[REPORT TASK III.2.4] GUIDE ON NAMA DESIGN AND MRV STRUCTURE

EXECUTIVE SUMMARY

Nationally Appropriate Mitigation Actions (NAMAs) aim to mobilize greenhouse gas mitigation with significant economic, social and environmental co-benefits in developing countries. The goal of this "Guide on NAMA design and MRV structure" is to provide policy makers, the cement industry and other public and private stakeholders with a document that condenses the key elements for designing a NAMA with focus on its Measurement, Reporting and Verification (MRV) It will also provide detailed information on the key design element of the cement NAMA in Vietnam. In order to do so, this report builds on previous reports and work developed by the consultant under the Nordic Partnership Initiative Pilot Programme and utilizes the main findings.

NAMAs are a concept under the United Nations Framework Convention on Climate Change (UNFCCC). Whereas, by their national nature, NAMAs draw on national finance and resources, their development and/or implementation can be supported by international finance.

There are no international rules to define the scope of a NAMA should actually be. However a set of main items that serve as building block for the NAMA can be identified (NIRAS et al. 2015c):

- Objectives, mitigation actions and enabling activities
- Identification of the baseline
- MRV system
- Regulatory and institutional framework
- Financial architecture
- Needs assessment/risk management strategy
- Implementation roadmap
- Capacity development strategy

Overall, the following measures can be included in one NAMA: 1) Policies, regulations, standards and programs; 2) National/sectoral emission mitigation objectives; 3) Financial mechanisms and incentives; and 4) Specific mitigation projects

Although there is a great degree of freedom in designing a NAMA, it should consist at least of the following key elements: A NAMA should be strongly linked to national policies and priorities: Institutional ownership and commitment should be as broad as possible and ideally cover one economic sector fully to successfully trigger a broader transformation in the country. Financial support is necessary for NAMA implementation, with a combination of both international and national sources of support likely to be most appropriate. Finally, the MRV system is crucial as it

will allow to track the NAMA's achievements and communicate them in a transparent manner to all relevant stakeholders, e.g. national ministries, international donors and the UNFCCC.

In the case of the proposed cement NAMA, the main objective is to identify the most promising mitigation measures and technologies that could be implemented in the Vietnamese cement sector and to facilitate the sector's transformation towards a more sustainable and less carbon intensive development path.

A representative database with information on production, energy consumption, CO_2 emission and key performance indicators of the cement industry, using the international industry standard, is the cornerstone of the MRV system.

The majority of the cement installations are relatively recent and equipped with technologies that belong to the Best Available Technology type. However, many installations are, operated in a sub-optimal way leading to high energy consumption and CO_2 emissions. Assuming that Vietnam would further license new installations as per the current Master Plan, the country's total installed cement production capacity would lead to an economically unsustainable and environmentally undesirable excess capacity. We estimate that in the absence of any mitigation policy and action the cement sector CO_2 emissions increase from 46 million t(Mt) in 2013 to 94 Mt in 2030. We also identified a very high energy and CO_2 emission improvement potential ranging, depending on the baseline and future emission scenarios, between 10 and 30% of CO_2 emissions per t cement and between 10 and 47% of absolute CO_2 emissions. An initial baseline scenario assumes the cement sector evolving according to the prevailing Vietnam Cement Master Plan 1488, notably expanding the installed capacity to 1,200 kg/inh/year including 10% reserve capacity and export of the excess, all new installations being larger than 2,500 tpd capacity with 3,050 MJ/t clinker energy efficiency, sector average 3,600 MJ/t clinker and 80% clinker in cement (scenario named VN-BaU-1200). This is a small improvement from current practice, where energy efficiency and clinker content are lagging behind the levels specified in the Master Plan.

However, taking account of the research done until now in this assignment and the numerous comments received during the December 2015 and January 2016 stakeholder consultations, the first and most important recommendation from this project is to limit the installed cement production capacity in Vietnam to about 800 kg cement per inhabitant per year

Therefore, the Consultant uses a second baseline scenario where the sectoral *installed capacity* equals 800 kg cement per inhabitant per year with *future KPI performance* equal to the current business-as-usual with Master Plan policy measures (scenario VN-BaU-800). Under this scenario, in the year 2030, 33 million t CO_2 and about 5 billion dollar investment in excess new clinker capacity are avoided because significantly less cement is produced and consumed in Vietnam.

As future low-emission scenario the Consultant recommends that the Vietnam cement sector should achieve by the year 2030 an average performance level equal to the 2013 global international Best Available Technology and Practice (BATP) (scenario BATP-800). Improving efficiency from BaU to BATP would save 11 Mt gross and 14 M net CO_2 in 2030, -18% and -23% respectively limiting total absolute emissions to 50 million t CO_2, just a few percent more than in 2013[1]. If BATP would be implemented but cement production capacity would not be limited to 800 kg/inh/y, the absolute CO_2 emission would increase by 65% from 2013 to 76 Mt CO_2 in 2030.

This means that the lion's share of the CO_2 mitigation comes from the review of the Vietnam

[1] ***Gross emissions*** are the total direct CO_2 emissions from a cement plant, including CO_2 from fossil wastes but excluding CO_2 from biomass wastes, which is treated as a memo item. ***Net emissions*** are the gross emissions minus the CO_2 emissions from alternative fossil fuels.

Cement Master Plan limiting the installed capacity to 800 kg cement domestic market demand per inhabitant per year and refraining from a strategy focusing on exports . Cement production would still be 24 Mt or 40% more than in 2013, while clinker production would increase by only 8 Mt or 13%.

The large majority of the proposed mitigation actions under the NAMA are economically attractive. Aggregated over all 12 actions and the whole Vietnam cement sector the initial investment cost would be only about 0.9 USD per ton cement and 64 million USD per year. The net balance of costs, cost savings and additional revenues would result in 2.5 to 5 USD per ton cement cost saving equalling 170 million USD cost saving in 2020 increasing to 440 million USD by 2030.

Another important aspect of the NAMA is related to the sustainable development (SD) co-benefits associated with the proposed CO_2 mitigation measures. Overall 4 main general categories of co-benefits can be identified: 1) Social, 2) Environmental, 3) Economic and 4) Technological. A set of indicators has been identified to capture all the SD benefits that are delivered by the NAMA. The definition of the co-benefits, and their monitoring over the NAMA lifetime can be adjusted to accommodate specific national requirements of donors interest on specific SD impacts.

Having quantified the financial benefits and needs for the NAMA, it obviously is important to identify the appropriate sources of finance that can support its implementation.

The financial benefits of most mitigation actions a largely exceed their costs. Hence the operational cash flow from these measures should enable their financing, but a number of barriers currently inhibit their implementation: the consultant identified a number of influential enabling actions to overcome those barriers. Whereas the mitigation actions by the cement companies should be largely (if not entirely) financed by the companies' cash flow, the enabling actions ought to be financed by domestic policy measures with partial support from international finance.

The Measurement, Verification and Reporting (MRV) framework is extremely important as it allows to transparently monitor the progress of the NAMA and to reliably quantify the emission reductions achieved. Especially in the case of a financial incentive in the form of an emissions reduction crediting system with a purchase facility, environmental integrity must be ensured and only real efforts toward mitigation should be rewarded.

Overall the MRV system needs to allow to keep track the progress of NAMA implementation and the results achieved while ensuring the environmental integrity of the NAMAThe MRV design for the NAMA should cover both GHG emissions (and emissions reductions) and non-GHG parameters (impacts of mitigation policies and actions including co-benefits, and support). Regarding the scope of the MRV system, different levels must be considered: installation, sector and national level. The NAMA design should also provide implementation provisions of the MRV system, including allocation of responsibilities and closure of capacity and expertise gaps.

The last section of this report presents an overview of potential barriers and risks that could prevent successful NAMA implementation. Also, a set of actions and measures that can increase the chances of successful implementation is discussed. Even well designed NAMAs are facing the risk of not achieving the planned results; due to lack of defined roles, clear responsibilities and cooperation mechanisms between institutions, lack of political support, problems to secure national financial support and the lack of an appropriate legal and regulatory framework.

It is important then to consider from a very early stage also how to address the main risks and actions to be put in place to facilitate the NAMA implementation. The most important ones can be summarized as follows:

- Alignment of the NAMA with national policy objectives

- Involvement of the cement companies, which are obviously key to ensure a successful NAMA implementation
- Identification of existing needs and challenges in achieving policy objectives to strengthen the institutional framework in the country
- Mobilization of finance from both national and international sources
- Definition of the incentive system to leverage participation, focusing on the key performance indicators (KPIs)/metrics and ensuring they are properly monitored.

Ensuring there is a continuous review and adjustment process that allows the NAMA to be always aligned with national policies and actual market situation.

The report was developed under the framework of the Nordic Partnership Initiative Pilot Progamme for Supporting Up-scaled Climate Change Mitigation Action in Vietnam's Cement Sector.

The Nordic Partnership Initiative (NPI) established in December 2011 to support climate change mitigation efforts in developing countries and funded by Denmark, Finland, Iceland, Norway and Sweden. The budget of the NPI Programme in Vietnam is €1.6 million, and it is financed by Nordic Development Fund (NDF) and the Ministry of Construction of Vietnam. The implementation of the Vietnam cement sector Pilot Programme started in March 2014, by a consortium led by NIRAS A/S (Denmark) in collaboration with Perspectives GmbH, South Pole Group, VNEEC JSC and NIRAS Vietnam.

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