



MRV Capacity Building for Urban Solid Waste Management

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IGES-SCP
MRV:SWM



Objectives

- Explore barriers of the current CDM on inclusion of climate friendly solid waste management practice
- Review progress of NAMA development in Thailand
- **Assess greenhouse gas (GHG) emission reduction of some municipal solid waste management systems in Thailand and in Japan via LCA perspective**
- **Increase awareness and improve capacity of local governments on measuring GHG emissions from the MSW management in Cambodia, Lao PDR, Thailand**

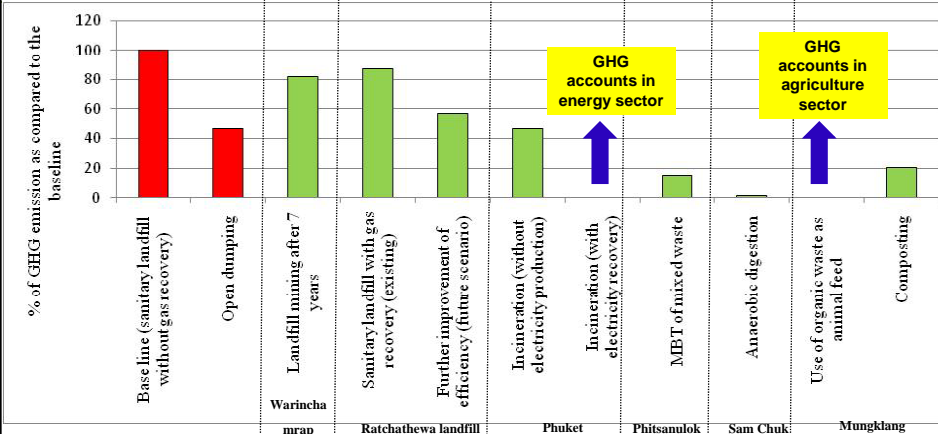
Janya Sang-Arun | IGES | <http://www.iges.or.jp> | IGES-MRV workshop, 6 March 2012, Tokyo, Japan | 2

1. GHG emissions from solid waste management

According to IPCC guidelines, GHG emissions related to waste management can be categorised into different groups

Source of GHG emission	Categorised under waste sector	Categorised under non-waste sector
<ul style="list-style-type: none"> • CH₄ emission from landfills/open dumping, composting of organic waste • CH₄ emission from incineration and open burning (minor) 	★	
<ul style="list-style-type: none"> • CO₂ emission from incineration without energy recovery • CO₂ emission from incineration with energy recovery 	★	★
<ul style="list-style-type: none"> • N₂O emission from combustion and composting 	★	
<ul style="list-style-type: none"> • GHG emission from utilisation of fossil fuel for waste transportation, operational activities and grid electricity consumption for operational activities and recycling 		★
<ul style="list-style-type: none"> • GHG emission from manure and farm waste management 		★

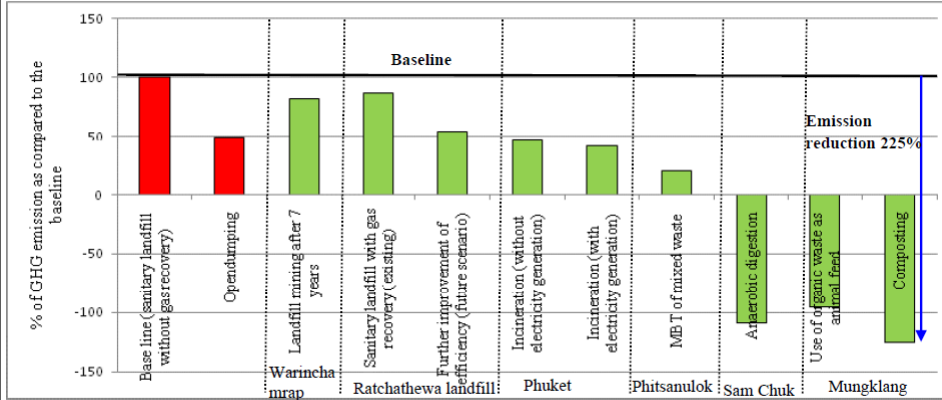
1.1 GHG emission on the waste sector of SWM in Thailand- not LCA



Baseline for mixed waste management is sanitary landfilling of mixed waste without gas recovery.

The baseline of organic waste utilisation is sanitary landfilling of organic waste without gas recovery

1.2 GHG emissions from SWM in Thailand- LCA perspective



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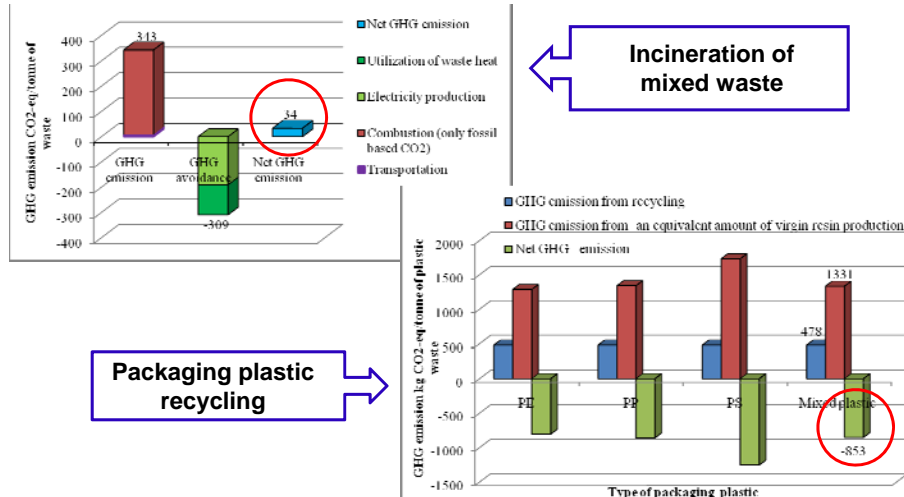
The baseline of organic waste utilisation is sanitary landfilling of organic waste without gas recovery

1.3 GHG emissions from material recycling in Thailand- LCA perspective

Type of recyclables	GHG emissions from recycling ¹ (A)	GHG emissions avoidance from virgin process ¹ (B)	GHG emissions avoidance from sanitary landfill (C)	Net emissions from recycling (D) = (A)-(B)-(C)
Unit : (tCO ₂ -eq/tonne of waste)				
Paper	1.27	0.97	2.38	-2.08
Plastic	2.15	1.90	0	0.25
Aluminium	0.39	12.47	0	-12.08
Steel	1.10	2.95	0	-1.85
Glass	0.57	1.03	0	-0.46

Source: ¹Menikpura, 2011

1.4 GHG emissions from mixed waste incineration (with energy recovery) and recycling of packaging plastic in Japan –LCA perspective



2. Recommendation for Thailand NAMA on SWM

- **3Rs (reduce, reuse, recycle)** is a climate friendly waste management policy that should be adopted for NAMA
- Some municipalities practice 3Rs for minimising the waste to final disposal site, however most municipalities do not understand the linkage of the 3Rs and global warming. Therefore, **capacity building and awareness raising** are important to achieve the NAMA goal. In addition, **subsidies to landfill development should be minimised**, unless the 3Rs is integrated to the project.
- Development of **data collection and proper way of data recoding** is important at the local governments level for MRV and NAMA achievements.

2. Recommendation for Thailand NAMA (2)

- For the **baseline of emission reduction**, if the NAMA target on reducing the GHG emission from the level of 2020 business as usual, **a projection of combination of SWM by 2020** is an appropriate baseline as the trends of disposal site development (without intervention from the 3R policy) is sanitary landfill without gas recovery but open dumping is predicted to be remained.
- The baseline of **business as usual or open dumping, based on current year, would be too ambitious** for Thailand as the GHG emissions from the waste sector is relatively small compare to developed countries, otherwise landfill of organic waste is ban.

3. Capacity building workshop for local waste management actors: Cambodia, Lao PDR, Thailand

Activities

1. **Conducted a training workshop for local governments, in collaboration with national governments, university and NGOs of each country.**
2. **Translated and distributed IGES publications on waste management and climate change in local language which enable efficient use by the local governments.**

Outcome

1. **86, 55, and 115 participants from local and national governments, academia, NGOs and private sector attended the workshop in Cambodia, Lao PDR and Thailand, respectively.**
2. **Participants understood the linkage of waste management and climate change. However, they request for follow-up workshop and onsite training.**
3. **Participants could estimate GHG emissions (simple equations) from their waste management practices and see its benefits on fundraising.**

4. Proposal for FY2012 activities

- **Simulation of zero GHG emissions waste management system via integrated waste management approach**
- **Development of worksheet/template for estimation of GHG emissions from different waste management technologies**
- **Piloting organic waste separation and utilisation in Cambodia**
- **Exploring opportunities to be involved in Thailand-NAMA development**

Thank you very much for your attention

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for further information, progress and final reports.