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International transaction log

**Progress made towards the implementation of
the international transaction log**

Note by the secretariat^{*}

Summary

The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, by its decision 12/CMP.1, requested the secretariat to report to the Subsidiary Body for Implementation, at its twenty-fourth session, on progress made towards the implementation of the international transaction log (ITL), in particular in relation to the content and timing of the testing and initialization of registry systems.

This note contains information on the progress made by the secretariat in the implementation of the ITL, including in relation to schedules for its development and testing and the interaction of administrators of other registry systems in testing and initialization processes.

^{*} This document has been submitted late in order to include information on the latest progress in this work.

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I. Introduction

A. Mandate

1. The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP), by its decision 13/CMP.1, requested the secretariat to establish and maintain the international transaction log (ITL) to verify the validity of transactions undertaken by registries established under decisions 4/CMP.1 and 13/CMP.1.
2. By its decision 12/CMP.1, the COP/MOP endorsed decision 16/CP.10, which noted the role of the secretariat, as the administrator of the ITL, in establishing and maintaining the ITL.
3. The COP/MOP, also by its decision 12/CMP.1, requested the secretariat to implement the ITL in 2006, with a view to allowing registry systems to successfully connect to the ITL by April 2007. It further requested the secretariat to report to the Subsidiary Body for Implementation (SBI), at its twenty-fourth session, on progress made towards the implementation of the ITL, in particular in relation to the content and timing of the testing and initialization of registry systems.

B. Scope of the note

4. This note contains information on the progress made by the secretariat in the implementation of the ITL, including in relation to schedules for the development and testing of the ITL and the interaction of administrators of other registry systems in testing and initialization processes.

C. Possible action by the Subsidiary Body for Implementation

5. The SBI may wish to consider the information contained in this document and take note of the progress made in the implementation of the ITL.

II. Background

6. The ITL is to monitor transactions proposed by registries and verify that they conform with the modalities, rules and limits established under the Kyoto Protocol and are undertaken in accordance with the specifications of the data exchange standards defined on the basis of decision 24/CP.8.
7. The ITL is to provide the central communications hub connecting all other registry systems, including national registries of Parties included in Annex I to the Convention with a commitment inscribed in Annex B to the Kyoto Protocol,¹ the clean development mechanism (CDM) registry and any supplementary transaction logs (STLs) established by Annex I Parties.²
8. Through its role in verifying the conformity of registry transactions with the modalities, rules and limits established under the Kyoto Protocol, the ITL will play a critical role in safeguarding the integrity of the modalities for the accounting of assigned amounts under Article 7, paragraph 4, and facilitating the implementation of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol.

¹ Hereinafter referred to as Annex I Parties.

² The only STL currently foreseen is the Community Independent Transaction Log implemented under the European Union emissions trading scheme.

III. Approach to implementation

9. In view of its position as the communications hub to approximately 40 registry systems, the ITL is being implemented as a secure, resilient and reliable system that offers a high-availability service to all registry systems connected to it. The approach taken by the secretariat to meeting these demands is to engage an appropriate service provider with the required skills and experience to develop such a system and operate it over a 10-year period to 2015. This partner will provide technical expertise and implementation services to the secretariat, as well as longer-term strategic and technical support.

10. The secretariat issued a request for proposal (RFP) on the ITL in late 2005. This RFP, which was prepared in accordance with United Nations financial rules and procedures, called for proposals to develop and operate the ITL. Although the evaluation of proposals was completed early in 2006, the procurement and contracting procedures have not yet been completed due to their complex nature. The secretariat is now in the final stages of these procedures and it is expected that the selection of the service provider will be finalized in May 2006.

11. The service provider is to support the ITL administrator in the following ways:

- (a) As developer of the ITL, the service provider will review the requirements of the ITL for completeness and consistency, design and develop the software, conduct thorough testing of the software, and support the operator of the ITL through assistance with the deployment of the software in the hosting environments and the provision of training, documentation, technical support to the service desk, and further software development
- (b) As operator of the ITL, the service provider will establish and maintain the data centre infrastructure and networks, test and accept versions of the ITL software, deploy the software in its hosting environments, provide service desk support to administrators of other registry systems, support the initialization of registry system connections with the ITL, support the management of technical changes to the ITL, and provide longer-term strategic and technical support to the secretariat.

12. The implementation of the ITL is to be consistent with the technical specifications of the data exchange standards implemented by other registry systems to ensure technical compatibility and the coordination of activities. As a result, the implementation of the ITL will be based on a stable set of standards that have been tested and are in use.

13. Two key mechanisms are being implemented to support other registry system administrators (RSAs) and ensure the coordination of common activities undertaken by them:

- (a) The ITL service desk, to be run by the operator of the ITL, is to undertake the day-to-day communications and liaison with RSAs
- (b) The RSA Forum, convened by the ITL administrator, is to facilitate cooperation among RSAs in coordinating the management and technical activities of RSAs.

14. The service desk will be responsible for the management and resolution of issues raised by RSAs and will be able to escalate issues, as necessary, to higher levels of technical support provided by the ITL developer and management support provided by the ITL administrator. In order to ensure the appropriate level of support, the service desk will continuously add to its knowledge base concerning the operation of the ITL and other registry systems. The service desk is to be available during business hours in all countries with registry systems connected to the ITL.

15. The service desk will also undertake tasks on direct behalf of the ITL administrator. These tasks will include reconciliation of data between registry systems and the ITL and the coordination of schedules for the testing and initialization of registry system connections to the ITL.

16. The RSA Forum is to provide a mechanism for the facilitation of cooperation among RSAs. In particular, in accordance with decision 12/CMP.1, this cooperation is to result in input to the development, by the ITL administrator, of common procedures, recommended practices and information sharing measures that are to be implemented by RSAs. Such activities relate in particular to the management of change in the data exchange standards and common procedures, the reconciliation of data between registry systems and the ITL, and the independent assessment and reporting on registry systems.

17. The RSA Forum is being convened informally by the ITL administrator and it is intended that its atmosphere will be conducive to transparency, cooperation and consensus-building. The first meeting of the RSA Forum was held on 10–11 April 2006 in Bonn, Germany. The Annual Report of the ITL administrator, to be considered by the COP/MOP at its second session, will include information on the activities under the RSA Forum during its first year of operation.

IV. Implementation phases

18. This section outlines the planned phases and schedule for the implementation of the ITL, including in relation to time schedules for the development and testing of the ITL and the interaction of administrators of other registry systems in testing and initialization processes.

19. The development phase of the ITL implementation is expected to last up to eight months from the start of the work. The establishment of the hosting environments is to proceed in parallel, in order to allow the initialization process to proceed in linking registry systems to the ITL. It is planned that the majority of registries will be connected to the ITL by April 2007.

A. Initial steps

20. A number of initial steps will be undertaken in the early phase of the work with the service provider. These steps are to be completed within the first two months of the work and include:

- (a) Further elaboration of a detailed project plan. The service provider will work with the ITL administrator to expand current plans and include sufficient detail to manage the schedule and resources allocated to the project, taking account of the actual start date and key milestones set by the ITL administrator on the basis of decision 12/CMP.1;
- (b) Agreement on detailed service levels to be met through the ITL operation;
- (c) Review of the ITL specifications. The service provider will work with the ITL administrator to review the ITL specifications for completeness, consistency and clarity;
- (d) Specification of the technical configuration of the ITL, including the hardware and software configuration and the external network configuration. This will allow the ITL administrator to inform other RSAs of the network connectivity requirements they will need to meet in order to connect their systems to the ITL.

B. Development and testing

21. The design, development and testing of the ITL software is to be undertaken by the developer on the basis of the detailed specifications agreed with the ITL administrator. This work will follow standard approaches to software development and is expected to be completed by the eighth month of the project. Testing of the software will occur during its development at the level of individual units of software code

and at the level of integrated code units. Testing will also be undertaken in order to ensure that the finished software is able to meet the required performance levels. The ITL software will need to be accepted by the ITL operator and will also be subject to acceptance testing by the ITL administrator in order to ensure fulfilment of its contract with the service provider.

22. An early version of the ITL software will be subjected to pilot testing with a small number of registries in order to provide feedback for its further development. This software version will be deployed in a pre-production environment at the data centre of the operator. The pilot testing will focus on the testing of connections and a limited set of the ITL functionality. A skeleton service desk will be put in place at this stage to coordinate the pilot testing and undertake liaison with the RSAs concerned.

23. A set of participating registries is to be selected that represents a wide range of the registries being implemented. The selection, in consultation with the RSAs concerned, is to take place in the third month of the ITL development and a testing schedule is to be confirmed in the fourth month. The pilot testing is expected to be conducted in the fifth month, in coordination with participating RSAs.

24. Software development will continue in parallel with this pilot testing. Once the full version of the software is completed, it will be deployed in a pre-production environment and subjected to acceptance testing, first by the operator and subsequently by the ITL administrator. Having passed all required acceptance tests, the final version of the ITL software will be deployed in an initialization environment on the data centre of the operator.

25. Documentation relating to the ITL testing, including test results and the acceptance criteria used, are to be shared through the RSA Forum and will be made public through the UNFCCC website, as appropriate. The results will also be reported to the COP/MOP, at its second session, in the second annual report of the ITL administrator.

26. The developer will also provide support to the operator during this phase of the work. In particular, the developer is to provide test and operational scripts, assistance in software deployment, documentation, and training to familiarize the operator with the characteristics of the software required for the testing, deployment, initialization and ongoing administration of the system. Throughout the development process, the developer will liaise with the operator to ensure that the final software works with the hardware, software and network configuration being implemented in the data centres of the operator.

C. Operational arrangements

27. The ITL platform will be implemented in two data centres. Under normal circumstances, the primary data centre will host the live environment of the ITL. This is the data centre to which registries will normally be connected. The secondary data centre is to act for the most part as a backup site to which the ITL operation would switch in the event of problems at the primary data centre. Other registry systems would need to switch their connections to this site when it is in use.

28. The operator will implement the necessary data centre infrastructure and networks, including the design, installation, configuration and testing of the facilities, equipment and software. Procedures and test drills will be implemented in order to ensure the effective switching of operations from one site to the other. The operator will prepare all software environments to ensure that they are ready to receive the ITL software. Each data centre will be able to host pre-production, initialization and live software environments. It is currently expected that the work to establish the ITL platform will be completed by the eighth month of the project.

29. Interfaces are to be established between the ITL and other systems operating in the secretariat. These interfaces are primarily to allow the ITL to receive reference data and send transaction data and other results, as well as to provide the secretariat with administrative access to the ITL application.
30. Once registry systems are initialized with the ITL, the operator will maintain and support the ITL. The operator will ensure the required performance, availability, resilience and security of ITL operations and, in the event of problems arising in the primary data centre, ensure that ITL operations switch from the primary to secondary site in a timely manner.
31. The operation of the service desk, as described in chapter III, falls within the responsibility of the operator. However, the developer will provide higher levels of technical support, as and when problems are escalated to it by the service desk. The developer will continue to provide other maintenance and support services for the ITL, including for minor changes or major upgrades that prove necessary.
32. These arrangements are to be maintained until 2015 in order to facilitate the accounting of assigned amounts and the use of the flexible mechanisms under the Kyoto Protocol until the end of the additional period for fulfilling commitments. Thereafter, data from the ITL are to be made available for use by expert review teams and the Compliance Committee, under Articles 8 and 18 of the Kyoto Protocol, respectively, where required for the resolution of any issues of implementation that arise in relation to the accounting of assigned amounts.

D. Initialization

33. Initialization is the process by which the fulfilment of the necessary technical requirements by registry systems is verified by the ITL administrator. Where these requirements are fulfilled, the connection of the registry or STL to the ITL is activated and live operations may commence.
34. The initialization process will be supported by the service desk of the ITL operator. The service desk will confirm the initialization schedule for each RSA and will be available to respond to issues and queries as they arise. It will also inform RSAs of initialization results and activation schedules.
35. The initialization process will be undertaken in three tiers:
- (a) Documentation review relating to the non-functional requirements of registry systems. In accordance with the data exchange standards, the documents to be reviewed relate to database and application backup, disaster recovery plans, security plans, application logging, time validation, version change management, test plans and reports, and operational plans. Precise documentation requirements will be prepared and distributed to RSAs by the ITL administrator through the RSA Forum;
 - (b) Connectivity testing. This testing is to ensure that registry systems may connect to the communication hub of the ITL. Any network connectivity problems should be resolved before the more complex functional testing commences;
 - (c) Functional testing. The complete first version of the ITL software will be used to test for the correct functioning of registry systems with regard to the processes they will need to conduct in their normal operations. These include all processes to conduct the different transaction types, reconcile registry data with that maintained by the ITL, and respond to notifications of required actions sent by the ITL. The functionality will be tested at the level of individual messages and end-to-end business transactions.
36. After the successful completion of the initialization process for a registry or STL, the operator will recommend approval of the connection to the ITL administrator. The activation of connections will be coordinated with administrators of registries and STLs.

37. The initialization schedule is to be confirmed between the service desk and individual RSAs in the fourth month of the project. The review of documentation is to commence shortly thereafter and the connectivity testing is expected to start in the seventh month. The in-depth functional testing is expected to commence in the eighth month of the work.

38. It is planned that the CDM registry will be the first registry to be initialized with the ITL. Thereafter, the initialization process is likely to prioritize those registry systems for which domestic or regional trading arrangements require an early acquisition of certified emission reductions which have been issued on the basis of CDM project activities. It is planned that the connections of these registry systems with the ITL will be activated by April 2007.

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