***Response to questions regarding the "Standardized Baseline for clinker production in Ethiopia"***

A. The DNA of Ethiopia in collaboration with the developer of the subject Standardized Baselines provides the following response to the questions. Where a question refers's to the role of either the DNA or the SB developer, either of them responded. Where the question requires inputs from both, amalgamated response is provided.

B. A revised spreadsheet based on average of three years production data has been prepared by the SB developer, jointly reviewed and annexed here with.

C. This responses could also serve as a bridge document between the actual plant level data and the revised consolidated spreadsheet

D. Responses

1. It has been assessed that the activity data presented in the submission is based on the data inputs received from various cements plants from all across Ethiopia to aggregate the data for the various regions (central, east, west, north, south). It is requested to clarify criteria that have been adopted to evaluate the credibility, consistency, accuracy and completeness of data collected through these data inputs and its relevance to Ethiopia. For example, a rationale needs to be provided on how the two separate data templates (REF. 5/5-2/594 letter dated 27 January 2010, REF 03.2/107 letter dated 19 April 2012) for different periods be considered relevant and applicable to determine the baseline emissions. Kindly, also identify the assumptions and approach undertaken to comprehend the data and categorize them.

   The following criteria have been adopted to evaluate each aspect;

   **Credibility**: It was believed that data acquisition could only be practically achieved through official requests by Authorities while data should firsthand come from respective plants themselves (primary data). Hence all the data collected were direct response to request by Authorities and using data templates containing parameters relevant for the purpose. In events where some data were missing or seem unrealistic, more information is obtained from other sources or on phone calls to specific plants. The relevant Authorities to solicit data were the DNA office and the Ministry of industry. Official letter requests were dispatched to all plants. The referenced letters above i.e REF. 5/5-2/594 letter dated 27 January 2010; REF 03.2/107 letter dated 19 April 2012 is example of the letters dispatched.

**Consistency**: The task of collecting data from plants started much earlier since 2010. Each batch of data collection activities dispatched one template for all plants. We have modified the simple template provided in EB 68 Annex 32 Appendix 1 to suit the purpose. So far, three types of templates in two data collection phases. In all cases tabular templates were used and the data contained enable meaningful comparison between plants. The total annual clinker production and total annual fuels consumption data of a plant is a total of all kiln lines in that plant. This is realistic since we have confirmed that plants with multiple kiln lines installed the same kiln technology regardless of the number of kiln lines and phases of implementation.

**Relevance**: Parameters relevant were data on annual clinker production, kiln fuel type, annual consumption data on Kiln fuel, clinker raw material type(s) and catalogue efficiency.

- Most data collected contain this information.
- SKC values (in GJ/t) are calculated from fuel consumption and corresponding clinker production data taking average of years
- Where catalogue efficiencies are provided in Kcal/Kg or %, conversion to GJ/t has been implemented in consolidated sheet (EX: Debre-Sina, Huangshang, CH Clinker, Dashen)
- Where plants provided additional tables and other plant operational parameters, they are simply considered redundant (Ex; cement types, volume, electricity consumption etc).
- In cases where a parameter or information has not been provided/specified by plants, other sources will be used or phone calls will be implemented to identify the same. Since number of plants is very small it was possible to acquire reliable information. The following table shows data acquired from other sources or phone calls and adapted in to the consolidated spreadsheet

| Plant | Parameter | [1]source | [2]Counter confirmation |
|---|---|---|---|
| Abyssinia | Kiln technology | Other sources | Phone calls |
| Jema | Kiln technology | Other sources | Phone calls |
| CH Clinker | Kiln technology | - | Phone calls |
| Mugher | Kiln technology | Other sources | Phone calls |
| East | Kiln technology | - | Phone calls |
| Pioneer | Kiln technology | - | Phone calls |
| National | Kiln technology | Other sources | Phone calls |
| Mossobo | Kiln technology | Company Web site | Phone calls |
| All kilns | Clinker raw materials | Company websites | Phone calls |

[1] Source is extract from TEFR of a other investment proposals or specific company website where available
[2] phone calls have been implemented when there was no other source and for confirmation

**Accuracy:** consolidated data was crosschecked with the original data collected. The reliability of data for fuel consumption versus production was cross checked with data for previous year (where available) as well compared with the norm value of a kiln technology category. In this regard the kiln fuel consumption data for one plant in East region (East cement plant) was found unrealistic for a VSK kiln. The value could therefore be replaced with either:

a. the average of the 20% most efficient kilns in the region (i.e 5.44GJ/t)
b. The most efficient kiln with similar technology in the region (i.e 7.03 GJ/t).
c. The most efficient kiln in the region (i.e 5.44 GJ/t).

Since (a) is supported by QA/QC guideline under Para11h and conservative.

**Completeness**: All data collected is sufficient for the purpose at hand. The response from plants for the first request dispatched in 2010 contained data for years 2007, 2008 and 2009. The response from plants for the second request dispatched in 2012, contained data for years from 2009 to 2011. To capture the latest information we take the data for recent years wherever available. However, for those plants that did not respond to the second batch of request (Abyssinia, Dashen, national), the archived data covering years 2007, 2008, and 2009 was used. With all these plants being old technologies, their efficiency declines even further with age towards 2011. Hence it is reasonable to assume that values for 2007, 2008, and 2009 would be more conservative.

Moreover, where data was not obtained for a specific parameter, a conservative value was adapted. In this case specific kiln fuel consumption (SKC) value for Jema (a VSK plant in central region with missing data) could take the value of either;

a. the average of the 20% most efficient kilns in the region (i.e 4.64GJ/t which is average of rank 1 and rank 3 in SKC table of original spreadsheet)
b. The most efficient kiln with similar technology (Derba Dashen VSK) in the region. (i.e 4.96GJ/t)
c. The most efficient plant in the region (Mugher), (i.e 4.34GJ/t in original spreadsheet.)

Vale (a) is supported by QA/QC guideline under para11h. The final result (benchmark) for the baseline SKC value of that region will not change even if the most conservative (i.e 4.34GJ/t) was used for Jema. The annual production of Jema is kept at rated capacity for 330 production days for completeness purpose.

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2. Please clarify how the conservativeness of the data used for the calculations of baseline emissions has been ensured. For example, a justification may be needed why the maximum clinker production for the year is considered from the three year historical data and not the average for the historical years considered to be conservative for calculations of baseline emissions. Please be exhaustive while considering responding to this question.

   This specific question refers to the parameter indicating baseline kiln efficiency i.e SKC.
   We have herewith provided parallel spreadsheet using the average of year's value of plants (three years where available) for each of the regions.

3. Please clarify if any quality assurance procedure/s has been adopted for systematic identification, formulation and analysis of risks for not meeting the quality objectives of the datasets used. If yes, please elaborate.

   For the specific standardized Baselines, quality assurance by DNA was limited to checking;-

   a. Whether the parameters identified are complete enough for the purpose
   b. Whether all plants in each region were covered in the data acquisition and received letters/formats and subsequent phone calls when required
   c. Whether three successive years data was available for each plant except when the plant is less older than three years
   d. Whether relevant personnel were assigned to follow up timely data submission from plants and extend phone calls where required
   e. Whether all data submissions were filled, completed, stamped and delivered by the respective plants
   f. Whether collection of submissions and further data on phone calls was entirely handled by the relevant sector institution (in this case Ministry of Industry) and/or the DNA
   g. Whether archiving was properly made at the sector institutions
   h. Whether complete regional consolidation was possible by the relevant developer of the specific standardized baseline

   This standardized baseline development provided opportunity for hands on exercise and learning by doing. The DNA office welcomes support (technical, financial) from the Secretariat in further strengthening the institutional QA/QC capacity towards enhancing systematic rigor and also to help us assessing data management relevant for application in future Standardized Baseline submissions.

4. Please clarify whether the provisions of the paragraph 21 of the "Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines (version 1.0)" have been taken in account while ensuring transparency of the data submitted by data providers.

   The Climate Resilient Green Economy strategy of Ethiopia projects a 27MT of cement demand by 2020 which is sought to be met through low carbon production. Prior to dispatching the data queries for the second batch, workshop was organized by the Ministry of Industry of Ethiopia as part of the guiding CRGE goals where all cement plants were invited and consultation conducted. Data was collected from these cement plants themselves which are considered relevant stakeholders. The Ministry of Industry, monitoring the Climate Resilient Green Economy strategy of Ethiopia in Industry sector, was central to running the data collection process while the DNA office jointly coordinates for all sectors. Furthermore, the result of the approved standardized baseline will be communicated in similar workshop to all these stakeholders.

5. In the analysis and consideration of the above queries if you feel that most of the above issues may find resolution through a submission of new data, please inform us. We would then update the previous submission with this new data.

   Revised spreadsheet using average approach as well as implementing minor corrections is submitted with this response. The corresponding adjustment on the body of the Standardized Baseline has also been revised.