

Costa Rica - Ordinary Solid Waste NAMA

Executive Summary

Sponsoring Country:

Costa Rica

Sponsoring Agency:

Ministry of Health, Ministry of Environment and Energy, GIZ Agency - Costa Rica

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NAMA OSW Executive Summary

NAMA Ordinary Solid Waste Costa Rica (NAMA OSW) seeks support for its preparation phase. This proposal was prepared by the Ministry of Health (MinSalud) with support from the Department of Climate Change (DCC) of the Ministry of Environment and Energy (MINAE) and the Costa Rica Agency of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, and agreed with major stakeholders.

Introduction

The country generates about 1.3 million tons of ordinary solid waste (OSW) per year (3,600 t/d or 0.78 kg per person per day), with the majority placed in four large landfills operated by private companies in the Great Metropolitan Area (GMA). Another significant part of the OSW is deposited in landfills without proper environmental controls, mainly outside the GMA. The dry material recycling is growing.

MinSalud as the governing body of the solid waste sector has improved the conceptual, legal and regulatory framework significantly in recent years, in order to establish a modern and adequate Integrated Solid Waste Management (ISWM) in the country. This framework is generally a favorable context for the NAMA Proposal Executive Summaries – Prepared for the Global NAMA Financing Summit

definition of a mitigation program; however it is still in development, partially incomplete and in different implementation stages. The main documents are:

- 2010-2021 National Policy for Integrated Waste Management,
- Law for Integrated Waste Management No. 8839 and its General Regulation,
- Costa Rica Solid Waste Plan (PRESOL),
- Municipal Solid Waste Management Plans in 43 of 81 cantons of the country.

The OSW subsector (not including industrial solid waste, organic industrial waste, and wastewater) causes a net emission of about 0.94 million tCO₂eq for 2012. The main factors are methane gas emissions at landfills and dumps (about 1.08 million tCO₂eq.) and recycling activities. The latter generate greenhouse gases (GHG) however; due to energy savings in processing recycled material (compared to raw material processing) they are a GHG sink in production processes, with estimated net emissions of -0, 14 million tCO₂eq. A projection of future emissions in the OSW subsector, under a "business-as-usual" (or baseline) scenario, would result in 1.07 million tCO₂eq in 2021.

A NAMA proposal would be a target of 480,000 tCO₂eq mitigation, per year on average, i.e. about 50% of current emissions. The NAMA is justified by its contribution to the country's mitigation goal and sustainable development of the waste sector, and for its social, economic and environmental co-benefits.

NAMA Description

1. Methane gas capture and destruction in the three major landfills: Since this issue is caused by the OSW organic fraction decomposition, deposited in the past and currently, it remains as the subsector's main source of emissions. A high efficiency methane gas capture and destruction in major landfills is the more important mitigation strategy for the short and medium term. It will be complemented by the use of gas for the generation of electricity or heat in feasible cases.
2. Valorization (recycling) of dry materials such as plastics, paper / cardboard, metals and glass: Recycling can increase GHG sink function. The most important stakeholders are private recycling companies and production companies, the "**Alliance for the Use of Recoverable Waste in Costa Rica**", the "Costa Rican Network of Recovery Centers of Recoverable Waste" and collection centers, supported by the public sector in order to increase recycling rates.
3. Composting and organic waste biodigestion: Currently a large portion of organic waste streams within the OSW (waste from agricultural fairs, parks, gardens and establishments such as restaurants, shopping centers and hospitals) are deposited in landfills and contribute to the formation of methane gas. These organic wastes can be collected separately in a relatively easy way, and be properly treated through composting and / or bio-digestion with the co-benefit of generating compost and / or electrical energy.
4. Evaluation and implementation of advanced technologies for solid waste management and energy use: In the medium to long term the OSW subsector will need a transition toward advanced technologies to enable energy use from the organic **fraction of waste** with high calorific value, reduction of local environmental impacts, a high efficient GHG mitigation and a significant reduction in the volume of waste deposited in landfills. The latter can prolong the life of disposal sites and is of high strategic importance because it has been shown almost impossible to establish new landfills in the GMA. These technologies will be subject to feasibility analysis and to technology transfer and adaptation. An example of promising technologies is the biological stabilization (also called "mechanical-biological treatment").

The proposed funding mechanism is divided into three parts. The fund for integrated waste management

based on the General Regulation to the Integrated Waste Management Law (No. 8839), which can receive donations from foreign donors (Articles 24°, 25°). The second component is the private investment in this sector, for example by the cement industry. This may work as a joint venture between the cement company and the waste management unit, in which the first invests in advanced technologies to prepare ordinary waste for co-processing and the second one is responsible for the operating expenses. The third component is the income of the municipalities for the fees charged. It is also noted that there is an increasing initiative from the Costa Rican bank in green credit lines and financial support to SMEs.

There must be changes in policies at the municipal level: Better waste management, in many cases lead to a higher cost. Currently, many recycling activities are subsidized by municipalities. Revenues from real and personal property taxes do not always cover the costs. There must be a political will at local governments to adjust rates, as well as increased awareness and willingness in the population.

To sensitize the population, companies and municipalities will carry out workshops, trainings and meetings. There is also an inter-agency consultative platform with regular meetings, involving the Ministry of Health, MINAE, representatives of municipalities and NGOs. With the Integrated Solid Waste Management policy, the government is committed to supporting each activity in search of an improvement in this sector.

Support Requested

NAMA preparation requires external support. We propose 1-1.5 years for preparedness measures such as institutional strengthening and coordination, alignment of strategies and legal framework, improved database and MRV design, training and exchange at international level, awareness of sectors, definition of economic incentives, technology transfer and implementation on a pilot basis, and overall implementation planning including costs, responsibilities and schedule. It is estimated that the government will support the preparation phase (18 months) through health and environmental officers from the following institutions: MinSalud, MINAE (DCC; Directorate of Environmental Quality Management) and the 17 municipalities of the GMA, in the amount of \$150,000. During the preparation phase it is estimated that private investments will be made in at least eight municipalities for methane gas recovery and burning, waste sorting and recovery, energy use, each with an approximate cost of \$500,000, this is to say a private investment of \$4 million. Therefore, the total local contribution (government and privates) is estimated in \$4,150,000.

Costs estimates for support during the preparation phase are around \$625,000 to \$730,000, depending on the phase duration. The current OSW NAMA proposal was developed in workshops with key industry stakeholders. However, both the GHG reduction potential and implementation costs are estimates. It is necessary to carry out a technical and economic feasibility study, measure the impact, and evaluate the commitment of major actors, especially landfill operators.

NAMA's first phase is to establish a pilot program with up to 10 GMA municipalities. Due to the gradual implementation character of the mitigation program, it is expected to begin with the implementation of some of its elements during this preparation phase, so that the corresponding measures can become a continuous accompaniment of implementation.