

Disposing COVID-19 biowaste not limited to incineration

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Bleach can be used to disinfect medical waste infected by COVID-19. Credit: Georgia National Guard (CC BY 2.0)

An environmental scientist, who led medical waste treatment during the 2014 Ebola outbreak in West Africa, says that COVID-19 is one of the "easiest pathogens to destroy" and hospitals need not resort to environmentally unfriendly incineration to dispose of biomedical waste piling up from treating those infected with the virus.

According to the Asian Development Bank (ADB), treating COVID-19 cases is expected to add 16,800 tonnes of medical waste in Manila, 12,750 tonnes in Jakarta, 12,600 tonnes in Bangkok, 9,600 tonnes in Hanoi and 9,240 tonnes in Kuala Lumpur in just 60 days.

"It is a lipid [virus](#) so it will be very easy to kill," says Jorge Emmanuel, former chief technical advisor to the UN Development Programme, in an online discussion on 24 April hosted by the Global Green and Healthy Hospitals, a network of hospitals and [healthcare facilities](#) working to minimise harmful environmental impacts from incineration and other processes.

However, the ADB says that in rural areas, where options for the safe disposal of medical waste are limited, incineration may be considered. "In emergency circumstances, medical waste incineration may be the only option for the safe disposal of infectious medical waste," an ADB spokesperson tells SciDev.Net.

On 26 March, the Philippines' Environmental Management Bureau issued a memorandum including incineration as an alternative mode for disposing COVID-19 healthcare waste—overriding a ban on incineration in 1999 brought in for environmental concerns.

Emmanuel, now an adjunct professor at the Silliman University in the Philippines, said the virus can be inactivated by disinfecting materials with 1—2 percent of bleach for five minutes. If there is [organic matter](#) like vomit or faeces, the bleach concentration should be higher, he adds.

According to Emmanuel, the virus dies in water heated to 56 degrees Celsius in 30 minutes and, in water at 70 degree Celsius, in five minutes. "If we can destroy it with temperatures that are lower than boiling, then why would we need an incinerator?"

Faye Ferrer, a medical waste management consultant who worked with Health Care Without Harm, says that despite its high transmissibility and case fatality rate the virus is fragile because it is an enveloped virus that is sensitive to chemicals and can be killed by microwaving or autoclaving.

"Autoclaves, which are basically pressure cookers operating at temperatures between 121—134 degrees Celsius, reach sterilisation levels (as used to sterilise surgical instruments) and are more than adequate to handle COVID-19 wastes," Ferrer says.

Nepal used autoclaves to dispose biomedical waste generated by the evacuation of 175 Nepalese from Wuhan, China, the epicentre of COVID-19, in February, says Mahesh Nakarmi, executive director of the Health Environment Climate Action Foundation, which was involved in the evacuation operations.

On the other hand, Indonesia, which has one of the highest numbers of COVID-19 cases in South-East Asia, allows incineration as a way to destroy medical [waste](#).

The World Health Organization, in a technical brief '[Water, sanitation, hygiene and waste management for COVID-19](#),' says incineration should follow the Stockholm Convention and use "the best available technology" to reduce emissions of dioxins and furans, which can cause cancer and harm the immune system.

Provided by SciDev.Net

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