Municipal solid waste management and climate financing: opportunities for linking sustainable policies and programmes with Nationally Appropriate Mitigation Actions (NAMAs)

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Managing municipal solid waste is one of the major challenges in developing countries, with current practices focused on collection and disposal only, resulting in many negative externalities…

These practices are not sustainable and overlook the enormous potential for turning waste into resources.
Paradigm shift and need for system change

There is a need to change towards a more systemic approach based on 3R principles where value can be generated from waste, with potential for co-benefits along the three dimensions of sustainable development.

The Waste Management Hierarchy

An **Integrated Resource Recovery Center (IRRC)** is a facility where a significant portion (80-90%) of waste can be processed in a cost effective way, in proximity to the source of generation, and in a decentralized manner. The IRRC concept is based on 3R principles.

**Waste**
- Organic Waste
- Inorganic Waste
- Used Cooking Oil
- Others

**Cost and Liability**

**Processing**

**Resources**
- Compost
- Biogas
- Recyclables
- RDF
- Biodiesel
- CERs

The IRRC model and approach
Characteristics of an Integrated Resource Recovery Center

- Capacity: 2-20 tons of organic waste per day
- Decentralized and neighborhood based facilities for treating waste
- Financially viable (low investment requirements and operational profits)
- Requires separation of waste at source (organic / inorganic)
- Land requirements are relatively small (~200 m² of land per ton of capacity)
What does an IRRC operation look like?

Source: ESCAP and Waste Concern
ESCAP Regional Programme in Asia-Pacific

Legend
- Baseline study
- IRRC

6 Countries
17 cities

VIET NAM
- Ha Tinh
- Hoi An
- Kon Tum
- Quy Nhon

INDONESIA
- Jambi
- Probolinggo
- Kota Malang
- Malang Regency

PAKISTAN
- Mardan
- Islamabad
- Karachi

SRI LANKA
- Matale
- Ratnapura

BANGLADESH
- Kushtia
- Battambang
- Kampot
- Ta Khmao

CAMBODIA
Waste management and climate change mitigation

- The disposal of waste in landfills and open dumps generates methane, a greenhouse gas (GHG) with a global warming potential 25 times higher than CO₂.

- Approaches to solid waste management that focus on resource recovery can avoid the generation of GHG, contributing to climate change mitigation and attract climate financing.

- Until recently the vehicle to tap into climate financing was the Clean Development mechanism (CDM). Now other mechanisms being discussed, and Nationally Appropriate Mitigation Actions (NAMAs) are amongst the most promising.
“Nationally appropriate mitigation actions by developing country Parties in the context of sustainable development, supported and enabled by technology, financing and capacity building, in a measurable, reportable and verifiable manner”
The concept of NAMAs is broadly defined, allowing countries a high degree of flexibility in designing and preparing their NAMA programmes.

In many circumstances, NAMAs will likely be a combination of different policies and specific activities implemented as a concerted effort among different stakeholders.

Source: Adapted from UNEP (2012)
As of the end of 2014, 118 NAMAs were proposed and/or are under development worldwide. NAMAs are increasingly gaining interest in the Asian continent, whereas the energy, buildings and waste sectors have been those with the highest number of NAMAs proposed.

**Geographic Scope of NAMAs**

- Africa and Middle East, 23%
- Asia, 27%
- Latin America, 38%
- Europe, 12%

**Sectorial Distribution of NAMAs**

- Energy supply, 42%
- Buildings, 15%
- Waste, 14%
- Transport, 9%
- Industry, 7%
- Forestry, 4%
- Agriculture, 3%
- Multi-sector, 6%

*Source: Ecofys (2014)*
NAMAs imply a shift from the Clean Development Mechanism, especially with regards to the scope and ambition of the mitigation measures.

<table>
<thead>
<tr>
<th>Type of actions</th>
<th>CDM (Clean Development Mechanism)</th>
<th>NAMAs (Nationally Appropriate Mitigation Actions)</th>
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<tbody>
<tr>
<td>Initiator of the activity</td>
<td>Private Sector</td>
<td>National Governments</td>
</tr>
<tr>
<td>Role of national government</td>
<td>The project should be in line with sustainable development in the host country and a letter of approval by the national government is required</td>
<td>The mitigation action is nationally appropriate, and (in principle) acknowledged by governmental registration under the UNFCCC.</td>
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<tr>
<td>Financing of the initiative</td>
<td>Private sector investment.</td>
<td>Domestic resources (“unilateral NAMA”) complemented by international support (“supported NAMA”). Private sector finance could be “co-leveraged”.</td>
</tr>
<tr>
<td>Return on the investment</td>
<td>Carbon credits (CERs), which confirm the GHG emission reductions delivered by the project</td>
<td>Finance, technical support and capacity building from developed countries.</td>
</tr>
<tr>
<td>Conditions of the action</td>
<td>Additionality: GHG emissions must be proved to be additional to any that would occur in the absence of the project</td>
<td>NAMA in the context of sustainable development, aiming at achieving deviations from business-as-usual</td>
</tr>
</tbody>
</table>

Source: Adapted from GIZ (2013)
There are several elements that need to be into account when designing a NAMA programme.

- Deviation from Business-As-Usual
- Alignment with national policies
- Co-benefit approach (sustainable development)
- Measuring, Reporting and Verification

Source: ESCAP, 2014
NAMAs are aimed at achieving a deviation of GHG emissions from “business-as-usual”

Source: Adapted from OECC (2012)
Alignment with national policies (2/4)

NAMAs should be embedded on national development policies and contribute to a transformational change in the host country.

Source: UNEP (2011)
By definition, NAMAs should be framed in the context of sustainable development, i.e. GHG emission reductions should go hand-in-hand with strong co-benefits. For example, a NAMA programme on the waste sector focused on 3R principles and the “waste-to-resource” approach could bring along the following benefits:

**Economic**
- Income derived from the sale of compost, recyclables, energy, etc.
- Reduced costs with landfilling
- Reduced costs with waste transportation to landfill sites

**Social**
- Job creation
- Reduced spread of disease vectors
- Increased awareness of the community to 3R principles

**Environment**
- Reducing of pollution in local communities
- Soil enrichment with the return of nutrients to the soil with the use of compost
- Reduces leachate water in landfills
The key objective of MRV is to track the implementation of policies and actions under the NAMA, while increasing the transparency of mitigation efforts made by developing countries.

The components of MRV

Measure: collect relevant data on the progress and results of the NAMA implemented

Report: communicate the data obtained in a transparent, reliable and standardized manner

Verify: assess the consistency and completeness of the information by an independent process

- NAMAs need to be subject to MRV and this process will be conducted at national level
- The MRV of NAMAs will be prepared by the country under the general guidance of COP
- Internationally supported NAMAs are likely to be subject to stricter MRV requirements than domestically funded NAMAs

Source: LEAD (2013) and UNEP RISO (2013)
The UK/German NAMA Facility has been the most relevant source of international support for piloting and implementing NAMAs. Other vehicles include:

- Green Climate Fund (GCF)
- Bilateral Sources (country-to-country agreements)
- Multilateral Sources (e.g. GEF, developing banks, etc.)
- Market-based mechanisms (including linkages with existing and future carbon markets)
- Pay-for-performance mechanisms to finance methane abatement (in the case of NAMAs involving the reduction of methane emissions)
- Others (e.g. private sector, CSR-led initiatives, etc.)
The waste sector has been of great interest for NAMA development, and ESCAP has been supporting countries in the Asia-Pacific region in the preparation of NAMAs specifically for this sector.

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<tr>
<th>Country</th>
<th>NAMA Programme on Waste</th>
<th>National focal point</th>
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<tr>
<td>Viet Nam</td>
<td>▪ The programme will support the promotion of 3R principles in Viet Nam and the diversion of waste from the “end-of-the pipe” with the adoption and mainstreaming of the “waste-to-resource” approach nation-wide.</td>
<td>▪ Institute of Meteorology, Hydrology and the Environment (IMHEN)</td>
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<td>Pakistan</td>
<td>▪ A NAMA proposal aimed at promoting the conversion of waste into energy is currently being expanded to include other measures that are supportive of a broader “waste-to-resource” approach in Pakistan.</td>
<td>▪ Climate Change Division of Pakistan (CCD) and Alternative Energy Development Board (AEDB)</td>
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<tr>
<td>Bangladesh</td>
<td>▪ A multi-technology CDM PoA for the waste sector was prepared, which is serving as a basis for a NAMA programme in Bangladesh</td>
<td>▪ Ministry of Environment and Forest (MOEF)</td>
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Main elements of the NAMA programme:

- Promotion of 3R principles and the improvement of waste collection services in cities in Viet Nam
- Focus on the diversion of waste from landfills and solutions that privilege the biological treatment of organic waste, as well as the recycling and reuse of inorganic waste
- Transformational NAMA which will support ambitious national targets and strategies that are lag in terms of implementation
- The NAMA will consist of a combination of a domestic (unilateral) and internationally supported initiatives
- The Integrated Resource Recovery Center (IRRC) model that ESCAP has been promoting in the Asia-Pacific region has been the starting point and inspiration for this NAMA programme
IMHEN, with the support of ESCAP, is preparing a NAMA-design study, which will define the key elements of the NAMA and lay out the foundations for implementing the programme on the ground.

- **NAMA Design**
  - (Jan 2014 – August 2015)
  - Elaboration of a detailed NAMA-design study
  - Conduct of two stakeholder consultation workshops
  - Identification of pilot projects

- **Piloting**
  - (Sep 2015 – Dec 2016)
  - Implement pilot projects in cities across Viet Nam (2 pilot projects envisaged)
  - Capacity building for stakeholders on waste management practices and the NAMA arrangements

- **NAMA up-scaling**
  - (Jan 2017 – Dec 2020)
  - Full deployment of the NAMA programme throughout cities in Viet Nam
Concluding remarks

• NAMAs are increasingly recognized by policymakers as an important tool to support transformational change on key economic sectors, while contributing to climate change mitigation and strong sustainable development benefits.

• NAMAs are gradually moving from concept to implementation, with an increasing interest of international funders/donors in channeling climate support through the NAMA framework.

• Linking Pilisaru programme with the NAMA framework offers the opportunity to address implementation barriers, especially with regards to capacity building, technology transfer and finance.
Thank you for the attention!

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