

**CDM-EB85-AA-A08**

## Concept note

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# Demand for the development of a database on cost and efficiency of technologies

Version 01.0



**United Nations**  
Framework Convention on  
Climate Change

## 1. Procedural background

1. At its sixty-second meeting (EB 62), the Executive Board of the clean development mechanism (CDM) (hereinafter referred to as the Board) adopted the “Guidelines for the establishment of sector specific standardized baselines” (the SB guidelines) (EB62 report, annex 8). Subsequently, the Board, at EB 65, revised the guideline (EB65 report, annex 23).
2. Also at EB 65, the Board adopted a work programme for the implementation of the SB guidelines (EB 65 report, annex 22). The work programme contained the proposed work for collection of data on the cost of technologies and development of a database for the development of standardized baselines (SBs).
3. At EB 68, the Board considered the “Concept note on database on the cost and efficiency of technologies”, and requested the secretariat to initiate work with the collection of data for a sector appropriate for road testing (e.g., the cement sector) and a sector relevant to countries under-represented in the CDM (e.g., cook stoves). The Board further requested the secretariat to prepare a workplan for the development of the database with the substantive work to be conducted in 2013. The Board requested the secretariat to launch a call for public inputs, in particular from the experts in the two sectors, on the workplan for the development of the database with a view to improving it and reporting back to the Board for further guidance at a future meeting.
4. At EB 76, the Board considered an information note on the “Status of work on development of database on the cost and efficiency of technologies” and provided feedback to the secretariat that the development of the database should be demand-driven, that is, based on requests coming from designated national authorities (DNAs) that are involved in developing SBs for specific sectors; these requests should be evaluated by the Board.
5. At EB 78, the Board considered the concept note “Top-down development of standardized baselines”, which was prepared by the secretariat based on the survey of DNAs, conducted between 25 February and 5 March 2014, to invite expression of interest for the development of SBs through the top-down process. The Board requested the secretariat to use the results of the survey to prioritize the work on the development of SBs via the top-down process with the full involvement and agreement of the respective DNAs, keeping in view the availability of data and the value addition that SBs will bring to potential CDM project activities in a sector.
6. At EB 82, the Board adopted its CDM management plan (MAP) for 2015 containing two deliverables in the form of information notes on the development of database on cost and efficiency of technologies for EB 85 and EB 86. The Board reiterated that the development of the database on cost and efficiency of technologies should be demand-driven and each request has to be considered by the Board along with the information related to the approach and the cost. The Board further requested the secretariat to prepare an information note on the database on cost and efficiency of technologies, addressing how the data it needs differ from those currently submitted by DNAs for the approval of SBs.
7. This work relates to the activity ‘Simplification of the process for developing standardized baselines, including developing country-specific thresholds and development of

methodological standards for standardized baselines relating to two specific project types<sup>1</sup> under objective 1(c): Develop simplified and user-friendly standards and procedures that increase efficiency and ensure environmental integrity with a resource allocation as referred to in table 4 of the Management plan 2015 (EB81, annex 1).

## 2. Purpose

8. The purpose of this information note is to present to the Board, the demand received from DNAs for the collection of data on cost and efficiency of technologies in order to facilitate the development of SBs. For the purpose of managing cost implications, it is proposed that some priority sectors be identified among those for which the DNAs have expressed interest, for example, based on high mitigation potential and availability of data on technology cost and efficiency.

## 3. Key issues and proposed solutions

### 3.1. Demand from DNAs for development of standardized baselines and collection of required data

9. The data/information on performance (efficiency) and cost of technologies is essential for the development of “technology switch” SBs as per the SB guidelines. The database on cost and efficiency of technologies will facilitate the determination of the sectoral baseline for technology switch project activities based on the design efficiency of technologies, and the development of a positive list of technologies that are deemed automatically additional based on levelized cost (per unit cost of production). The database will only contain investment cost; however operational cost of technologies can be determined based on design efficiency and cost of fuel/electricity/raw material specific to the host country or the region for which an SB is proposed.
10. The secretariat aims to develop the database based on collected and verified information from several sources and update the database at regular intervals to facilitate the development of SBs based on the latest information (e.g. at least once in three years).
11. As mentioned above, in 2014 the secretariat conducted a survey of DNAs to invite expression of interest for the development of SBs through the top-down process. Thirteen DNAs expressed interest for 40 SBs in 10 different sectors. The results of the survey are summarized below.

**Table 1. DNA survey results**

DNA	Status	Prioritized sectors by DNA
Armenia	Under-represented	Street lighting, Building energy efficiency, Grid emission factor
Burundi	Least developed country	Cook stoves

<sup>1</sup> The title of this activity changed to “Further development of the standardized baselines framework” as per CDM EB workplan 2015, adopted at EB82.

DNA	Status	Prioritized sectors by DNA
	(LDC), Under-represented	
<b>Gambia</b>	LDC, Under-represented	Power, Cook stoves, Charcoal, Street lighting
<b>Ghana</b>	Under-represented	Transport, Power
<b>Kenya</b>	Under-represented	Cook stoves, Power sector, Methane avoidance
<b>Lebanon</b>	Under-represented	Power, Transport, Waste
<b>Malawi</b>	LDC, Under-represented	Cook stoves, Waste, Charcoal
<b>Mali</b>	LDC, Under-represented	Cook stoves, Power
<b>Namibia</b>	Under-represented	Cook stoves, Power, Forestry
<b>Peru</b>		Construction material (including bricks, cement, steel)
<b>Samoa</b>	LDC, Under-represented	Power, Transport, Heating
<b>Sri Lanka</b>	Under-represented	Biomass, Waste, Wind
<b>Togo</b>	LDC, Under-represented	Cook stoves

12. Among the sectors proposed by the DNAs in the table above, the data on cost and efficiency of technologies in some sectors are required to develop SBs for example in industrial production sectors (e.g. cement, brick, charcoal), while they are not required to develop SBs for project activities undertaken in other sectors (e.g. methane destruction in landfills). For the project activities undertaken in the sectors involving distributed units (e.g. cook stoves, lighting bulbs) the baseline determination or additionality demonstration does not require the efficiency or cost data, since they potentially qualify for the positive lists of technologies which is predefined by specific methodologies or under the microscale and small-scale additionality tools. For some sectors (e.g. power) the data on cost and efficiency of technologies are publicly available from various sources (e.g. IEA<sup>2</sup>, IRENA<sup>3</sup>, and NREL<sup>4</sup>).
13. In addition to the survey results mentioned above, the secretariat, through the Regional Collaboration Centres (RCCs), has received further communication from various DNAs that are interested to develop SBs in different sectors, where the data on cost and efficiency of technologies may be required and where they have indicated they will provide support for the collection of data. The following table provides the details on these communications.

**Table 2. DNA communication<sup>5</sup>**

DNA	Status	Sectors	Additional comments by DNA
<b>Rwanda</b>	LDC, Under-represented	Charcoal production	Also interested in top-down revision of AMS-III.BG to include energy efficiency aspects of charcoal production to facilitate SBs.
<b>Mozambique</b>	LDC, Under-	Charcoal	Also interested in top-down revision of

<sup>2</sup> International Energy Agency <<http://www.worldenergyoutlook.org/weomodel/investmentcosts/>>.

<sup>3</sup> International Renewable Energy Agency<<http://costing.irena.org/>>.

<sup>4</sup> National Renewable Energy Laboratory of the U.S. Department of Energy <<http://www.nrel.gov/>>.

<sup>5</sup> For Mozambique and Rwanda, the communication is received via telephone calls. The secretariat will seek written communication from respective DNAs before proceeding for collection of data.

DNA	Status	Sectors	Additional comments by DNA
	represented	production	AMS-III.BG to include energy efficiency aspects of charcoal production to facilitate SBs.
<b>Ghana</b>	Under-represented	Charcoal production	
<b>Ethiopia</b>	LDC, Under-represented	Cement	Data on cost particularly can be used to demonstrate the additionality of technologies from cement sector of Ethiopia. The data can be used in their current submission of SB.
<b>Columbia</b>		Brick	Also interested in development of new methodology in brick sector, applicable to large-scale projects.
<b>Peru</b>		Cement	Data on cost particularly can be used to demonstrate the additionality of technologies from cement sector of Peru. The SB is taken up for development through top-down process.

14. From the sectors listed above, charcoal, cement and brick production sectors are prioritized for the purpose of collection of data and development of database on cost and efficiency of technologies. The rationale for this prioritization is given below.

- (a) These sectors are continuously growing and have high potential for mitigation in LDC countries and/or countries underrepresented in the CDM, and a database on cost and efficiency of technologies in these sectors and countries can facilitate the development of SBs;<sup>6</sup>
- (b) There is some experience gained in evaluation of SB submissions and the development of SBs through the top-down process, and some information from credible sources is available to develop database;
- (c) These sectors are of a distributed nature, involving several facilities in the host countries, thus can pose difficulty in collecting actual data on efficiency of technologies from facilities, therefore design efficiency can be a suitable alternative to develop “technology switch” SBs;
- (d) The CDM project activities undertaken in these sectors can be of large sizes, which cannot claim additionality as per the micro-scale criteria;

<sup>6</sup> The emissions in the case of the cement and brick sector sectors are rapidly growing with the population and the economy in these countries. According to IEA, as compared to developed countries the energy saving potential in developing countries in the brick industry is about 40 per cent leading to substantial reduction in carbon dioxide (CO<sub>2</sub>) emissions. The same source states that cement production accounts for about 70 to 80 per cent of all energy use in non-metallic minerals production globally. It is an important source of CO<sub>2</sub> emissions currently accounting for about 2 Giga tonnes of CO<sub>2</sub> with high mitigation potential through energy efficiency and clinker substitutes. In the case of the charcoal sector, it is a primary household fuel in the majority of the least developed countries and constitutes a vibrant sector of the economy in many countries in Africa. According to IEA, about 1.3 billion people in Africa do not have access to electricity and one-quarter of 2.6 billion people relying on traditional use of biomass for cooking. More than 80 per cent of urban households in Sub-Saharan Africa depend on charcoal mainly for cooking. Population growth and increased urbanization have contributed to high charcoal consumption in the past and the trend towards increased use of charcoal will continue to rise.

- (e) The datasets are not available at present in these sectors that can provide the consolidated information in a form which is suitable for the purpose of developing SBs;
  - (f) The prioritized sectors are likely to have common characteristics in multiple countries, enabling the applicability of database beyond the boundary of countries to replicate its potential.
15. There are several credible literature sources (e.g. studies from public services, national reports and surveys, United Nations reports, literature sources used in registered project activities and programme of activities), from where the information can be sought to develop the database. Similarly, various institutional arrangements can be explored and technology suppliers can be contacted to receive the data and update the database at regular intervals.

## **4. Impacts**

16. The database on cost and efficiency of technologies for the key strategic sectors will simplify the requirements to develop SBs, potentially reducing the transaction costs for developers of SBs and facilitating to increase the interest of DNAs in SBs.

## **5. Subsequent work and timelines**

17. The following steps can be taken in order to develop database for the cement, brick and charcoal production sectors by the end of 2015:
- (a) Identification of data sources and data availability;
  - (b) Contacting different sources of information to collect data under institutional agreement, for example with IEA's Energy Technology Policy (ETP) Division;
  - (c) Collecting data, where possible, from suppliers of technologies and turnkey contractors;
  - (d) Data gathering and compilation of the identified data sources by the secretariat including the assessment of data quality in collaboration with the relevant DNA;
  - (e) Presenting the data in an appropriate format or database for the three sectors, to provide access to SB developers;
  - (f) Reporting to the eighty-sixth meeting of the Board on the status of work, as requested by the Board while adopting MAP 2015.

## **6. Recommendations to the Board**

18. The Board may wish to take note of the demand from the DNAs for the development of SBs and collection of the required data.
19. The Board may wish to request the secretariat to initiate the collection of data on cost and efficiency of technologies in the three prioritized sectors (brick, cement and charcoal) for the countries those have expressed interest.

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**Document information**

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	6 July 2015	Initial publication as an annex to the annotated agenda of EB85.
Decision Class: Regulatory Document Type: Information note Business Function: Methodology Keywords: DNA, charcoal, cement plant, data collection and analysis, evaluation research, standardized baselines, top down methodology		

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