**UP- SCALED CLIMATE CHANGE MITIGATION ACTION IN VIETNAM'S CEMENT SECTOR**

# Mid-term Report

# For the period March 2014 – December 2014

Submitted to:

**Ministry of Construction**

Department of Science Technology and Environment (DSTE)

# 1 PROJECT INFORMATION

**Project Name:**
UP- SCALED CLIMATE CHANGE MITIGATION ACTION IN VIETNAM'S CEMENT SECTOR

**Donor:**
Nordic Development Fund

**Beneficiary:**
Ministry of Construction

**Implementing Agency:**
Department of Science Technology and Environment (DSTE)

**Consultant:**
A consortium of NIRAS A/S (Denmark, Lead firm); South Pole (Switzerland); Perspectives (Germany); VNEEC (Vietnam) and RCEE-NIRAS (Vietnam)

**Duration:**
February2014 – February 2016 (24 months)

**Total Project Budget :** 1,539,792.40 EURO.
- ODA source : 1,389,792.40 EURO
- Counterpart fund : 150,000.00 EURO, equivalent to 4,200,000,000 VNĐ

**Project's Objectives:**
*Long-term objective:*
Strengthening Vietnam's capacity to develop and implement an appropriate GHG Mitigation Action Plan

*Medium objective:*
The Pilot Program will help Vietnam to prepare and implement a full-scale NAMA in the cement sector

*Specific Objectives:*

- 
- Collection of up-to-date data on emission reduction potential
- Capacity to develop baseline emission projections
- Capacity to estimate impact of mitigation actions (emission reduction)
- MRV system of international standard
- Identification of barriers to mitigation action, and proposals for addressing them
- Identification of appropriate support instruments for mitigation action
- Relevant institutional arrangements, capacity building and training
- Prepare a NAMA proposal

# 2 PROJECT PROGRESS

## 2.1 Achievements

Table 2.1 Project 's Achievements by end of December 2014

| No. | Completed tasks | | Planned time | Actual time | Deliverables | Remark |
|---|---|---|---|---|---|---|
| **Group A: Project Management and Coordination** | | | | | | |
| 1 | 0.1 | Team mobilization and preparation of inception report | Feb. 2014- Mar. 2014 | Feb.2014-Mar.2014 | - Contract signing<br>- Kick off meeting | |
| 2 | 0.4 | Inception Report | Apr.2014 | Apr.2014 | - Inception Workshop<br>- Inception Report | The Inception report was approved by 25/05/2014. Delay was made for collecting comments from the donor |
| 3 | 0.5 | Progress Report | Apr. 2014<br>Jul. 2014<br>Oct. 2014<br>Dec. 2014 | Apr. 2014<br>Jul. 2014<br>Oct. 2014<br>Dec. 2014 | - Progress Report Q1/2014<br>- Progress Report Q2/2014<br>- Progress Report Q3/2014<br>- Progress Report Q4/2014 | |
| **Group B: UP- SCALED CLIMATE CHANGE MITIGATION ACTION IN VIETNAM'S CEMENT SECTOR** | | | | | | |
| **Block 1: Legal and Institutional Framework** | | | | | | |
| | I.1 | Overview of relevant policies, processes, initiatives and stakeholders | | | | |
| | I.1.1 | Overview of the Cement Sector | May, 2014 | Jun.2014-Sep.2014 | Assessment of Legal and Institutional Framework of Cement Industry in Vietnam | - The project team has decided to extend the duration for these tasks |
| | I.1.2 | Analyses of the actual situation of the Cement sector in Vietnam | May, 2014 | Jun.2014-Sep.2014 | | |

| No. | Completed tasks | Planned time | Actual time | Deliverables | Remark |
|---|---|---|---|---|---|
| I.1.3 | Description of key stakeholders | May, 2014 | Jun.2014-Sep.2014 | | to address all issues required as the Terms of Reference |
| **Block II: Emission data – baseline and mitigation scenarios** | | | | | |
| 0.7 | Additional Survey | May 2014- Jun. 2014 | Jul. 2014-Aug.2014 | - Report: Additional Study on low carbon options implemented at Holcim Vietnam and Ha Tien Cement Plants | The report serves as reference documents for other project activities |
| I.2.1 | Project and Emission Boundary | May 2014 | Aug.2014-Sep.2014 | - Report: Project and Emission Boundary | The delay was made as coordination was required to organize the consultation missions for international consultants for data collection and assessment. The project team has agreed to adjust the time frame as Aug. 2014 – Sep.2014 |
| I.2.3 | Assessment of availability and quality of the data | May 2014-Jul. 2014 | Sep. 2014 – Nov.2014 | - Report: Assessment of availability and quality of the data and gap analysis | The delay was made due to more time required for data collection and inputs from Task I.2.1 and I.2.2. The project team has agreed to adjust the time frame as Sep.2014-Nov.2014 |
| I.2.4 | Identifying data gaps for necessary and ideal datasets and proposing solutions to fill the gaps | Sep.2014 | Sep. 2014 – Nov.2014 | | The delay was made due to more time required for data collection and inputs from Task I.2.1 and I.2.2. The project team has agreed to adjust the time frame as Sep.2014-Nov.2014 |

| No. | Completed tasks | Planned time | Actual time | Deliverables | Remark |
|---|---|---|---|---|---|
| I.3.1 | Emission Trends | Sep. 2014 – Nov.2014 | Sep. 2014 – Feb.2014 | - Report: Emission Trends | The delay was made due to more inputs required from other activities under Block II. Emission data – baseline and mitigation scenarios |
| **Block III: MRV Framework** | | | | | |
| I.2.2 | Definition of necessary dataset and ideal dataset and associated calculation methods and formulas for determining sector-level emissions and mitigation potential | May 2014-Jul.2014 | Jul.2014-Oct.2014 | - Report: Data set guidelines and calculation methodology | The delay was made as inputs from Sub-Task I.2.1 (which was finalized by Sep.2014) are required to finalize the report |
| I.2.5 | Collection of the available data and of missing items of necessary dataset. | Jul.2014-Oct.2014 | Oct.2014-Dec.2014 | - Report: Data collection and management framework and database design | The delay was made due to more inputs required from other activities under Block II. Emission data – baseline and mitigation scenarios |
| I.2.6 | Setting up of a database system (incl. first version of database) to be used by the project | Aug.2014-Oct.2014 | Oct.2014-Dec.2014 | | The delay was made due to more inputs required from other activities under Block II. Emission data – baseline and mitigation scenarios |
| **Group C: Training and Capacity Building** | | | | | |
| | Study tour in Europe | Sep.2014 | Sep.2014 | - Study tour in Switzerland, Germany, Sweden | |
| | Workshop "Introduction of Energy and $CO_2$ Reporting System in Vietnam Cement | Nov.2014 | Nov.2014 | - Workshop "Introduction of Energy and $CO_2$ Reporting System in Vietnam Cement | |

| No. | Completed tasks | Planned time | Actual time | Deliverables | Remark |
|---|---|---|---|---|---|
| | Industry” | | | Industry”” | |

GROUP A: PROJECT MANAGEMENT AND COORDINATION

***Task 0.1: Team mobilization; Inception***

From the period from 24 March to 04 April, 2014, the Consultant has organized the mission for formal kick off with the participation of Mr. Morten Pederson, Team Leader and the local team. The following activities have been carried out during the mission week::

- Organization of meetings with relevant ministries, donors, cement enterprises and other stakeholders to introduce the project and potential cooperation.
- Working with MOC to debrief the mission and agree on the contents of the Inception Report

***Task 0.4: Inception Report***

In April 2014, the Consultant has developed and submitted the Inception Report. Per comments from MOC, NDF, NEFCO/NOAK and ADB, the Inception Report has been revised and approved by MOC on 25/05/2014 .
On 24/04/2014, the Inception Workshop has been organized in Hanoi with the participation of MOC, MOIT, MONRE, Vietnam Association for Building Material, Vietnamese Cement Association, Vietnam Cement Industry Corporation, cement plants and the consortium.

***Task 0.5: Progress Report***

In 2004, the Consultant has developed the following progress reports for MOC's approval::

- Progress report Quarter I/2014 (Feb.2014- Apr.2014)
- Progress report Quarter II/2014 (May 2014- Jul.2014)
- Progress report Quarter III/2014 (Aug.2014- Oct.2014)
- Progress report Quarter IV/2014 (Nov.2014- Dec.2014)

The content of the progress reports includes:

- Main achievements during the quarter
- Summary of the main observations during the quarter
- Administrative issues (if have)
- Emerging ideas and opportunities
- Conclusions and Works to be done in the following quarter

GROUP B: UP- SCALED CLIMATE CHANGE MITIGATION ACTION IN VIETNAM'S CEMENT SECTOR

**Block 1: Legal and Institutional Framework**

***Task I.1: Overview of relevant policies, processes, initiatives and stakeholders***

This tasks consists of 03 sub-tasks:

- Sub-task I.1.1: Overview of the Cement Sector
- Sub-task I.1.2: Analyses of the actual situation of the Cement sector in Vietnam
- Sub-task I.1.3: Description of key stakeholders

*Activities:*

The consultant team has conducted desk study and dialogue with key stakeholders to gather and review all related information on policies, laws, regulations, industry road maps, targets, forecasts, performance benchmarks, incentive mechanisms for the cement industry in Vietnam

*Key findings:*

- The main legislation which governs the cement industry in Vietnam is the Master Plan for development cement industry. It is revised periodically. It shows a strong effort of the government to satisfy demand with local production. The cement demand is expected to grow in the coming year. Vietnam has good reserve of the limestone for development of the cement industry.
- There is limited legislation specifically on sustainable development of the cement industry, no regulation on MRV of the GHG emissions as such applied in the sector.
- There are lacks of incentive policy to promote low carbon options such as WHR and alternative fuels and waste treatments in kilns. While the grid connected renewable power plant received many incentive scheme such as FIT, avoided cost tariff, they probably compete with cement industry for biomass or waste sources.
- Many stakeholder feel that the energy costs in Vietnam are subsided at the level below the international market. This could put in a barrier for investors such as ESCOs (Energy Service Company) to be active in the field of energy efficiency and renewable.
- Cement industry should not aim to be developed as large exporting industry due to its low added value while consuming lots of energy and the increasing energy demand in Vietnam put the energy supply in challenges.

- The cement standard TCVN has too few PCB cement types. There should be more types which suit different construction application to provide cement producer the possibility to reduce clinker content in cement. By doing this, the cement producer will be given a tool to increase their added value in the value chain.
- The reporting system of cement plant to ministries is complicated but does not provide sufficient information for GHG emission accounting. Cement companies do not have interest to participate in GHG emission reporting. The role of MOC in MRV should be reinforced and some capacity in this role needs to be built up from ground.
- It is recommended that the Master Plan shall be revised with stronger influence of GHG emission MRV, low carbon options promotion. Participant from international consultants may help cement industry better plan its future development and learn some lessons from developed countries. Mechanism to reinforce the Master Plant toward the market shall be clearly set up.
- International examples show that in both India and the UK, market based systems such as the UK/EU ETS and the Renewable Energy Certificates (RECs) have not had the impact that was originally envisaged, despite promising early gains. Low demand and very low prices for certificates has undermined the system and discouraged investment. Also, penalties for non-compliance have not been enforced to a significant extent.
- Taxes on carbon, energy consumption and waste have proven to have had an enduring positive impact in encouraging emissions reductions. Recent studies have also suggested that many of the fears about the measures affecting the competitiveness of the cement industry have not been borne out in practice.

**Block II: Emission data – baseline and mitigation scenarios**

For the development of different tasks under Block II: Emission data – baseline and mitigation scenarios, a mission has been performed by the International Cement Sector Specialist, Mr. Bruno Vanderborght and the International Designated MRV Expert, Mr. Axel Michaelowa from 25 to 29 August 2014 in Vietnam. The purpose of the mission is to collect facts and findings for the development of several subtasks under Task I.2: Identification and collection of relevant data.

During the mission, site visits to 04 selected cement plants have been conducted with the participation of the international experts, national experts and experts from MOC to get an overview of existing data and information systems of the Vietnam cement plants and collect comments/ opinions for the development of MRV system. Meetings with other relevant

stakeholders such as MONRE, donors (WB, JICA) have been organized to discuss and exchange information on other relevant initiatives in Vietnam.

### *Task 0.7: Additional survey*

*Activities:*

A survey of already on-going low carbon projects in the cement sector in Vietnam, covering Ha Tien 1 and Holcim cement plants in Kien Giang province has been conducted during week 31 (28/7 – 31/7). The experience from these plants are important as an input to the future development of this project.

During the period from 28/7/2014 to 31/7/2014, the Consultant, in cooperation with Vietnam Energy Service Company, has conducted a survey of already on-going low carbon projects in the cement sector in Vietnam, covering Ha Tien 1 and Holcim cement plants in Kien Giang province. The main purpose is to get experiences from already on-going low carbon projects in two cement companies Vietnam, analyzing business drivers and lessons learnt from implementation of the options, for example: business incentives, managerial aspects, public awareness, MRV. The survey team include Mr. Nguyen Trung Hoa, Director of DSTE/MOC, Ms. Luu Linh Huong, Expert of DSTE/MOC, Mr. Morten Pedersen, Team Leader and the local consultants.

*Key findings:*

- Cement is a key material for building society's infrastructure. Demand reduction and/or substitution are not realistic options given growth in developing countries, increasing urbanisation and climate change adaptation needs.
- The high cost of reducing CO2 emissions in the sector will require markets with long-term stability and resultant confidence in the pricing of CO2 by those markets.
- Raising awareness for a number of employees at all levels to commit CO2 emission reductions, benefits and social responsibility in integrating the CO2 emission reduction activities into actual production and business, especially when the customer are in growth trends towards sustainable development and environmentally protection, as well as to address the requirements of the Laws and upgrade of institution in the future.
- Raising the technical skill for staff and equip adequate measurement equipment to conduct system audits itself, which assess the status and operational performance in each production steps and CO2 emission reduction options

- Completing national guidelines and standards to enhance and promote the use of additives and/or substitutions in cement, thereby reducing the amount of produced clinker for each type of final cement products
- Existing options to reduce emissions in the sector, while helpful, are not sufficient to counteract growth in demand. New products and technologies are needed, including new cement types.
- There should be a mechanism to widely apply a state-of-the-art production management system, data collection and CO2 emissions inventory methods for all cement plants in Vietnam (e.g. CSI)
- Encourage to develop a sustainable development strategy in term of CO2 emissions reduction clearly at plant level; reform institutions and enhanced autonomy for the cement plant in the approval of projects to save energy and protect the environment
- Along with existing policies, combined with the national and local programs such as energy efficiency as well as environmental protection, it should be to develop mechanisms to promote and replicate the experiences of cement plants, provide adequate technical supports and budgetary arrangements which encourages cement plants implementing solutions towards environmental protection and energy efficiency stronger
- International collaboration and public-private partnerships must be attended to help speed up research, designs, development and application of necessary new technologies

***Task I.2.1:*** ***Project and Emission Boundary***.

*Activities:*

Under this Task, the Consultant presents and discusses different options for the delineation of the emission and project boundary based on the review of existing standards, protocols and methodologies related to the cement sector. Taking into account the relevance for the cement sector in Vietnam, recommendations for an appropriate emission and project boundary for a cement NAMA in Vietnam are provided.

*Key findings:*

- The choice of emission boundary for mitigation under a NAMA, defined as the limits from where both anthropogenic emissions and emissions reductions are calculated, is crucial for a robust and credible Measurement, Reporting and Verification (MRV) system. Such a boundary can range from a measure-specific level that separates

reductions from each mitigation measure under the NAMA, to a sector-wide level that looks at emissions from all cement companies as a whole. Increasing the level of aggregation1 reduces cost and effort associated with MRV at the expense of accuracy and transparency; therefore, an appropriate balance should be sought. In addition, the boundary can encompass only direct GHG emission (scope 1); indirect emissions from electricity, heat or steam consumption (scope 2); or all other indirect emissions (scope 3).

- Existing protocols for reporting emissions from cement production reflect these options for aggregation. The Clean Development Mechanism (CDM) provides numerous methodologies for calculating measure or category-specific emissions, the Cement Sustainability Initiative (CSI) takes a more holistic plant-level approach, while the Intergovernmental Panel on Climate Change (IPCC) national inventory guidelines offers a range of Tiers based on the availability of specific data
- In the context of Vietnam, the following mitigation activities are deemed as most promising and should therefore be covered by the project boundary: fuel-switching, blending, waste-heat recovery and energy efficiency. In addition, monitoring and reporting should cover the main direct and indirect GHG emissions associated with cement production of all cement plants in Vietnam within the timeframe of the NAMA. Hence the following main activities/parameters are to be included in the emissions boundary: clinker production, grinding of clinker, additional fuel use for own power generation, and preparation or processing of fuels or fly ash in own installations.
- We recommend including in the MRV direct and indirect emission that fall under Scope 1 and 2, which will represent the vast majority of emission. The starting point should be the plant-level CSI methodology complemented with default emission factors, unless more recent, industry-specific data from Vietnam are available. CDM methodology-derived parameters related to indirect emissions should be applied, e.g. Grid Emission Factor (GEF) for the emissions related to consumption of electricity from the power grid

### *Task I.2.3: Assessment of availability and quality of the data*

### *& Task I.2.4: Identifying data gaps for necessary and ideal datasets and proposing solutions to fill the gaps*

[1] E.g. time aggregated (monthly, annually, bi-annually) and measure / impact related (single measures, unit, plant, company, sector)

*Activities:*

Under this task, the Consultant has assessed the data availability and its quality at both national and installation levels in order to identify a suitable dataset and requirement of data, and has subsequently provided guidance for developing data collection systems in Viet Nam to serve the purposes of the project. This study also focuses on data gaps between the data needs of the project and the existing data as well as barriers for data collection in order to give recommendations to improve the data collection in both terms of quantity and quality.

The results of the study has been incorporated in the report: *Assessment of availability and quality of the data and gap analysis.*

*Key findings:*

- The Consultant proposes to sign a mutual confidentiality agreement between each cement plant and the data manager who will regulate on how information will be managed and used to avoid unnecessary disclosures is vital to facilitate data providing by cement companies
- The structure of data on energy and GHG emissions at a cement plant is organized in accordance with the cement production
- The approach for data collection includes three major steps, namely gathering existing data; gathering new data; and combining data for use. The desk review, interviews with experts and site visits are the main approach for the first step. The survey methodology via questionnaire form is proposed for gathering new data. The structure of data on energy and GHG emissions at a cement plant is organized in accordance with the cement production. The requirement for each parameter collected is described in accordance with Cement Sustainability Initiative (CSI) $CO_2$ and Energy Protocol/Version 3.1 by (World Business Council for Sustainable Development) WBCSD and the common practice at cement plants. The report presents the approach for data collection that includes three major steps, namely gathering existing data; gathering new data; and combining data for use. The most challenge to conduct this survey is that it totally depends on the volunteering commitment of a plant in providing data. So far, no regulation and sanctions are in placed on data collecting and reporting in this sector.
- The three types of data and it major sources are figured including:
  + Sectoral production and performance data from the National Master Plan and its two updates, the surveys organized by the Ministry of Construction (MOC), Viet Nam National Cement Association (VNCA) periodically published reports, VICEM internal reports and other sectoral reports.

+ GHG emissions reports from Ministry of Natural Resources and Environment (MONRE) to fulfil the obligations under the United Nations Framework Convention on Climate Change (UNFCCC), i.e. NCs and Biennial Update Reports (BURs) and data may be available internally at VICEM.

+ Sectoral energy consumption and potential saving: data collected by Ministry of Industry and Trade (MOIT) from periodically submission of cement companies on energy consumption and data may be available internally at VICEM.

- At a facility level, the assessment of data available via desk review and site visits shows that the current monitoring system and recording practice at the cement plants allow them to gather data of different aspects including operational performance (e.g. capacity, clinker and cement output), energy consumption (e.g. fuel consumption, electricity consumption), and additive-related information. There are currently 55 operating cement plants (installations) with 75 production lines in total in Viet Nam, of which 16 plants with 24 production lines have provided their recorded data under the recent Joint Crediting Mechanism (JCM) survey of the MOC in early 2014
- The data collected from 16 cement plants represents 44% of designed capacity of total 55 cement plants. Therefore, the survey under this project should target all the operating cement plants and more efforts are needed to gather detailed data from the plants that have no information so far. The data of energy consumption is also available at the cement plants. However, specific parameters monitored and frequency of monitoring and recording are varying by different installations
- The data available of 16 plants shows that the most popular additives are pozzoland, slag from blast furnace, and fly ash from power stations. These are found in majority of cement products produced by 16 plants.
- The site visits under this project reveal that the data of gas emissions (especially $CO_2$ emissions) is not frequently monitored and recorded, although all plants provide general information on gas emissions to serves the periodically environmental report that is submitted to the MONRE/DONRE

**Block III: MRV Framework**

***Task I.2.2: Definition of necessary dataset and ideal dataset and associated calculation methods and formulas for determining sector-level emissions and mitigation potential***

*Activities:*

Under this task, the Consultant has provided a complete and precise description and explanation of the conceptual as well as the practical aspects of energy and CO2 monitoring, reporting, verification (MRV) and information systems for the cement industry. The result of the study has been incorporated in the report.: *Data set guidelines and calculation methodology.*

*Key findings:*

- Energy and CO2 MRV systems start from primary operational input data that are normally measured and available in good operational practice. A globally standardized methodology and tool is available and utilized by a majority of cement companies worldwide.
- Reporting by means of a globally standardized methodology is relatively straightforward and has the potential to provide valuable knowledge and insights to the industry, investors, authorities and other stakeholders.
- This report concludes with the recommendation that the Ministry of Construction, the Vietnamese cement industry and the consortium of consultants will utilize this global cement industry standard (provided adequate learning and training) or could develop a compatible but simplified version.
- Provided that the Vietnamese system will be compatible with the international standard, valuable additional knowledge can be extracted through the international experience and comparison.

***Task I.2.5: Collection of the available data and of missing items of necessary dataset.***

***& Task I.2.6: Setting up of a database system (incl. first version of database) to be used by the project***

*Activities:*

Based on the results from assessment of availability and quality of data and gap analysis, the Consultant aims to propose the data collection and management framework for the Viet Nam cement industry and presents the first version of database template.

The results of the study under these 02 sub-tasks have been incorporated in the report: *Data collection and database system including first version of database*

*Key findings:*

- Given the early state of management awareness and data collection as well as of the MRV in the industry, a simplified system including only the minimal required data as described in previous reports (Reports 1.2.2 and 1.2.3-4) should be aimed at this stage
- This report presents the several MRV and database management system for energy and $CO_2$ emission at a cement company level that are applied in the international cement industry in order to propose a practical system for Viet Nam's cement industry that is compatible with the international industry best practice. Among the different well-known systems studied, the CSI MRV system shows that it is the most suitable approach for developing a database system for all cement installations and/or companies in Viet Nam
- To ensure on the one hand efficiency and transparency, but on the other hand sufficient confidentiality of a database system, it is important to have a good management methodology that fits to the country's circumstances and requires reasonable resources. The MOC will make the final decision on the methodology that then regulate on how the practices of the data collection, confidentiality agreement and management of database as well as reporting the results obtained from the database will be conducted.
- Simplified system from the CSI MRV system, including the minimal required data is developed in this task. The first version of excel-based Viet Nam cement energy and $CO_2$ database system is developed based on the data available to the project's team to the date of writing this report. This report indicates a clear emission boundary, providing main calculation indicators and metrics to be applied in the database. This database can be periodically updated and compared to baseline and emission reduction projections to be developed under next tasks of this project. In order to help the users of the database system understand and fill in data correctly, the calculation methods of CO2 emissions from different processes in the cement production that are applied in the excel database template are detailed.
- It is recommended that in order to be able to conduct the data collection to serve the purposes of this project as soon as possible, a quick decision and approval by the MOC on the data management method is necessary

### *Task I.3.1: Emission Trends*

The key purpose of this task is to identify the historical trend of the emissions for Vietnam's cement sector, e.g. to: (1) develop historical trends of the emissions and (2) development of the future $CO_2$ emission trends. A general approach to estimate $CO_2$ emissions from clinker production by using IPCC Guidelines (Tier 1 approach) has been applied.

The draft report has been available for collecting comments among the team members. As scheduled, the final report will be finalized and submitted to MOC in Feb. 2015.

GROUP C: TRAINING AND CAPACITY BUILDING

***Study tour in Europe***

In the period between 16 September to 25 September 2014 MOC has performed a mission to the Switzerland, Germany and Sweden. The following persons have participated in the mission:

- Mr. Nguyen Trung Hoa, Director, Department of Science, Technology, Environment (DSTE)/MOC
- Ms. Luu Linh Huong , PMU Secretary, DSTE/MOC
- Mr. Hoang Huu Tan , Deputy Director of Department of Building Materials/MOC
- Mr. Hoang Hai Van, Expert from General Department of MOC Office

The mission was structured to give an overview of CSI and EU-ETS on technical, administrative and legal issues, as well as emission control policies relevant for the cement sector. MOC delegations have had an opportunity to learn and share about the : 1) EU-ETS exemplified through the Swedish example and with the focus on the daily administration, including disputes, 2) The voluntary approach of the cement industries through the CSI, 3) the very concrete actions to reduce CO2 emission at the cement plant, Holcim Dottenhausen, and the practical experience by a company to fulfil the EU-ETS and German administrative requirement.

***Workshop:" Introduction of Energy and CO2 Reporting System in Vietnam Cement Industry"***

Under the Nordic Partnership Initiative Pilot Programme for Supporting Up-scaled Climate Change Mitigation Action in Vietnam's Cement Sector funded by Nordic Development Fund (NDF), on 6th of November, 2014, the Ministry of Construction organized a Workshop on "Introduction of Energy and CO2 Reporting System in Vietnam Cement Industry". Its objectives are to provide supports to cement companies for data monitoring and management for energy efficiency improvement and GHG emissions reduction, as well as to support Vietnamese Government in setting forth policies, fulfilling international obligations on emission reduction in general and in cement industry in particular.

The Workshop has attracted the participation of representatives from Departments, Agencies, and Institutes of the Ministry of Construction, Ministry of Natural Resources and

Environment, Ministry of Industry and Trade, related organizations, and cement companies in Vietnam.

Mr. Nguyen Trung Hoa, Director of Department of Science, Technology and Environment – Ministry of Construction cum Project Director, has emphasized on importance of $CO_2$ emission reduction in cement plants. It is possible for Cement plants to reduce fuel consumption, utilizing waste heat for electricity generation, improving the quality of cement products, and protecting the environment by undertaking measures on $CO_2$ mitigation.

Dr. Bruno Vanderborght, the international consultant, has introduced and shared experience in Cement Sustainability Initiative (CSI) application in several countries and the business case for Vietnam's cement industry energy and CO2 information system. The system has been proved and widely accepted to benefit all stakeholders (cement companies, authorities, researchers) in countries that are using the system.

Ms. Dang Hong Hanh, local consultant, has presented an overview on current status of data collection on energy and $CO_2$ emissions in Vietnam. It is assessed by the consultant team; there is not yet a national-level dataset of the cement industry. Data collection remains fragmentary in Ministry of Construction, Ministry of Natural Resources and Environment, and Ministry of Industry and Trade. The consultant team propose recommendations to overcome barriers of the data collection and to design a comprehensive database. A standardized comprehensive database enables authorities to set forth policies and support cement companies to figure out technical solutions for their benefits.

The representative of the Vietnam Cement Industry Corporation (VICEM) has introduced their monitoring activities on energy consumption and environment of VICEM cement companies. The representative of Holcim Vietnam has presented $CO_2$ emission reduction measures and data management of the Company.

The Workshop also enjoyed an open and active discussion among cement producers. Valuable comments and feedbacks have been given by representatives of the cement companies on effective solutions to collection of data, accuracy of data, etc. for better implementation of the project in coming months.

## 2.2 Pros and Cons for project implementation

**Advantages**

- The Project receives the intensive cooperation and supports from the PMU under MOC, for instance: 1) arrangement of the project office, 2) appointment of contact

point of MOC (Ms. Luu Linh Huong) to ensure the effective and timely cooperation for the implementation of project activities, 3) participating in periodical coordination meetings at the project office to be updated on the project progress and to provide supports for success of project activities..

- It seems that MOC has secured a good coordination and interaction with other Ministries which is crucial for the success of the project.
- The Consultant team include international and national consultants who have knowledge and are experienced in cement sector in other countries and in Vietnam.

***Challenges***

- Cement plants still have a limited knowledge of the what is a NAMA and what is the added value or burden for them. The cement plants are very keen to be involved in pilot project which will contribute to low carbon development.
- The main risk at this stage is whether it is possible to gather the relevant information and data of good quality from the cement plants. The Consultant should develop an appropriate methodology and allocate sufficient resources for this activity
- The cement plants are still critical to the NAMA approach. Typical questions and we need to focus on this in the future interactions. 1) Why built a NAMA ? meaning can be do this initiative without having NAMA as umbrella ? 2) How is the NAMA and MRV system functioning ? 3) How shall companies be involve in the NAMA ? 4) What is the potential support in the future from the international sources ? 5) What is the institutional set-up for implementing NAMA in Vietnam ? and 6) The protocol is considered complicated by companies. Will the companies be training in this

# 2.3 Work Plan for Year 2015

| No. | Tasks | Outcomes/products | Responsible | 2015 | | | | | | | | | | | | 2016 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | T.1 | T.2 | T.3 | T.4 | T.5 | T.6 | T.7 | T.8 | T.9 | T.10 | T.11 | T.12 | T.1 | T.2 | T.3 |
| **GROUP A: PROJECT MANAGEMENT AND COORDINATION ACTIVITIES** | | | | | | | | | | | | | | | | | | |
| O.1 | Mobilising the team; arranging a kick off launch of the program | Team mobilisation | Completed | | | | | | | | | | | | | | | |
| | | Kick off meeting | Completed | | | | | | | | | | | | | | | |
| O.2 | Supporting the meetings and interactions with Steering & Advisory Committee/Group | Supporting interaction with the National Steering Committee/PMB | HDS | | | | | | | | | | | | | | | |
| | | Supporting interaction with the International Advisory Group | MOP | | | | | | | | | | | | | | | |
| O.3 | Facilitating broad stakeholder consultations | In accordance with the project activities | | | | | | | | | | | | | | | | |
| O.4 | Preparing an Inception Report | Inception Workshop | Completed | | | | | | | | | | | | | | | |
| | | Inception Report | Completed | | | | | | | | | | | | | | | |
| O.5 | Preparing Progress Reports | Q1 Progress Report | Completed | | | | | | | | | | | | | | | |
| | | Q2 Progress Report | Completed | | | | | | | | | | | | | | | |
| | | Q3 Progress Report | Completed | | | | | | | | | | | | | | | |
| | | Q4 Progress Report | Completed | | | | | | | | | | | | | | | |
| | | Q5 Progress Report | MOP | | | | | | | | | | | | | | | |
| | | Q6 Progress Report | MOP | | | | | | | | | | | | | | | |
| | | Q7 Progress Report | MOP | | | | | | | | | | | | | | | |
| O.6 | Preparing Completion Reports | Completion Report | MOP | | | | | | | | | | | | | | | |
| O.8 | Mission to Europe | | MOP | | | | | | | | | | | | | | | |
| **GROUP B:UP-SCALED NAMA IN VIETNAM'S CEMENT SECTOR** | | | | | | | | | | | | | | | | | | |
| | **Block I: Legal and Institutional Framework** | | | | | | | | | | | | | | | | | |
| I.1.1 | Overview of Vietnam's cement sector | Assessment of Legal and Institutional Framework of Cement Sector | Completed | | | | | | | | | | | | | | | |
| I.1.2 | Analysis of the relevant regulations | | Completed | | | | | | | | | | | | | | | |
| I.1.3 | Listing and description of key stakeholders | | Completed | | | | | | | | | | | | | | | |
| I.4.3 | Proposing appropriate institutional arrangements for MRV | Proposing appropriate institutional arrangements for MRV | DHH | | | | | | | | | | | | | | | |
| I.5.1a | Assessment of current and planned policies relevant to Vietnam's cement sector having connection to emissions of the cement sector emissions in Vietnam | Assessment of current and planned policies relevant to Vietnam's cement sector | NTA | | | | | | | | | | | | | | | |
| I.5.1b | Current and planned policies in some countries | Current and planned policies in some countries | Stefan | | | | | | | | | | | | | | | |
| I.6.1 | Type and requirements of the NAMA to be restablished | Type and requirements of the NAMA to be restablished for Vietnam's Cement Sector and NAMA Legal Framework | Ingo | | | | | | | | | | | | | | | |
| I.6.2 | Conceptual framework for the Design of a NAMA | | Ingo | | | | | | | | | | | | | | | |
| I.6.3 | Institutional requirements for cooridinating policy options under the possible NAMA | Institutional requirements for a possible NAMA | NTD | | | | | | | | | | | | | | | |
| | **Block II: Data on emissions - Baseline and mitigation scenario** | | | | | | | | | | | | | | | | | |
| 0.7 | Additional Survey | Report: Additional Survey on Low-carbon options implemented in Holcim Vietnam and Vicem Ha Tien Company | Completed | | | | | | | | | | | | | | | |
| I.2.1 | Determination of justified emission and project boundary | Report: Emission and Project Boundary | Completed | | | | | | | | | | | | | | | |
| I.2.3 | Assessment of availability and quality of the data required for determining sector-level emissions and mitigation potential | Report: Assessment of availability and quality of the data and gap analysis | Completed | | | | | | | | | | | | | | | |
| I.2.4 | Identifying data gaps for necessary and ideal datasets and proposing solutions to fill the gaps | | Completed | | | | | | | | | | | | | | | |
| I.3.1 | Trends of emissions | Report: Trends of emissions | Stefan | | | | | | | | | | | | | | | |
| I.3.2 | Baseline projections study | Report: Baseline projection study | Bruno | | | | | | | | | | | | | | | |
| I.3.3 | Identification and discussion on issues related to setting the reference level for receiving international support and/or carbon credits | Report:Different reference levels & Report: Comparison Study | Bruno | | | | | | | | | | | | | | | |
| I.3.4 | Recommending procedures and institutional requirements for management and revision of baseline database | Report on recommending procedures and institutional requirements for management and revision of baseline database | Stefan | | | | | | | | | | | | | | | |
| I.5.2 | Identification of various mitigation action from Vietnam's cement sector | Report: Various mitigation actions from Vietnam's cement sector | HDS | | | | | | | | | | | | | | | |
| I.5.3 | Preparation of a marginal abatement cost (MAC) curve for identified actions | Report: A marginal abatement cost (MAC) curve for identified actions | Stefan | | | | | | | | | | | | | | | |
| I.5.4 | Identification of relevant barriers to up-scaled mitigation action in the cement sector | Report: Barriers to up-scaled mitigation actions in the cement sector | Bruno | | | | | | | | | | | | | | | |

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| | **Block III: MRV Framework** | | |
| I.2.2 | Definition of necessary dataset and ideal dataset and associated calculation methods and formulae for determining sector-level emissions and mitigation potential | Report: Data set guidelines and calculation methodologies | Completed |
| I.2.5 | Collection of the available data and of missing items of necessary dataset | Report: Data collection and management framework and database Design | Completed |
| I.2.6 | Setting up of a data collection and database system (including first version of database) | | Completed |
| I.4.1 | Identification of current MRV systems and procedures in cement companies in Vietnam | Report: Current MRV systems and procedures in cement companies in Vietnam | Axel |
| I.4.2 | Recommendations for improvements in current MRV practices, including quality assurance and quality control | Report: Recommendations for improvements in MRV practices | Bruno |
| I.4.4a | Establishment of an MRV system | Report:Establishment of an MRV system | Axel |
| I.4.4b | Documents of compatible capacity building | Report: Documents of compatile capacity building | Axel |
| | **Block IV: Financing and Co-benefits** | | |
| I.7.1 | Analysis of existing financing sources | Report: Existing Financing Sources | Ingo |
| I.7.2a | Simplified Excel-based cash flows model | Simplified Excel-based cash flows model | Ingo |
| I.7.2b | Financial requirements and structure | Report: Financial requirements and structure | Ingo |
| I.7.3 | Design of a concept to introduce the carbon market in the NAMA including the interaction between CDM and NAMA and the possibilities of NAMA crediting or trading activities | Report: NAMA - Combination with carbon markets | DHH |
| I.7.4 | Programs/projects relevant to NAMA cement | Report: Programs/projects relevant to NAMA cement | NTA |
| I.7.5 | Setting up financial plans for NAMA programme in cooperation with the relevant Ministries | Report: Setting up financial plans for NAMA programme | Ingo |
| | **Group V: NAMA Proposal** | | |
| I.8 | Preparation of Stakeholder Map and Plan | Report: Preparation of Stakeholder Map and Plan | Manuel |
| I.9.1 | Preparing a Baseline and Options Study | Report: Baseline and Options Study | HDS |
| I.9.2 | Preparing a Preliminary Readiness Plan | Preliminary Readiness Plan | MOP |
| **GROUP C: CONSULTATION STAGE** | | | |
| II.1.1-II.1.3 | Stakeholder consultations | Consultation meeting | Manuel |
| II.2.1 | Status report of work done thus far | Status report of work done thus far | HDS |
| II.2.2 | Summary of Baseline and Options Study | Summary of Baseline and Options Study | HDS |
| II.2.3 | Summary of status and needs, recommended action and relevant stakeholders | Summary of status and needs, recommended action and relevant stakeholders | Manuel |
| II.2.4 | Final financial plan for NAMA programme | Final financial plan for NAMA programme | DHH |
| **GROUP D: READINESS STAGE** | | | |
| III.1.1a | Launching and implementing the training and capacity building plan and training materials | Launching and implementing the training and capacity building plan and training materials | Manuel |
| III.1.1b | Training workshop | Training workshop | NHL/NHQ |
| III.2.1 | Collection and analysis of further data needs to inform the policy-makers | 05 meetings with selected companies and minutes of meeting | NTA |
| III.2.2 | Preparation of a "baseline toolkit" for estimating plant-level baseline | "Baseline toolkit" for estimating plant-level baseline | TMT |
| III.2.3 | Analysis of design options for existing and new market mechanisms in the cement sector of Vietnam | Training workshop<br>05 meetings with policy makers | NTD |
| III.2.4 | Preparing a preliminary manual on "How to design NAMA and MRV" | a preliminary manual on "How to design NAMA and MRV" | Axel |
| III.2.5 | Setting up of national MRV system which enables Vietnam to match the sector-level support to plant-level mitigation action | A proposal on how to link sector-level MRV with a plant-specific MRV | DHH |
| III.2.6 | Supporting stakeholder coordination and possible set-up of intermediary institutions such as energy service companies (ESCOs) | Meeting with at least five potential investors in ESCO model | HDS |
| III.3.1 | Preparing a Final Readiness Report | Final Readiness Report | MOP |