



Energy Production from Municipal Waste: Business Potential and Project Opportunities

MARTIAL BECK, *Vice President & General Manager*, European Chamber of Commerce of the Philippines

www.renewables-made-in-germany.com

Energy from Municipal Waste in the Philippines

www.renewables-made-in-germany.com

Municipal Waste in the Philippines

Waste Generation

- Amount of Garbage:

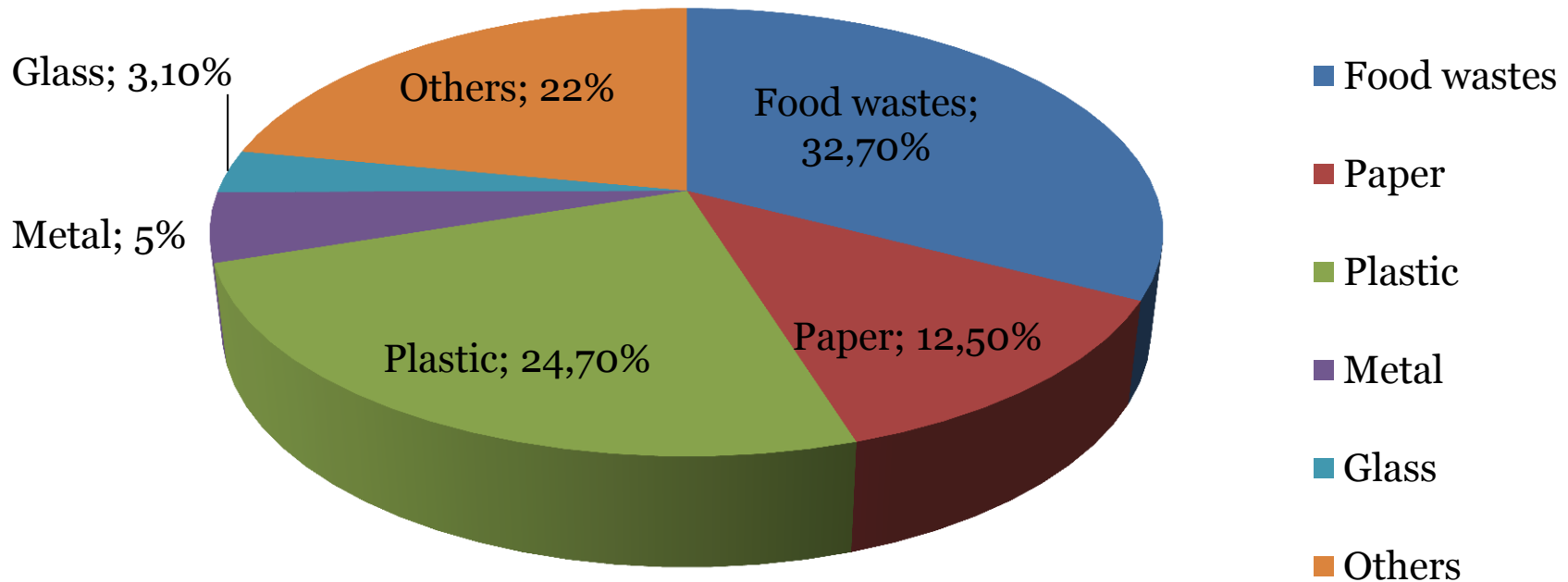
Nationwide	36,000 tons/day (5000 trucks)
Metro Manila	8,600 tons/day (1400 trucks)
Total Generated	13,000,000 tons/year
- Amount of Garbage per person:

Urban	0.60 kg/day
Rural	0.30 kg/day
- % Municipal Waste Recycled: 28%



Municipal Waste in the Philippines

Type of Municipal Waste Composition



Regulating Municipal Waste & Waste Disposal and Management

www.renewables-made-in-germany.com

Regulating Municipal Waste

Key Provisions of the ESWM Act of 2000

- The Ecological Solid Waste Management Act of 2000 (RA 9003) provides the legal framework for the systematic, comprehensive and ecological solid waste management program of the Philippines, which shall ensure protection of public health and the environment.



Waste Disposal and Management

Waste Collection

- Collection of solid wastes is mostly being managed by the local government.
- The collection service covers a range of 80% to 100% of the area.
- Collection efficiency in Metro Manila is 83%.
- At the national level, collection efficiency ranges from 40% - 70%.
- Treatment facilities for toxic and hazardous wastes are privately run. These are mostly located in regions adjacent to the National Capital Region.



Waste Disposal and Management

Waste Disposal

- Safe disposal of residual wastes/establishment of sanitary landfills:
 - Sanitary Landfills 45
 - Open and controlled dumpsites 946
- Note: 69 Sanitary Landfill are under construction



Ecological Solid Waste Management Act

Recycling and Re-use

Create other products from garbage

Undertaken through Materials Recovery Facilities (MRF)

All barangays to be covered by MRF's.



Management of Residuals & Final Disposal Sites

- Closure and rehabilitation of all open and controlled dumpsites (Section 37)
- Establishment of a Categorized Sanitary Landfill and or use of alternative technology management of residual wastes



Waste-to-Energy

www.renewables-made-in-germany.com

Waste-to-Energy

The Need for Alternative Energy Sources

- Solutions for municipal solid waste management and electricity supply are urgently sought by National local governments in the Philippines.
- *“Energy is a long-term concern that requires a long-term solution. If we want sustainable energy we need to tap all possible sources of renewable energy...”*
Secretary Jericho Petilla.



All ingredients are present for a win-win

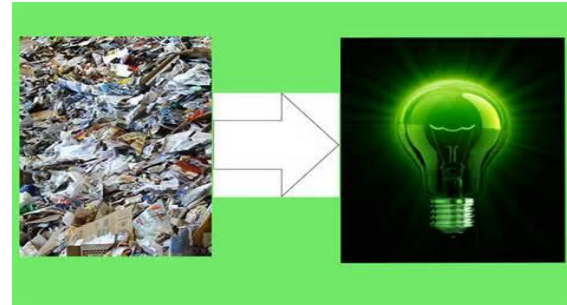
- Insufficient and expensive power

+

- Mature Technology

=

- **Good Business**



List of Waste to Energy Projects

Project Name	Project Type & Size
Operational projects	
Bacavalley Montalban Methane Plant	14 MWe methane plant using landfill gas
Bacavalley San Pedro Methane Plant	4 MWe methane plant using landfill gas
Payatas landfill methane recovery Plant	1 MWe methane gas recovery plant
Consolacion landfill recovery Plant	4 MWe methane gas recovery plant
Potential Projects with feasibility studies	
Global Green Int'l Energy Phils Inc	Manufacture RDF for a cement plant
Cleansave projects	10 to 20 MWe Pirolisys of RDF

THANK YOU!

www.renewables-made-in-germany.com

Waste-to-Energy Cases

- A Memorandum of Agreement has been signed last September 10, 2013 between the City Government of Tagum and Global Green International Energy Philippines, Inc. for a waste-to-energy facility. The facility will be using a highly-reliable, environmentally-compliant and safe technology that will generate fuel and electricity from solid waste generated by the city.

Waste-to-Energy

Waste-to-Energy Cases

- Local developer-led Green Alternative Technology Specialist Inc. (GATSI) is one of the newest project sponsors that secured the go-signal of the Department of Energy (DOE) for a waste-to-energy facility.
- The plant's design entails the utilization of refuse-derived fuel (RDF) in the generation of electricity which will then be wheeled to end-users.
- Specifically, the energy department has explained that the facility will be processing municipal solid wastes into pellets; and the resulting RDF can be aligned as a co-firing fuel with or substitute to coal.
- The facility will be constructed in San Isidro, Rodriguez, Rizal and seen to be strategically located near one of the country's major landfills.

Waste-to-Energy Cases

- London-based Advanced Plasma Power Ltd., a waste-to-energy developer, intends to build a US\$323 million waste-to-energy power plant at a still undetermined location. The plant will have a capacity of 60 MW. The company is negotiating with the operator of a landfill site.
- The plant will burn commercial, industrial and household waste to produce clean power. Advanced Plasma intends to begin engineering and design before the end of the year. Construction could start in mid-2014 and be completed before the end of that year.

Waste Disposal and Management

Materials Recovery Facilities

- The ESWMA defines materials recovery facility or MRF as a facility designed to receive, sort, process, and store compostable and recyclable materials efficiently and in an environmentally sound manner.
- MRF receives biodegradable waste for composting and mixed non-biodegradable wastes for final segregation, re-use and recycling. Provided, that each type of mixed waste is collected from the source and transported to the MRF in separate containers.
- Barangays shall be responsible for the collection, segregation, recycling of biodegradable, recyclable, compostable and reusable wastes. MRFs must be established in every barangay or cluster of barangays all over the country. The facility is established in a barangay-owned or leased land or any suitable open space determined by the barangay through its Sanggunian.
- There are about 42,000 barangays nationwide. There are 7,713 MRFs servicing 8,843 barangays in the country.