



NYUMBA YAAKIBAsari

**Greenhouse Gas Emission
Assessment & Management
Plan**

AUGUST 2013

Greenhouse Gas Emission,
Assessment and Management Plan
For
Nyumba Ya Akiba Cement Plant Project,
Bas Congo Province of Democratic Republic of Congo

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Purpose of this Appendix

The purpose of this appendix is to detail the requirements for a Greenhouse Gas Emissions Management Plan for the Nyumba Ya Akiba cement project.

Objectives for Developing a GHG Management Plan

The approach defined in this appendix reflects the two major objectives of any GHG Emissions Management Plan i.e.

- Developing and maintaining a high-quality inventory that can satisfy all internal and external reporting and management requirements; and,
- Supporting the operation's ongoing efforts to identify and implement opportunities for reducing the operation's greenhouse gas emissions.

The requirements for satisfying each of these objectives are described in the sections below.

Objective One: Developing and Maintaining a High-Quality Inventory

The inventory developed for the Nyumba Ya Akiba cement project should have the following elements.

- **Definition of the Inventory Boundary** – the basis for reporting emissions data should be detailed. This would include a list of the operational elements included in the inventory (as well as those excluded and for what reasons). For this ESIA it includes all quarrying activities and the cement plant. In future the inclusion of company owned transport activities off-site should be considered for inclusion to reflect a potential major source of emissions as well as emerging best practice.
- **GHG List** – A list of GHGs included in the inventory.
- **Emission Source Identification Procedure** – A description of the procedure/method used to identify each of the direct (Scope 1) and indirect (Scope 2) emission sources. The company should also consider the inclusion of Scope 3 emissions, specifically for potential climate change risks associated with them (for example the potential for carbon taxes on shipping related emissions that would lead to increased shipping costs). Scope 3 allows for the treatment of all other indirect emissions which are a consequence of the activities of the company, but occur from sources not owned or controlled by the company - examples include the extraction and production of purchased materials and transportation of purchased fuels.
- **Direct Sources** – A list of groups of sources by emission category.
- **Indirect Sources (Energy Import and Export)** – A list of energy imports and exports that are reflected in the inventory.
- **Other Indirect Sources (Scope 3)** – Other optional emission sources that are accounted for in the inventory.
- **GHG Emission Reduction Initiatives** – Detail on all emission reduction initiatives including, but not limited to, the following: the development of renewable energy projects; use of renewable energy certificates; development of offset projects (e.g. reforestation); and, energy efficiency improvements.
- **Emissions Quantification Method** – A description of the emission quantification methodologies and references for each emission source.
- **Emission Factors and other Constants** – A list of emission factors and other constants (including supporting references).
- **Activity Data** – A description/name source of activity data documents or processes required to complete the quantification methodology (e.g. diesel fuel usage records, coal use records).
- **Data Management** – A description of the process for collecting and processing activity, or monitoring, data from its original source to the final emission data entered into the inventory.

- **Data Collection System Process: Quality Assurance** – A description of the major sources of uncertainty and quality assurance measures for the data process flow. This would need to also include information on how the accuracy of the measurement systems is assessed (e.g. through calibration of meters).
- **Data Collection System Security** – A description of how data collection system security is maintained.
- **Frequency of Reporting** – This should be defined. It is recommended that this is done along with the reporting of key technical parameters for example coal use and production. These would normally be done on a monthly basis and reviewed at senior management level to ensure that the issue gets the right level of management attention.
- **Base Year Adjustments: Methodology Changes** – A description of the approach towards adjusting base year emissions for changes in calculation methodologies, emission factors or error calculations.
- **Roles and Responsibilities** – There needs to be a formal documentation of the overall roles and responsibilities for the management of GHG inventory. It is recommended that the reporting of GHG emissions is done on a monthly basis at an appropriate technical meeting, but that there is also an formal agenda item in an appropriate and directly related management meeting (for example if there is an environmental management system meeting) that discusses not only the data from the inventory, but its management as well.
- **Training** – Any management plan needs to be supported by ongoing training and capacity-building. An approach should be developed at the beginning of every financial year identifying who needs to be trained, and with regard to what skill and/or knowledge requirement for the inventory's effective management. To support this a list of key personnel involved in the implementation of the inventory and details on their roles needs to be maintained. Ongoing review of what training has been done and needs to be done should be formally recorded.
- **Document Retention and Control Policy** – Descriptions of how version control will be maintained for the GHG inventory guidelines. The Nyumba Ya Akiba operation also needs to maintain a document retention policy for activity data records and calculation tools need also to be maintained. This should be supported by the development of a formal procedure that includes a review function.
- **Internal Auditing** – A description of the internal audit process that is used to identify gaps, errors and areas of improvement in the management of the GHG inventory.
- **External Verification** – It is recommended that as part of the management plan an annual external verification of the plan is done.
- **Management Review** – A key element of the implementation of any GHG Management Plan is its visibility with senior management. Therefore there should be a formal procedure for the review of the inventory and its approval by senior management.
- **Corrective Action** – A formal procedure should be developed to ensure that the corrective actions in the external and internal reviews are documented, reviewed, approved for implementation and then implemented.

An important part of the ongoing management of the GHG inventory is to ensure that it reflects any formal reporting requirements (for example from the DRC regulatory authorities – please note that currently there are no such requirements), existing best practice and emerging best practice. A formal review of what these requirements are should be done on an annual basis. Currently best practice for cement operations would be defined by the following two documents:

- “CO₂ and Energy Accounting and Reporting Standard for the Cement Industry” May 2011 Version 3.0 (Cement Sustainability Initiative, World Business Council for Sustainable Development).

- ISO 14064-1-06 Standard, Greenhouse Gases – Part 1: Specification with Guidance at the Organizational Level for Quantification and Reporting of Greenhouse Gas Emissions and Reporting.

Objective Two: Identifying and Implementing Opportunities for Reducing the Nyumba Ya Akiba's Operations Greenhouse Gas Emissions

On the basis of the results, and the ongoing monitoring, of the operation's greenhouse gas emissions associated with the inventory's implementation an ongoing programme for reducing greenhouse gas emissions should be developed.

In order to do this effectively the following should be done:

- As part of the inventory development and implementation process a baseline year should be defined and detailed against which any improvements can be tracked. This is recommended to be the first year of operation after commissioning.
- In line with the operation's financial year a formal Greenhouse Gas Emissions Reduction Programme should be developed with clear responsibilities and budget allocations. The plan would be underpinned by an ongoing analysis of what emission reduction opportunities exist, as well as their financial and technical viability. They should also be informed by best practice guidance that has been developed in this area such as the US EPA's "Available and Emerging Technologies for Reducing Greenhouse Gas Emissions from the Portland Cement Industry" (October 2010). To support the identification of opportunities the company should also consider becoming part of the World Business Council for Sustainable Development's "Cement Sustainability Initiative" where it will have the opportunity to engage with peer's in this sector on this issue and draw on their experience and knowledge.
- These opportunities are materially linked to the energy consumption associated with the cement plant and quarrying operation. Therefore it is recommended that the operation consider adopting "ISO 50001 Energy Management Systems – Requirements with Guidance for Use", to integrate and complement its GHG reduction initiatives effectively.
- GHG Emission Reduction Targets should be set annually on the basis of the analysis of what is feasible for the operation. These should also be reviewed against whether there are any emerging GHG emission requirements that might be applicable to the operation from the DRC Government or internationally.