

ESTABLISHMENT OF MRV PROCEDURES FOR NAMAS DEVELOPMENT IN THE STEEL INDUSTRY

Nguyen Thi Anh Tuyet^{1,*}, Ingo Puhl²

¹*School of Environmental Science and Technology, Hanoi University of Science and Technology,
No 1 Dai Co Viet Road, Hanoi, Vietnam*

²*South Pole Carbon Asset Management Ltd., Indonesia*

*Email: tuyet.nguyenthianh@hust.edu.vn

Received: 1 April 2016; Accepted for publication: 15 June 2016

ABSTRACT

In Vietnam, the Monitoring, Reporting and Verification (MRV) of greenhouse gas emissions and procedures that is required to establish a baseline scenario that meets the requirement of a Nationally Appropriate Mitigation Action (NAMA) framework. The steel industry has a strong commercial incentive to monitor its energy use, as energy costs are a key driver for commercial success. In this study, the key question that needs to be examined is whether this data is made available to regulators under existing reporting requirements. If not, the related reasons have to be understood. On the basis of our findings, recommendations need to focus on strengthening reporting incentives, provision of more detailed reporting requirements, and protection of confidentiality. One more key question that needs to be addressed in this context is to which extent there is a gap between Ministry of Industry and Trade's current and required capabilities in relation to the above functionalities. A number of NAMA readiness activities will be identified and subsequently implemented.

Keywords: MRV, NAMA, GHG, energy use, steel industry.

1. INTRODUCTION

Monitoring, Reporting and Verification (MRV) is key for the successful implementation of any Greenhouse Gas (GHG) emission reduction program. International and/or domestic supporters, national operators, and public and private participants will all require a quantifiable MRV of impacts. For this reason, any emission reduction program that wants to be credible must include an MRV System to support its implementation and facilitate its evaluation. In Vietnam, as national systems are not yet fully operational, in most cases it is considered as more appropriate to anticipate a bottom-up MRV system, through the use of either crediting standards such as used under the CDM including sectoral approaches, Lotus standards (for energy efficiency rating of buildings) or through monitoring regulations akin to those in current day emission trading schemes [1]. From now on, the MRV of GHG emissions and procedures that is required to establish a baseline scenario that meets the requirement of a Nationally Appropriate

Mitigation Action (NAMA) framework needs to follow a suitable international best practice (procedures, reporting guidelines templates).

The NAMA support project cycle is illustrated in Figure 1 [2]. Among industrial sectors, a report of rapid assessment of existing MRV practices for the fertilizer industry NAMA in Vietnam has been published [3].

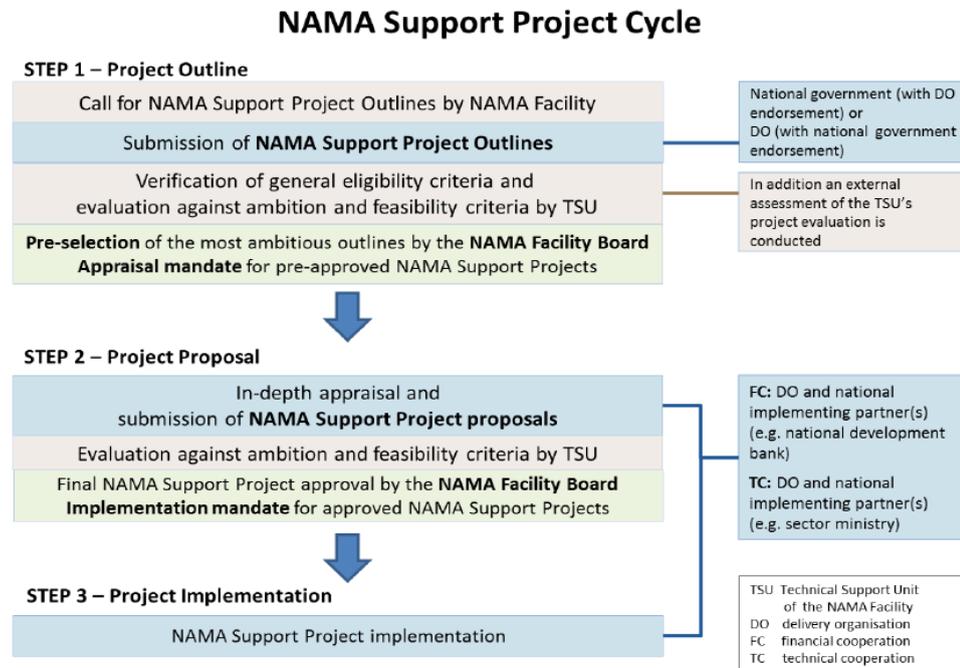


Figure 1. NAMA Facility: NAMA Support Project Cycle.

The steel industry has a strong commercial incentive to monitor their energy use, as energy costs are a key driver for commercial success. This means that the relevant data for GHG accounting and GHG baseline preparation is available at the facility level for the management of plant facilities and for energy cost control. In this study, the key question that needs to be examined is whether this data is made available to regulators under existing reporting requirements. If not, the related reasons have to be understood.

2. MATERIALS AND METHODS

2.1. General NAMA MRV Design Elements

Table 1 introduces some common NAMA MRV framework design elements and provides a list of concrete indicators that are to be monitored [2]. This list is based on the requirements of the UK – German NAMA Facility, which is considered to be one of the most influential and standard-setting financial mechanisms for NAMA support.

The purpose of the NAMA-level and action-level MRV system is also shown in the Table 2. Their purpose is dependent on a NAMA's implementation status: ex-ante is related to the use of MRV processes during the NAMA planning stage and ex-post is related to the NAMA implementation and operation stage.

Table 1. NAMA MRV Framework Design Elements.

Applicability criteria	Define which type of facility/actions are included in the NAMA, is to participate in MRV and are eligible to receive NAMA incentives.
Baseline and Target Setting	Every NAMA needs to stipulate a baseline on the NAMA-level as well as for every action (as starting point for the MRV of mitigation impacts beyond the baseline). A NAMA also needs to set a target trajectory as a means to express the level of ambition of the NAMA (could also be expressed as a percentage reduction against a baseline).
MRV System	A NAMA requires the on-going observation of performance of key indicators to assess its mitigation impact, among other things: additional indicators that need to be monitored include the flow of climate finance as well as the origination of co-benefits.
NAMA Operating Entity	Every NAMA needs to be managed by an entity that is responsible for a) collection and reporting of performance and b) provision of incentives to NAMA participants.

Table 2. Purpose of NAMA MRV Systems

Purpose	Ex-ante	Ex-post
NAMA-level	Assessment of ambitious level	Manage compliance with green growth/climate target MRV is pre-condition to ongoing support
Action-level	Assessment of mitigation potential Facility-specific baseline scenarios Registration of early actions	Basis for receiving performance based NAMA incentives

The quantification of both baselines is achieved through the application of the procedures for the NAMA-level and action-level MRV systems. However, there is no mandatory procedure for baseline calculation and MRV systems for NAMA. Instead, the Parties to the UNFCCC adopted a learning-by-doing approach, requesting NAMA developers to propose their own suggestions re NAMA MRV design. Such designs have now been proposed for a number of NAMA: they are usually based on existing MRV frameworks. In addition, a NAMA MRV system requires the monitoring of additional parameters that are not captured by either of these approaches. In relation to these parameters, large NAMA supporting programs are leading the development of best practices for NAMA-level and action-level MRV reporting in relation to such parameters.

2.2. Methods

This study has reviewed available circulars, legal instructions, guidelines, technical reports and publications to get better understanding of the quality, scope and completeness of data processing and reporting in Viet Nam, as well as of existing incentives to comply with the reporting requirements. Then, based on the requirements of the UK – German NAMA Facility which is considered to be one of the most influential and standard-setting financial mechanisms for NAMA support, identification of gaps of missing data and data collection processes which are required to establish a comprehensive MRV system for GHG emissions and a GHG baseline scenario for the steel sector for implementing an MRV system.

The study also reviewed Ministry of Industry and Trade (MOIT)'s institutional and technical readiness to formulate and implement a sectoral NAMA within the steel industry.

3. RESULTS AND DISCUSSION

3.1. The MRV framework for energy use and GHG emissions in the steel industry

3.1.1. Vietnam's most recent GHG inventory

In relation to preparing the first GHG inventory, it was reported that the progress of implementation was initially slow, resulting in the publication in 2003 of the first national communication of Vietnam to the UNFCCC, followed by the publication in 2010 of the Second National Communication. According to the 2010 National GHG inventory, Viet Nam's total contribution to world's emissions amounted to approximately 246.8 million tons of CO₂equivalent (tCO₂e). Except for energy sector, the second largest source was agriculture (33.2 % of the total emissions). Industrial processes and waste sector accounted for 7.9 % and 5.8 % of the national emissions, respectively [4].

The third national communication is expected to be published soon. In its data preparation process, the sources were basically come from General Statistical Office and Ministries. The lacked data, then, were surveyed from the bottom that meanscorresponding sectoral associations or enterprises (by using questionnaires).

3.1.2. Regulatory context

The Law on Economical and Efficient Use of Energy of 17 June 2010 obliges organizations, households and individuals to use energy economically and efficiently. The government sets minimum energy yield levels for energy-consuming equipment [5].

The National Target Program on Energy Efficiency and Conservation Phase 2012-2015 sets a target for energy-intensive sectors. The target is to achieve 5 - 8 % savings of total energy consumption of the country in the period 2012-2015 compared to forecasted energy demand in the national electricity development plan. For example, the steel industry is required to reduce the average energy consumption for the production of one ton of steel components from 179 kgoe in 2011 to 160 kgoe in 2015 [6, 7].

3.1.3. MRV in the steel industry

According to our survey conducted via the Vietnam Steel Association (VSA), there were 26 steel plants with total designed capacity over 9 million tons. The real steel production in 2013 was 5.5 million tons, of which 85 % of total production was manufactured using electric arc furnaces (EAF). Thus, the data from these plants has been analyzed via following approaches:

a) Aggregated activity data which is converted to GHG Inventory data using some default IPCC and some facility specific conversion factors and reported energy use which is collected through the national system of energy statistics, and

b) Reporting via the energy audit regulation for large energy users, which is applicable to most steel companies (users who consume more than 1,000 toe/year) [8]. They are obliged to audit energy use and submit energy efficiency and saving (EE&S) report to a local Department of Industry and Trade (DOIT) yearly.

The steel industries have a strong commercial incentive to monitor their energy-use as energy costs are a key driver for commercial success. This basic observation was confirmed during interviews with members of the respective industry organizations [7,9-11]. For example, the production of steel is based on batch-production. For every batch that is produced, detailed energy use data is captured as a key performance indicator in production. The authors have also received the information that in many cases, salary payments to mill operators include a bonus based on energy use of production which requires detailed energy use monitoring for purposes of calculating bonus payments. This implies that companies have a detailed understanding of their energy use, associated costs and savings potential of possible mitigation actions.

3.2. Gap Analysis: comparison of best practice with MRV status-quo in the steel industry

In relation to the general criteria of the UK-German NAMA Facility which is considered the current best practice [12], the study makes the observations for perceiving gaps related to NAMA MRV design elements for steel industry in Vietnam (Table 3).

Table 3. Perceived Gaps related to NAMA MRV Design Elements.

Element	Status-Quo	Perceived Gap for Steel Industries in Viet Nam
Applicability Criteria	Existing regulations define to which facilities they apply.	None
Baseline and Target Setting	Existing regulations stipulate an energy savings target, expressed as a percentage improvement in comparison to a historic baseline.	The existing regulation is too general and does not provide sufficient detail for operationalization on the plant level. I.e., it does not differentiate between new and old plants nor different technologies (with very different abatement cost curves).
MRV System	Existing regulation has detailed requirements re the parameters that are to be reported. It provides an electronic reporting interface and institutional arrangement. It focuses on energy reporting and does not require the reporting of carbon intensity. The conversion of energy use/activities to GHG impacts is carried out on an aggregate basis in the context of GHG inventory reporting. Other parameters that are required under a NAMA framework are not yet included.	The MRV system has high transaction costs, largely as a result of its layered/bottom-up design that requires facilities to report to provincial departments of MOIT and the use of non-integrated data reporting systems. The current system also lacks data quality checks, leading to the submission of obviously flawed information that clouds/makes impossible the assessment of real performance. The energy data that is reported is not in the ideal format for reporting under a NAMA framework. Reporting periods and the time it takes to complete data submission, aggregation and analysis are too long to make this data action-relevant for policy purposes. The focus of the MRV system is solely on energy efficiency. A focus on carbon intensity is required to capture mitigation options that are unrelated to energy efficiency, such as carbon sequestration options. Reporting needs to be extended to other NAMA MRV relevant topics, such as flow of finance, employment and transformational impact.
NAMA	Existing regulation stipulates	The existing regulation does not provide a relevant-

Operating Entity	to whom data is to be reported. It also includes a mechanism for control and enforcement	enough incentive mechanism to promote reporting of high-quality data. It also does not provide an incentive mechanism for the implementation of mitigation actions, which should include a financial mechanism.
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3.2. Recommendations for indicators related to mitigation impacts for the steel industry

The study proposes the following set of indicators as well as follow-up activities to ensure that the MRV system for the steel industry meets the expectation of NAMA supporters.

3.2.1. NAMA-(sector-) level indicators for the steel industry

- Sector-wide energy- and GHG-intensity baseline based on historic performance in relation to energy use and GHG emissions from large energy users in the steel industry (same boundaries as the existing EE&S regulation)
- Ex-ante sector-wide, dynamic GHG-intensity benchmark indicator for steel billets and rolled steel that represents the desired “ambition-level” regarding future EE&S improvements, (taking into account the carbon intensity of different energy carriers) that are to be achieved through a NAMA.
- Ex-ante absolute GHG emissions in the baseline scenario and the projected GHG emissions representing the level of ambition of the NAMA.
- Ex-post sector-wide, dynamic energy-intensity benchmark indicator for steel billets and rolled steel that represents actual performance of the NAMA
- Ex-post sector-wide, dynamic GHG-intensity benchmark indicator for steel billets and rolled steel that represents the actual performance of the NAMA.
- Ex-post absolute GHG emissions within the NAMA system-boundary.

Data collection should be based on a strengthened reporting (annual reporting, electronic submissions in accordance with fixed reporting template, inspection/verification rights or 3rd party verification) under existing EE&S reporting requirements.

3.2.2. Action-(project) level indicators for the steel industry

- Facility level energy- and GHG-intensity baselines based on historic performance.
- Facility level absolute annual baseline GHG emissions.
- Facility level energy and GHG intensity benchmarks after implementation of mitigation actions, including early actions.

Data collection should be based on MRV procedures for applicable CDM methodologies.

3.3. Recommendations for NAMA formulation at MOIT

As mentioned above, the study reviewed existing policies and institutional set-up in relation to these policies and their suitability as building blocks to support NAMA formulation at MOIT. This review takes into account the existing legal framework and process flow within the Government of Viet Nam for monitoring, reporting energy use and GHG emissions from industry. The proposed system would be implemented on two following levels.

3.3.1. Entity-level reporting & incentive system

- Entities would report their absolute activity, energy use and GHG intensity data annually to DOIT or to a central system that provides access to both DOIT and MOIT on the basis of one standard user data interface. The data user interface integrates all energy and GHG related facility-level reporting requirements and would have an integrated quality and plausibility checking system to flag data input errors in real-time.

- This system would be an upgrade of the existing system or a new development. The interface would be designed on the basis of stakeholder input (reporting entities), Industrial Safety Techniques and Environment Agency (ISEA) requirements and requirements of other regulators that currently receive energy audit related data.

- Regulated entities would also report their energy savings that result from mitigation actions to the NAMA Incentive Scheme Coordinator. A template of data that integrates different energy report forms should be developed.

3.3.2. NAMA-level reporting & incentive system

- MOIT/ISEA aggregates entity-level reporting of energy use and GHG emissions and submits a summary report to Ministry of Natural Resources and Environment (MONRE) for GHG Inventory and NAMA performance management.

- MOIT also aggregates mitigation-activity related performance related to emission reductions and other co-benefits to MONRE for NAMA performance management.

- MONRE controls NAMA performance in relation to its climate policy/green growth related targets and submit biannual reports to the international climate policy process.

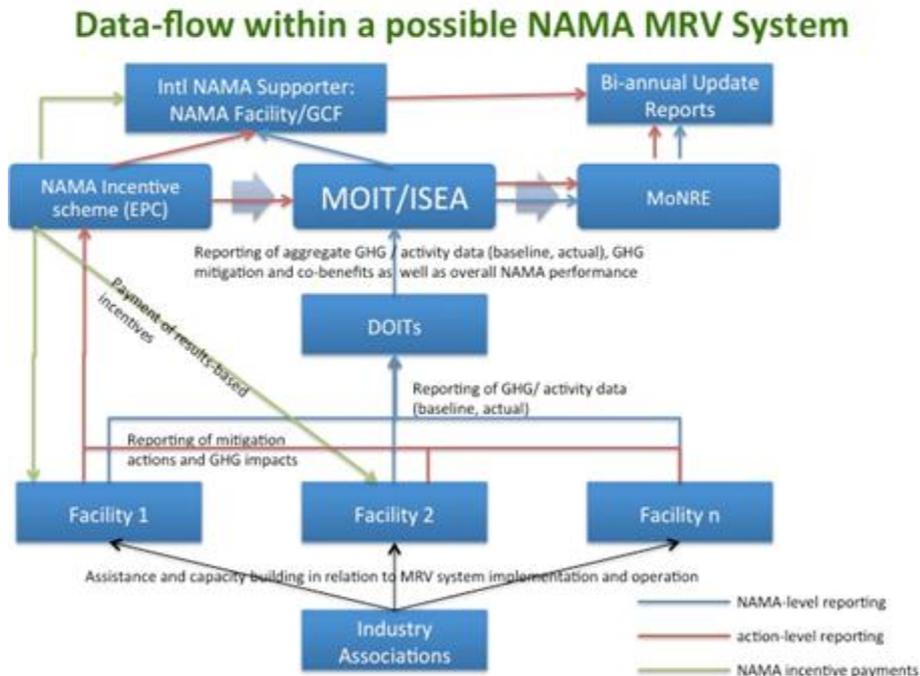


Figure 2. Data and incentive flow within a possible NAMA Structure

4. CONCLUSIONS

Based on the gap analysis and considering the existing experience with GHG inventories and GHG accounting in the industry, this study proposes the set of indicators to ensure that the MRV system for the steel industry meets the expectation of NAMA supporters. Concretely, the study suggests the introduction of a scheme with the following roles for different government entities in relation to MRV as well as processing of incentives.

Acknowledgment. The authors acknowledge financial support from the Ministry of Industry and Trade and the United Nations Development Programme.

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