CLEAN DEVELOPMENT MECHANISM

CDM-EB110-AA-A05

Information note

Progress report on digitalization of methodologies for web-based generation of project design documents and monitoring templates

Version 01.0

United Nations
Framework Convention on
Climate Change

TABLE OF CONTENTS **Page**

1. Procedural background

1. Digitalization of the Clean Development Mechanism (CDM) methodologies was requested, and further reiterated, by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) through its decisions on "Guidance relating to the clean development mechanism" at CMP 10, CMP 11, and CMP 12.

2. The Executive Board of the CDM (the Board), at its eighty-seventh meeting (EB 87), considered a concept note prepared by the secretariat on a tool for digitalization of methodologies. The Board requested the secretariat to develop a web-based version of the tool and to road-test its final version with stakeholders.

3. The Board, at EB 96, took note of a demonstration on the functioning of the web-based platform for digitalization of methodologies and requested the secretariat to work on the digitalization of one CDM methodology using the platform.

4. The Board, at EB 102, took note of a demonstration on the use of the digitized version of the methodology “ACM0002: Grid-connected electricity generation from renewable sources” and requested the secretariat to undertake the road-testing of the digitized methodology with the CDM stakeholders.

5. The secretariat undertook the road-testing of the digitized methodology ACM0002. This progress report presents the outcome of the road-testing.

2. Purpose

6. The purpose of this information note is to present to the Board the result of the digitalized methodology ACM0002 road-testing mandated by the Board at EB 102.

3. Progress of work

7. Following the request of the Board at EB 87, the secretariat contracted the services of an information technology (IT) vendor and worked with the firm to develop a web-based platform for digitalization of methodologies which makes possible, among other potential digitalization applications, the automatic generation of project design documents.

8. The web-based platform for digitalization of methodologies referred to in paragraph 7 above was used by the secretariat for digitalization of the methodology “ACM0002: Grid-connected electricity generation from renewable sources”.

9. Subsequent to internal testing, the tool was further improved to address performance. The response time for the end user was too slow in the cases where a complex project design was used or where the user uploaded large datasets such as hourly grid-load data. The secretariat worked with the IT firm to have the calculations execution algorithm of the tool redesigned. In addition, the limit on the number of variables that can be included in one calculation was removed; the handling of pages with mandatory responses was enabled; and the bugs related to sections for inputting array-type data were removed. Export and import of questionnaires in the form of JSON files was enabled to preserve questionnaire data and to re-use questionnaires across sites.

10. As a result of these changes in the platform, the questionnaire for the digitalized ACM0002 was revised to conform with the updated version of the platform. Some sections of the

questionnaire were rewritten, including the affected calculation modules. A test case was prepared and made available to the IT firm to support regression testing during the future development and maintenance of the platform.

11. Following successful internal testing of the platform and the digitalized ACM0002, the secretariat organized a road-testing campaign with external stakeholders. Selected CDM stakeholders were requested to road-test the digitalized ACM0002 and to provide their assessment and feedback on the benefits provided by the digitalized methodologies and the functioning of the platform. Potential participants in the road-testing campaign were approached through the agency of the Project Developer Forum (PDF) and the Regional Collaboration Centres (RCCs). Potential participants were also approached through sampling of recently registered project activities.

3.1. Outcome of road-testing

12. In all, 34 individuals agreed to test the tool and were sent the URL of the testing website. Eighteen of the participants provided their assessment report and feedback. Tables 1 and 2 below summarize the level of participation.

Table 1. Participants in the road test

How contacted	***Testing URLs sent***	***Evaluation reports received***
Direct contact (e.g. from registered CDM projects)	9	6
Through the PDF	13	5
Through the RCCs	12	7
Total	34	18

Table 2. Participants by region

Region	***Testing URLs sent***	***Evaluation reports received***
Africa	11	8
Asia	10	5
Latin America and the Caribbean	13	5
Total	34	18

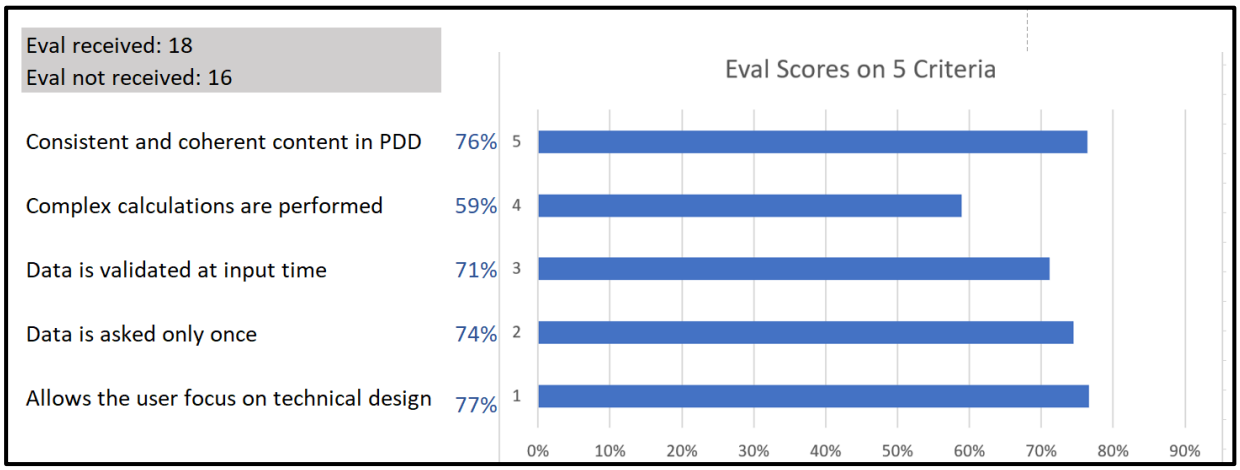
13. The stakeholders were requested to assess the tool in terms of the five pre-defined criteria shown in Figure 1 below. They were requested to assess to what extent the tool met these goals. They were also requested to provide their general feedback, including other benefits, if any, they saw in the tool.

Figure 1. Criteria on which the users were requested to assess the tool

To what extent are the following stated goals met by the tool?	strongly agree	agree	somewhat agree	not sure	disagree
1. Facilitate PDD preparation by allowing the user to focus on the technical design of the project without having to go through a large number of regulatory documents of the CDM (methodologies/ tools/ guidelines)	☐	☐	☐	☐	☐
2. Task efficiency: Data is asked only once, although may be presented in different places in the document/ process / calculation	☐	☐	☐	☐	☐
3. Task efficiency: Data is validated at input time: reduces chances of erroneous data entering the process	☐	☐	☐	☐	☐
4. Task efficiency: Complex calculations are performed automatically, including use of applicable default values	☐	☐	☐	☐	☐
5. Enhanced quality of PDD: Ensures consistent and coherent scope, structure, and content in the PDD generated	☐	☐	☐	☐	☐

14. Figure 2 below presents the summary of the evaluation scores on the five pre-defined criteria. The participants showed clear agreement that the tool achieves the stated pre-defined objectives. Only in the case of the objective “Complex calculations are performed” were the participants less certain. This was caused by the fact that not all the participants reached a level of testing where they would upload their data files. Most of them generated project design documents (PDDs) by applying the basic approaches such as automatic additionality and nationally published values of emission factors.

Figure 2. The extent to which the stated criteria are met (0%: do not agree, 100%: strongly agree)



15. Participants also stated the benefits of the tool in terms of their general assessment option. A summary of the praise and criticism offered by the participants is provided in Table 3 below.

Table 3. Praise and criticism of the tool

Praise
A very useful and well overdue idea. Standardising the format will bring great benefits to the CDM and encourage many more users who may be put off by the lengthy PDD development process.
This would make PDD writing a 100% more efficient and more consistent. I hope it can be rolled out soon.
The tool can avoid entering additional information that is not required or wrong information, which would make the document easier to read.
It is user-friendly, especially for new PPD writers. The biggest advantage is that it facilitates the users to follow the instructions easily and insert contents/descriptions step by step.
The tool facilitates the fulfilling of the PDD form mainly for people not familiar with all CDM documents.
Seems that this could be a good resource in old times. It is possible to focus on the relevant aspects, simplify the process, help to understand many issues.
Tool is pretty useful and could really save a lot of time in writing PDDs without having to go through every condition and applicability.
This tool will ensure more clarity and help to add the information in the PDD in line with UNFCCC requirement.
The web-based tool is very good approach and can reduce and ease the work of project developers! Especially I do appreciate the fact that a project developer does not need to spent time for formatting the PDD but instead may concentrate to fill the required information.
The tool allows for an easy, comprehensible step-by-step process of generating a PDD. The complexity of the process is reduced and enables one to focus on the critical/important aspects of one's project.

Criticism
Tool is too rigid. Tool is not completed. Only works for grid based electricity power production. This is strange as such projects most likely have no additionality.
The tool in its present form is very basic and needs substantial improvements and changes to make it suitable for practical purposes.

16. The participants were also requested to report any issues, such as errors and incorrect outputs, that they noticed during the test run. In all, over 30 issues were reported. The issues related to both the platform (e.g. file upload, saving of data) and the questionnaire (e.g. data validation routines). These issues will help improve the quality/performance of the tool during its next update.

17. The participants were invited to provide their suggestions for improvement of the tool. Many of them provided such suggestions (e.g. relating to navigation, providing links to relevant documents). The actionable suggestions will be taken into account during the next update of the tool.

18. In summary, the road-testing of the tool confirmed the value that it brings. Some of the participants remarked that they looked forward to the availability of the tool for public use.

4. The architecture of the tool

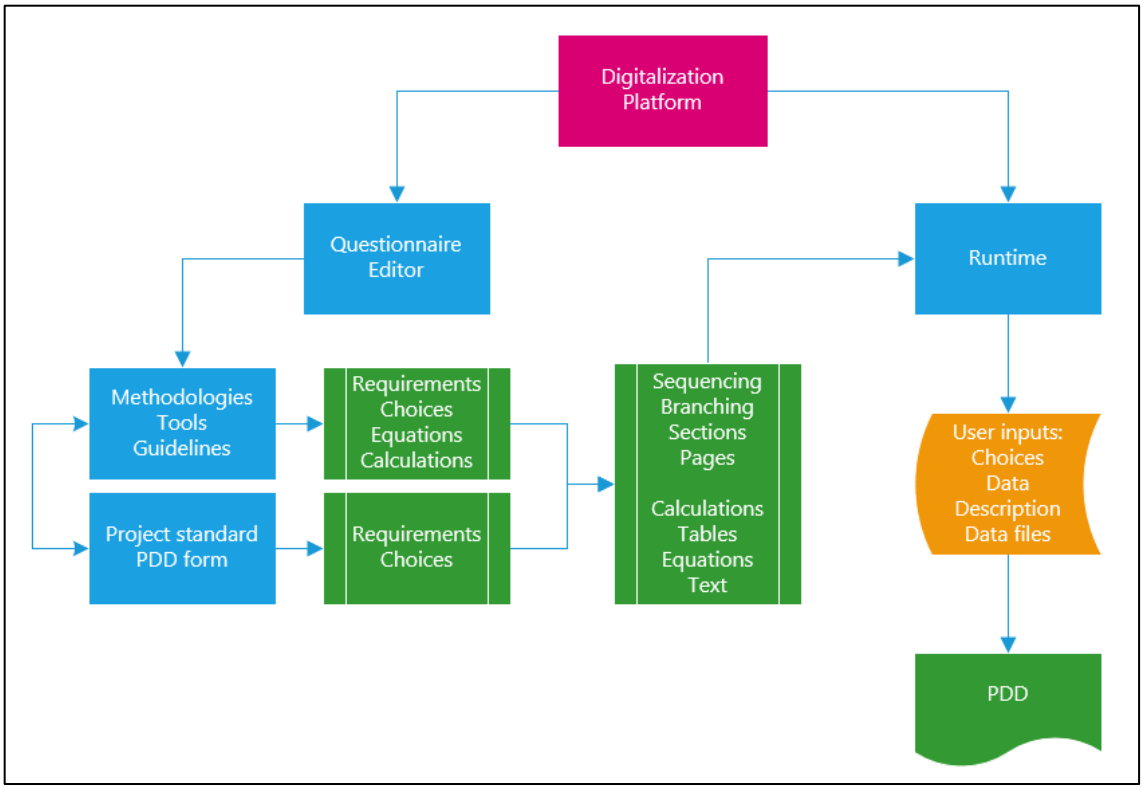
19. Figure 3 below depicts the system architecture of the digitalization platform. The platform consists of two modules: a questionnaire editor module used by the secretariat staff; and a runtime module used by project participants who wish to develop a PDD.

20. The questionnaire editor module enables the creation and editing of a questionnaire specific to a methodology or a group of methodologies. The questions are designed according to the provisions of the methodologies, tools and guidelines applicable to the project activity, as well as the applicable provisions of the CDM project standard and the PDD form.

21. The questions request the user to provide the data required by the regulatory documents mentioned in paragraph 20 above. In contrast to the manual development of a PDD, the project developer is no longer requested to identify the methodology, demonstrate its applicability or calculate the factors and parameters. The project developer is simply invited to provide information about the project activity.

22. A finalized and approved questionnaire is made available, through the runtime module, as a web-based interactive tool to the users, typically project developers and prospective project participants, who interact with the tool and progressively describe the features of their project activity. When all the necessary information has been provided and the data files have been uploaded, the tool generates the PDD, which the users can download.

Figure 3. The system architecture of the digitalization platform



5. Potential benefits of using the tool

23. The original purpose of the tool was to shift the complexity related to the use of the CDM methodologies from the side of the user of the mechanism to the side of the regulatory body and its support structures, which are better equipped to handle the complexity. This can provide project developers with enhanced access to the mechanism and improve the regional distribution of the project activities. The tool also decreases the project development cost by reducing the time and effort spent dealing with the complex CDM methodological landscape.

24. Apart from the benefits of the tool confirmed by the stakeholders participating in the road-testing, operationalization of the tool is likely to bring several other benefits to the CDM project cycle. For example, the use of the tool will facilitate the validation of candidate projects and will support the process of development and maintenance of CDM methodologies and tools. Potential benefits of digitalization of methodologies and PDD generation are briefly described in Table 4 below, including an indication of whether the benefits primarily facilitate the work of the project proponents, validators or the regulator.

Table 4. Benefits of digitalization across the CDM cycle

Benefit	***How***	***Project developer***	***Validator***	***Regulator***
Increased productivity	User does not have to consult a large number of regulatory documents or search the documents that are relevant to his/her case. Provisions from the relevant regulatory documents are fetched by the software and presented to the user for making choices.	√		
	The tool identifies the requirements applicable to the user's case and inserts these requirements as well as the justification as to how these are met by the project activity. The user is able to focus on the description of the project, provide the data or upload data files, thus leveraging the tool to minimize time and effort, thereby reducing cost.	√		
	The step-by-step process driven by the tool leads to improved user experience and productivity. The user is asked for data only once in the process, even if the data are used for multiple purposes and inserted in multiple places.	√		
	Calculations are carried out by the software and therefore the outputs are guaranteed to be correct relative to the data provided by the user. The validator only has to validate the data, not the calculations. Similarly, several aspects of regulatory enforcement, such as the applicability of the methodology and of the methodological choices, are automatically checked and justified by the system. The auditor does not have to reach out to the source documents to validate the enforcement of such requirements.	√	√	
Improved quality	The software performs data validation at the time of input. The level of validation can be adjusted as required (e.g. by incorporating substantive expertise in validation algorithms). This ensures that the information contained in the document is free from data errors.		√	√
	In the manually prepared PDDs, project developers include widely varying amount of information that may or may not relate to the estimation of emission reductions (ERs). A system-generated PDD contains only the information that is relevant to the project for the purpose of calculating ERs and is free from extraneous information. A system-generated PDD thus requires less effort during validation.		√	√
	Standardization of the document in terms of the text and terminology improves objectivity, consistency and accessibility of the document produced. The document is free from ambiguities, as the same term or phrase is used to convey the same meaning everywhere.		√	√

Benefit	***How***	***Project developer***	***Validator***	***Regulator***
Improved operational efficiency	Use of the online tool by stakeholders provides business intelligence and real-time information in the form of level of activity and interest among stakeholder, such as how many people have accessed the tool, made partial progress, and what barriers they might be facing. It provides an indication of incoming submissions, enabling better planning for processing of the future submissions.			√
	Assessment of stakeholder submissions is facilitated and simplified since incomplete documents either cannot enter the process or will be flagged as incomplete by the system. Parts of the information reporting checklists (IRC) can be filled automatically since the data are available as structured data rather than text data. This increases the productivity of the submission processing staff and makes the assessment process more responsive for the stakeholder.	√		√
Improvement in regulations	Digitalization requires that regulatory documents be unambiguous, objective and complete. In the process of digitalization, gaps or ambiguities in regulatory documents are automatically flagged since ambiguities and gaps would make the regulatory requirements unsuitable for conversion into an algorithmic format. Digitalization can thus act as a quality gate for new regulatory documents and necessitate improvement of the existing regulatory documents.		√	√
	Improved data access and data analytics enable the regulator to build an information base - or expert knowledge - that can be leveraged for update or refinement of the regulatory provisions.		√	√
Broadened stakeholder participation	Stakeholders with less experience or capacity are able to participate because digitalization makes participation easier and more accessible.	√		√

6. Recommendations to the Board

25. The secretariat recommends that the Board takes note of the information contained in this report.

- - - - -

Document information

Version	*Date*	*Description*
01.0	3 May 2021	Published as an annex to the annotated agenda of EB 110. Due to time constraints, the Board could not consider this document (CDM-EB107-AA-A05) in EB 107 as well as in EB 108 (CDM-EB108-AA-A03).

Decision Class: Operational
Document Type: Information note
Business Function: Methodology
Keywords: ACM0002, data collection and analysis, digitalization, project design documents, streamline