a request to the Secretariat address and we will forward your contact to the administrators of the site.

Thank you everyone for participating in this timely discussion. The time is now to move the waste management sector forward! Natural and anthropogenic factors causing crises are becoming more and more prevalent and cannot be ignored or “wished” away. Robust strategies and more long-term planning are required if we are to have some sense of safety and “normalcy” in our communities.

REMEMBER, IT CAN NO LONGER BE “BUSINESS AS USUAL”