Water and Environment Support
in the ENI Southern Neighbourhood region

Technical assistance on sustainable Medical Waste Management Activity No: N-E-PS-1

Consultation and Training Workshop

16 – 18 May 2023

HCW Treatment

LDK CONSULTANTS LDK Consultants Global EEIG

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Adequacy of Infrastructure

- Adequate infrastructure at handling areas is essential for achieving compliance to standards and guidelines.
- Subsequent to notification of bylaw and other legal provisions, waste generators and producers are required to upgrade their facilities so as to comply with revised standards.
- The following infrastructure is essential for auditing performance of waste generators or handlers:
- (a) Vehicles
- (b) Area of operations
- (c) Upgradation of Combustion Chamber
- (d) Upgraded shredders, autoclaves, microwaves or other treatment tools
- (e) Waste reception

Health Care Waste Treatment

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Health Care Waste Treatment

Biological Procedures	Composting	Composting is the natural, biological decomposition of organic matter by fungi, bacteria, insects, worms and other organisms. Successful composting entails the management of the decomposition process so that it is relatively quick, safe and clean.
	Vermi composting	Vermicomposting is the process of degradation of biodegradable matter through worms. The specialized worms used can speed up the digestion process through the vigorous digestion of the materials.
	Anaerobic Digestion	During anaerobic digestion biodegradable waste is degraded in absence of oxygen. The process occurs due to anaerobic organisms, which results in production of methane as a by-product.

Steam-based treatments:	**Autoclaving**	**Autoclave is a process of steam sterilization under pressure. It is a low heat process in which steam is brought into direct contact with the waste material for a sufficient duration to disinfect the material. This technique has been used for a long time in HCFs for sterilization of reusable medical equipment**
	Microwave	Microwave treatment is a steam-based treatment technology where microwave energy generates moist heat and steam by heating the moisture in the waste
	Frictional Heat Treatment	Frictional Heat Treatment: This technology uses both steam as well as dry heat. High-speed rotating shredders generate heat and the moisture in the waste turns into steam.
	Integrated steam-based treatment system	Integrated steam-based treatment system: The integrated steam-based systems combine internal shredding, steam treatment-mixing and drying in a continuous unit. Since most autoclaves and hybrid autoclaves

Chemical treatment		**Chemical Disinfectants, Alkaline hydrolysis, Chemical decomposition are Chemical treatment methods.**
Burial based Disposal Methods	Encapsulation and Inertization	Encapsulation and Inertization: Encapsulation involves the filling of the containers with waste, adding an immobilizing material and sealing the container. The process uses either cubic boxes made of high- density polyethylene or metallic drums. When containers are three quarters filled with sharps, pharmaceuticals and chemical waste, an immobilizing agent such as plastic foam, bituminous sand, cement mortar or clay is poured into

Burial	Sanitary landfill	Sanitary landfill: Sanitary landfills are an engineered method, designed and constructed to keep the waste isolated from the environment. There should not be any contamination of the soil, surface, and ground water
	Burial	Burial: Hazardous waste can be buried in a special pit. The bottom of the pit should be at least 2 m above the water table. When the level of the waste reaches up to 30 to 50 cm to the surface of the ground, the pit needs to be filled with dirt, sealed with concrete and a new pit should be dug if necessary.
	Septic or	Septic or Concrete Vault: This method can be used for the

HCW Systems Sustainability:

- HCWM plans are roadmaps towards creating and sustaining good HCWM systems in healthcare facilities.
- Participatory planning promotes stakeholder ownership.
- Funding and human resources allocated to HCWM are essential for sustainability.
- Commitment by the administration, fostering environmental champions among staff, and capacity building can bring success.
- Planning is an adaptive process with periodic review and updating

For more information:

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Thank you for your attention!