



The focus of Environment Information System (ENVIS) is to disseminate environmental information to decision makers, policy planners, scientists and researchers across the world.

The CERC-ENVIS Resource Partner focuses on 'Environment Literacy - Eco-labelling and Eco-friendly Products' This bi-monthly e-bulletin features latest news, developments and innovations in the field.

## Green Issue



### Cornstarch-based foam packaging

The first step towards a vaccination model based on sustainability is to redefine the vaccine packaging process. Glass, synthetic polymers and other plastic materials are widely used for packaging material. The non-biodegradable nature of such materials makes them a permanent waste.

Instead of using packaging materials made from synthetic polymers, new material has been developed using polylactic acid (PLA), which is made from fermented sugars, usually from cornstarch. The materials made from PLA are biodegradable which is important for the environment. If disposed of correctly, packaging material made from cornstarch will break down into carbon dioxide and water within several months. However, if the material is not disposed of correctly, cornstarch-based material will take longer to decompose, especially if there is no oxygen or light available.

The corn-based packaging material is preferable for companies as the raw material, corn is sustainable, cheap, and easy to produce. Corn is the least expensive and most abundant source of commercially available sugar. Synthetic polymer materials are produced from petroleum, a non-sustainable item that can be expensive depending on the price of oil. Corn starched packaging does have some interesting advantages over synthetic materials such as reduced static electricity.

Source: <https://www.thebalancesmb.com/corn-starch-packaging-2221071>  
[https://www.who.int/immunization/policy/committees/Sustainability\\_in\\_Vaccine\\_Packaging\\_May11\\_DRAFT.pdf](https://www.who.int/immunization/policy/committees/Sustainability_in_Vaccine_Packaging_May11_DRAFT.pdf)



### COVID -19 Mass Vaccination and Biomedical Waste

Corona Virus is highly infectious and spreads primarily through respiratory transmission. The consequential rise in patients suffering from COVID-19 has inundated hospitals and care centers. Various Vaccines has been invented and approved worldwide to fight with the contagious virus. The COVID-19 vaccines produce protection against the disease, as a result of developing an immune response to the SARS-Cov-2 virus. It helps in reducing the risk of developing the illness, its consequences and to fight against the virus. (Source: WHO)

In India, The Drug Controller General of India (DCGI), the country's national drug regulator has approved Covishield, by AstraZeneca with Oxford University and manufactured by the Serum Institute of India and indigenously developed Covaxin of Bharat Biotech in collaboration with the Indian Council of Medical Research (ICMR)- National Institute of Virology (NIV). In April, a third vaccine - Russia's Sputnik V - was approved for use. Several other candidates are at different stages of trials.



India launched its vaccination drive on 16<sup>th</sup> January 2021, restricting it to healthcare workers and frontline staff. Based on the potential availability of vaccines, the Government of India has selected the priority groups. The first group includes healthcare and frontline workers. The second group to receive COVID-19 vaccine will be persons over 60 years of age and persons between 45 and 59 years of age with comorbid conditions. The drive will gradually expanded to other age groups i.e., above 18 years.

As of 25<sup>th</sup> April 2021, 14,09,16,417 vaccine doses have been administered across India through 20,19,263 sessions. These include 92,90,528 healthcare and 1,19,50,251 frontline workers who got the first dose, and 59,95,634 healthcare and 62,90,491 frontline workers who have taken the second dose. Among the senior citizens, 4,96,55,753 have got the first dose and 77,19,730 the second done. Among beneficiaries aged between 45 and 60 years, 4,76,83,792 got the first dose and 23,30,238 the second dose.

Amid the pandemic the generation of medical waste has risen up drastically due to the consumption of medical equipment, carbon emitting equipment, PPE kits, transportation of the equipment etc. A substantial increase in the plastic, syringes, vials, glass, rubber remnants, packaging material etc. is expected from Immunization campaigns across the globe.

The number of vaccine doses needed to inoculate the entire U.S. population—about 660 million—would create enough waste to wrap around the Earth 1.8 times, according to OnSite Waste Technologies, a medical waste disposal company.

In India, with the mass COVID-19 vaccination drive, comes the responsibility of safe disposal of medical waste. Medical waste management companies deal with COVID-19 vaccine waste. A waste management network has been designed to cope up with demand to support hospitals and care centres, pharmacies, and mass vaccination locations. Each state is divided into four zones and each zone is further divided into districts. The waste management agencies of these districts are tasked with the collection of medical wastes from the hospitals and clinics. India alone would require at least 150 crore syringes to inoculate 60 per cent of its approximately 135 crore people. But the experts say that the disposal of the used syringes which does not weigh more than 1-rupee coin is not worrisome if disposed appropriately. The red-coloured non-chlorinated plastic bag is for contaminated but recyclable waste such as intravenous tubes, catheters, bottles, urine bags, syringes (without needles), and gloves. The white one is a tamper-proof container for "sharps", or sharp metal medical equipment such as the needle of a syringe. The waste is first autoclaved (A method used for disinfecting and sterilizing waste at high temperatures and pressures) before being shredded as it might contain micro-organisms and spores. After, autoclaving the waste is sent to authorised recyclers. Waste that cannot be recycled is sent for incineration and the remaining is buried into 'Sharp pit' - a pit for sharp encapsulation.



The Union Health Ministry has prepared guidelines (<https://www.mohfw.gov.in/pdf/COVID19VaccineOG111Chapter16.pdf>) for safe disposal of used injections and has directed states to ensure safe injection practices during the biggest vaccination drive.

Source : <https://bit.ly/2SGdt58>  
<https://bit.ly/3wMKmvQ>  
<https://bit.ly/3fToacw>

### Eco-Tips

Mask up and take vaccine to save yourself and the planet.  
Properly dispose medical waste so as to protect the earth from another unforeseen disaster.

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