Organic Waste

an underutilized resource

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Institute for Global Environmental Strategies (IGES)

- IGES is a Japanese policy research institute promoting sustainable development in the Asia-Pacific region
- Our research focuses mainly on environment related policies in developing countries
- We work closely with international organisations, including UNEP, ADB and UNESCAP

Photo: Yasuhiko Hotta

Urban Organic Waste: Situation in Developing Countries

- Large and **increasing volumes** of urban organic (biodegradable) waste are generated
- 50-70% of Municipal Solid Waste is organic matter
- A large share remains **uncollected**, especially in cities in LDCs => risk to health and environment
- Waste collection and disposal is a large **economic burden** for municipalities
- Estimated that **less than 10%** of the organic waste is used as a resource
- **Open dumping** and simple landfill disposal dominate treatment

Photo: Martin Medina

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Landfills: A Threat to the Global Climate

- Anaerobic (oxygen-free) degradation of waste generates **methane** (CH_4)
- Methane is a **strong greenhouse gas**, at least 25 times more potent than carbon dioxide (CO_2)
- Construction of engineered landfills is a common trend
  - **Deeper and compacted landfills generate more methane** per ton of waste
  - **Dilemma**: Improvement of the local environment can increase greenhouse gas emissions
  - National **governments play a key role** in addressing this dilemma

Combining Local Benefits with Climate Protection

- Alternatives to landfill disposal exist:
  - **Composting** (aerobic treatment)
  - **Anaerobic digestion** (AD) generating biogas
- Composting and AD can bring **nutrients and organic matter back to the soil**
- Biogas generated through AD can provide **affordable energy**
- Reduction of waste to landfills **saves money** for the municipalities
- Composting and AD **cannot handle all** urban organic waste, but can make **significant contributions**

Photo: Janya Sang-Arun

Source Separation

- A prerequisite for **effective treatment** processes and **high quality soil improvers**
- Difficult to achieve, but worth encouraging
- **Education**, **incentives** (e.g. reduced collection fees, subsidized equipment) and **convenient collection** systems are usually required
- Separation of biodegradables (wet waste) makes it **easier to recycle also other materials** (plastics, glass, metals, paper etc.)

Stimulating the Markets for Compost and AD Discharge

- Municipalities have to **understand the** conditions on the **market**
  - **Farmers**' needs and concerns
  - The requirements of the **food industry**
- **Trust-building** and **education** are crucial
- Partnership with fertilizer manufacturers can be beneficial
- **Quality control** is essential (standards, testing, labelling etc.)
- **Subsidies to non-organic fertilizers** are an obstacle
- **Integrate** the use of compost and AD discharge **into other efforts**, such as promotion of organic agriculture and integrated pest management

Promoting Utilization of Organic Waste

- On the "supply side" (in the cities):
  - Encourage **source separation**
  - Work in **partnerships** with communities, CSOs/NGOs, the informal sector, and schools
  - Target **large sources** first – food markets, restaurant districts, hotels etc.
  - Encourage household/community composting and AD in areas where this is appropriate
- On the demand side (for soil improvers and biogas):
  - Understand that **this is a market** where demand needs to be stimulated – it cannot be commanded
    - **Role of the government:**
      - **Facilitate the market, reduce transaction costs, reduce uncertainty for actors**
  - Work with the **key stakeholders**
    - Farmers and their associations
    - Ministry of Agriculture
    - Food industry
    - Fertilizer producers
    - Ministry of Energy

Conclusions – Local Level

- Local authorities need to partly redefine their role from being the main service provider to being a facilitator and network coordinator
  - Initiatives can often come from civil society or the private sector rather than from the local authorities
  - Several stakeholders need to be involved, and good process leadership is essential
  - This role requires a new set of skills in local authorities and appropriate mandates

Conclusions – National Level

- National governments play a key role in ensuring that municipalities adopt sustainable waste management systems and technologies
  - Strong regulatory and institutional frameworks
    - Inter-ministerial coordination
    - National strategies and targets
  - Clear role-sharing between central and local governments
  - Adequate resources/support to local authorities and other key stakeholders
  - Recognition and replication of good practices
- Government interventions are usually needed in order to create and improve markets for compost and biogas.

Thank you for your kind attention