Vietnam - Waste Sector NAMA: Waste to Resources for Cities

Title:	**NAMA in the Waste Sector:** **Waste to Resources for Cities in Vietnam**
Sponsoring Country:	**Vietnam, Institute of Meteorology, Hydrology and Environment, Ministry of Natural Resources and Environment**
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Executive Summary

Introduction

National context

In 2009, the Prime Minister approved the National Strategy for Integrated Management of Solid Waste up to 2025, vision towards 2050 which sets the vision that by 2050 all forms of solid waste will be collected, reused, recycled and treated completely by advanced technologies which are environmentally friendly, customized for different locales and reduces the need for the land filling of waste to a minimal level. Recently, in 2012, the Prime Minister approved the plan "Management of greenhouse gas emissions; management of the activities of trading carbon credits to the international market" which sets the target of reducing GHG emissions by 5% in the waste sector by 2020.

Sector context

According to the Second National Communication of Vietnam to the UNFCCC, the total GHG emissions from waste in 2000 is 7,925.18 thousand tons of CO_2e, which constitutes 5.3% of the total GHG emissions of Vietnam. Although the percentage of GHG emissions from waste sector is the smaller compared to other sectors, emissions will increase significantly in future given no appropriate waste management methods are applied.

Currently the collection, transportation, and disposal of waste are managed by the municipal government, contracted through the Urban Environment Company (URENCO) which is under the supervision of the People's Committee.

Barriers:

- The expenses incurred with solid waste management often constitute a substantial portion of city budgets. Income generated from collection fees may suffice to cover the operational costs of waste management but are not enough to cover investment requirements. Hence, local governments often depend on the Central Government for subsidies or on official development assistance (ODA) funds for investment in new infrastructure. Therefore, in order to apply models such as the IRRC and anaerobic digestion facilities, that are intended to transform waste into resources in cities in Vietnam, additional technical and financial assistance from developed countries is necessary.
- Local banks do not have the capital or technical capacity to finance waste management facilities, including those of source separation, recycling, composting, and biogas/anaerobic digestion.

- There is no mandate to close insanitary landfills, and open dumping through the disposal of waste into lakes, rivers, and open areas is prevalent across the county, in addition to the burning and burying of waste.
- URENCO does not have a budget for capital and investment costs for new technology and capital in the waste sector beyond current business as usual practices.

NAMA Description

The Institute of Meteorology, Hydrology and Environment of Vietnam (IMHEN), in partnership with the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP), proposes developing the following NAMA: "NAMA in the Waste Sector: Waste to Resources for Cities in Vietnam".

The **overall goal** of this NAMA program is to reduce GHG emissions from the waste sector and contribute to sustainable development. The proposed NAMA will build upon the results of the NAMA-readiness project titled "Vietnam-Japan Capacity-building Cooperation and Joint Study Project for a NAMA in the waste sector in a MRV manner" implemented by IMHEN in cooperation with Overseas Environmental Cooperation Center (OECC), Japan, as well as the approach and experiences of UN-ESCAP in developing a pro-poor and decentralized solid waste management model for countries in developing Asia.

The **specific objectives** of this NAMA include: (i) the improvement of waste collection services in cities in Vietnam and the promotion of 3R principles; (ii) the diversion of waste streams from landfill disposal and other end-of-pipe solutions; (iii) sorting out of the organic and inorganic components of waste streams through the separation of waste at source; (iv) promotion of the biological treatment of the organic waste; and (v) the recycling and reuse of inorganic waste.

This NAMA initiative is planned to commence July 2013 to December 2020 and consists of three phases.

Phase 1 (July 2013 – December 2013) will be a preparatory stage, and the key activities to be conducted will be the full definition of the NAMA scope, a detailed plan of activities, milestones and priorities, as well as the identification of stakeholders that could take part on this NAMA.

Additionally, through Phase 1 scoping studies, a financial mechanism will be defined in which to integrate the involvement of the private sector and define how revenues generated from facilities will be used for the repayment of the capital investment funds and to sustain financing for the operation and maintenance of the facilities. The purpose is to create both political and economic incentives to replicate similar projects nationally.

Phase 2 (January 2014 – June 2015) will consist of building capacities among local partners and the implementation of at least two pilot projects in cities across Vietnam: one in a centrally controlled municipality and the other in a secondary city or small town. The pilot projects will take account of the different needs and challenges of municipalities, and will serve as a test-bed for a fully-fledged NAMA program to be deployed under phase 3. The project in the centrally controlled municipality is planned to be a waste-to-energy facility applying anaerobic digestion technology to generate electricity from organic waste and having as feedstock organic waste separated at source, collected from vegetables markets, households, restaurants and small shops. The project in the smaller municipality will consist of an up-scaled Integrated Resource Recovery Center (IRRC) facility, facilities aimed at recovering waste from resources, with the capacity to process up to 20 ton organic waste per day, which can potentially reduce the emission of 6,600 tons of methane per year.

Three major activities are typically carried out by an IRRC: i) collection of segregated waste; ii) storage and processing of waste; and iii) sale of the resources produced from the waste. IRRCs promote the use of simple, non-mechanical technology, and can be built and operated at low cost. The IRRC model has many elements of a NAMA, and there is a potential to explore a bottom-up vertically integrated approach to fully incorporate these elements into a national climate change mitigation action for the waste management sector (Figure 1). Such "NAMA elements" include the potential for GHG emission reductions, technical and financial support, capacity building and strong co-benefits to local communities.

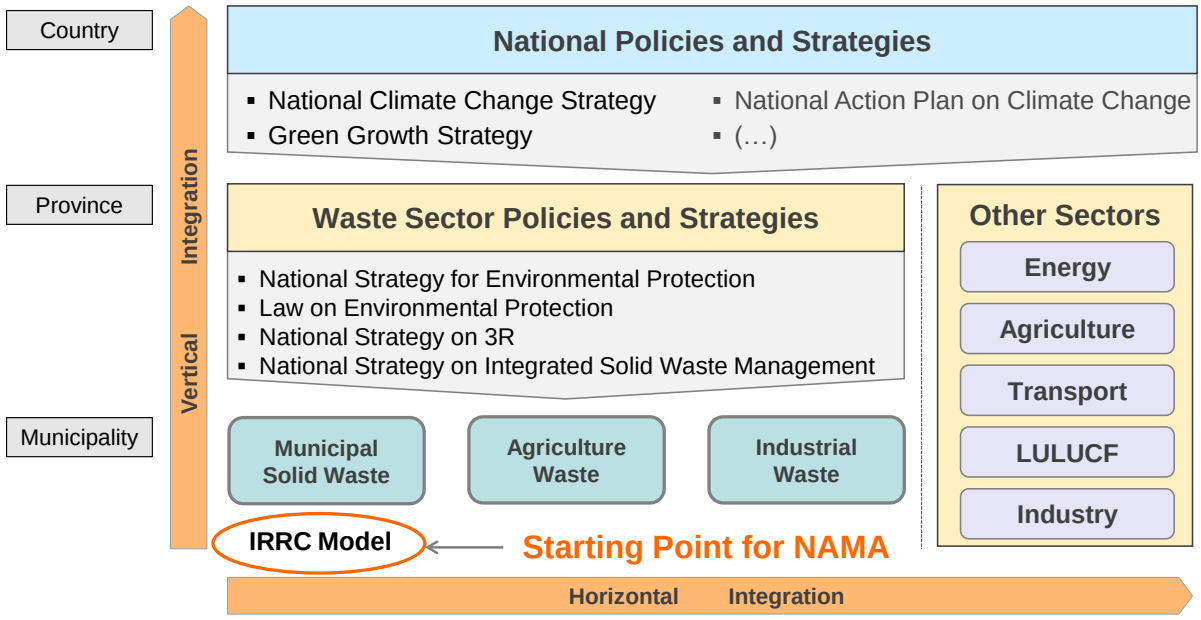

Figure 1 – UN-ESCAP's IRRC model as a starting point to this NAMA initiative (Source: UN-ESCAP, 2013).

Phase 3 (July 2015 – December 2020) will consist of the full implementation of the NAMA throughout cities in Vietnam in order to reach a significant reduction of GHG emissions from waste in cities to achieve the target of reducing GHG emissions by 5% from waste by 2020 set by Decision No.1775/TTg of the Prime Minister.

Support Requested

The study conducted during Phase 1 will reflect on the estimated costs and necessary financing requirements, and will estimate the expected contributions to the implementation of this NAMA initiative from domestic entities, private sector stakeholders, and international donors. During Phase 2, both the national and municipal governments are expected to make unilateral contributions towards the project implementation, including financing of the proposed solution, allocation of land, manpower, etc.

As a research institute, IMHEN will provide in-kind contribution in the amount of USD 10,000.

As a partner to the Government of Vietnam and IMHEN, UN-ESCAP is willing to provide support on the following streams:

- Preparation of supporting studies and background documents for Phase 1;
- Identification and mobilization of stakeholders in Phase 1;
- Seed funding to selected pilot projects in Phase 2;
- Capacity building activities and knowledge sharing initiatives.

The required level of international support will be determined during Phase 1 of the NAMA, but it is expected to be in the range of USD 10-20 million. The private sector is also expected to play a key role on the implementation of this NAMA, both on phases 2 and 3, by taking ownership stakes on waste-to-resource projects and, whenever possible, contribute to technology transfer and capacity building. Revenue generated by the facilities is expected to cover the operating and maintenance of the IRRC and AD facilities and to repay the capital investment costs.