

Methane-2-Markets Fund

The Solid Waste Context of Developing Countries

by Sandra Cointreau

World Bank

Solid Waste Management Advisor

Most disposal is by open dumping

- 0-10% safe disposal in Low Income Countries
- 5-40% safe disposal in Middle Income Countries
- 90-100% safe disposal in High Income Countries

Disposal in low-income countries

- Disposal is by open dumping, usually with open burning
- Waste pickers sort through the dumpsites for recyclables
- Waste pickers are usually children or women of child-bearing age



Intestinal Parasite Infection Among Waste Pickers:

- 65% incidence in Bangkok, Thailand
- 98% incidence in Manila, Philippines (child waste pickers only)
- 97% incidence in Olinda, Brazil
- 92% incidence in Calcutta, India



Particulate Levels:

- Up to 25 times Higher at open dumps than in nearby residential areas(Thailand, Philippines local studies)



Pulmonary Function:

- 23% Dumpsite Workers with Abnormal Pulmonary Function (India local study)
- 40% Dumpsite Waste Pickers with Abnormal Pulmonary Function (Thailand local study)
- 53% Dumpsite Child Waste Pickers with Abnormal Pulmonary Function (Philippines local study)

Blood Lead Levels:

- 70% Dumpsite Children Pickers above WHO lead guideline -- children pickers mean lead was 2.5 times higher than in control slum children (Philippines local study)



Slides at Open Dumps:

- Istanbul, Turkey
 - 39 killed, 1993
- O Portino, Spain
 - 1 killed, 250 evacuated, 1994
- Calcutta, India
 - 2 killed, 1992
- Manila, the Philippines
 - over 200 killed, 2000



Animal Diseases

- Most dumpsites have foraging domestic animals
- Slaughter waste and animal waste is always present –leading to disease transmission



Past Investments – Few Successes

- Sanitary landfills were built, but municipal operations seldom attained design expectations.
- Compost plants were built, but local farmers could not pay enough to cover the higher costs of composting over landfill.
- Incinerators were built, but local wastes did not have sufficient calorific value to sustain combustion.

New Horizons with Carbon Funds

- World Bank manages carbon funds totally over \$400 million, paying \$4/tonne of avoided CO₂ (\$84/tonne of avoided methane) over 10-20 years of facility operation.
- Carbon financing provides hard currency motivation for operations to follow design – because money is provided only for verified annual carbon emission reductions.
- Carbon finance can be used for any technology that leads to avoidance of landfill methane generation – including composting, recycling, refuse-derived fuel, and waste-to-energy.

Complex Technology Choices

- Choices still must be sustainable financially and operable by poor municipalities.
- Decision-making needs to consider all emissions and energy consumption of the full system – from collection to final disposal.
- EPA's holistic model of life-cycle analysis of emissions, energy consumption, and costs needs to be applied to developing country use.

Obstacles to Success

- Qualifying for carbon funds is complex and technical support to municipalities is needed to help them access these funds.
- Operating facilities that qualify for carbon funds is sophisticated and would typically require private sector operators.
- Even with carbon funds, many countries are unable to attract private sector partners.

Welcome to M2M

- The need for a global emphasis on green house gases is most urgent.
- The work ahead is huge and time is limited.
- The solid waste sector is a key opportunity of “fixable” emissions.
- Capacity building is crucially needed.
- We welcome the Methane – to – Markets Fund and working closely with EPA.