TECHNOLOGY FACTSHEET

METHANE CAPTURE FROM LANDFILLS[1]

Introduction

Municipal Solid Waste (MSW) is waste generated by commercial and household sources that is collected and either recycled, incinerated, or disposed of in MSW landfills. The primary target of MSWM is to protect the health of the population, promote environmental quality, develop sustainability, and provide support to economic productivity. LFG is created as solid waste decomposes in a landfill. Methane capture from landfills entails the recovery and use of landfill gas (LFG) as an energy resource This gas consists of about 50 percent methane (the primary component of natural gas), about 50 percent carbon dioxide (CO_2), and a small amount of non–methane organic compounds. LFG is created as solid waste decomposes in a landfill. This gas consists of about 50 percent methane (the primary component of natural gas), about 50 percent carbon dioxide (CO_2), and a small amount of non–methane organic compounds.

Solid Waste Management in Kenya is the responsibility of Local Authorities. In Nairobi, the MSW are managed Nairobi City Council. The Largest municipal landfill in Nairobi is located at Dandora. Nairobi City generates about 2400 tonnes of waste per day.

Technology Characteristics

LFG capture projects aim at preventing emissions of methane and other pollutants from landfills. LFG is extracted from landfills using a series of wells and a blower/flare (or vacuum) system. This system directs the collected gas to a central point where it can be processed and treated depending upon the ultimate use for the gas. From this point, the gas can be flared, used to generate electricity, replace fossil fuels in industrial and manufacturing operations, or upgraded to pipeline–quality gas where the gas may be used directly or processed into an alternative vehicle fuel.

Country Specific Applicability and Potential

There is potential for methane gas capture in municipal landfill in cities like Nairobi, Mombasa and Kisumu among others. The captured methane gas will be used for electric generation.

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[1] **This fact sheet has been extracted from TNA Report – Mitigation for Kenya. You can access the complete report from the TNA project website** http://tech-action.org/

Status of technology in country

Feasibility study has been done for use of methane gas from MSW although there are no concrete plans for implementation. Initial studies suggest that up to 64 MW of generation capacity in Nairobi (IISD, 2012).

Benefits to economic/social and environmental development

Economic benefits

i) Waste management is a business opportunity with potential for job creation

ii) Poverty reduction

iii) Boosts the economy

Environmental benefits

i) Reduction in self ignited random fires

ii) Reduced health risk from infectious and respiratory diseases

It directly reduces air pollution by offsetting the use of non-renewable resources

Climate change mitigation benefits

GHG Reduction. The mitigation potential of the methane capture from landfills is estimated to be 1,116 ktCO_2/year in 2030 (IISD, 2012)

Financial requirements and costs

Initial costs for installation of methane capture are quite high.