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PRE-SESSIONAL CONSULTATIONS ON REGISTRIES

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Technical standards for national registries, the clean development mechanism registry and the transaction log under the Kyoto Protocol

I. INTRODUCTION

A. Mandate

1. The Conference of the Parties (COP), at its seventh session, requested the Subsidiary Body for Scientific and Technological Advice (SBSTA) to develop technical standards for the purpose of ensuring the accurate, transparent and efficient exchange of data between national registries, the clean development mechanism (CDM) registry and the transaction log, with a view to recommending a decision on this matter to COP 8 for adoption by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP)¹. It also requested the Chair of the SBSTA to convene inter-sessional consultations to prepare draft technical standards for the consideration of the SBSTA and to provide for the exchange of information and experience between Parties and with the secretariat in relation to these issues.

2. This paper has been prepared as a basis for discussion at the forthcoming pre-sessional consultations on registries (New Delhi, India, 19-20 October). In accordance with the approach elaborated at the earlier pre-sessional consultations on registries (Bonn, Germany, 2-3 June 2003²), this paper was prepared by the secretariat, with the assistance of technical experts. It is based on the informal paper on the same subject prepared by the Chair of the consultations, Mr. Murray Ward (New Zealand), during SBSTA 16³ and takes account of comments received from Parties on that paper⁴.

B. Scope of the working paper

3. This paper contains possible technical standards for the exchange of data between national registries, the CDM registry and the transaction log (hereafter referred to as "registry systems"), in the form of general design requirements. It also discusses issues relating to possible further work on this issue after the adoption of a decision on technical standards at COP 8, with a view to ensuring that the technical standards are implemented in each registry system in a compatible manner.

¹ See decision 19/CP.7 contained in document FCCC/CP/2001/13/Add.2.

² The report on the consultations is contained in document FCCC/SBSTA/2002/INF.2.

³ Hereafter referred to as Mr. Ward's paper (see http://unfccc.int/sessions/workshop/020602/pap_chair.pdf).

⁴ See document FCCC/SBSTA/2002/MISC.20 and its addendum.

4. Two issues raised at the earlier consultations in June 2002 are not further addressed in this paper:

(a) The means of reviewing registries under Article 8⁵, which will be considered further by Parties at SBSTA 17;

(b) Implications of work currently underway in other areas under the Protocol, in particular on the definitions and modalities for including afforestation and reforestation project activities under the CDM in the first commitment period, which are to be adopted by COP 9.

5. Section II of this working paper discusses issues related to the development of technical standards and outlines the approach adopted for the possible technical standards contained in this paper. Section III discusses issues relating to possible further work on this topic after COP 8. Lastly, the annex contains possible technical standards, together with options and notes where these were deemed useful.

C. Possible action by the participants at the consultations

6. Participants at the consultations may wish to consider this working paper and provide guidance to the chair of the consultations on draft technical standards, and possible further work to build upon them in the future, which he may bring to the attention of SBSTA 17 for its consideration, with a view to COP 8 taking a decision on these matters.

II. APPROACH ADOPTED FOR THE POSSIBLE TECHNICAL STANDARDS

A. Framework of the technical standards

7. The technical standards are to facilitate the transactions envisaged under the mechanisms under Articles 6, 12 and 17 and the modalities for the accounting of assigned amounts under Article 7, paragraph 4. These transactions are the issuance, transfer between registries, cancellation, retirement and carry-over, as appropriate, of assigned amount units (AAUs), certified emission reductions (CERs), emission reduction units (ERUs) and removal units (RMUs) (hereafter referred to as "units").

8. In developing the possible technical standards contained in the annex, the following framework of requirements, covering several different levels of detail, was considered:

(a) *General design requirements*, specifying the actions and system characteristics involved in data exchange and the general level of performance to be reached in these respects. In the case of message exchange, for example, this level would specify the purpose of the messages to be exchanged and an outline of the information they are to contain. Technical standards at this level should provide sufficient clarity to a subsequent formulation of the functional and technical specifications;

(b) *A functional specification*, providing greater detail relating to what constitutes the required level of performance. In the message exchange example, the functional specification would more closely specify the blocks of data to be contained in messages to be exchanged;

(c) *A technical specification*, providing precise technical details of how the general design requirements, as elaborated in its functional specification, are to be implemented. In the message exchange example, the technical specification would specify communications protocols, data formats, order of the data blocks, etc. Such a technical specification should provide the full information necessary in building the required interface between registry systems. The technical specification related to the exchange of data would cover a significant number of technology-specific issues.

9. Taken as a whole, the three levels of the technical standards framework, when elaborated, should provide specific requirements against which the performance of registry systems may be measured.

⁵ In the context of this paper, "Article" refers to an Article of the Kyoto Protocol, unless otherwise specified.

10. The different levels of the framework may have implications for the mandatory or indicative nature of technical standards. Mandatory standards may be useful in relation to the minimum necessary requirements to achieve the objective of accurate, transparent and efficient data exchange. Indicative standards may be appropriate where conformity to the standard is desirable but not necessary.

11. The possible technical standards contained in the annex were prepared at the level of mandatory general design requirements. The areas they address relate to both the interface between registry systems and requirements for the registry systems themselves, to the extent that these impact upon the exchange of data. They do not relate to all aspects of registries or the transaction log.

12. The preparation of these possible general design requirements envisaged that this level of technical standards would be considered in conjunction with consideration of possible future work to elaborate the functional and technical specifications. As consequence of this, it was considered that some of the more detailed material contained in Mr. Ward's paper would be better placed in the context of a functional or technical specification. This material has not been reproduced or further developed in this working paper. It may however be useful in providing a starting point for any future work on technical standards that may be undertaken.

B. Transaction rules

13. For the links between registry systems to operate effectively, it is necessary to specify the *modus operandi* of how they are to deal with one another and, to some extent, the underlying structures and functions of registries. Decisions 17/CP.7 and 19/CP.7 already address many issues in this regard through, for example, specifying account structures and the definition of transaction types and processes.

14. However, further "transaction rules" may need specification, where they are not adequately addressed in previous decisions of the COP. For example, transaction rules have been specifically addressed in the possible general design requirements contained in the annex in order to:

(a) Ensure that units that are subject to a proposed transaction are not made subject to a second proposed transaction until the first transaction is either completed or terminated;

(b) Provide for definition of a precise point in a message sequence at which a transaction is deemed to be complete and unequivocally final (this issue is referred to as "finality"). Such a point is required in order to clarify the ownership of the unit at each stage of the transaction and to provide the acquiring Party or entity with the certainty of ownership on which it may make payment for the unit;

(c) Provide for definition of the time period in which responses to messages are to be transmitted;

(d) Define the maximum processing delay allowable before a proposed transaction is cancelled by the transaction log.

15. Other transaction rules may also be useful, such as on the times at which registries and the transaction log are operational and the context in which a transaction may be terminated.

16. Transaction rules may have significant legal implications and these may themselves differ between the legal jurisdictions under which individual registries exist. It may be necessary to develop legal agreements between registries, as well as between registries and the transaction log, in order to ensure that such rules are contractually regulated. Other legal issues may include the confidentiality of information, force majeure and dispute resolution procedures.

III. FUTURE WORK AFTER COP 8

17. Parties at the consultations on registries in June 2002, as well as in their comments on Mr. Ward's paper, considered the context and form of possible future work to build upon a decision on technical standards to be taken at COP 8. Such work could aim to coordinate:

(a) The full elaboration of functional and technical specifications to ensure that the technical standards are implemented in each system in a compatible manner;

(b) The review of the general design requirements, and their functional and technical specifications, over time in the light of technological and methodological advances;

(c) Cooperation between national registries, the CDM registry and the transaction log on additional issues which are not the subject of mandatory technical standards. These issues could include reaching agreement on further transaction rules, legal agreements, administrator standards, monitoring and testing procedures, or user and language interfaces to enhance public accessibility.

18. Any such future work could take place through negotiations under the COP or COP/MOP or through establishing a group to coordinate such work. Some Parties, in their comments on Mr. Ward's paper, suggested a preference for a group comprised of representatives of the administrators of the transaction log, national registries and the CDM registry. This approach would be similar to that adopted in industry fields where practical coordination and decision-making are required⁶.

19. In the context of establishing any such group, issues to be borne in mind, many of which may have implications for the relationship of such a group with the COP/MOP, may include the following:

(a) *The basis for such a group.* It could be established under the COP/MOP or independently of the COP/MOP, in which case a legal basis for the group would be needed, such as through a multilateral contract between the administrators or through an incorporated society;

(b) *Governance structure.* Such a group could be delegated authority by the COP/MOP or could have a separate governance structure. For example, representatives of all or some registry system administrators could have responsibility for overseeing all or some of the functions of the body;

(c) *Functions and guiding principles.* Such a group could oversee the framework of technical standards and cooperation among administrators. Functions could also relate to issues such as monitoring adherence to the framework, clarifying discrepancies discovered by the transaction log, and dispute resolution. Guiding principles may be important in focusing the work of such a body on the achievement of specific outcomes and in providing a benchmark against which to assess performance;

(d) *Membership.* Issues may include, for example, membership criteria.

20. Registry administrators have generally not yet been identified by Parties. In this context, some Parties suggested that an informal technical group begin work after COP 8 as a precursor to the establishment of a more formal arrangement. Parties could nominate technical experts to participate, including representatives of registry administrators, to the extent that they are identified. The work programme for such an informal technical group could be to prepare for the establishment of a more formal arrangement and provide a forum for consultation on the development of the transaction log.

⁶ For example, the European Central Securities Depositories Association (ECSDA), Renewable Energy Certificate Systems (RECS) and the Society for Worldwide Interbank Financial Transfers (SWIFT).

Annex

Technical standards for registry systems under the Kyoto Protocol

**General design requirements:
Version 1 (draft)**

I. PURPOSE

1. The technical standards pertain to the exchange of data between national registries, the clean development mechanism (CDM) registry and the transaction log (hereafter referred to as “registry systems”) under the Kyoto Protocol to the United Nations Framework Convention on Climate Change, in accordance with decisions -/CMP.1 (*CDM*) and -/CMP.1 (*accounting of assigned amounts*)¹.
2. The starting point for the technical standards is the transaction types and transaction processes integral to the modalities for the accounting of assigned amounts under the Kyoto Protocol, as defined in decision -/CMP.1 (*accounting of assigned amounts*). These transactions are the issuance, transfer between registries, cancellation, retirement and carry-over, as appropriate, of assigned amount units (AAUs), certified emission reductions (CERs), emission reduction units (ERUs) and removal units (RMUs) (hereafter referred to as “units”).
3. In order to support the elaboration of technical standards and their implementation in all registry systems, the technical standards shall have a layered structure:
 - (a) General design requirements to be fulfilled by registry systems as part of a general model for the links between registry systems;
 - (b) Detailed functional specification of the interface between registry systems;
 - (c) Detailed technical specification of the interface between registry systems, at a level of detail sufficient for administrators of registries and the transaction log to implement them.

II. PRINCIPLES

4. The elaboration and implementation of the technical standards for registry systems shall be guided by the following principles:
 - (a) Effective facilitation of the mechanisms under Articles 6, 12 and 17² and the modalities for the accounting of assigned amount under Article 7, paragraph 4;
 - (b) Accuracy of data and its exchange;
 - (c) Transparency and auditability of transaction processes;
 - (d) Transparency of non-confidential information;
 - (e) Efficiency in transaction procedures;
 - (f) Security of data and its exchange;
 - (g) Independent design of individual registry systems.

¹ Attached to decisions 17/CP.7 and 19/CP.7, respectively.

² In the context of this annex, “Article” refers to an Article of the Kyoto Protocol, unless otherwise specified.

III. INTERFACE BETWEEN REGISTRY SYSTEMS

A. Message sequences

5. In the course of conducting their activities, registry systems shall transmit and receive standardized messages, at minimum, for the message sequences listed in table 1, in accordance with standardized message sequences to be developed. Such messages shall use formats and protocols that allow messages to be electronically processed by the receiving registry systems.

Table 1
Minimum standardized message sequences for registry systems
<i>Transactions</i>
1. Issuance of units in a national registry or the CDM registry
2. Internal transfer of units (a) from the CDM registry pending account, (b) to a cancellation account or (c) to a retirement account
3. External transfer of units to a national registry
4. Carry-over of units, as appropriate, to the subsequent commitment period
<i>Other activities</i>
5. Reconciliation of data between registries and the transaction log
6. Testing of connections between registry systems
7. Notification of change to online status of the transaction log
8. Notification of change to offline status of the transaction log

Note: Sequences 1 to 4 are referred to in decision 19/CP.7, as well as in Mr. Ward's paper. The activities reflected in sequences 5 to 8 are considered later in this annex.

6. The message sequences and content shall incorporate, as appropriate:
- (a) Message identification, uniquely identifying the relevant message sequence, stage of the message sequence and message;
 - (b) The transaction number assigned by the registry system initiating the message sequence;
 - (c) The transaction record associated with the transaction number, as generated by the registry system initiating the message sequence, containing information, as appropriate, on:
 - (i) The total quantity of units involved;
 - (ii) The serial numbers of units involved, in blocks of consecutive numbers;
 - (iii) The account number of the transferring account;
 - (iv) The account number of the acquiring account;
 - (d) Status of the transaction;
 - (e) Confirmation responses to notify that a message has been received;
 - (f) Error messages, as necessary, identifying the point of failure.

Note: Specific sequences of messages and specific message content have not been elaborated here as the focus is at the level of general design requirements. Such detail may be more appropriately developed as part of the functional and technical specification, after adoption of these general design requirements.

7. The language protocol for the messages shall be able to support a structured messaging format and shall be platform and software vendor independent.

8. The messaging format shall allow for the possibility of changes and additions to the data contained in a message. The character set used in the message shall also be independent of software vendor and be able to support non-English letters.
9. Message content and the interaction between the systems shall be modelled using a standard notation.

Note: A particular language and messaging format have not been specified here. Such detail may be more appropriately developed as part of the functional and technical specification, after adoption of these general design requirements, as technology advancements are likely to make them subject to change.

B. Transaction rules

10. A specific point shall be identified in each message sequence at which the transaction shall be deemed unequivocally final.
11. Subsequent messages in the sequence shall be sent in a timeframe consistent with the functional and/or technical specification to be developed. The transaction log shall place incoming messages in a queue and process them on a first-in-first-out basis. The transaction log shall cancel transactions after a specified period of time has lapsed without a response to a message having been sent.

Note: It may be desirable, for practical and cost-effectiveness reasons, for messages to be processed in batches rather than individually. In this case, the preferences stated by some Parties for “real-time” messaging could, in practice, be implemented through frequent processing of small message batches. While there are no strict definitions, real-time messaging could be seen as processing individual messages immediately upon receipt or processing batches up to every several minutes.

The ability of registry systems as a whole to manage sufficient throughput in real time will depend in particular on the load on the transaction log and its consequent response times. There can be expected to be times when circumstances cause a deviation from ideal response times. The effect of technological advancements will impact on this. Rather than specifying response times at this level, it may be more appropriate to define indicative standards as part of the functional and technical specifications.

A first-in-first-out queuing procedure appears to be the most appropriate means of organizing the arrival of messages at the transaction log. The frequency of arrivals in the queue and the processing time of the transaction log will clearly have implications for the possible response times of the transaction log.

12. Units for which a transaction process is initiated shall not be available to other transactions until the initiated transaction process is completed or terminated. The transaction log shall verify, as part of its automated checks, whether units are already subject to a transaction process.

IV. REGISTRY SYSTEM REQUIREMENTS RELATED TO DATA EXCHANGE

A. Number elements

Note: Specific formats and codes for the elements of the serial, account and transaction numbers have not been elaborated in this section as the focus is at the level of general design requirements. Such detail may be more appropriately developed as part of the functional and technical specifications.

13. Each unique serial number assigned by a registry to a unit shall consist of at least the elements contained in table 1, in accordance with formats and codes to be developed.

Table 2 Elements of serial numbers				
<i>Element</i>	<i>AAU</i>	<i>RMU</i>	<i>CER</i>	<i>ERU</i>
Originating Party identifier	yes	yes	yes	yes
Issuance commitment period	yes	yes	yes	yes
Unit type	yes	yes	yes	yes
LULUCF activity	no	yes	yes	yes
Project identifier	no	no	yes	yes
Unique number	yes	yes	yes	yes

LULUCF: Land use, land-use change and forestry

Note: Some Parties, in the context of serial numbers for ERUs, suggested a further element specifying whether the emission reduction was verified under procedures of the Party (track 1) or of the Article 6 supervisory committee (track 2).

14. Each unique account number assigned by a registry shall consist of at least the elements contained in table 3, in accordance with formats and codes to be developed.

Table 3 Elements of account numbers			
<i>Element</i>	<i>Holding account</i>	<i>Cancellation account</i>	<i>Retirement account</i>
Party identifier	yes	yes	yes
Commitment period	no	yes	yes
Account type	yes	yes	yes
Unique number	yes	yes	yes

Note: The approach taken to serial and account numbers would define the elements of serial numbers within registries, as well as in messaging between registry systems. This approach is consistent with decision 19/CP.7 and may be useful for transparency. This does not hinder a registry from associating other information with the serial number of a unit, for internal purposes, if it so wishes.

15. Each unique transaction number assigned by a registry shall consist of at least the elements contained in table 4, in accordance with formats and codes to be developed. The transaction number shall be assigned by the registry initiating a transaction and shall thereafter be associated with the transaction record relevant to that transaction.

Table 4 Elements of transaction numbers
Originating Party identifier
Commitment period
Date
Transaction type
Unique number

Note: One Party suggested the inclusion of a destination Party identifier in the transaction number, in cases involving transfers between registries. This information would also be included in the transaction record, through the account number in the acquiring registry.

B. Infrastructure

16. Option 1: The interface between registry systems shall operate through direct registry-to-registry links, as well as registry-to-transaction-log links. Each registry system shall maintain direct links with the transaction log and other registries with which it wishes to transact.

Option 2: The interface between registry systems shall operate through the transaction log. Each registry shall therefore maintain direct links with the transaction log.

Note: These options relate to two broad models by which the messaging between registries could occur:

(a) *Peer-to-Peer messaging. Registries would exchange messages with each other and the transaction log directly. Each registry would need to maintain reference data such as network addresses and up-to-date security keys (which require frequent renewal and secure distribution) for all other registries with which it wishes to make or receive transfers. This model would require a complex web of communication and may involve greater costs and security risks, relative to the hub model;*

(b) *Hub messaging. Registries would exchange messages through the transaction log infrastructure. Registries would not need to know how to communicate with other registries. This would reduce the number of connections required by each registry and avoid the possibility that registries can take action without reference to the transaction log. It would place the transaction log in a central role from a communications perspective, but this need not confer the transaction log control over the content or timing of the message exchange (other than that foreseen as part of its automated checks).*

A hybrid model could be envisaged in which registry administrators choose whether to maintain an interface with another registry or to exchange data with that registry through the transaction log.

17. Registry systems, and the exchange of data between them, shall apply security measures that ensure:

(a) Encryption. Data transmitted between registry systems shall be confidential and not readable by any other party;

(b) Authentication. Transmitting registry systems [and unit holders] shall be uniquely and securely identified and identifiable;

Note: In some countries, the relevant individual (in this case, individual unit holders) must be identified in order that a message has the legal effect of a signed document.

(c) Non-repudiation. There should be a single full and final record of all actions such that those actions cannot be disputed nor repudiated;

(d) Integrity. Data exchanged between registry systems shall not be modified by any other party;

(e) Auditability. A full audit trail shall be maintained for each message and message sequence to document all processes, actions and messages and the date and time at which they occurred.

18. Sensitive data, which would cause a loss of value if corrupted, shall be securely managed so as to ensure its integrity. Registry systems shall be protected from exposure to security compromises such as through viruses, hackers and denial of service attacks.

19. Downtime of registry systems shall be kept to a minimum.

20. A separate messaging test environment shall be maintained in each registry system, in conjunction with its operational system, in order to allow registries to test the development and amendment of their messaging infrastructure without disrupting the operational messaging framework.

21. In order to facilitate its automated checks, the transaction log shall obtain, *inter alia*, the following information for each Party included in Annex I and ensure that it is maintained in an up-to-date manner:

(a) The assigned amount pursuant to Article 3, paragraphs 7 and 8, of the Party, calculated and recorded in accordance with decision -/CMP.1 (*accounting of assigned amounts*), prior to issuance of AAUs by the Party;

(b) The results of the review, under Article 8, of inventory data relating to LULUCF activities, prior to issuance of RMUs by the Party on the basis of such inventory data;

Note: Such reviewed information will take account of the limits on additions to assigned amount arising from LULUCF activities specified in decision -/CMP.1 (LULUCF). One Party commented that the transaction log will also need verified reduction and sequestration data from CDM project activities.

(c) The commitment period reserve, calculated in accordance with decision -/CMP.1 (*emissions trading*)³, reported in accordance with Article 7, reviewed in accordance with Article 8, and taking account of transfers by a Party of ERUs issued into its national registry which were verified in accordance with the verification procedure under the Article 6 supervisory committee;

Note: As the provisions of the commitment period (CPR) reserve do not apply to such transfers of ERUs, any such transfer by a Party will result in that Party needing to hold fewer units in its national registry to comply with the CPR provisions. To facilitate its automated checks for infringements of the CPR, the transaction log will have to take account of such transfers before their impact is identified in the Party's next submission of supplementary information under Article 7 and its review under Article 8.

(d) Unit holdings for each Party, taking into account the issuance, transfer, acquisition, cancellation, retirement and carry-over, as appropriate, of units;

(e) The eligibility of Parties to:

- (i) Issue and transfer ERUs under decision -/CMP.1 (*Article 6*)⁴;
- (ii) To transfer and/or acquire ERUs under decision -/CMP.1 (*Article 6*);
- (iii) To transfer and/or acquire ERUs, CERs, AAUs or RMUs under decision -/CMP.1 (*emissions trading*);

(f) The authorization by Parties of:

- (i) Legal entities to participate in Article 6 projects under decision -/CMP.1 (*Article 6*);
- (ii) Private and/or public entities to participate in Article 12 project activities under decision -/CMP.1 (*CDM*);
- (iii) Legal entities to transfer and/or acquire ERUs, CERs, AAUs or RMUs under decision -/CMP.1 (*emissions trading*);

(g) Information of a general nature relating to restrictions on additions to assigned amount resulting from afforestation and reforestation activities under the CDM and on the carry-over of units.

Note: The requirement for the transaction log to maintain such information may alternatively located in the requirements and specification of the transaction log.

³ Attached to decision 18/CP.7.

⁴ Attached to decision 16/CP.7.

C. Data quality

22. Each registry system shall implement measures to ensure that:

- (a) Its data records and transactions are accurate;
- (b) Data is protected against unauthorized manipulation and any change in data is automatically and securely recorded using journaling and auditing functionality;
- (c) They are protected against exposure to security compromises, such as through viruses, hackers and denial of service attacks;
- (d) No infringement occurs upon the commitment period reserve, as defined in accordance with decision -/CMP.1 (*Article 17*);
- (e) No infringement occurs upon the limits on the issuance and use of RMUs and CERs from afforestation and reforestation project activities under the CDM, as defined in accordance with decision -/CMP.1 (*LULUCF*)⁵.

23. The transaction log and registries shall reconcile their data with each other in order to ensure data consistency and facilitate the automated checks of the transaction log. The transaction log shall, on a daily basis, compare a statement from each registry of its unit holding position against the records of the transaction log. The transaction log shall notify each registry of the result. In the event of a discrepancy being found, the transaction log shall halt all processing of the transactions of the registry in question until the discrepancy has been resolved.

Note: Periodic reconciliation of holdings data is considered necessary to ensure that the transaction log is using correct information and to resolve any issues as early as possible.

24. Each registry system shall retain its data records of unit holdings and transactions pertaining to a commitment period at least until the final compilation and accounting report of all Parties for the subsequent commitment period have been published and any questions of implementation relating to emissions or assigned amount information of that initial commitment period have been resolved.

Note: Such data is relevant also to a subsequent commitment period as units may be carried over into that commitment period. It may potentially be required in considering any questions of implementation relating to the information of that period, including those of other Parties. Given the cost of storage capacity, it would however be feasible to hold this data for much longer periods of time.

25. National registries and the CDM registry shall make information, as specified in decisions -/CMP.1 (*CDM*) and -/CMP.1 (*accounting of assigned amounts*), respectively, publicly accessible through an Internet web site.

26. The transaction log shall make publicly available, through an Internet site, up-to-date information on unit holding positions of registries, transactions, and discrepancies notified as a result of its automated checking of proposed transactions.

Note: The public accessibility provisions of decision 19/CP.7 do not apply to the transaction log. Accurate information on the unit holding positions of registries would be provided through the reconciliation process with registries. The public accessibility provisions applying to registries mandate the accessibility of annual data, rather than daily updates of information, through the registries.

⁵ Attached to decision 11/CP.7.