



**Institute of Meteorology,
Hydrology and Climate
Change of Vietnam**



Nationally Appropriate Mitigation Action (NAMA) programme in the Waste Sector:

“Waste to Resources for Cities in Vietnam”

NAMA Design Study: Summary, Main Findings and Recommendations

Hanoi, 19 May 2015

1. Introduction

Recognizing the importance of waste management and climate change mitigation for the sustainable development of Viet Nam and in line with the strategies and targets adopted by the Government in this regard, the Institute of Meteorology, Hydrology and Climate Change of Vietnam (IMHEN), in partnership with the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP), is developing a Nationally Appropriate Mitigation Action (NAMA) programme for the municipal solid waste sector of Viet Nam. The preparation of this NAMA– titled “Waste-to-Resources for cities in Viet Nam” – has hinged in the elaboration of a “NAMA-design study” and in consultations with relevant stakeholders in Viet Nam involved in the climate change and waste management sectors.

The aim of the NAMA-design study is to describe in detail the components of the proposed programme. More specifically, the study lays out the building blocks of the NAMA and provides details on its key design features, such as eligibility criteria, institutional architecture and financing mechanisms. The study was initiated in early 2014 following the organization of a national consultation workshop in November 2013, which gathered initial feedback from stakeholders. As the study is approaching completion, its main findings and recommendations will be presented and discussed at a national consultation workshop on 19 May 2015. In this context, the aim of this brief is to provide an overview of the study conducted and highlight the main elements of the proposed NAMA, which will serve as basis for the discussions during the workshop.

2. Policy and institutional framework on climate change in Viet Nam: overview of current policies and barrier analysis

Viet Nam is a country that has shown a high level of commitment towards addressing climate change. While the primary focus has been on adaptation, increasingly higher attention is being paid to mitigation. Indeed, mitigation actions are considered as opportunities for achieving sustainable development goals and an efficient use of natural resources.

A significant number of official documents have been issued in Viet Nam on climate change, especially since 2008. The most relevant documents laying out the overarching policy approach are the **National Climate Change Strategy (2011)** and the **National Green Growth Strategy (2012)**. Both strategies have been followed up by the approval of action plans. With these documents Viet Nam has put forth national GHG emission reduction targets, including on sectors such as energy, transport, industry, agriculture and waste.

The Government of Viet Nam considers that responding to climate change is a task of the entire political system and the society as a whole. At the government level, the highest level body in Viet Nam dealing with climate change related matters is the National Committee on Climate Change, which was established in 2012. The Committee is tasked with advisory functions, assisting the Government in researching, proposing, directing, regulating, and coordinating multi-sectoral tasks and national strategies on climate change. The Ministry of Natural Resources and Environment (MONRE) is the focal ministry in Viet Nam on climate change matters. Under MONRE, IMHEN the Department of

Meteorology, Hydrology and Climate Change (DMHCC), and the Institute of Strategy and Policy of Natural Resources and Environment (ISPONRE) are the main agencies with responsibilities on climate change issues.

NAMAs are a relatively recent concept in the climate agenda and, as in most developing countries, the legal and institutional framework for NAMAs is still at early stages of development. On the other hand, the government of Viet Nam has initiated several steps in the design and implementation of NAMAs, which includes the establishment of a working group. So far, most of the work on NAMAs in Viet Nam has been on “NAMA-readiness”, which includes preparatory studies, strategies and capacity building activities. These have been carried out by different ministries and agencies, with the support of bilateral and multi-lateral sources of funding. While on the one hand this underpins the fact that NAMAs have been of interest and hold a significant potential in Viet Nam, there have been some challenges in harmonizing these activities.

Other **challenges related to the development of NAMAs** are the lack of capacities and know-how among practitioners, a lack of coordination among different actors working on NAMAs, and challenges in setting up a GHG inventory system with sound and accurate data. A monitoring, reporting and verification (MRV) system for NAMAs is also lacking, although guidelines issued by MONRE indicate that MRV should be built on the experiences of the CDM. Another noteworthy challenge is the lack of harmonization among legal documents and GHG emission reduction targets. Unclear roles and responsibilities among different departments and ministries and the need for a comprehensive national GHG emissions inventory system have also been pointed out as issues that spillover to the development of NAMAs.

3. Managing municipal solid waste in Viet Nam: sector overview and analysis of policies and barriers

In recent years, the amount of waste generated in Viet Nam has been increasing dramatically, in line with the industrial and economic development of the country. As of 2010, approximately 3.2 million tons of solid waste were generated in Viet Nam, with municipal solid waste (MSW) accounting for 60-70% of the total. Approximately 85% of the MSW generated was collected, with the remainder being dumped or burnt. Landfilling is the treatment method for 76-82% of the waste collected, with the rest being processed through incineration, composting or recycling.

The composition of MSW in Viet Nam is high in biodegradable organic matter, with a share usually above 50%. In some cities, organics can be as high as 85%. This makes MSW especially suited to approaches that value the recycling of organic waste, such as composting or anaerobic digestion. On the other hand, given the high humidity and low calorific value of MSW streams (900-1,100 kcal/kg), thermal combustion technologies, such as incineration, have not been a common practice, particularly in smaller cities.

In order to improve waste management practices and the capacities of stakeholders, Viet Nam has responded with a more comprehensive legal framework and an aggressive investment plan. The most important policy document on waste is the **National Strategy for Integrated Management of Solid Waste up to 2025 and Vision towards 2050**,

approved in 2009. The strategy sets the vision that by 2050 all sorts of solid wastes are to be collected reused, recycled and treated completely with advanced technologies which are environmentally friendly and suitable to the local context, while minimizing the amount of waste that is landfilled. The Strategy lays out ambitious targets for waste collection, reduction, reusing and recycling in Viet Nam to 2015, 2020 and 2025, as follows:

- 85%, 90% and 100% were set as the target for waste collection rates in urban area for 2015, 2020, and 2025, respectively. The waste collection is to be treated in an environmentally-friendly manner, with 60%, 70% and 90% (respectively for each target year) of the recycled, reused or recovered for use as an energy source or to produce organic fertilizer;
- 50%, 80% and 100% of cities in Viet Nam to have their own recycling facilities and practice at-source separation of household solid waste, for years 2015, 2020 and 2025 respectively.

These targets are ambitious, in consideration also of current practices and the level of community awareness in Viet Nam on the need to separate, recycle and reuse waste, and it is unlikely that they will be met through business as usual.

Another important national-level document is the **National Strategy for Climate Change**, approved in 2011, which has several strategic targets related to the management of MSW. Among them is the goal that by 2020 90% of the total volume of urban domestic solid wastes should be collected and treated, of which 85% is to be recycled and reused. The need to curb GHG emissions from the waste sector is related to the emissions of methane that result from the decomposition of waste that is left to decay anaerobically in landfills or dumpsites. In year 2000, the waste sector alone accounted for 5.3% of the total GHG emissions of Viet Nam.

In addition to those mentioned above, several other legal documents exist for regulating the MSW sector, both at national and sub-national level. A common thread among them is the support to approaches for treating MSW that are in line with the principles of Reducing, Reusing and Recycling (3R) and the recovery of resources from waste.

The management of MSW involves many stakeholders, with different roles and responsibilities, such as national government agencies, provincial and municipal government authorities, the private sector (including the informal sector, such as waste pickers) and community-based organizations. At the national level, **MONRE** and the **Ministry of Construction (MOC)** are the key ministries with responsibilities on MSW management. MONRE is the major state authority on environmental management and protection in Viet Nam. The ministry is in charge of coordinating with other line ministries and agencies in issuing guidance, regulations and standards on waste management, as well as the development of strategies and policies. MOC is responsible for planning aspects related to solid waste management at regional, inter-provincial and inter-city level.

Another important stakeholder are the so-called “Urban Environment One Member Limited Companies” (**URENCOs**), which are state-owned companies that are responsible for collecting, transporting and treating waste at provincial and/or city levels. They report

to the Department of Construction (DOC) or Department of Environment and Natural Resources (DONRE) of municipal or provincial government authorities,

Viet Nam has developed a comprehensive policy framework on MSW management. However, there are still **several barriers** that need to be overcome for achieving a more integrated and environmentally sound MSW management sector in Viet Nam based on the principles of 3R and the recovery of resources out of waste. These barriers are at the policy, institutional and financial/economic levels.

At **policy level**, while it is observed the existence of a significant number of policies and regulations that are supportive of 3R initiatives and the recovery of resources from waste, there are no legal documents that enforce the implementation of those 3R targets. For instance, few guidelines or policies have been developed for promoting waste separation at source, which lead to challenges in the implementation of 3R principles and other waste treatment technologies. Besides, there is a lack of specific fiscal and economic incentives to stimulate the uptake of more environmentally sound technologies for MSW, such as tax holidays, feed-in tariffs to electricity generated from biogas or low-interest loans.

At the **institutional level**, the main barrier identified is the dispersion and duplication of roles and responsibilities at central and local levels with regards to MSW management. In principle, MONRE is the responsible entity on behalf of the government for implementing environmental protection measures, including on waste management. On the other hand, under the provisions of the Environmental Protection Law and other related documents, the disposal of domestic solid waste falls under the responsibility of MOC. The challenges mentioned above also trickle down to provinces and cities in Viet Nam.

Challenges are also identified on **economic and financial** aspects. The expenses incurred with MSW management often constitute a substantial portion of city budgets. Income generated from collection fees may suffice to cover the operational costs of waste management – albeit in very few cases – but are certainly not enough to cover investment requirements, let alone providing a fair return on investments. Hence, local governments often depend on the Central Government for subsidies or on official development assistance (ODA) funds for investments in new infrastructure.

Further to the above, local banks do not have the capital and the technical know-how to finance waste processing facilities, including recycling, composting, and biogas/anaerobic digestion. There is also a lack of financial and regulatory incentives to promote the valuation of resources derived from waste, which is reflected for example in the low-market prices of compost. The creation of a levelled playing field is therefore necessary for enabling the economic viability of composting in Viet Nam, an aspect which requires coordination among MOC, MONRE and the Ministry of Agriculture and Rural Development (MARD).

In order to apply waste management approaches based on 3R principles and the conversion of waste into resources, additional technical and financial assistance is necessary, and this support could be provided by developed countries in connection with efforts for climate change mitigation associated with improved MSW management practices. It is in this context that the “Waste-to-Resource” NAMA is proposed.

4. Design elements and scope of the Waste-to-Resource NAMA for cities in Viet Nam

The **overall aim of the NAMA programme** is to support Viet Nam in reducing GHG emissions from the municipal solid waste sector with the implementation of sustainable waste management approaches that are in line with the principles of 3R and the recovery of resources from waste.

It was observed above that national policies and strategies in Viet Nam on 3Rs already exist and are very ambitious in scope. While this level of ambition is reflected in specific targets for the recovery and recycling of waste, it is observed that these targets have limited or no implementation at the province and city levels. In this context, this NAMA programme focused on assisting cities and provinces in the implementation of the measures laid out on policies and strategies on 3R issued at national level.

The proposed programme has elements of both **domestic (unilateral) and internationally supported NAMAs**. The programme also provides the flexibility of including a crediting mechanism as part of the NAMA, especially for initiatives that require higher levels of support from international sponsors. However, this will be contingent on the progress at national and international level in the establishment of crediting mechanisms and credited NAMAs.

Eligible measures under the programme are indicated below. Once implemented they will be subject to some type of MRV when implemented on cities that formally accept to be part of the NAMA:

- 1) Reduction of the MSW generated in cities and practice of segregation of MSW, preferably at source;
- 2) Diversion of waste streams from final disposal sites and other end-of-pipe solutions, with waste streams being treated applying the following measures:
 - a. Methods for the biological treatment of the organic waste (such as composting and anaerobic digestion);
 - b. Recovery, reuse and recycling of inorganic waste;
 - c. Physical treatment methods of waste, such as the production of refuse-derived fuel and related techniques;
 - d. Implementation of integrated and sustainable waste management approaches in line with the principles of 3R, especially the **Integrated Resource Recovery Center (IRRC)** model, which has been demonstrated and proved effective in managing MSW in small and medium-sized cities in Viet Nam;
 - e. Strategies and policies designed at city or provincial level for a “zero waste” or “carbon neutral waste sector”.

The eligibility of other measures in line with 3Rs but not included in any of the above will be considered on a case-by-case basis by a NAMA Management Board (Steering

Committee) that is proposed to be established as a supervising and coordinating body of the NAMA.

This NAMA programme is structured as a combination of **top-down** and **bottom-up measures**. **Top-down** initiatives include, but are not restricted to, the following:

- Establishment of a NAMA Management Board which will act as a one-stop shop for coordinating the NAMA;
- Establishment of a financial mechanism at national level (it is proposed that the Vietnam Environmental Protection Fund, VEPF, can assume this role) that will gather funds from national and international sources and channel those to cities, provinces and other eligible entities;
- Expertise on GHG emission inventories, setting-up of baselines, data collection, etc., to be provided by MONRE and IMHEN.

Bottom-up initiatives under the NAMA include the following:

- Cities and provinces voluntarily take part on the NAMA and propose to come up with their own targets on 3R based on national plans and strategies;
- Cities and provinces propose specific plans and make tangible contributions to the implementation of measures and initiatives in line with 3Rs, which are subsequently communicated to the NAMA Management Board.

The NAMA will address the main barriers identified on the climate change and municipal solid waste sector with the adoption of the following measures:

Table 1. Measures under the NAMA “Waste to resources for cities in Vietnam”

Barriers	Measures to address Barriers
1. Challenges in implementing national plans, strategies and targets for 3R	<ul style="list-style-type: none"> • With the support of the NAMA, cities and provinces will be encouraged to <u>voluntarily</u> propose their own targets for reusing, reducing and recycling based on those laid out on the “National Strategy for Integrated Management of Solid Waste up to 2025 and Vision towards 2050”.
2. Barriers associated with institutional arrangements	<ul style="list-style-type: none"> • Establishment of a <u>NAMA Management Board</u> which will function as a “one-stop shop” for the NAMA and as a coordinating entity among ministries with a stake in the waste sector. <i>Inter-alia</i>, this management board will be responsible for coordinating with other relevant national stakeholders involved on the NAMA. • In coordination with key stakeholders, the NAMA Management Board will be vested with supervisory and operational responsibilities of the NAMA, on tasks that include assessing the proposals of cities or provinces that voluntarily accept to take part in the NAMA, definition of eligibility measures, and taking record of activities that are considered eligible as part of the NAMA (e.g. policies, specific projects, investments, GHG emission reductions at the city level)

3. Barriers to the financing of 3R initiatives	<ul style="list-style-type: none"> Establishment of a <u>dedicated vehicle</u> to channel funds from national and international sources that could be applied in support of cities, provinces, URENCOs and/or other private players in implementing the measures endorsed by the NAMA. It is proposed that the <u>Vietnam Environment Protection Fund (VEPF)</u> can take this role. Cities and provinces will be encouraged to voluntarily propose their measures and to allocate part of their budgets to initiatives in line with 3Rs.
4. Barriers to market creation	<p>In most locations in Viet Nam, the marketing of resources that can be generated from waste (e.g. compost, recyclables, biogas, RDF, etc.) face a set of barriers. Examples of measures that would address those barriers and would be eligible under the NAMA include:</p> <ul style="list-style-type: none"> <u>City and province level</u>: payment of tipping fees to waste treatment plant operators, allocation of land free of cost or below market prices to these plants, a programme to purchase compost at above-market prices, etc.; <u>National level</u>: tax rebates or tax holidays on equipment, measures to stimulate the use of compost through standards and regulation, set-up of a feed-in tariff scheme for biogas generated from AD of MSW, etc. <u>International level</u>: support to measures that are deemed too expensive for adoption in Viet Nam, such as subsidies in the form of a feed-in tariff. Support could be channeled by means of ODA, a crediting mechanism (CDM or NMM), or as financing through the Green Climate Fund (GCF).
5. Technical barriers (capacity building and MRV)	<ul style="list-style-type: none"> Barriers related to the lack of know-how, capacities and technology are expected to be addressed with the support of international donors in the form of bilateral ODA, the NAMA Facility, Global Environmental Facility (GEF) and/or the Green Climate Fund (GCF). The MRV system of the NAMA is expected to be set up, in full or to a large extent, with the support of international climate finance.

The implementation of the NAMA is expected to support transformational change in the MSW sector in Viet Nam, and result in strong co-benefits to the society at large. In this connection, one of the elements proposed for the NAMA is the implementation of a tool developed by Waste Concern and ESCAP to measure and quantify co-benefits.

5. Greenhouse gas emission business as usual and reduction scenarios

预览已结束，完整报告链接和二维码如下：

https://www.yunbaogao.cn/report/index/report?reportId=5_4313

