Colombia Waste NAMA –

Strengthening the Solid Waste Sector while Reducing Emissions

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Ministry of Environment and Sustainable Development, Colombia

Global NAMA Financing Summit
Copenhagen, Denmark – May 15-16, 2013
- Population: 46,000,000 inhabitants
  - Total area: 1,141,748 Km²
- Capital city: Bogota (population: 7,600,000 inhabitants)
- Colombia’s Waste generation: 24,600 tons/day
Waste in Colombia

- Large proportion of organics in the waste stream.

- Strong institutions at national government that regulate technical aspects, tariff structures and service standards for municipal solid waste:
  - Ministry of Housing, City and Territories
  - Ministry of Environment and Sustainable Development
  - Water and Sanitation Regulatory Commission

- Private sector: involvement in collection and disposal
  - good and profitable sector
Evolution of waste disposal in Colombia

In 2005, regulation was established to ban the disposal of waste in open dumps.

Nowadays 95% of the national disposal of waste is carried out in technically managed landfills sites.

Open dumps have been virtually eliminated.
Challenges faced by current sector

- Lack of focus on economic value of waste has left lots of informal workers with suppressed wages and unsustainable livelihoods
- Tariff rates are disincentive to alternative treatment of waste
- Growth in waste streams putting pressure on existing landfills and creating environmental problems like leachate

Landfills account for 5% of national GHG emissions and are projected to grow rapidly
**Colombian Solid Waste NAMA Vision**

**Benefits**
- Create sustainable livelihoods for vulnerable informal sector
- Increase economic activity in sector by encouraging new technologies and new management processes
- Reduce further environmental degradation from overflowing landfills
- Increases landfill life by 100%
- Reduce GHG emissions from landfills by diverting future waste streams away from them
New waste treatment technologies can create economic growth

- **Recyclables**: To be sold and remade into new products
- **Compost**: To be used public parks or for land reclamation
- **Refuse-Derived Fuel (RDF)**: To be sold under long term contract to cement kilns and other industry to replace coal/fossil fuels
Colombian Solid Waste NAMA Components

Solid Waste NAMA at a Glance

Regulatory & Policy Changes
• Change in Tariffs
• New standards for alternative technologies

Better Management Processes
Source separation, selective routes

Prove Modern Technologies in Colombia
• Mechanical-Biological Treatment (MBT) plants
• Materials Recovery Facilities (MRF)

Formalization of Informal Waste pickers

Involve Private Sector
Create incentives, PPP schemes

Appropriate Financial Mechanism
Creation of NAMA equity fund due to equity gap

Awareness and Education
Waste NAMA will result in waste sector carbon neutrality

Sanitary Landfill

50% of waste diversion

Carbon Neutral Sector

Waste Treatment Technology

Landfills emit 8,800,000 tCO2e* annually

3,900,000 tCO2e* reduction from landfill diversion

5,900,000 tCO2e* reduction due to increased recycling, compost, and waste-to-energy (WTE)

*All amounts of waste and CO2 are an average of the considered 20 year period
The NAMA could catalyze projects in multiple cities in Colombia

**Phase I & II (2013 – 2016)**
- 3-4 pilot projects are carried out
- Cali (2,319,560) will be the 1st pilot in Colombia
- Barranquilla (1,207,305) and Medellín (2,416,685) could follow

**Phase III (2016 onwards)**
- A series of projects could follow
- 19 Cement plants operate in Colombia
Informal Recycling 4.5%
Formal Recycling 4.5%
Composting 1%
RDF production 0%

Sent to Landfill: 90%

Total waste collected in Colombia: 14,000,000* average tons/year

2013

2014-2034

Informal Recycling 2% of total
Formal Recycling 8% of total
Composting: 30% of total
RDF production: 10% of total
Sent to Landfill: 50% of total

Total Sector Emissions: -800,000* tCO2
Sector reduction of over 100%

*All amounts of waste and CO2 are an average of the considered 20 year period
With and without the NAMA (2014-2034)

- When GHG reductions from increased recycling, composting and RDF production are accounted for, the sector becomes carbon neutral, and can even become a carbon sink.
- This is reached through avoiding the production of virgin materials, chemical fertilizers and through substitution of RDF for coal in cement kilns.
- Avoided landfill emissions reach 20% at full implementation and grow to reach 50% in 2029.
### Barriers faced and solutions within NAMA

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<thead>
<tr>
<th>Barrier</th>
<th>Solution within NAMA</th>
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<tbody>
<tr>
<td>Regulatory</td>
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<td>New/alternative technologies are not eligible for competitive tariffs</td>
<td>Tariff reform</td>
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<tr>
<td>Financial</td>
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<tr>
<td>Private sector reluctant to invest equity in new business models</td>
<td>NAMA Equity Fund</td>
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<tr>
<td>Social</td>
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<tr>
<td>Lack for formal channels to share value with informal workers</td>
<td>Formalization process</td>
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<td>Cultural</td>
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<td>Lack of awareness in citizens about benefits of recycling, source separation etc.</td>
<td>National and city-level awareness and education programs</td>
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</table>
Colombia to undertake ambitious regulatory reform

1. Change regulations to recognize alternative processes and technologies as legitimate municipal solid waste management options

2. Recognize alternative processes and technologies as eligible for tariffs similar to landfill disposal

3. Fiscal and financial incentives to encourage recycling programs

4. Remove unfairly restrictive barriers to incineration of solid waste in cement kilns

5. Create other progressive regulations like Extended Producer Responsibility (EPR)
Colombia’s request from climate finance donors for Waste NAMA

1. Contribution to NAMA equity fund (at least 50% of $40 Mn)

2. Capacity-building Support ($2.5 Mn)

3. Project Pipeline Development Support ($2.5 Mn)
Conditions for financing Mechanical-Biological Treatment (MBT) facilities in Colombia are:

• Local commercial banks are eager to lend up to 70% of project value if project is backed by strong sponsor

• Private sources of equity capital are unavailable or very expensive at best (returns required > 20%)

• Colombia’s Public Private Partnerships (PPP) law can be used to receive further financial support for NAMA projects but only during operations phase

• **Attracting private sector equity capital is biggest financing barrier for MBT facilities**
NAMA Equity Fund – Basic Concept

• NAMA equity fund is primarily structured to eliminate barriers to attracting equity capital for Mechanical-Biological Treatment (MBT) facilities.

• Funds will be deployed as equity capital in Mechanical-Biological Treatment (MBT) facilities in various projects that form part of the NAMA.

• Fund will be revolving in nature i.e. Dividends and capital repayment will be retained within the fund to be deployed to subsequent projects in project pipeline.

• NAMA equity fund will receive at least 50% of capitalization from climate finance donors.
NAMA Equity Fund – Deployment Plan

Fund investment as % of capital structure reduces as private sector gets more comfortable over time

![Expected Capital Structure in Three Phases](chart)

- **Phase I project**
  - NAMA Equity Fund: 30%
  - Private Sector Equity: 0%
  - Commercial Debt: 40%
  - Concessional Debt: 30%

- **Phase II projects**
  - NAMA Equity Fund: 33%
  - Private Sector Equity: 18%
  - Commercial Debt: 18%
  - Concessional Debt: 33%

- **Phase III projects**
  - NAMA Equity Fund: 38%
  - Private Sector Equity: 20%
  - Commercial Debt: 38%
  - Concessional Debt: 5%
NAMA Equity Fund – Pipeline of projects

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<td>Phase I</td>
<td>Cali</td>
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<td>Investment</td>
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<td>(17.5)</td>
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<td>Returns</td>
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<td>0.0</td>
<td>2.6</td>
<td>19.6</td>
<td>27.5</td>
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<td>Closing Balance</td>
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<td>3.0</td>
<td>5.6</td>
<td>25.2</td>
<td>52.7</td>
<td>75.6</td>
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Note: $40 Mn through the NAMA fund can mobilize around $248 Mn of private sector capital
In conclusion, the Colombian Solid Waste NAMA is:

**Transformational** as it propels the solid waste sector into the next generation of technologies and processes thereby reducing GHG emissions from the sector significantly and incorporating social benefits.

**Catalytic** as 1 $ of climate finance can mobilize up to 10$ from Colombian public and private sources through innovative financial structuring.

**Comprehensive** as it meets regulatory, economic, social and environmental objectives.

**Integrated** and consistent with Colombia’s sustainable development plans and will receive high-level support from relevant institutions and contributions from public sources.

**Replicable** throughout Colombia
Thank you

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<tbody>
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<td><strong>Creation of NAMA Equity Fund</strong></td>
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<td>Selection/creation of Fund manager</td>
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<td><strong>Phase I project in Cali</strong></td>
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<td><strong>Phase II cities</strong></td>
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<td><strong>Phase III cities</strong></td>
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<td><em>Support activities for above</em></td>
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<td><strong>Capacity-building at national/sub-national governments</strong></td>
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<td>Creation of NAMA specific posts in Colombian Govt</td>
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<td>Policy &amp; regulatory design and reform</td>
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<td>markets. Source separation and formalization of informal workers</td>
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<td><strong>Project pipeline development support</strong></td>
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<td>Detailed Engineering studies for MBT facilities</td>
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<td>Detailed estimation of waste composition, GHG baseline and mitigation scenarios</td>
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<td>Conducting RFP process for selection and contracting with private sector operator/owner</td>
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<td>Negotiating with existing contractors</td>
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With and without the NAMA (2014-2034) (cont.)

*All amounts of waste and CO$_2$ are an average of the considered 20 year period*

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<tr>
<th></th>
<th>BAU</th>
<th>BAU Net</th>
<th>NAMA Scenario</th>
<th>NAMA Scenario Net</th>
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<tr>
<td>Landfill</td>
<td>8.80</td>
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<td>4.86</td>
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<td>RDF</td>
<td>0.00</td>
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<td>-0.39</td>
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<td>Compost</td>
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<td>Recycling</td>
<td>-3.62</td>
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<td>Net emissions</td>
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Average (avoided) emissions per year