



NAMAs on Waste Management: Financing the NAMA activities: Mapping and (re)structuring the value chain and revenue streams

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NAMA training
Maputo, Mozambique - Sep
2015

Key aspects

- ✓ NAMA financing **cannot be thought of in isolation** – it must integrate with waste policies, institutional structures, stakeholders' roles, and current budgets
- ✓ The financing aspects of a NAMA are central to its design and should be considered at the **earliest stages** of the NAMA development.
- ✓ NAMA should be based on a **sustainable long-term finance** strategy for MSWMSs, considering the local socioeconomic context
- ✓ The finance scheme of a NAMA should address the main economic challenges of the waste sector, and offer **long lasting finance solutions** that go **beyond the implementation** phase of the NAMA, creating the **right economic incentives**, which can be **self-sustainable** so stakeholders act, and continue acting, in the way that fulfils the scope of the NAMA
- ✓ Funding strategies for NAMAs should not solely rely on grants or donations because **transformational changes assume a permanent shift in the financing model**. This may be achieved by attracting long term sources of funding, permanent shifts in financing priorities, or bridge financing in anticipation of future savings or changes in market conditions.

Domestic financing (public and private)

- ✓ It includes budgetary support from public institutions, as well as private sector investment.
- ✓ The following stakeholders may be included:
 - Central and local government (such as Ministry of Finance, Ministry of Environment, municipalities)
 - Private sector: waste management companies (service providers) and/or companies with high energy consumption (in cases of waste to energy projects), banks and other financial service institutions
- ✓ They can contribute to the design and choice of domestic policies, economic instruments, and financial vehicles (loans, grants, rebates or capital investments)

In Mexico...

Through the National Chamber of Cement (CANACEM), the Mexican cement industry signed a NAMA to voluntarily reduce their emissions of CO₂ and achieve a 19% reduction of emissions as an industry for the period 2010 to 2030. This includes the use of waste as Refuse-Derived Fuel (RDF) for cogeneration and cement production.

<http://www.holcim.com.mx/medios-de-comunicacion/ultima-edicion/latest-release/article/semarnat-and-cespedes-recognize-holcim-mexico-programs-for-reducing-greenhouse-gases-1.html>

The case of Dhaka, Bangladesh

- Domestic financing is typically already available (on-going waste activities). This provides a opportunity to attract additional international funding to expand and improve MSWM services, setting framework more attractive to private investment

In 2006 a PPP project joined the domestic public sector (Dhaka City Corporation), domestic private sector, and international funding, aiming at reducing CO₂ emissions through composting of organic waste.

Total investment: EUR 12 million,
distributed as follows:

- ✓ 38% as equity,
- ✓ 17% as local loan from a local bank in Bangladesh,
- ✓ 45% as soft loan from two Dutch banks

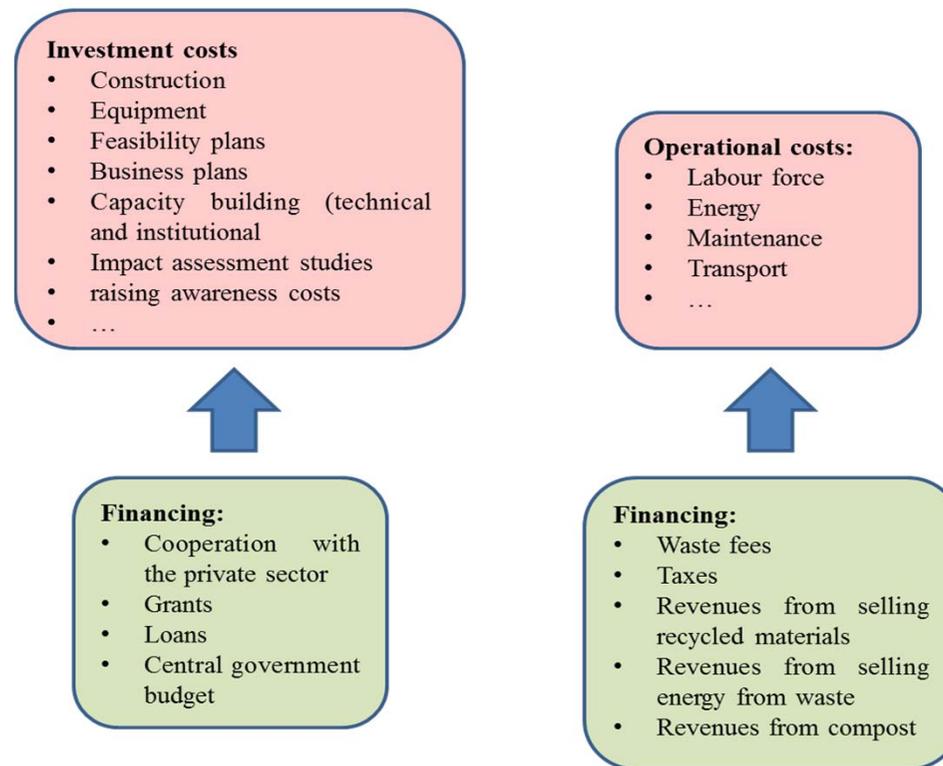
International funding

- ✓ Typically, international funding for NAMAs has focused on supporting readiness activities, such as institutional capacity building and preparation of concept notes, through either bilateral or multilateral programmes
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- ✓ Examples of international partnerships, aiming at building knowledge and share views are the International Partnership on Mitigation and MRV (<http://mitigationpartnership.net/>) and the NAMA Partnership (<http://www.namapartnership.org/>).
- ✓ The NEFCO (Nordic Environment Finance Corporation) finance the development of NAMA concepts, supported and enabled by technology, financing, capacity building and market readiness. NEFCO is supporting the development of a NAMA on Waste in Peru.
- ✓ Dedicated initiatives and sources for funding NAMA implementations are emerging, such as the NAMA Facility and the Green Climate Fund
- ✓ Similar to domestic finance, international finance is also focused largely on risks and barriers
- ✓ In particular donors, tend to focus on transformational change and increased impact (maximizing GHG reductions for mitigation actions while also positively influencing other impact co-benefits)
- ✓ As such, MSWM **projects with ambitious mitigation goals tend to more easily attract international support**, since they often generate positive impacts on different national strategic goals, such as energy efficiency, renewable energy, waste management, low-carbon development, among others.

Sustainable financing approaches for NAMAs on MSWM in developing countries

- ✓ Implementing a NAMA on MSWM may imply **high initial investments**: e.g. feasibility studies, business plans, technical consultancy, impact assessment studies, implementation costs, facility construction, land availability, creation of market conditions (e.g. recycling and energy markets), capacity building and raising awareness activities.
- ✓ After, implementation phase, MSWM projects included in a NAMA will generate **operational costs** related to their daily activities, such as: labour force, energy, transport, and maintenance, among others. **Therefore, MSWM projects should be planned considering sustainable financing and cost recovery measures.**
- ✓ In order to create sustainable finance schemes that considers investment and operational costs, NAMA developers should **include key stakeholders** from the early stages of the NAMA planning.
- ✓ The finance strategy should be:
 - ✓ **Appropriated to the local socioeconomic context**
 - ✓ **Based on the stakeholders' capacities**, as a local resource for developing an autonomous sustainable system. It should consider the roles of each stakeholder (formal and informal sectors) and be based on their strengths and synergy

Costs associated with Waste Management and possible funding options



Funding of operational costs - Problems

- ✓ Municipalities may cover operational costs through: municipal or property taxes, waste fees, using funds from the central government or a combination of these three. E.g. the waste fee collection in Latin America and the Caribbean (LAC) is performed mainly through property tax, electric bill, potable water and sewage bill, and direct bill to the user.
- ✓ Waste fees may be either fixed (equal for all properties in the municipality) or differentiated according to the property type.
- ✓ Problem related to these approaches are: the absence of pricing criteria for waste services, low invoice coverage, low willingness of citizens to pay waste service or accept increases of waste fees, and lack of knowledge and out of date information about the real and hidden waste cost streams, and waste quantities
- ✓ Municipalities using property tax for pricing and collecting waste fees are commonly faced with old cadastral data referring the property value, not reflecting the real cost of waste collection, treatment and disposal. Here, there is no reason for users to reduce the waste generated.
- ✓ Some municipalities calculate waste fees based only on collection and street cleaning services --excluding other activities-- or even calculate waste fees based on old historical data, or distribute the total budget to be covered among citizens.
- ✓ In addition to incorrect calculation criteria for waste fees, municipalities often overestimate the payment capacity of citizens due to the lack of knowledge about their economic situation.

Funding of operational costs - options

- ✓ Important principle: to link the amount of waste generated with the real costs of waste services. The main basis of full recovery of waste management costs is a **correct pricing of waste services, instead of depending on donations or external funds**.
- ✓ Waste fees may be included in utility bills in order to improve fees collection (using service providers' invoicing systems already in place), reducing administration costs.
- ✓ Involving the citizens in performing waste activities within their neighbourhoods. Citizens can organise into CBOs (Community Based Organisations), proceeding in different ways: participating directly in separation at source activities, waste collection, recycling, and disposal -and profiting from recycled materials- or sub-contracting waste recyclers associations (formalized private sector) for performing one or more waste services.
- ✓ This could reduce significantly municipal waste management costs, especially in the collection and final disposal phases.
- ✓ CBOs and formalization of recyclers also reduce the institutional burden and administration costs
- ✓ There are a number of cities that have implemented the CBO-based approach: Mumbai, India, for composting and recycling; Moshi, in Tanzania, where CBOs provide basic collection and sweeping services in the low-income or peri-urban areas

Pricing	Fee collection
Detailed cost - benefit analysis, considering also possible benefits and revenues from waste-related activities (user fees, sales revenues from recycled materials, etc.)	Socioeconomic situation (ability to pay) and to which extent the service is used (e.g. companies, hotels, etc.)
Appropriated to the socioeconomic situation (ability to pay) and to which extent the service is used (e.g. companies, hotels, etc.)	Possibility of integration of waste taxes in utility bills (electricity, water, etc.)
Real estimation of waste quantities, waste types, and quantification according to treatment	Willingness to pay and motivation
% waste collection rate and served areas	% waste collection rate and served areas



Some potential benefits of adopting this approach are:

- ✓ Involving citizens in solving their waste management problems and raising awareness regarding their role in the creation of sustainable waste services
- ✓ Increasing social inclusion and creation of communal solidarity
- ✓ Creating jobs
- ✓ Creating self-sufficient communities
- ✓ Know-how transfer to communities through technical support from municipalities, NGOs
- ✓ Creating communal added value
- ✓ Enhancing mutual cooperation between local authorities and stakeholders of the waste system (community, private formal and informal sector, NGOs, academia, etc.)

A further alternative for funding of operational costs of MSWM would be **to assign the management and operation to the private sector, which may be large and highly capitalised or small**, for example, associated recyclers, contracted for providing primary collection, composting or recycling. In such cases, the municipality keeps its role of monitoring the system, but further management and operational activities, such as invoicing, fee collection, and planning of routes, are delegated to private waste companies.

Private sector financing

- ✓ NAMA projects on MSWM can represent attractive investment opportunities for both domestic and foreign private companies, **if they are profitable.**
- ✓ The private sector may help to reduce administrative and finance burdens for local governments. It can also absorb high investments related to machinery and construction of waste facilities, and contributes with technical and managerial know-how transfer to local governments and further stakeholders.
- ✓ Including the private sector in waste management activities represents an interesting approach towards a sustainable self-finance scheme for NAMAs on MSWM.
- ✓ Private sector intervention, however, would require a financial structuring that allows a return on the investment. For example, companies with high energy consumption would enter into contracts that allow them to invest in energy recovery from waste (e.g. cement kilns) and finance it through the savings on the energy bill coming from replacing their energy source with renewable energy from waste. The private sector only invests if the risk/return ratio is acceptable, therefore, its involvement in the waste management system may **require public sector intervention that reduces risks and barriers, or increases returns.**

Main basic mechanisms to involve the private sector

4 main mechanisms: contracting, concession, franchising, and private subscription or open competition:

- **Contracting:** Here, private companies perform only the activities that were previously tendered by the municipality, and contracts are limited to a certain period of time. Private companies are paid for service delivery by the government under the terms of the contract. For instance, Bahir Da, Ethiopia, has implemented contracting as a main mechanism to operate waste management systems. Further examples are: La Paz, Bolivia; Bangkok, Thailand; and Jakarta, Indonesia.

Concession: allows the private sector to build and operate waste facilities --e.g. landfills, recycling plants, composting plants, etc. for their own benefit and for a period of time. Normally the facility ownership is transferred to the city for further operation. Here, it is expected that the company recovers its investment from fees charged to users or from selling recyclable materials. This mechanism allows local governments to finance high investment projects, which otherwise would not be possible. Some examples of concessions can be found in Riga, Latvia; Surabaya, Indonesia; Trivandrum, India; Argentina and Brazil; and Dhaka, Bangladesh.

- Franchise:** limited time period and zonal area monopoly to a private company for performing solid waste service. Here, private companies pay a license fee to cover the government's costs of monitoring, and profit through direct charges to the households that are served. The city of Bangkok, Thailand, is an example of a franchise-based recycling
- (Pumpinyo and Nitivattananon, 2014). In Lusaka, Zambia, community-based organisations (CBOs) contract private waste companies using microfranchising of primary waste collection.

Open competition: where companies are competing with each other to gain and subscribe more individual clients for waste services. For private companies, this scheme means the need for having private arrangements with each household. No firm holds a zonal monopoly, and any number of firms may compete within the same zone. Some cities with this scheme are Nairobi, Kenya, and Kumasi, Ghana.

Funding of investment costs

- ✓ Local governments may finance them through different sources, depending on their national context, institutional and budgetary arrangements.
- ✓ e.g. central government budget, grants, donations, banks with special lines of credit for waste management facilities, etc.
- ✓ In recent years the participation of the private sector has become stronger in many cities in developing countries.
- ✓ One of these cities is Dhaka, in Bangladesh, where a composting plant treats 700 tonnes of organic waste per day. This plant was constructed in 2006 as a result of a PPP agreement between the Dhaka City Corporation and WWR Bio Fertilizer Bangladesh (UN-HABITAT, 2010).



Compost plant Dhaka Project (UN - HABITAT, 2010)

Financing investment costs: PPP in Dhaka, Bangladesh

Problem:

waste generation: 3,500 tonnes/day, of which 80% is organic.
 Collection rate: 50% . As a result, uncollected waste is piled up on the roadsides or dumped in open drains and low-lying areas, deteriorating the environment and the quality of life in the city.

Description of the project:

Implementation of a house-to-house waste collection system and a collection of waste from vegetable markets. Household and market refuse are taken to a community-based composting plant where it is turned into organic fertiliser. The planned total capacity is 700 tonnes/day of organic waste.

Stakeholders (in a 15 years - concession):

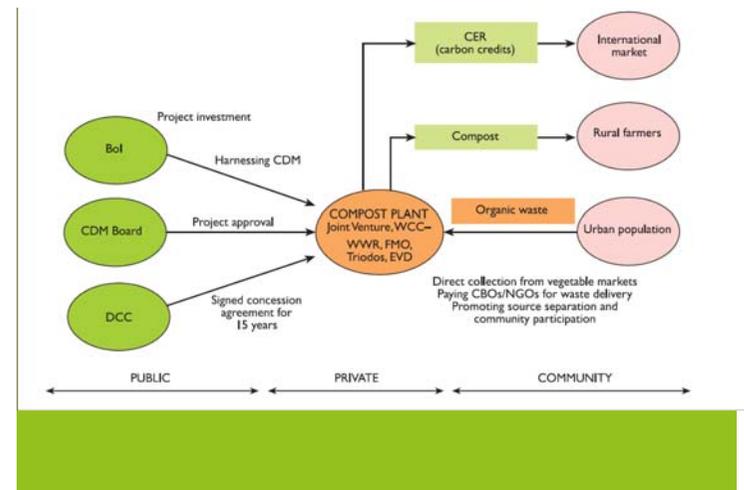
WWR Bio Fertilizer (joint venture company of Waste Concern and World Wide Recycling BV, a Dutch company)
 Dhaka City Corporation (DCC)

Total investment:

EUR 12 million: 38% financed as equity, 45% financed through a soft loan from FMO Bank and Triodos Bank (Dutch Banks), and 17% loan from a local bank in Bangladesh.

Impacts:

- ✓ Expansion of the organic fertiliser industry
- ✓ Job creation for poor urban residents in waste collection and processing
- ✓ Stimulation of behaviour changes in urban communities, a newfound appreciation for the value of waste as a resource
- ✓ Reduction of soil pollution and increase of soil fertility, due to the use of synthetic fertilisers and pesticides
- ✓ Reduction of greenhouse gases, and inclusion of composting and recycling in the National Safe Water and Sanitation Policy



Financing operative and investment costs: the case of the NAMA in Colombia

Problem: waste tariff system

The current waste handling tariff in Colombia was designed with a bias toward waste disposal in landfills, constituting 55% of the revenue of landfill sites.

- Private and public operators were more prone to send their waste to landfills instead investing alternative treatment facilities.

Proposed solution:

A reform of the tariff is central for the NAMA's financial viability. In addition to a tariff reform, additional funding is required to kick-start investments in new waste handling facilities.

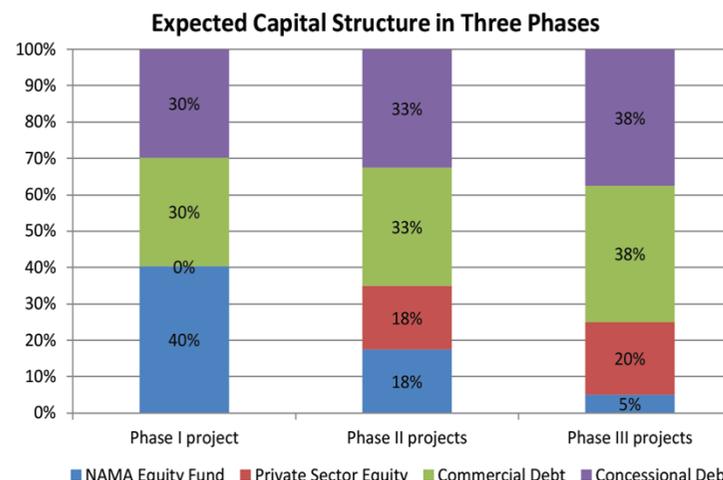
Colombian NAMA Equity Fund:

It has been proposed to finance MBT (mechanic biological treatment) facilities to facilitate their financial feasibility and reduce the risk perception of the private sector through demonstration. The Colombian government can provide grants up to 20% of total construction and operating cost of the project. Commercial banks could be willing to lend up to 70% of total project capitalization, and the envisioned Fund for the NAMA will provide equity funds. It is expected that the Fund would need to be capitalized up to USD 40 million over a three-year period (2014–2016).

Total investment:

Approximately EUR 134 million, a combination of funds from regional environmental authorities, municipalities, utilities, private sector equity capital, commercial debt and concessional debt. It is expected that the private sector will provide both equity and debt financing.

The Fund's equity contribution to the different NAMA phases will decline over time, as the private sector becomes more confident with the MBT technology.



Group work: Mapping of finance structure, gaps and opportunities

Identify a reporter

- 1. Describe and analyze current situation and finance problematic
 2. Identify potential solutions/opportunities in the current finance/economic structure (for investment and operational costs)
 3. Proposing changes (top, bottom level), describe solutions to cover financing gaps

- # Questions & Discussion





Thank you!

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