

**Annex 6****DEVELOPMENT OF THE CLEAN DEVELOPMENT MECHANISM REGISTRY****I. INTRODUCTION**

1. In accordance with decision 17/CP.7, the Executive Board is to establish and maintain a CDM registry to ensure the accurate accounting of the issuance, holding, transfer and acquisition of CERs by non-Annex I Parties. The first certification reports, constituting requests for issuance of CERs, could be presented to the Board as soon as the fourth quarter of 2003. The Board is to instruct the CDM registry administrator to issue such CERs into the CDM registry.
2. The CDM registry is to be similar in structure and functions to the national registries to be established and maintained by Annex I Parties. The validity of transactions, including CER issuance and cancellation in the CDM registry and transfers of CERs to national registries, is to be verified by the transaction log established and maintained by the secretariat.
3. This annex discusses CDM registry requirements, options for the issuance of CERs prior to the establishment of the transaction log and steps in the CDM registry development process. Recommendations for action at the ninth meeting of the Executive Board are also presented.

**II. CDM REGISTRY FUNCTIONS**

4. The CDM registry is to be an electronic database of accounts in which CERs may be held. The Board is to identify an administrator to maintain the CDM registry under its authority.
5. In accordance with decision 17/CP.7, the functions of the CDM registry include:
  - (a) Maintenance of accounts, each with a unique account number, including the pending account of the Executive Board, holding accounts for non-Annex I Parties hosting CDM project activities, holding accounts for the management of the share of proceeds and cancellation accounts;
  - (b) Issuance of CERs into the pending account of the Executive Board and allocation of a unique serial number to each CER identifying, *inter alia*, the commitment period, host Party for the CDM project activity and the CDM project activity itself;
  - (c) Forwarding of CERs, corresponding to the share of proceeds, to appropriate accounts in the CDM registry for the management of the share of proceeds for adaptation and administration;
  - (d) Forwarding of CERs to the accounts of Parties and project participants in the CDM registry and national registries, in accordance with their request;
  - (e) Cancelling ERUs, CERs, AAUs and RMUs to compensate excess CERs issued, where the accreditation of a designated operational entity has been withdrawn or suspended;
  - (f) Termination of all transactions found to be invalid by the transaction log.
6. To ensure that the CDM registry can communicate with national registries and the transaction log in an accurate, transparent and efficient manner, the structure and data formats of the CDM registry are to conform to the technical standards adopted by decision 24/CP.8 in the form of general design requirements. These standards, known as the data exchange standards, are currently being elaborated into detailed specifications to ensure their compatible implementation across all registry systems.

7. In accordance with the data exchange standards adopted by decision 24/CP.8, additional requirements to be met by the CDM registry include:

(a) Transmission, reception and processing of standardized electronic messages, using a common language protocol and data formats, to facilitate the transfer of CERs to national registries and the verification of transactions by the transaction log;

(b) Common formats for serial numbers, account numbers and transaction numbers;

(c) Application of security measures and measures to ensure accurate recording and transmission of data, including the daily reconciliation of data with the transaction log.

8. The CDM registry may be web-based, such that individual account holders may log in across the Internet to manage their accounts or initiate transactions. It is envisaged that private and public entities participating in CDM project activities may hold accounts in the CDM registry.

9. The CDM registry will require integration with the information management systems already being put in place in relation to project activities, public inputs, rosters of experts, etc.

### III. CER ISSUANCE PRIOR TO THE ESTABLISHMENT OF THE TRANSACTION LOG

10. Requests to the Executive Board to issue CERs are likely to precede the establishment of the transaction log (to be completed in October 2004) and the specification of the data exchange standards (to be completed in November 2003). In this case, the transaction log would not be in a position to verify the validity of CER issuance in the CDM registry, as is required by decisions 17/CP.7 and 19/CP.7.

11. This raises the issue of CER issuance in the period until the transaction log is operational. Decisions 17/CP.7 and 19/CP.7 specify that the transaction log is to verify the validity of CER issuance, as an integral part of the issuance process. In practice, such verification would entail checks to ensure that each CER is allocated an appropriate unique serial number or that the appropriate number of CERs is issued. As it is expected that the CDM registry would also undertake such checks as part of its workflows, the probability that mistakes arise should be low.

12. Two main options for addressing the later development of the transaction log may be identified:

(a) **Option 1.** Postpone carrying out requests to issue CERs until the transaction log is operational, on the grounds that CER issuance in the full terms of decisions 17/CP.7 and 19/CP.7 is not possible. There may be a need under this option to consider means to enhance investor confidence that the CERs will, at a later stage, be issued and forwarded to them.

(b) **Option 2.** Issue CERs on an interim basis and forward them to accounts of non-Annex I Parties, and of project participants from non-Annex I Parties, in accordance with the request. In order for CERs to be forwarded to an Annex I Party, and to entities from such a Party, temporary accounts could be established in the CDM registry on their behalf. Once the transaction log is operational, such issuance and forwarding may be confirmed in the full terms of decisions 17/CP.7 and 19/CP.7. Furthermore, after the transaction log is operational, once the relevant national registry of an Annex I Party is operational, accounts maintained in the CDM registry on behalf of that Annex I Party or its entities would be closed and the CERs would be forwarded to the relevant accounts in that registry.

#### IV. CDM REGISTRY DEVELOPMENT AND OPERATION

##### A. General approach

13. With the requirements relevant to the CDM registry having been set in decisions 17/CP.7, 19/CP.7 and 24/CP.8, the remaining task of specifying, constructing, testing and rolling out the CDM registry is primarily a technical one. It will need to be ensured that the CDM registry remains consistent with these requirements (on some issues, future guidance from the Executive Board will be necessary).

14. Under **option 1** in paragraph 12, the development of the full CDM registry could move apace with the transaction log, as CER issuance would not take place until the transaction log is operational. In the meantime, the Board would need to ensure that accurate and publicly accessible records are kept of the CERs that would need issuance once both systems are in place.

15. However, under **option 2** in paragraph 12, requests for CER issuance on an interim basis as early as the fourth quarter of 2003 may require rapid development of the transaction log. This early requirement for CER issuance would need a two stage approach to the CDM registry development:

(a) Development of an “interim” CDM registry, focusing on aspects that do not involve data exchange with national registries or the transaction log. An interim registry could include: account structure; CER issuance; allocation of unique serial numbers; calculation and separation of CERs for the share of proceeds; forwarding of CERs to accounts within the CDM registry; CER cancellation; internal auditing and journaling; the link to CDM information management systems; and public accessibility. An interim CDM registry could nevertheless be made accessible through the CDM web pages.

(b) Subsequent development of links to national registries and the transaction log; forwarding to accounts in national registries; and full security measures.

##### B. Development process

16. The development of the CDM registry is a significant IT project. Though there may be more cost-effective ways of establishing the CDM registry, experience with developing similar systems elsewhere<sup>1</sup> suggests that the cost of developing the CDM registry from scratch could reach the US\$500,000 mark (at commercial rates). The table below outlines general steps involved in developing the CDM registry from scratch. Some iteration would be required between these steps.

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<sup>1</sup> For example, the SO<sub>2</sub> trading registry in the USA, the domestic trading registry in the UK, development work on national registries in several Annex I Parties and development work on the transaction log by the secretariat.

Step	Description
1. Functional specification	Sets out requirements for <i>what</i> the registry is to do, on the basis of COP decisions and other necessary functions. Part of the design phase.
2. Technical specification	Sets out <i>how</i> , in technical terms, the registry is to meet the functional requirements. Part of the design phase.
3. Construction	Software programming and implementation of the hardware architecture.
4. Testing	Ensuring the registry, as constructed, meets the functional specification.
5. Roll-out	Putting the registry online.
6. Operation, maintenance	Ongoing administration and functioning of the registry. Maintenance and capital replacement as scheduled and as necessary.

17. The precise nature of these steps will depend on the option chosen for the development of the CDM registry. For example, it may be possible to short-cut the development process by utilizing work that has been done for other systems with characteristics similar to the CDM registry.

18. However, in any development option, it will be necessary to first develop the functional specification of the CDM registry. As this step collects all the requirements that the CDM registry needs to meet, it is an essential document in defining what needs to be developed and evaluating whether the registry meets the specific needs.

19. Once the functional specification has been determined, it is possible to consider any of the following broad options for continuing the development work (these options are not mutually exclusive):

- (a) In-house development, from scratch, within the secretariat;
- (b) In-house development, building upon components developed for similar systems and possibly in cooperation with external organizations or companies;
- (c) Tailoring of an existing registry, as developed and implemented by a Party or stripped down to its core functions, to the specific requirements of the CDM registry;
- (d) Development, from scratch, through external contractors.

20. A number of criteria would need to be applied in choosing between development options. A major consideration would be development costs and operation and maintenance costs (US\$40,000 have been allocated to initial work on the CDM registry in 2003). Further criteria would include the extent to which the completed registry would meet the functional specification, the quality of the completed registry, the timeframe for completing interim and full versions of the registry, required in-house staff and expertise, the use of open-source software, compatibility with the data exchange standards, and compatibility with information management systems supporting the Executive Board.

21. If the Executive Board wishes to designate the secretariat as the CDM registry administrator, provision would need to be made within the secretariat to support on-going operational and maintenance activities. These activities would need to be integrated with the management of other information management systems in support of the Executive Board.

### **C. Possible action by the Executive Board**

22. The Executive Board may wish to:

(a) Issue a public call to Parties and organizations for inputs to the development of the CDM registry. In particular, contributions may be in the form of functional or technical specifications, other documentation or programming code for systems or system components. The secretariat could coordinate the receipt of these inputs;

(b) Request the secretariat to begin development work on the CDM registry, in particular through preparing a draft functional specification for the CDM registry, and report back to the Board at its next meeting on progress and a timeline for continuing this work;

(c) Provide guidance to the secretariat on how to address:

- (i) CER issuance and forwarding prior to the establishment of the transaction log;
- (ii) Accounts for Annex I Parties and their entities in the CDM registry;
- (iii) A two-stage approach to CDM registry development.