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THE NAIROBI CITY WASTE PROJECT

Converting City Waste into Compost and Biogas

A project funded by Dutch Government to explore options for effective management of organic waste

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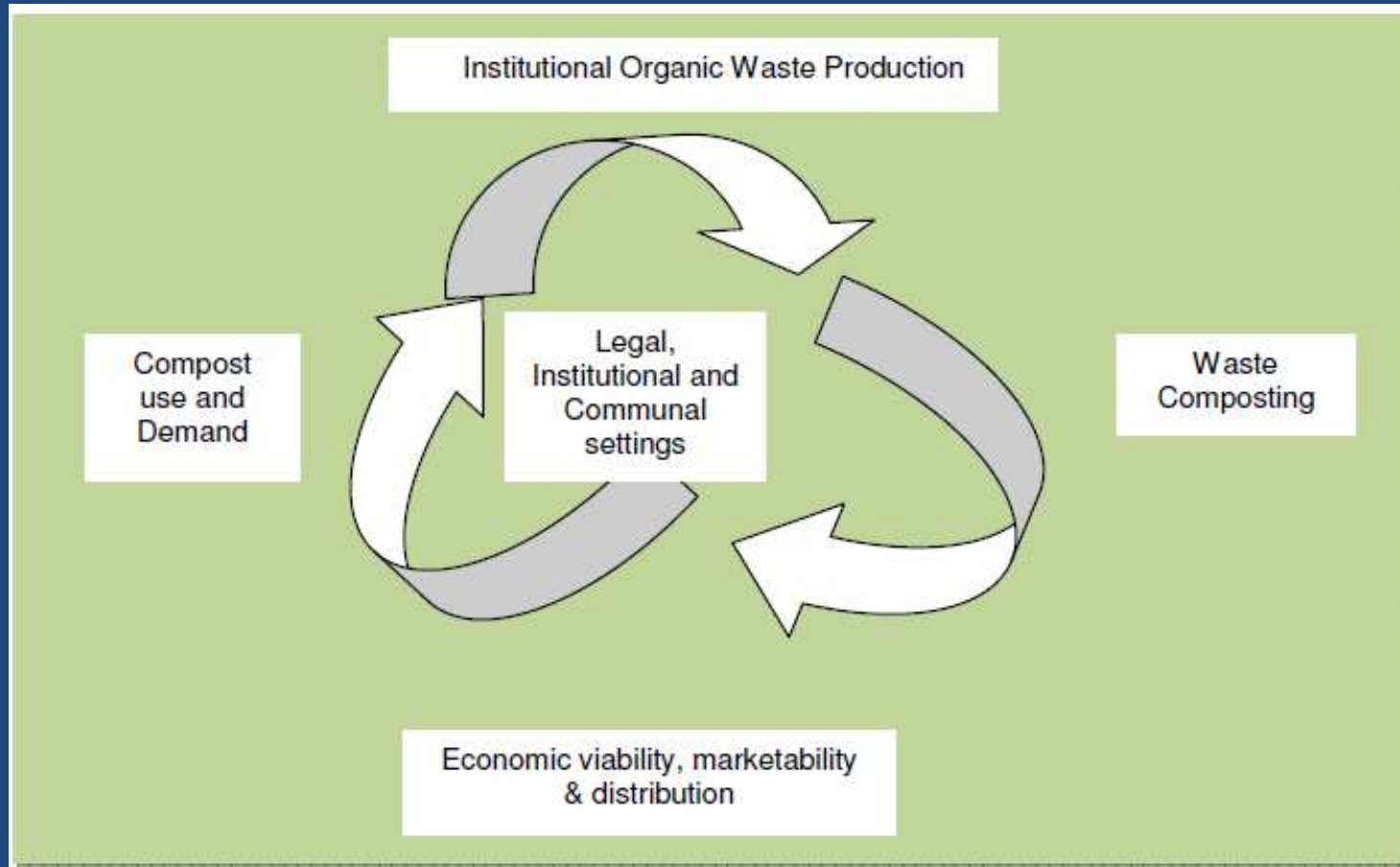


The Waste Problem

- ❑ Rapid population increase and urbanization
- ❑ No corresponding increase in the capacity of urban authorities to manage waste generated
- ❑ Environmental pollution and huge transport burden of organic waste
- ❑ Waste recovery focused mainly focused on inorganic waste
- ❑ Missed opportunity to close nutrient cycle



The nutrient recycling Loop





Project Objectives

- **Identify the Gaps and close the nutrient cycle**
 - Reduce volume of waste going to dumpsite
 - Reduce methane and leachate from dumpsite
 - Reduce transport costs
- Connect generators of clean organic waste with agricultural users



Nairobi Organic waste Situation

- **Three components**
 - Inventory Assessment
 - Pilot phase
 - Analysis and information sharing
- 19 tonnes of organic waste per day in four markets
6935 tonnes per annum of organic waste;
- 95% of market waste by volume and weight is organic,
which makes segregation at source and recovery
relatively easy.
- *Slaughterhouses*: 28.8 tonnes of organic waste per day
from two slaughterhouses

The Nairobi Organic waste situation



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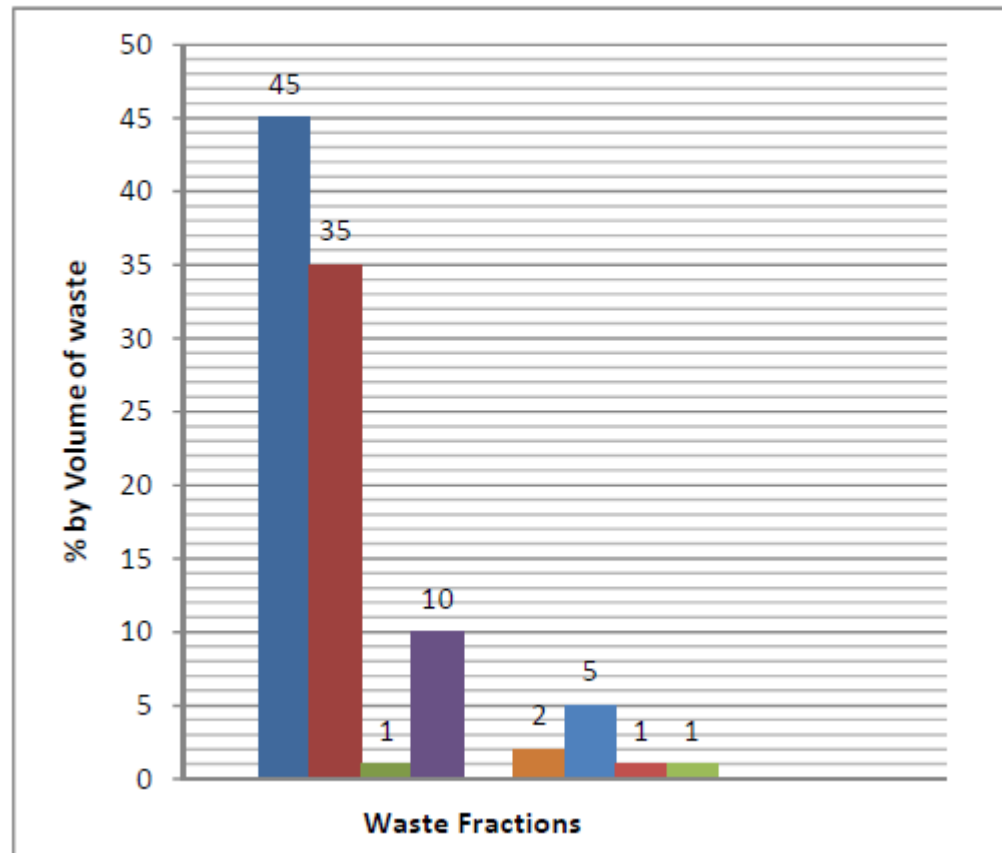
- *Hotels:* 11 tonnes of organic waste per day is generated at 11 hotels studied
- *Sanitation facilities:* 7.5 tonnes of organic waste is generated per day at four sanitation facilities
- *Education centres:* 4.2 tonnes of organic waste is generated per day at three education centres





The Waste Fraction from Hotels

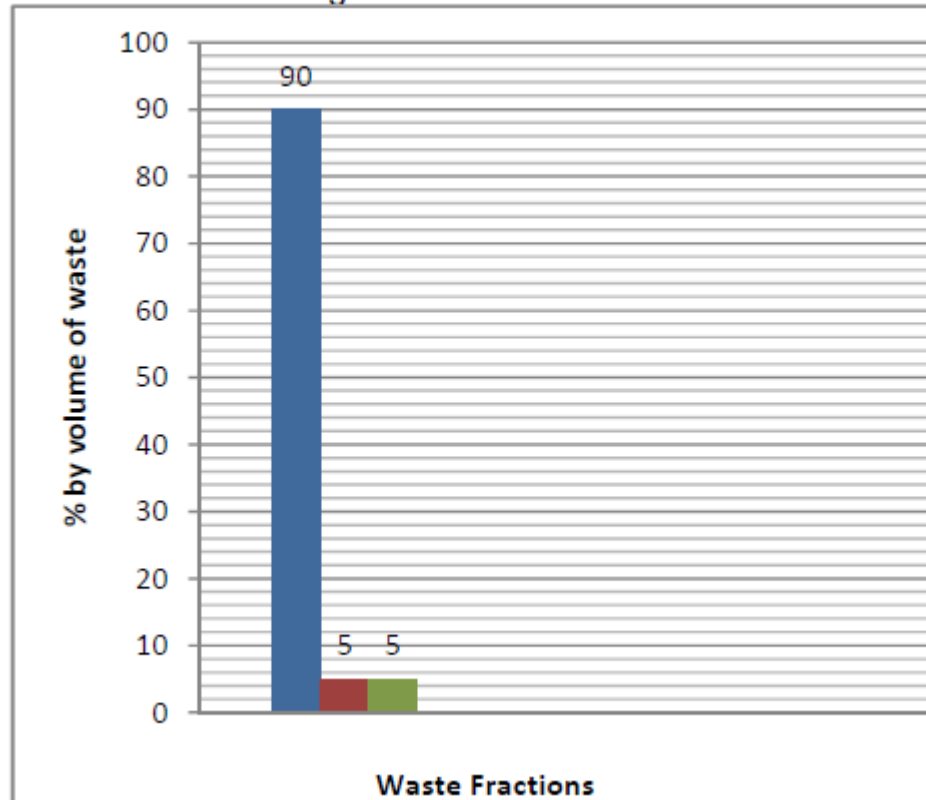
Figure 6: Waste Fractions generated from Hotels





Waste Fraction from Markets

Figure 16: Waste Fractions generated from Markets





Challenges in using waste for compost and biogas production

- Unfavourable regulatory system focused on disposal
 - ▣ The Solid Waste Management By-Laws (2007) do provide for small-scale resource recovery activities to be undertaken by organized groups
- Disposal is un-priced – so any other alternative is viewed as expensive
- Compost not recognized officially. Kenya does not apply fertiliser standards to compost.



The Pilot Phase - Composting

- ❑ Market waste was found to be a particularly good source of organic waste for compost production, as it is fairly uncontaminated,
- ❑ Composting, within Nairobi, has been largely viewed as a social activity
- ❑ Private sector composting challenges
 - ❑ Product
 - ❑ Marketing
 - ❑ Supply and sourcing of clean waste
 - ❑ Policy and regulations
 - ❑ Awareness

Pilot Intervention



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- Test feasibility of creating sustainable supply chain relationships between institutional generators of organic waste materials and commercial based collectors
- Apply public-private partnership (PPP) programme within the City Council of Nairobi, to remove existing barriers to recovery of municipal waste
- Establish benchmark operational and cost parameters as a basis for planning larger or more extensive composting projects;





- To interest key stakeholders such as, donors, regulatory agencies, ministries, local authorities, banks, and the like, in actively supporting the activity in the future
- ECoH holdings would be an active partner in the pilot project, however, the ownership of the action research pilot project will rest with all involved stakeholders.



Outcomes

- ❑ Public-Private Partnership (PPP) programme within the City Council of Nairobi, negotiated
- ❑ allows for the diversion of market waste into composting;
- ❑ key stakeholders such as, donors, research agencies regulatory agencies, ministries, local authorities engaged,
- ❑ Awareness created
- ❑ Policy and institutional gaps identified



Next Phase

- Working together to prove private sector model of composting market waste:

Roles:

- ECMC, WASTE and Partners – Technical assistance, technology transfer, facilitation, linkages, Policy and regulatory inputs
- ECoH – Production and Marketing of compost
- CCN – Waste access, promotional support, by-laws,

