



Nationally Appropriate Mitigation Action

Catalyzing Industrial Organic Waste Management in Chile

Global Methane Initiative Methane Expo 2013
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Chile Waste Context

- The waste sector in Chile currently represents approximately 3% of the country's greenhouse gas (GHG) emissions, the majority of these generated by industrial waste.
- An important share of the organic waste goes directly to final disposition.
- In this context, the Chilean Ministry of Environment and CCAP, with funds from EC worked during 2012 in analyzing the potential and alternatives to develop organics diversion programs in Chile.
- The first study, was focused basically on municipal waste in 59 municipalities, and the second in 2 municipal associations, focused mainly on industrial waste.



Waste Studies Findings

The most important findings of these studies are:

1. Municipal waste has not the scale to develop diversion initiatives alone, basically because household collection requires years of preparation. Today, the useful organic waste comes from pruning, open markets and restaurants & hotels.
2. Diversion projects cannot compete against the tariffs charged by dumps in some areas of the country.
3. Many industries are willing to do a proper disposition of their waste, but there are no alternatives available.
4. **There is a great potential to do a coordinated work between municipalities and industries to develop organic diversion programs.**



Waste Potential in 2 Municipal Associations

Wine Region



Salmon Region



	Municipal Organic Waste	Industrial Organic Waste	Total
VI Region Association	3,122	12,204	15,326
X Region Association	8,889	79,164	88,053

NAMA Proposal

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Barriers Identified

1. Diversion needs tipping fees similar to landfills, higher than dumps
2. Law prohibits dumps, but is not enforced, as there are no alternatives
3. Waste sector paralyzed by uncertainty; without enforcement of the law, the investment in new landfills is too risky
4. Growing community opposition against waste projects
5. Regulatory standards do not effectively encourage diversion
6. Municipalities use a cost minimization model
7. No private financing for these new technologies without special guarantees

NAMA Description

- This NAMA aims to address the barriers by facilitating the installation of a series of diversion projects that use dry fermentation plants.
- Dry fermentation uses indoor treatment, power generation and compost as products obtained from the diversion process.
- It aims to create a new market and show the technology, which will, in future, allow privates to develop the projects independently.

Projects Parameters and Results

- Key assumptions:
 - Industrial sources are willing to pay current landfill tipping fee of \$40/ton
 - Revenue from: sale of electricity (\$90/MW + \$20/MWh from RE RPS Law), compost (\$12/ton)
 - Avg investment for 40,000 tpy facility = \$10mm
 - Avg life of project: 20 yrs
- Results:
 - NPV: \$5.5 million
 - IRR: 16%
 - Payback: 9 years

Lines of Support

Component	Funds	Description
Improvement of Regulatory Framework	\$200,000 Local	aims to facilitate the development of diversion and the sale of the products produced
Feasibility Studies	\$900,000 Local	Through the Chilean development agency will co-finance up to 50% for feasibility studies of projects
Financial Support	\$10,000,000 International*	To cover part of initial investment, to allow gradually increasing tipping fees. It is believed to be required only for the first projects supported by the NAMA
Credit Guarantee Fund	\$20,000,000 International	As new technologies, projects will require special guarantees for the construction and first year of operation, to leverage private sector funding



NAMA Operation

- The NAMA will operate through contests in which winners will be those requesting less support per ton of CO₂e avoided.
- 4 contests in total, first 2 with financial support and guarantees, other 2 with partial guarantees.
- **Economic Sustainability:** Developers must demonstrate the project's economic sustainability (cash flows, contracts for waste supply and product sales, etc.)
- **Municipal support:** projects must have the support of the municipality where it is installed, in return for which the project will create a fund to support community projects and give preferential tipping fees for municipal waste.
- This will promote municipal waste diversion and eventual household selective collection.



NAMA Expected Results

- **Waste Diversion:** more than 11 million tons of organic waste throughout the useful life of projects supported.
- **Private Investment:** The NAMA is expected to leverage private investment for \$130 million.
- **GHGs Mitigation:** avoid more than 12 million tCO₂e, over the life of the projects.
- **Benefits for sustainable development:** environmental, social and health benefits of reducing the use or closing dumps, jobs creation and increased economic activity, among other benefits.

Conclusions

- The improvement of the management of organic waste is one of the greatest challenges of the sector.
- Several barriers prevent the installation of diversion plants for industrial and municipal organic waste.
- The NAMA creates the incentives to spur purely private development of diversion projects, breaking the inertia of the sector.



Gracias! - Thanks!

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