

CDM-EB74-A##

Concept note

Concept note on operationalizing carbon dioxide capture and storage as a CDM project activity

Version 01.0



United Nations
Framework Convention on
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1. Procedural background

1. At its seventh session, the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (hereinafter referred to as the CMP) adopted decision 10/CMP.7; "Modalities and procedures for carbon dioxide capture and storage in geological formations as clean development mechanism project activities" (hereinafter referred to as the carbon dioxide capture and storage (CCS) modalities and procedures).
2. In addition to the CCS related provisions, the provisions of the modalities and procedures for a clean development mechanism, contained in the annex to decision 3/CMP.1 (hereinafter referred to as the CDM modalities and procedures), apply mutatis mutandis to CCS project activities under the CDM . In 2013, the CDM modalities and procedures are under review by the Subsidiary Body for Implementation and the CMP. It is noted that if the CDM modalities and procedures are changed as a result of this review, these changes will apply, mutatis mutandis, to CDM CCS project activities.
3. As a first step in implementing the CCS modalities and procedures, at its sixty-seventh meeting, the Executive Board of the clean development mechanism (CDM) (hereinafter referred to as the Board) adopted the following three documents:
 - (a) The "CDM accreditation standard for operational entities" (version 04.0), which includes a new sectoral scope for carbon capture and storage;
 - (b) "Guidelines for completing the project design document form for carbon capture and storage CDM project activities"; and
 - (c) "Guidelines for completing the proposed new carbon capture and storage baseline and monitoring methodology form".
4. At its seventieth meeting, the Board considered a "Concept note on the development of CCS requirements for the CDM project standard (PS), validation and verification standard (VVS) and project cycle procedure (PCP)", and agreed on the proposed work to develop and integrate CCS modalities and procedures into the PS, VVS, and PCP and requested the secretariat to take into account the development of a procedure for liability transfer and financial provisions.
5. Based on the agreed work programme, the following inputs were considered as the basis for this note:
 - (a) Analysis of the CCS modalities and procedures and classification of requirements to be included in existing documents (PS, VVS and PCP);
 - (b) Input provided by CCS Working Group [Note: this step is in process];
 - (c) Inputs provided by external stakeholders [Note: this step is in process];
 - (d) Inputs based on the secretariat's experience in implementing other project activities.

2. Purpose

6. The purpose of this document is to:

- (a) Summarize key issues in the CCS modalities and procedures where further guidance may be required; and
 - (b) Where feasible, propose options for solutions for the consideration by the Board.
7. This note provides a consolidated overview of the relevant paragraph of the CCS modalities and procedures where the Board's guidance is requested, options for implementation and recommendations arising therefrom, for the Board's consideration

3. Key issues and proposed solutions

3.1. Participation Requirements

8. As per paragraph 8 of the CCS modalities and procedure:

A Party not included in Annex I to the Convention may only host a CCS project activity under the CDM if it has submitted an expression of its agreement to the UNFCCC secretariat to allow the implementation of CCS project activities in its territory and provided that it has established laws or regulations which:

- (i) Set procedures that include provisions for the appropriate selection, characterization and development of geological storage sites, recognizing the project requirements for CCS project activities under the CDM set out in [the CCS modalities and procedure];*
- (ii) Define means by which rights to store carbon dioxide in, and gain access to, subsurface pore space can be conferred to project participants;*
- (iii) Provide for timely and effective redress for affected entities, individuals and communities for any significant damages, such as environmental damage, including damage to ecosystems, other material damages or personal injury, caused by the project activity, including in the post-closure phase;*
- (iv) Provide for timely and effective remedial measures to stop or control any unintended seepage of carbon dioxide, to restore the integrity of a geological storage site, and to restore long-term environmental quality significantly affected by a CCS project activity;*
- (v) Establish means for addressing liability arrangements for carbon dioxide geological storage sites, taking into account the provisions set out in [the CCS modalities and procedure];*
- (vi) For a host Party that accepts the obligation to address a net reversal of storage in the situation referred to in [the CCS modalities and procedure], establish measures to fulfil such an obligation. (the "host Party participation requirements").*

3.1.1 General Proposal and options

9. The following issues have been identified in relation to operationalizing this requirement:
- (a) The timing and frequency of submitting an expression of agreement (EoA):

- (i) As a Party's EoA applies equally to all CDM CCS project activities in its territory, should the EoA be submitted only one time by a Party or every time that a CCS project activity is commenced?
- (ii) At what point in the process should the EoA be submitted, for example, before a project design document (PDD) is submitted for global stakeholder consultation or at the time that a request for registration of a CCS project activity is submitted?
- (b) The content of the EoA:
 - (i) Should the EoA set out the relevant laws or regulations which are established, in addition to a statement that the Party agrees to the development of CDM CCS project activities in its territories?
 - (ii) If so, do changes in the relevant laws and regulations need to be communicated to the project participant and the Board?
- (c) Validation and verification of host Party participation requirements:
 - (i) Should a DOE check that a Party meets the host Party participation requirements only at the time of validation or, as this appears to be a continuing obligation, should it be checked at each verification?
 - (ii) What are the consequences if a DOE identifies at verification that a host Party no longer meets the host Party participation requirements?

3.1.2 Recommendation

10. In relation to each of the identified issues, the secretariat recommends the following:
- (a) A Party may submit its EoA once prior to the first CDM CCS PDD being submitted for webhosting for global stakeholder consultation. The timing option aims to maximise transparency for stakeholders, while this frequency option aims to minimise the regulatory burden for host Parties;
 - (b) For transparency and efficiency, the EoA should contain an appendix setting out the relevant laws and regulations required in accordance with the CCS modalities and procedures. This appendix should be updated with every new CCS project activity which is commenced in that country, and otherwise every [three] [five] years from the date of registration of the last CCS project activity. The validation requirements related with this has been discussed in section 3.2 below;
 - (c) As the Party participation requirements appear to be a continuing obligation for the life of the CDM CCS project activity, a DOE shall check the requirements at validation and each verification to ensure that relevant laws and regulations exist during the life time of the CCS project activity;
 - (d) If at verification a DOE identifies that a host Party no longer meets the host Party participation requirements (e.g. relevant CDM CCS laws have been repealed) this shall result in a negative verification opinion.

3.2. Validation and registration

11. As per paragraph 10 of the CCS modalities and procedures:

In addition to the requirements contained in paragraph 37 of the CDM modalities and procedures, the DOE shall also confirm that the following requirements are met:

- (i) The participation requirements set out in [the CCS modalities and procedures] are satisfied;*
- (ii) Provisions for liability have been agreed in accordance with the laws and regulations of the host Party and the provisions set out in [the CCS modalities and procedures];*
- (iii) Financial provisions have been put in place by the project participants in accordance with the requirements set out in [the CCS modalities and procedures];*

3.2.1. General Proposal and options

12. According to the CCS modalities and procedures, a DOE needs to validate the host Party participation requirements, financial provisions, liability arrangement etc. It appears that under these additional requirement for CCS project activities a DOE needs to check not only that the relevant laws and regulations exist, but also that the laws and regulations are sufficient. For example, if a host Party has established a law for CCS project activities does it sufficiently cover all the provisions mentioned in CCS modalities and procedures?
13. If the DOE is required to validate the sufficiency of the laws and regulations to meet the specific requirements under the CMP decision on CCS, a one-time confirmation from the host Party during validation is unlikely to be sufficient.
14. Instead, the DOE, with the assistance of appropriately qualified legal and financial experts, would need to independently verify that the laws or regulations exist and comply with the requirements under the CCS modalities and procedures.

3.2.2. Recommendation

15. If the Board agrees with the scope of the DOE validation and verification obligations as described in paragraphs 12 to 14 above, it is recommended that:
- (a) The VVS includes a requirement that a DOE shall review the host Party laws and regulations using appropriately qualified personnel (i.e. legal and financial experts) to confirm that the laws and regulations comply with the CCS modalities and procedures;
 - (b) Qualified legal and financial expertise is included in the CDM accreditation standard for operational entities as a competency requirement for a DOE accredited for sectoral scope 16 (CCS).

3.3. Issuance of certified emission reduction

16. As per paragraph 18 of the CCS modalities and procedures:

The provisions of paragraph 65 of the CDM modalities and procedures shall apply mutatis mutandis to CCS project activities under the CDM.

3.3.1. General Proposal and options

17. According to paragraph 65 of the CDM modalities and procedures 'The issuance shall be considered final 15 days after the date of receipt of the request for issuance, unless a Party involved in the project activity or at least three members of the Executive Board request a review of the proposed issuance of CERs'.
18. However, the 15 days time period specified in the CDM modalities and procedures has been revised by the Board for other types of CDM project activities to 28 days (as per paragraph 199 of the PCP). Therefore, the Board may wish to either:
 - (a) Keep the requirement consistent with the CDM modalities and procedures at 15 days; or
 - (b) Make the time period consistent with the Board's current rules for other project activity types at 28 days.

3.3.2. Recommendation

19. To maintain consistency across all project types, it is recommended to follow the current time period of 28 days as set out in in the PCP. The revised PCP after inclusion of CCS requirements could be submitted to CMP for approval at an appropriate time.

3.4. Selection and characterization of geological storage site

20. As per paragraph 1 and 3 of appendix B of CCS modalities and procedure:

Geological storage sites shall only be used to store carbon dioxide as project activities under the clean development mechanism (CDM) if, under the proposed conditions of use, there is no significant risk of seepage, no significant environmental or health risks exist, and the geological storage site will comply with all laws and regulations of the host Party.

The following shall be evaluated when determining whether geological storage sites shall be used to store carbon dioxide as project activities under the CDM consistent with paragraph above:

- (i) *All available evidence, such as data, analysis and history matching, indicates that the injected carbon dioxide will be completely and permanently stored such that, under the proposed or actual conditions of use, no significant risk of seepage or risk to human health or the environment exists;*
- (ii) *Whether the geological storage site is suitable for potable water supply.*

3.4.1. General Proposal and options

21. According to the CCS modalities and procedures a project participant is required to evaluate whether the geological storage site is suitable for potable water supply. However, it is not clear what was the intended consequence of a site being identified as

suitable for portable water supply. As currently drafted, it would appear that there are two possible consequences if the site is suitable for potable water supply:

- (a) The site is not suitable for a CCS project activity. This may be what was intended by the requirement in the CCS modalities and procedure; or
- (b) The site may be suitable for a CCS project activity. However, a decision about whether a geological storage site which is suitable for potable water supply should be considered eligible for a CCS project activity should be made by the host Party on the basis of the risk assessment and environmental impact assessment undertaken per the CCS modalities and procedures.

3.4.2. Recommendation

22. As it was not expressly permitted or prohibited in the CMP decision on CCS, and to best ensure environmental integrity, the Board may wish to seek further clarification from CMP. In the interim, the Board may wish to implement the provision using either of the two options above.

3.5. Monitoring

23. As per paragraph 13 of appendix B of CCS modalities and procedures:

Where significant deviations are observed during history matching or when requesting a renewal of the crediting period, the project participants shall, as appropriate: (a) Recharacterize the geological storage site, (b) Revise the project boundary; (c) Update the risk and safety assessment; (d) Update the environmental and socio-economic impact assessments; (e) Revise the monitoring plan, in order to improve the accuracy and/or completeness of data and information, taking into account observed deviations determined during history matching, changes to the project boundary, changes to the risk and safety assessment, changes to the environmental and socio-economic impact assessments, new scientific knowledge and improvements in the best available technology; (f) Update the site development and management plan.

3.5.1. General Proposal and options

24. According to the CCS modalities and procedures, in the case of a significant deviation a project participant must undertake the above mentioned activities. However, it is not immediately clear from the requirement what constitutes a “significant” deviation. This could be addressed in a number of ways, including by the following options:
- (a) The Board defines what is meant by significant deviation (e.g. +/- 20 per cent deviation in monitored values with respect to numerical model values);
 - (b) The project participant defines significant deviation in the PDD and justifies the assumptions during validation.

3.5.2. Recommendation

25. The definition of what is “significant” may vary, as it depends on the model used, the input values and other parameters. For predictability, it is recommended to define [X] per cent as significant based on the stakeholder inputs prior to the first CCS CDM projects.

This value can be revisited based on the experience gained in implementing CCS CDM project activities.

26. Irrespective of the threshold for triggering a significant deviation, a project participant shall immediately notify the host Party in writing if a significant deviation is reported by the DOE during verification.

3.6. Issuance of certified emission reductions

27. As per paragraph 21 of CCS modalities and procedures:

Upon submission of a certification report for a verification period during the crediting period and upon finalization of the consideration of the certification report by the Executive Board, the CDM Registry Administrator, working under the authority of the Executive Board, shall, promptly, issue the specified quantity of CERs into the pending account of the Executive Board in the CDM registry, in accordance with appendix D to the annex to decision 3/CMP.1. Upon such issuance, the CDM Registry Administrator shall promptly:

- (i) Forward the quantity of CERs corresponding to the share of proceeds to cover administrative expenses and to assist in meeting the costs of adaptation, respectively, in accordance with Article 12, paragraph 8, of the Kyoto Protocol, to the appropriate accounts in the CDM registry for the management of the share of proceeds;*
- (ii) Forward 5 per cent of the CERs issued to a reserve account of the CDM registry, established for the CCS project activity for the purpose of accounting for any net reversal of storage, as referred to in paragraph 3(a) of appendix A to this annex;*

3.6.1. Key issue

28. The CCS modalities and procedures do not specify the quantities of CERs that correspond to the share of proceeds to cover administrative expenses and to the share of proceeds to assist in meeting the cost of adaptation.

3.6.2. Recommendation

29. It is recommended that the existing requirements be followed as set out below:
- (a) The fee schedule contained in Appendix 1 to PCP applies to the share of proceeds to cover administrative expenses;
 - (b) The share of proceed to assist in meeting the cost of adaptation shall be two per cent of the CERs issued for a CCS project activity. Project activities in least developed parties are exempted from this levy.

3.7. Addressing non-permanence

30. As per paragraph 24 of CCS modalities and procedures:

Where a verification report determines that a net reversal of storage occurred during the verification period as a result of seepage from the geological storage site of a CCS project activity, the Executive Board shall:

- (a) *Notify the CDM Registry Administrator to cancel, up to the amount of the net reversal of storage, the CERs issued for the CCS project activity held in the CDM registry:*
 - (i) *Firstly, from the reserve account established for the purpose of accounting for any net reversal of storage, as referred to in paragraph 3(a) of appendix A to this annex;*
 - (ii) *Secondly, from the pending account;*
 - (iii) *Finally, from the holding accounts of the project participants, proportional to the amount of CERs for the CCS project activity held in each holding account;*
- (b) *Determine any outstanding amount of the net reversal of storage for which no units were cancelled under [CCS modalities and procedures] and, where such an amount is outstanding, request the project participants to transfer, within 30 days after the notification, an amount of assigned amount units (AAUs), CERs, emission reductions units (ERUs) or removal units (RMUs) equivalent to the outstanding amount to a cancellation account of the CDM registry established for this purpose, as referred to in [CCS modalities and procedure], or a cancellation account of the national registry of any Party.*

31. As per paragraph 3 of Appendix A of CCS modalities and procedures:

In addition to the registry accounts specified in paragraph 3 of appendix D to the CDM modalities and procedures, the CDM registry shall have:

- (a) *A reserve account for each CCS project activity, where the CDM Registry Administrator holds CERs for the purpose of accounting for any net reversal of storage;*
- (b) *A cancellation account to which CERs from CCS project activities are transferred to account for any net reversal of storage, in accordance with the provisions set out in the annex above.*

3.7.1. Key issue

32. The CCS modalities and procedures do not specify the details of cancellation accounts for the net reversal and non-submission of verification report.

3.7.2. Recommendation

33. Board to propose to CMP to revise the relevant provisions at the next revision of the CCS modalities and procedures. In the interim, the Board may wish to implement the provision as set out below:

- (a) All cancellation should happen to cancellation accounts in the CDM registry as oppose to cancelation accounts in national registries of any Party;
- (b) The CDM registry may have separate cancelation accounts for each CCS project activity for the purposes of accounting for net reversal of storage or non-submission of verification report.

34. Addressing net reversal of storage and non-submission of verification reports in cancellation accounts of the CDM registry would simplify the tracking of compliance actions and it is expected to minimize implementation costs for the registry system.

3.8. Requirements for financial provision

35. As per paragraph 11 of the CCS modalities and procedures and paragraph 18 and 20 of appendix B of the CCS modalities and procedures:

The project participants shall establish financial provision:

- (i) To meet all obligations in accordance with the laws and regulations of the host Party arising from the establishment and operation of the proposed CCS project activity;*
- (ii) To allow for the ongoing safe operation of the geological storage site in accordance with the laws and regulations of the host Party;*
- (iii) To address the risk of project participant insolvency in accordance with the laws and regulations of the host Party;*
- (iv) To offer a means of redress for affected communities and ecosystems in the event of seepage from a geological storage site of a CCS project activity in accordance with the laws and regulations of the host Party;*
- (v) To enable the host Party to discharge its obligations arising in connection with the transfer of liability*

The type and level of the financial provision shall be described in the project design document.

In addition to the requirements contained in paragraph 40 of the CDM modalities and procedures, the DOE shall, prior to the submission of the validation report to the Executive Board, have received from the project participants' written confirmation by the designated national authority of the host Party of the following:

- (i) That the right to store carbon dioxide in, and gain access to, the proposed geological storage site has been conferred to the relevant project participants;*
- (ii) That the host Party agrees to the financial provision, in accordance with [the CCS modalities and procedures], described in the project design document;*
- (iii) That the host Party accepts the allocation of liability as proposed in the project design document and the transfer of liability referred to in [the CCS modalities and procedures] ;*
- (iv) Whether or not the host Party accepts the obligation to address a net reversal of storage in the situation referred to in [the CCS modalities and procedures].*

3.8.1. General Proposal and options

36. The CCS modalities and procedures require project participants to have in place sufficient financial provisions to fulfil obligations related to the CCS project activity. The type and quantum of the financial provisions is not prescribed. The DOE is also required to validate that these requirements have been met. This requirement could be fulfilled in the following ways:
- (a) A project participant submitting a detailed statement in the PDD on financial provisions it [has] [will] establish[ed] to cover all the aspects mentioned in the CCS modalities and procedures. The statement should be duly endorsed by host Party DNA in the letter of approval. In this case, the DOE would accept the letter of approval as sufficient for determining that the requirements are fulfilled;
 - (b) A project participant submits a detailed statement in the PDD on financial provisions it [has] [will] establish[ed] to cover all the aspects mentioned in the CCS modalities and procedures and the DOE validates this using its financial and legal experts.

3.8.2. Recommendation

37. As the host Party is best placed to determine whether the financial provisions are consistent with their laws and regulations, it is recommended that a project participant submits a detailed statement in the PDD on the financial provisions it has established to cover all the aspects mentioned in CCS modalities and procedures. The statement should be duly endorsed by the host Party DNA in the letter of approval. The DOE shall accept this as sufficient for determining that the requirements are fulfilled.

3.9. Liability

38. As per paragraph 25 of appendix B of CCS modalities and procedures:

A transfer of liability from the project participants to the host Party shall be effected after:

- (i) *The monitoring of the geological storage site has been terminated in accordance with the conditions for the termination of monitoring;*
- (ii) *The host Party has established that the conditions set out by the designated national authority in its letter of approval, and those set out in the relevant laws and regulations applicable to the geological storage site have been complied with.*

3.9.1. General Proposal and options

39. Under the CCS modalities and procedures, the project proponent is to transfer the liability arising from the obligations under the CDM to the host Party after monitoring of the site is terminated in accordance with the CCS modalities and procedures. The CCS modalities and procedures are silent on who should be notified that such a transfer has occurred.

3.9.2. Recommendation

40. It is recommended that a requirement be included such that project participants shall notify the Board in writing, through the relevant DNA, within a reasonable timeframe [3 months] [6 months] before the transfer of liability is scheduled to occur.

4. Impacts

41. The development and adoption of the requirements described above will enable the further implementation of the CCS modalities and procedures and will provide clear framework for CCS CDM project activities.

5. Subsequent work and timelines

42. After consideration of this concept note [Version 01.0] by the Board at its seventy-fourth meeting and agreement on the way forward, the standards and procedures will be revised and submitted to the Board for its consideration at its seventy-fifth meeting.
43. Preparation of draft standard text/templates and requirements for EOA and letter of approval for the consideration of DNAs for approval of CCS CDM project activities.

6. Recommendations to the Board

44. The secretariat recommends that the Board provide guidance on the proposals contained in this note so that the secretariat can prepare draft revised PS, VVS and PCP.
45. The secretariat requests that the Board provide guidance on the content of a standard form of EOA and text for CCS requirements in the letter of approval for the consideration of DNAs for the approval of CCS CDM project activities.

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