

Non-CO₂ Greenhouse Gases: Methane

Source/Sectors: Wastes/Wastewater Treatment

Technology: Options in general (A.5.2)

Description of the Technology:

During collection and treatment, wastewater and sludge may be accidentally or deliberately managed under anaerobic conditions. Under these conditions, methane would be formed as a by-product.

Key reduction options for methane emissions from wastewater are addition of more wastewater treatment plants, aerobic wastewater treatment, and recovery of methane from anaerobic wastewater treatment processes (Lucas *et al.*, 2006). Specific technological options to reduce CH₄ emissions from wastewater include the:

- Aerobic wastewater treatment – Aerobic wastewater treatment processes such as activated sludge systems, oxidation ditch, trickling filters, waste stabilization ponds, and others can biodegrade organics and reduce the methane emission potential.
- Upgrading of existing overloaded or under-aerated wastewater treatment plants – Implementation of this option will greatly reduce the methane emission potentials from those plants (de Jager *et al.*, 2001).
- Anaerobic treatment – Anaerobic treatment can also be applied to wastewater, especially that of high organic concentrations. The methane gas produced will be collected and then destructed or used for electricity generation (USEPA, 2006b).

Effectiveness: Good

Implementability: Good

Reliability: Good

Maturity: Good

Environmental Benefits: It reduces methane emissions.

Cost Effectiveness: None reported.

Industry Acceptance Level: Good

Limitations: None reported.

Sources of Information:

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11. U.S. Environmental Protection Agency (2004) "International Methane and Nitrous Oxide Emissions and Mitigation Data", United States Environmental Protection Agency. Available online at www.epa.gov/methane/appendices.html (in Excel file).
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