



**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

 **PROSPERIDAD  
PARA TODOS**

# Development of Integrated Solid Waste Management NAMA in Colombia

GMI Side Event: Waste NAMAs in Latin America

Vancouver, March 13 2013



# Contents

1. Colombian ISWM NAMA Development Process
2. Phase I “Scoping Study”
3. Draft NAMA
4. Phase II “Designing a comprehensive NAMA”
5. Preliminary results
6. Bringing to finish line
7. Lessons Learned and Conclusions
8. Questions?



**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

**PROSPERIDAD  
PARA TODOS**

# Colombian ISWM NAMA development process

- ❖ Cooperation funding from Environment Canada.
- ❖ Launch (*March 2012*):
  - Organized sector-wide workshop March 2012 & formed Steering Committee with national government entities to guide NAMA development process.



MinAmbiente  
Ministerio de Ambiente  
y Desarrollo Sostenible

PROSPERIDAD  
PARA TODOS

# Colombian ISWM NAMA development process

- ❖ Cooperation funding from Environment Canada.
- ❖ Launch (*March 2012*):
  - Organized sector-wide workshop March 2012 & formed Steering Committee with national government entities to guide NAMA development process.
- ❖ Phase 1: “Scoping Study” (*April 2012 – September 2012*)
  - CCAP ranked various technologies.
  - economic feasibility and abatement potential.
  - Identification of those viable in Colombian context.
  - Barriers were identified.
- ❖ Phase 2: “Comprehensive NAMA design approach” (*October 2012 – March 2013*)
  - CCAP and consultants performed 6 studies to provide in-depth analytical foundation for NAMA design.



**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

**PROSPERIDAD  
PARA TODOS**

## Phase I: “Scoping study” (I)

- ❖ CCAP organized workshop in October 2012: present to the Steering Committee results of the “scoping study”.
- ❖ Steering Committee eliminated technologies such as incinerators and biodigestors.
- ❖ Steering Committee chose technologies for second phase:
  - Mechanical-Biological Treatment (MBT)
    - Production of Refuse-derived Fuel (RDF).
    - Production of compost or recyclables.
  - Biogas-to-energy.



**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

**PROSPERIDAD  
PARA TODOS**

## Phase I: “Scoping study” (II)

### ❖ Barriers identified:

- outdated regulations (lack of incentives and policy measures),
- lack of feasibility studies,
- uncertainty and weakness in recyclables market,
- challenges in formalizing informal waste collectors.





**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

**PROSPERIDAD  
PARA TODOS**

# Phase I: Colombian solid waste sector - lessons learnt. (I)

- ❖ High amount (94%) of MSW being successfully sent to sanitary LFs.
- ❖ Well developed private sector presence in MSW management.



**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

**PROSPERIDAD  
PARA TODOS**

# Phase I: Colombian solid waste sector - lessons learnt. (I)

- ❖ High amount (94%) of MSW being successfully sent to sanitary LFs.
- ❖ Well developed private sector presence in MSW management.
- ❖ Solid waste operators are paid using nationally set tariff rules which are skewed towards promoting LFs.
- ❖ Currently tariff rules allow for paying for recycling activities limited to collection and transport of recyclables and not for treatment or transformative technologies.





**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

**PROSPERIDAD  
PARA TODOS**

# Phase I: Colombian solid waste sector - lessons learnt. (II)

- ❖ The Colombian supreme court has instructed city and national government to recognize role of informal sector in MSW management.
- ❖ Increasing public awareness about environmental impacts of LFs and GHGs creates opportunity for ISWM NAMA.



## Draft NAMA considered after Phase I

- ❖ The Government of Colombia will aim to reduce \_\_\_% through unilateral actions and up to \_\_\_% through supported actions
- ❖ by 2020 from its solid waste sector
- ❖ by undertaking integrated solid waste management programs that could include actions such
  - as diverting organics from landfills (thereby reducing methane emissions as part of landfill gas),
  - increasing recycling (thereby reducing indirect emissions by avoided production of recyclable material),
  - compost usage (leading to less use of artificial fertilizers),
  - generating refuse-derived fuel (thereby displacing conventional fossil fuel use) and
  - alternative uses of landfill gas.

Emission reduction targets and timeline

Actions that lead to direct or indirect reductions emission from a baseline activity/process



## Draft NAMA considered after Phase I

- To implement these unilateral actions, the Colombian is requesting the international contributing community up to \$\_\_\_ Mn in the form of grants, concessional loans, credit guarantees and technology transfer in order to meet the supported NAMA target.
- The average \$ per ton of CO<sub>2</sub>e spent on supported measures will be approximately \$\_\_\_/CO<sub>2</sub>e.

Indication of NAMA financing required from supporting countries

Indicator of cost of achieving emission reduction



**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

**PROSPERIDAD  
PARA TODOS**

# Phase II “Comprehensive NAMA design”: List of studies

Study	Objective
Regulatory reform	Amend existing regulations to encourage next generation waste management technologies Suggest new regulations to encourage recycling, use of RDF and compost etc.
Feasibility studies for MBT and LFG-to-energy projects [Cali & Barranquilla]	To analyze economic cost of selected technologies to design appropriate tariffs and for design financing structures
Study of recyclables and compost markets	To identify growth opportunities and policy recommendations for strengthening of markets
Study for formulating strategies for formalizing informal sector	To identify job creation and sector formalization opportunities in NAMA
NAMA financial structure	To provide pvt. sector and multilateral finance institutions with investment opportunities



**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

**PROSPERIDAD  
PARA TODOS**

## Preliminary results – Regulatory reform

- ❖ The Steering Committee has made a joint submission to the government requesting for inclusion of technologies such as MBT facilities as technologies eligible for receiving tariffs
  - Currently submission is being made for tariff authority that develops a methodology for ascribing tariffs to management technologies apart from LFs
- ❖ Such modifications should be made during 2013 there creating a level playing field between LF and other tech
- ❖ Further technical studies are required to write regulations about technical standards and monitoring of such technologies



## Preliminary results – MBT feasibility study

- ❖ MBT facilities when receiving large quantities of waste and have an anchor client for RDF have a viable business model
- ❖ For e.g. Analysis for Cali shows following results (Only recyclable revenue from aluminum and steel cans)

Revenue type	Unit price	Client	Notes
Tariff/tipping fee	\$12/ton of incoming waste	Municipality of Cali	Current tariffs for LF are \$12/ton
Sale of RDF	\$3.83/MBTU	Privately owned AAA-rated cement company	CIF for coal \$4.15/MBTU

- ❖ Results show that such a facility can compete with LFs for the city and be a cheaper fuel source for industry



MinAmbiente  
Ministerio de Ambiente  
y Desarrollo Sostenible

PROSPERIDAD  
PARA TODOS

## Preliminary results – Market study

### ❖ Market study

- Recycling through informal and formal sector is quite high for commodities such as paper, cardboard and metals.
- Growth for above sectors will be linked to overall GDP growth
- Greater potential exists for glass and plastics but such growth depends on availability of technologies for converting plastic in to pellets etc.
- Govt. could focus on export of recyclable material and creating markets through regulation for commodities such as RDF and compost



**MinAmbiente**  
Ministerio de Ambiente  
y Desarrollo Sostenible

 **PROSPERIDAD  
PARA TODOS**

# Thank you

Diana M. Rodríguez  
Ministry of Environment and Sustainable Development  
Climate Change Division  
[dmrodriguez@minambiente.gov.co](mailto:dmrodriguez@minambiente.gov.co)





CENTER FOR CLEAN AIR POLICY



Environment  
Canada

Environnement  
Canada

[www.ccap.org](http://www.ccap.org)