Organic Waste
an underutilized resource

Magnus Bengtsson, PhD
Director, Sustainable Consumption and Production
Institute for Global Environmental Strategies (IGES)
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
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
Landfills: A Threat to the Global Climate

• Anaerobic (oxygen-free) degradation of waste generates methane ($\text{CH}_4$)

• Methane is a strong greenhouse gas, at least 25 times more potent than carbon dioxide ($\text{CO}_2$)

• 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
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