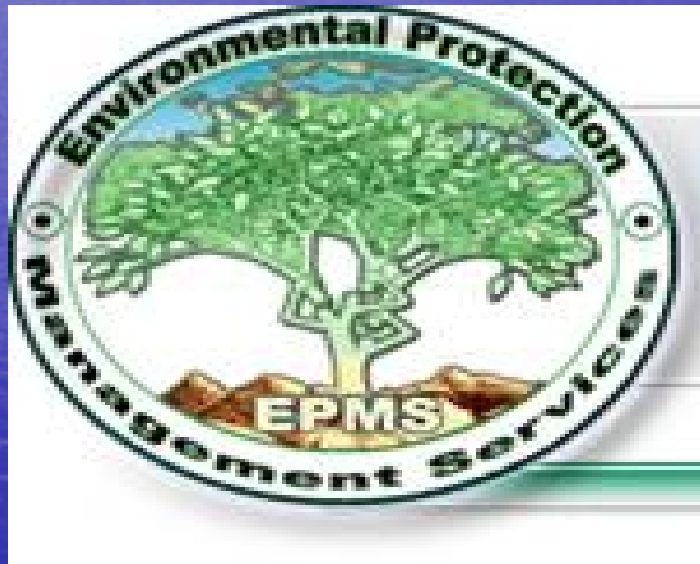


CDM OPPORTUNITIES UNDER WASTE MGT IN TZ :



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INTRODUCTION

- Waste accumulation, especially MSW is a growing problem in urban areas of Tanzania.
- **Municipal Solid Waste** means combined household, commercial and institutional waste materials generated in a given area.
- Solid waste are collected in a mixed state and dumped in unplanned and environmentally sensitive areas.
- Waste generation rate is increasing with the increase of population, technological development and the changes of the life style of people
- MSW is composed of inorganic (plastics, glass, metal, tins and cans) and organic components.

INTRO CONT...

- Scavengers recover/salvage most of the inorganic part of waste.
- Organic waste are left to decay.
- Organic waste can be utilized in: Landfill biogas production, fertilizer or making briquettes for direct combustion.
- Problem is aggravated owing to the absence of proper solid waste management system.

LANDFILL/DUMPSITE WASTE MANAGEMENT FOR CDM:

- In order to qualify, it should be well planned and constructed.
- The amount of waste dumped should be known.
- If possible, sorting of waste should be done to ensure that the dumped waste is largely composed of organic matter.
- Waste are resource, has energy and brings revenue.

BIO GAS TECHNOLOGY:

- Is an efficient, proven and cost effective method of disposing organic wastes without releasing green house gases.
- Produce electricity, fuels and fertilizers.
- $O.M + H_2O \xrightarrow{\text{Bacteria}} \text{Biodegraded O.M} + CH_4 + CO_2 + \text{Trace gases.}$
- In a well managed landfill, Biogas is likely to be produced over a period of 20 or 25 years.

LANDFILL GAS USES:

- The captured gas can be flared.
- The captured gas can be used to produce energy (e.g. electricity/thermal energy), and emission reductions are claimed for displacing or avoiding energy generation from other sources.
- The captured gas can be used to produce energy (e.g. electricity/thermal energy) ,but no emission reductions are claimed for displacing or avoiding energy from other sources.

ADVANTAGES OF LANDFILL WASTE MANAGEMENT

- Odor is controlled.
- Destroys organic compounds and produce more gas than other traditional methods.
- Produces less solid waste which can then be used in the field as mulch/soil amendment.
- Gas collected can be used to offset energy costs by providing heat and electricity generation.
- Gas collected, reduces the need for fossil fuels thus reduce pollution.
- Revenue through CDM.

POTENTIAL METHANE GENERATION FROM URBAN WASTE LANDFILLS IN TANZANIA 2000 - 2020

Year	Total Annual Waste (tons/year)	Dry Organic Matter (Matter) (tons/year)	Methane generated (10 ⁶ m ³ /year)		Effective Power Generation (MW)		Fossil Fuel Substitution (10 ³ tons of diesel/year)	
			Dry site	Wet site	Dry site	Wet site	Dry site	Wet site
2000	2105932	631780	158	210	52	70	895	1193
2005	2741495	822448	205	274	68	91	1161	1548
2010	3576300	1072890	268	357	88	118	1519	2025
2015	4680274	1404082	350	467	116	154	1983	2644
2020	6084624	1825387	456	607	151	201	2584	3445

Source: Kishimba, M.A.

CASE OF DAR ES SALAAM

- SW generated-2600 tons/day.
- SW recovered and recycled- 400tons/day.
- Waste disposed to official dumpsites-1200 tons/day.

WASTE MANAGEMENT AND CDM

- Waste management is one of the potential sectors under the Clean Development Mechanism.
- Among various waste management methodologies, a suitable technology can be used while the dumpsite is still operational or closed to reduce emission of methane.
- Suitable technologies which are potential as both CDM activities and waste management options are composting, incineration, LFG capture/ avoidance etc.
- Under CDM, waste management projects lead to both environmental protection, healthier community and income generation through the selling of carbon credits .
- Through capture of biogas from landfill and power generation, the community will also benefit from the cheap renewable source of energy hence economic development

WASTE MGT CONT...

- About 60%-65% of landfill gas is usually composed of methane.
- Methane has a global warming potential 21 stronger than carbon dioxide hence more carbon credits can be obtained in waste management projects.
- Landfill gas recovery is among the simple approved methodology under CDM Executive board which is mostly applicable in Tanzania.

BENEFITS OF CDM IN SWM

- Reduction of greenhouse gas (GHG) into the atmosphere.
- Addition of electricity to the National grid.
- Collection of Methane otherwise released into atmosphere hence protection of environment.
- Income generation and technology transfer.
- Poverty alleviation and sustainable development
- Job creation.

CDM SSC METHODOLOGIES APPLICABLE TO WASTE MGT:

- Small Scale CDM project (SSC) are the most easily applicable projects in Tanzania compared to large scale projects because we don't have large dumpsites. Some of the CDM methodologies applicable are;
- IIID (Methane recovery in agricultural and agro industrial activities).
- IIIE (Avoidance of Methane prod. from decay of biomass through controlled combustion ,gasification).

METHODOLOGIES CONT...

- IIIF (Avoidance of Methane prod. from decay of biomass through composting).
- IIIG (Landfill Methane Recovery).
- IIIH (Methane recovery in Wastewater treatment).
- III I (Avoidance of Methane prod. in Waste Water treat. through the replacement of anaerobic lagoons by aerobic systems).
- III L (Avoidance of Methane production from biomass decay through controlled pyrolysis).

SCIENTIFIC MGT OF DUMP SITE:

- Creation of space for future operation.
- Shifting of existing waste.
- Capping.
- Land scaping.



Before Shifting



After Shifting and Capping



After landfill closure

Waste is not “useless”; Waste is uncultivated “excess” material.

THANK YOU!