NAMAs on Waste Management: Barriers to implement a NAMA

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Barrier identification and analysis - importance

- There are several factors or barriers hampering the development of sustainable MSWMSs in developing countries.

  NAMAs require analyses of these barriers in order to develop appropriate strategies and measures to enable governments to overcome them.

Barriers´ classification

- Barriers can be identified:
  - ✓ At the operational level (collection, recycling, etc.)
  - ✓ At the management / policy level

  The barriers may vary in consonance with the local context, however, they can be primarily grouped into: social, technical, economical, institutional, and political/legal barriers

Institutional barriers

- ✓ Related to local authorities and their lack of organisational capacities and managerial skills (leadership), parallel structures and confusion regarding their delineation and distribution.
- ✓ Lack of skilled professionals in MSWM positions
- ✓ There is no cooperation in know how transfer from private to public sector
- ✓ Local authorities do not have enough knowledge about technologies and good practices on waste management
- ✓ This causes the loss of many synergy opportunities and cost-effective alternatives for MSWMSs

Policy and legal barriers

- ✓ Absence of adequate policies and lack of clear legislation, not allowing local authorities and other stakeholders to interpret and implement them properly.
- ✓ Confusion of roles and responsibilities of the relevant national agencies, and lack of coordination.
- ✓ Furthermore, there is a lack of verification and enforcement mechanisms (mechanisms of control and sanctions are not often applied, thereby limiting their effectiveness)

Economic and finance barriers:

- ✓ Inefficient cost structures, unwillingness or inability to pay for services, budget constraints (lack of economic support from the central government, weak strategies for raising funds from the citizens, and bad economic and financial planning)
- ✓ Untapped revenue streams in the informal sector.
- ✓ In about 77% of cases, the economic and finance factors act as a development barrier for cities in developing countries

Social and behavioural barriers

- ✓ Economic survival (focus on keeping basic living conditions) may come before environmental concerns
- ✓ Unwillingness to pay for services (taking services for granted)
- ✓ The lack of educational and awareness or non-participation in waste separation activities
- ✓ Social tensions among economic classes between the formal and informal sector
- ✓ Waste management might be associated to low status and considered as non-desirable topic

Technical barriers

- Deficient waste equipment and structures (waste transfer stations, old waste vehicles), poor roads, etc.

  Related to capacity:

  lack of personnel with technical expertise on solid waste management planning and operation

  Lack of technical understanding regarding technologies that are suitable for the local operational conditions -- such as waste characteristics, waste amounts, types, etc.

  Unreliable/old data

  Lack of information-sharing between stakeholders regarding technical issues.

Intervention areas for overcoming barriers: from the policy to the operational level

- **Inclusive strategy**: the solutions to overcome barriers should be developed in consultation with all the important stakeholders (formal and informal), securing their involvement and compliance, addressing eventual concerns, facilitating the development and implementation of the NAMA and informing all stakeholders of the change, and taking into consideration the country-related context.

Measures may be applied individually or in different combinations: aiming at using synergies for dealing with key environmental, social and economic problems. The NAMA would fill the gaps regarding institutional roles and organisation, defining the roles of all stakeholders, as well as addressing the need of technical capacity building

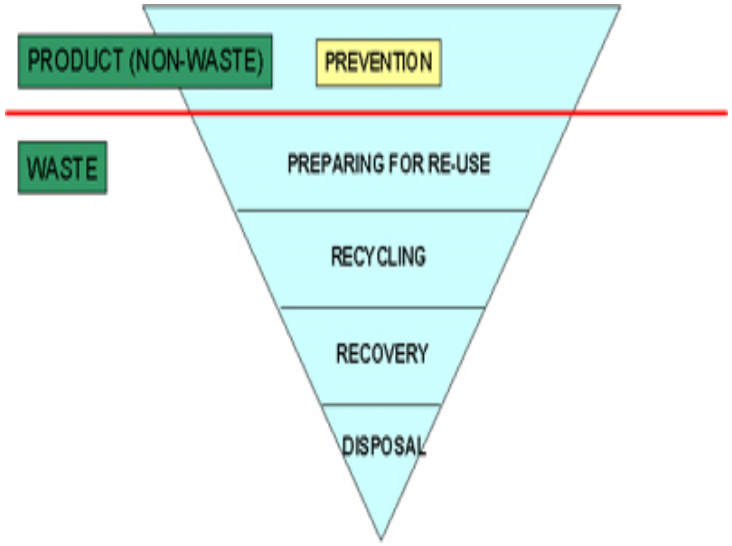
Long-term sustainable goals: a NAMA should support waste policies with long-term sustainable goals, leading to transformational changes towards low-carbon pathways in the waste sector. Such fundamental shifts are most likely to succeed if supported by policy or regulatory initiatives.

Policy and legal measures - examples

- ✓ **National goal of increasing waste collection and recycling rates**. In Asia, Philippines, Japan, and Thailand have included in their waste policies specific goals in relation to waste amount diverted from landfills, waste prevention and reduction of packaging waste (UNEP-RRCAP, 2010; Pariatamby et al., 2013).
- ✓ **Favourable national policies, regulations, political support, law enforcement.** The Brazilian and Peruvian legal frameworks on waste prohibits waste dumping, while compel municipal governments to develop and implement SWM plans that include recycling programmes (with formalization of informal recyclers) and sorting-at-the-source programs
- ✓ **National policy supporting waste prevention strategies**, such as eco-efficiency: packaging reduction, producer responsibility
- ✓ **Valorization, recycling, and financial support schemes for waste services.** Some examples of their inclusion in national legal frameworks can be found in Brazil, Mexico, and Peru
- ✓ **Promotion of community engagement in local waste management systems**. There are some examples of successful public participation in MSWMSs developing countries, such as in Brazil, India, and the Philippines, where national policies and legal frameworks support these initiatives

Basic principle of sustainable waste policies: the 3 R´s hierarchy

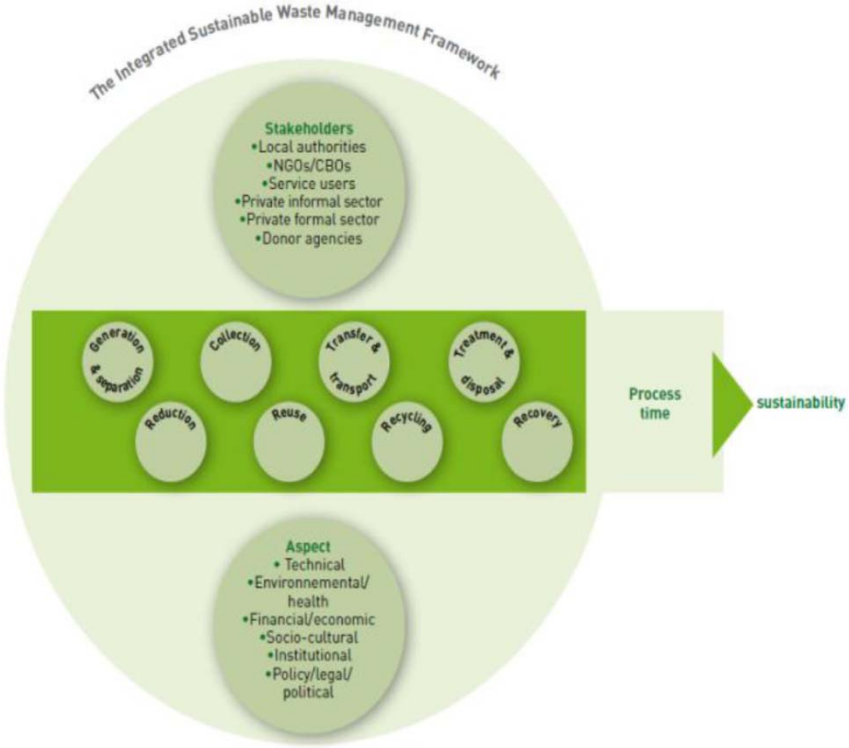
- ✓ Abbreviated version of this hierarchy, used as a communication tool, refers to the "3Rs", in order of preference, as: reduce, reuse and recycle (UNEP, 2013).
- ✓ It is the central pillar of many waste policies
- ✓ It outlines the order of preference of waste management practices towards more sustainable waste systems.
- ✓ It indicates waste reduction/waste prevention as the most sustainable waste management approach, aiming to decouple waste generation from economic growth
- ✓ A more extended version applies five levels: prevention, reuse, recycling, recovery (e.g. energy recovery), and disposal (EU directive 2008/98/EC).



Waste management hierarchy

Integrated Solid Waste Management (ISWM)

- ✓ Measures for tackling key barriers can be implemented under specific waste management approaches, such as the often-applied "Integrated Sustainable Waste Management (ISWM)
- ✓ This approach focuses not only on improving operational aspects (waste collection, transport and disposal), but also on stakeholder participation, waste prevention, and resource recovery measures - including synergies and interaction at different levels, such as neighbourhoods, cities, etc.
- ✓ ISWM goes beyond the technical level.
- ✓ It focuses on the integration of political and social factors, as well as other interrelated processes into the waste strategy, which makes it a tool that fits well with the general broad scope of NAMAs.



Case study on ISWM: decentralised service delivery in Nakuru, Kenya

Problem

- ✓ Waste generation: 250 tonnes of waste/day
- ✓ Collection rate: 30% (of the generated waste).
- ✓ Management: municipal (resources for serving just the Central Business District and some high-income residential areas)
- ✓ Some participation of private companies: just collection from high-income areas (activities not regulated)
- ✓ In low-income neighbourhoods, waste was either dumped in the streets, or collected by a few informal recyclers.
- ✓ Almost no recycling and informal at open dumps and in streets

Measures

- ✓ In 2006: new environmental management by-laws: allowing decentralised service delivery for municipal waste collection, transport and final disposal at the municipal refuse site.
- ✓ 3 categories for waste service providers: community-based organisations, private waste handlers, and municipal council services.
- ✓ Capacity building and awareness to ensure compliance by residents and the licensed organisations
- ✓ Development of waste service approaches according to the local market conditions.
- ✓ Stakeholders involved: municipality as a regulation actor, the Nakuru Housing and Environmental Cooperative Society (NAHECO), the Community Savings and Credit Cooperative (SACCO) for provision of small-scale investment funds for waste enterprises, and the Family Bank (a local bank for higher investments financing waste enterprises).

Results

- ✓ Increase of the waste collection rate from 30% to 64% due to the creation of 24 waste service providers (community-based organisations and private waste enterprises)
- ✓ Increase of the recycling rate to 19% of the total generated waste
- ✓ Effective application of the "user pay principle", where households and institutions pay fees for collection services directly to the service provider, supporting the economic sustainability of the decentralised service, unlike before when the service was free through the municipality
- ✓ The municipality plays only a monitoring role, while local waste enterprises provide the service, meaning reduction of waste management costs
- ✓ Sustainable development of the community through creation of local added value

Further measures… integration of the informal sector

Implementation targeting to improve waste management systems and transform them into more socially inclusive systems. Some examples of successful experiences can be found in Mumbai (India), Manila (the Philippines), Londrina and Diadema (Brazil), Bogota (Colombia), Cañete (Peru), among others (Wilson et al., 2009; UN-HABITAT 2010; Gutberlet, 2011; Mahadevia et al. 2005; Terraza and Sturzenegger 2010).

The experience in Londrina, Brasil:

Londrina is a city in Parana, Brazil and has a population of approximately 500,000 inhabitants.

- ✓ In 2001, the municipal system changed by allowing informal recyclers to participate in the waste management system as a formal stakeholder, implementing a remuneration system for the separate waste collection done by the recyclers based on the served area and not on the mass (tonnes) of collected total waste.
- ✓ By the year 2009 there were 33 associations working and representing 400 recyclers – with a female participation of 80%.
- ✓ In 2011 this participation increased to 500 formalized recyclers
- ✓ In order to strengthen the bargaining position of the recyclers' associations and to achieve better material sale prices, a main storage and sales centre was created.

Formalization: case study in Londrina, Brazil

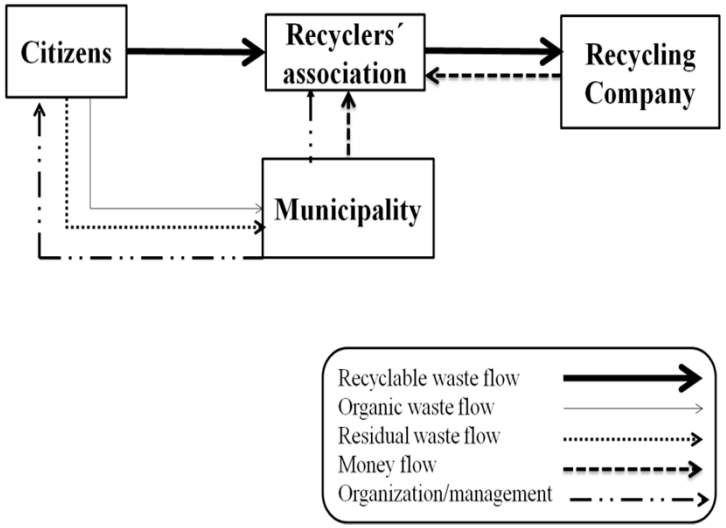
Some environmental benefits are:

- the reduction of landfill volume, resources recovery through recycling, etc.
- Increase of %recycling rate: 274 t of recycled materials/month, recovering about 26.6% of the household waste.

Some positive social impacts include: improvement of living and working conditions for recyclers, achievement of their economic stability and empowerment: higher sales prices and higher average incomes have been achieved (230 USD/month).

Some positive economic impacts:

Waste management costs for the residual waste has been reduced due to the increase of the separate collected waste volumes -- from 42 USD/tonne collected waste in 2001, to 24 USD/tonne collected waste in 2003.



Institutional measures

- ✓ Capacity building moving towards improving organisational capacities and managerial skills (leadership).
- ✓ Establishment of clear organisational structures, coordination and communication channels and procedures among public institutions of the waste sector and others related.
- ✓ Clear definition of tasks and responsibilities, and interaction across the waste public sector, in order to avoid confusion.

Economic and finance measures

- ✓ Integration of the private sector (formal and informal) in the operation of waste services, as a tool for improving the efficiency of MSWMSs and reducing management costs.
- ✓ Rethinking of waste tariff systems adapted to the local contexts and needs (for example, adapted to income levels, type or user, amount of waste, setting fees with assistance of community organisations, etc.).
- ✓ Reorganisation of fee collection mechanisms, for example, by operators or respected community members rather than by the government.
- ✓ Community involvement as a way for financing waste services in marginal areas in developing countries. For example, the participation of citizens in performing waste services voluntarily. This way, the cost of waste services can be kept at an affordable level.
- ✓ Another option would be to encourage citizens to form local micro-enterprises for providing waste services. Under this scheme, the residents of the area served by the micro-enterprises would pay the collection costs.
- ✓ Development of local and national recycling markets. The valorisation of recyclable materials would be one way to create a sustainable strong economic and social basis for MSWMSs.

Social and behavioural measures:

- ✓ Raising public awareness regarding information and education campaigns for citizens.
- ✓ Training and empowerment of formalized recyclers.

Technical and capacity measures

- ✓ Implementation of separation at source system.
- ✓ Use of appropriate local technologies for waste treatment.
- ✓ Upgrading of landfills and elimination of dumping sites.
- ✓ Assessing and documenting existing SWM systems, accurate data collection.
- ✓ Technical/operational requirements: access to adequate sorting spaces, infrastructure, topography considerations, improve quality of secondary raw materials.

Group work: barrier analysis/creating solutions

Identify a reporter

1. Describe and analyze current situation and problematic of the sector (what is happening?
2. What is the desired situation?
3. Identify barriers to a more sustainable WM system (what is causing these problems?)
4. Identify and describe measures that could remove barriers (enablers)
5. Identification of stakeholders responsible for the action, what they should do? , how?, synergies? interactions? institutional arrangements?
6. Considering this for the NAMA, including planning of implementation of measures, time, resources, performance indicators, etc.

Questions & Discussion

Thank you!

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