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**Possible elements for common procedures
to be used by Registry System Administrators**

Contents

1.0	Introduction.....	2
1.1	Background	2
1.2	Objectives	2
1.3	Principles.....	2
2.0	General ITL Administrator functions.....	3
3.0	Data reconciliation procedures.....	4
3.1	Background	4
3.2	Possible elements	4
4.0	Change management procedures.....	5
4.1	Background	5
4.2	Possible elements	5
5.0	Documentation requirement procedures.....	6
5.1	Background	6
5.2	Possible elements	7
6.0	Independent assessment and reporting procedures.....	7
6.1	Background	7
6.2	Possible elements	8

1.0 Introduction

1.1 Background

In setting the basis for the technical compatibility of registry systems, the data exchange standards (DES) have shown the need for complementary procedures of an operational nature that are to be used by all Registry System Administrators (RSAs). These procedures are needed to address both the day-to-day operations of registry systems and the continuation of their technical development, in a coordinated manner, as improvements are identified and new requirements arise.

Several operational areas have been identified, through intergovernmental negotiations under the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP)¹, for the development of “common operational procedures” to be consistently applied in all registry systems. The operational areas identified include the following issues:

- (a) Independent assessment reports on registry systems, on the basis of standardized testing
- (b) Coordinated reconciliation of data between registry systems, on the basis of DES processes
- (c) Coordinated change management in the DES specifications
- (d) Secure electronic communications, including responsibilities of each registry system

The COP/MOP further identified the need for the development of recommended practices and information sharing measures, where the common application of procedures by all registry systems is useful but less critical (such practices and measures are not addressed in this paper).

The COP/MOP has requested the secretariat, in its role as the Administrator of the international transaction log (ITL), to develop the common procedures in cooperation with other RSAs.

1.2 Objectives

The objective of the common procedures is to facilitate and promote compatibility, accuracy, efficiency and transparency in the operation of registry systems. These procedures need to cover scheduling, activities, methodologies, information flow and the roles of various actors involved.

This paper contains possible elements to be addressed in the development of common procedures. The elements contained in sections 3 to 6 have been grouped as follows:

- (a) Data reconciliation procedures
- (b) Change management procedures
- (c) Documentation requirement procedures
- (d) Independent assessment and reporting procedures.

1.3 Principles

It may be useful to define overall principles to guide the development of the common procedures. These principles may include the following:

- (a) Consistency with rules established under the Kyoto Protocol
- (b) Accuracy and quality of data held in registry systems
- (c) Transparency in the operation of registry systems

¹ See in particular decision 16/CP.10 at <http://unfccc.int/resource/docs/cop10/10a02.pdf#page=64>.

- (d) Efficiency and minimal interruption in the operation of registry systems
- (e) Transparency in the documentation and communication of activities
- (f) Responsibilities proportionate to benefits and the levels of registry system activity
- (g) Consistency of approaches across the common procedures
- (h) Stability in the common procedures, with amendments agreed through change management.

2.0 General ITL Administrator functions

Several general functions are foreseen, in line with the principles outlined above, which could be provided by the ITL Administrator in order to assist with the coordination and communication of activities performed under the common procedures. These functions relate in particular to the management of documents and communications between Administrators.

The ITL Administrator is currently planning systems and procedures for document management and communications in the context of its normal ITL operations and facilitation of the RSA Forum. The specific needs for documents and communications arising from the implementation of the common procedures would need to be taken into account by the ITL Administrator when establishing these systems. This would provide a centralized and integrated approach to meeting the documentation and communication needs of the work under the RSA Forum.

The relevant documents to be managed could include DES specifications, ITL specifications, plans and schedules, draft and final procedures, change proposals and recommendations, agendas and other meeting papers, information papers, public information, and independent assessment reports.

The document management issues to be addressed would need to include:

- (a) Identification of documents
- (b) Document formats
- (c) Reference numbering and document tracking
- (d) Versioning of documents
- (e) Document storage and long-term archiving.

A secure RSA extranet is planned in order to facilitate the work of the ITL Administrator with Administrators of other registry systems. This extranet could provide a central location for all information to be communicated between RSAs under the common procedures. It could be further complemented by other collaborative tools in order to support, for example, the change management procedures and issues tracking during the development stages of registries.

In this context, the communication issues to be addressed would need to include:

- (a) Identification of specific communications required
- (b) Determination of access rights
- (c) The appropriate flow of information
- (d) Timeframes for communications
- (e) Any confidentiality issues to be addressed

3.0 Data reconciliation procedures

3.1 Background

The process of reconciliation compares data held by each registry system with that held for that registry system by the ITL. This comparison takes place on the basis of snapshots of data taken either at regular, scheduled times or in response to an unscheduled request.

There are three reconciliation processes defined by the DES. The first phase compares unit totals (by unit type and account type). Where this phase identifies an inconsistency, the second reconciliation phase is conducted to compare records of unit blocks held by the registry system. Where this phase identifies specific unit blocks for which the registry system and ITL records are inconsistent, the third phase compares the transaction history for each inconsistent block. This last comparison should provide sufficient information to discover the cause of the inconsistency and agree upon a manual intervention to resolve the inconsistency. The second reconciliation phase may also be periodically initiated in order to identify inconsistencies that do not appear in the unit totals. The reconciliation actions conducted on different registry systems may differ in frequency.

3.2 Possible elements

A working group is proposed to develop data reconciliation procedures. Elements to consider in the development of such procedures include those listed below.

(a) Scheduling of reconciliation actions

- Initial frequency of reconciliation actions (first and second phases) upon initialization (or re-initialization) of a registry system with the ITL
- Lower reconciliation frequencies (including minimum frequencies) and threshold criteria to trigger their use (e.g. number of consistent reconciliation actions)
- Submission of scheduling preferences by RSAs
- Preparation of reconciliation schedules
- Communication of reconciliation schedules
- Time periods for exchange of reconciliation messages defined in the DES
- Periods of freeze in transaction processing before taking reconciliation snapshots

(b) Requests for unscheduled reconciliation actions

- Criteria to trigger unscheduled reconciliation requests (first/second phases) by the ITL
- Guidance for unscheduled reconciliation requests (first/second phases) by RSAs
- Determination of reconciliation snapshot times
- Confirmation of unscheduled reconciliation requests and times

(c) Manual intervention

- Definition of manual intervention rules to determine or guide actions to be taken
- Preparation and communication of manual intervention proposals by the ITL, including any investigation to be undertaken (e.g. reconciliation with other registry systems)
- Process and timing for reaching agreement on the manual intervention action between the Administrators of the ITL and the other registry system concerned, including consultation processes and the confirmation of agreements reached
- Process and timing for confirming the manual intervention actions undertaken
- Follow-up reconciliation actions for verifying the results of manual intervention

- (d) Analysis of reconciliation results
- Frequency and timing of analysis
 - Body to undertake the analysis
 - Reviews of the analysis results
 - Scope of analysis (e.g. frequency and type of inconsistencies)
 - Publication of results, including content and the availability of the results to RSAs, the public and the expert review teams under Article 8 of the Kyoto Protocol
 - Process for elaborating further reconciliation rules, as necessary
 - Process for prompting changes in the DES specifications, as necessary

4.0 Change management procedures

4.1 Background

Any changes to specifications and procedures which are being implemented by all registry systems need to be managed in a coordinated manner. Such changes include the DES specifications and the common procedures defined under the RSA Forum. It will also be necessary to coordinate other operational aspects of the network that connects registry systems to the ITL and these aspects may also be included under the change management procedures to be developed.

4.2 Possible elements

A working group is proposed to develop change management procedures. Elements to consider in the development of such procedures include those listed below.

- (a) Scope of change management procedures
- DES functional and technical specifications
 - Common procedures defined under the RSA Forum
 - Network availability and configuration between the ITL and other registry systems
- (b) Submission of change proposals
- Proposal content and format
 - Process and timing for submitting change proposals, including who may submit proposals, who is to receive them and the manner in which the submission occurs
- (c) Initial screening and planning
- Initial publication of change proposals (after receipt)
 - Categorization of change proposals (e.g. subject of proposal, level of urgency, type and level of impact on registry systems)
 - Scheduling of the assessment of change proposals, including in relation to the priority of the potential change, whether an expedited assessment is necessary, and the potential for grouping change proposals for joint assessment
 - Body to conduct the initial screening and planning (e.g. ITL Administrator)
- (d) Assessment of change proposals
- Body to undertake the assessment (e.g. normally a RSA Forum working group, though some simple change proposals could be assessed by the ITL Administrator)
 - Level and type of assessment to be conducted, including in relation to whether individual or group proposals are to be assessed and whether external technical advice is required

- Manner of assessment, including methodologies, assessment team members, role of the ITL Administrator, meetings, communications and reports
 - Assessment criteria to be applied, such as the necessity of the change, the nature of the problem to be resolved, the likely impact (e.g. cost, effort and timing) on registry systems, the likely disruption to live systems, and the level of coordination required
- (e) Change recommendations on the basis of the assessment
- Guidance sought from the RSA Forum prior to change recommendations being made
 - Content and format of change recommendations, including rationale and specifications
 - Implementation plan for the change, including implementation schedules, test plans and requirements (perhaps with test cases, scripts and data), versioning recommendations and re-initialization recommendations
 - Any pre-conditions or dependencies which should be met before the change is made
- (f) Approval of change recommendations
- Body to approve change recommendations (e.g. RSA Forum)
 - Process for approving or not approving change recommendations, including any further criteria to be used beyond those used during the assessment of change proposals
 - Process for approving and/or amending implementation plans
 - Process of re-submitting recommendation for further work
 - Pre-conditions or dependencies which should be met before the change is made
 - Communication and publication of approved changes and implementation plans
- (g) Implementation of approved changes
- Testing requirements, including re-initialization with the ITL
 - Sharing of registry system change plans
 - Implementation reporting by individual registry systems
 - Body to compile registry system reports and provide feedback to the RSA Forum
 - Process for backing out of planned change implementation, if necessary
 - Successful closure of a change implementation

5.0 Documentation requirement procedures

5.1 Background

The DES specify an initialization process under which the ITL Administrator is to verify that each registry system meets appropriate specifications before it may be connected to the live ITL environment (see section 9 of the DES technical specifications).

The first stage of the initialization process is the review of registry system documentation. This documentation relates to non-functional requirements of registry systems and is to demonstrate that the registry system will be operated in a manner consistent with appropriate operating practices and has adequate plans for addressing operational and security requirements.

The DES contain requirements for documentation to be verified by the ITL Administrator during the initialization process. These requirements need further elaboration and clarification. In recognition of the interest of registry systems in ensuring they operate in a robust and sustainable manner, the RSA Forum could provide assistance to the ITL Administrator in this further elaboration and clarification. This would also help ensure that account is taken of the range of internal procedures that may put in place, and documented, in order to meet the requirements.

5.2 Possible elements

A working group is proposed to develop documentation requirement procedures. Elements to consider in this work include those listed below.

- (a) Consultation with RSAs
 - Type of feedback to be provided by RSAs to the ITL Administrator
 - Process and timing for requesting and providing feedback
- (b) Definition of non-functional standards
 - Scope of standards
 - Content of standards, including indicators
 - Nature of standards (e.g. which should be mandatory and which only recommended)
 - Timeframe in which standards are to be met (e.g. which should be met immediately and which, if any, may be met over a longer timeframe)
- (c) Support for RSAs
 - Documentation guidelines
 - RSA information sharing on means to meet standards

6.0 Independent assessment and reporting procedures

6.1 Background

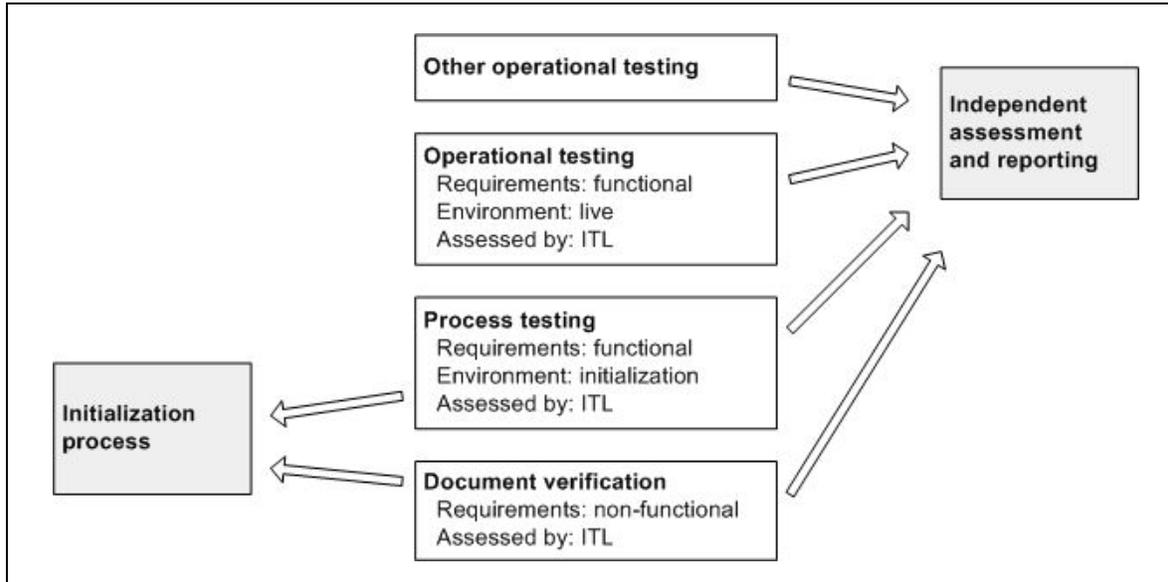
The need for independent assessment and reporting on registry systems arose for two reasons:

- (a) To provide RSAs with confidence in the other systems with which they interact
- (b) To provide a technical assessment for each national registry that may be considered during the review process for each Annex B Party under Article 8 of the Kyoto Protocol.

The independent nature of this assessment and reporting was stressed in the COP/MOP decisions. Three main options have been identified for the body to conduct the assessment of registry systems and prepare the reports. These are that the work could be carried out by the ITL Administrator, an independent verifier contracted for this purpose, or teams of experts made available by RSAs.

As shown in figure 1, a number of inputs may be considered in the independent assessment and reporting. These include the document review and process testing (on the ITL initialization environment) conducted by the ITL Administrator as part of the initialization process. The ongoing operational testing of the network (live environment) by the ITL Administrator may also contribute to the independent assessment and reporting. In addition, RSAs may undertake testing which may be reported. This testing may include assessment of both functional and non-functional requirements.

Figure 1
Inputs to independent assessment and reporting



6.2 Possible elements

A working group is proposed to develop independent assessment and reporting procedures. Elements to consider in the development of such procedures include those listed below.

(a) Institutional issues

- Body to undertake the assessment (e.g. ITL Administrator, independent verifier contracted for this purpose, teams of experts made available by RSAs)
- Manner of funding assessment and reporting activities

(b) Coordination of assessment and reports

- Body to schedule assessment and reporting activities
- Frequency of assessment
- Definition of the report period
- Timeframes for the assessment and report preparation
- Process and timing for consulting the RSA concerned

(c) Report preparation

- Report content and format
- Integration of the assessment undertaken for initialization and other reasons with any additional assessment undertaken specifically under these procedures
- Level of recommendations that may be made in reports

(d) Use of reports

- Process and timing for forwarding reports to the secretariat for consideration by expert review teams under Article 8 of the Kyoto Protocol
- Availability of reports to RSAs and the public (e.g. posting on RSA extranet and UNFCCC website)