

e-Briefing on **Sludge Disposal**

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Sludge Disposal

Sludge generated in most of the treatment systems is discharged in the nearest watercourse that leads to contamination of land, air, water and food chain. Therefore an economically and environmentally safe sludge management and disposal method is required to address this crucial problem.



Discharge of untreated wastewater to river

Common Sludge disposal options

Overview of some of the disposal options are given below. Agricultural use and land application are not applicable for sludge from Textile ETPs and included here for information only.

Agricultural use

- Valuable nutrients and organic matter in sludge help to meet nutrient requirements, reduce the need for fertilizers, maintain soil fertility and decrease soil erosion.
- Composting is another option to produce fertilizer.

Land application

- Land application includes filling material for flood prevention, material/ substrate for re-cultivation of mining sites or covering landfill sites.
- Controlled landfilling depends on organized disposal of the sludge, proper precautions and maintenance.



Landfilling of sludge

Utilization in Brick manufacturing

- Sludge is extremely close to brick clay in chemical composition.
- Utilization of sludge can be beneficial in the soil crisis context as well.
- Usually bricks manufactured from sludge are low in strength so can be used in low requirement applications.



Bricks made of sludge

Incineration

- Reduces sludge volume and produces energy depending on the calorific value of the sludge.
- Conventional incineration process generally consumes more energy than it produces, mainly because of high moisture content and lower calorific value of the sludge.

Co-incineration in Cement Industry

- In co-incineration of sludge in the cement industry, the resultant ash is incorporated in the cement matrix.

Production of Biogas

- Biogas, mainly methane (CH₄) is produced by anaerobic digestion of waste (sludge) that provides a renewable energy source which may be used in the production of electricity and heat.
- Anaerobic digestion is not permissible for Category C sludge which represents sludge from hazardous industries due to high risk of toxic emissions that may be harmful to human health and the environment.