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Modalities for operation of the Article 6.4 mechanism registry

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1. Procedural background

1. Decision 3/CMA.3, Annex, Chapter VI¹ established that the mechanism registry shall be developed and operationalized in accordance with the relevant requirements adopted by the Supervisory Body and shall include operating at best practice standards for registries.
2. Further, Decision 7/CMA.4, Annex 1, Chapter IV² on matters related to operation of the mechanism registry established provisions on the form and functions, transaction procedure, information and connection between the mechanism registry and the international registry established by Article 6.2 of the Paris Agreement.
3. At its sixth meeting, the Supervisory Body considered the modalities for operation of the Article 6.4 mechanism registry and requested the secretariat to develop a concept note on the Article 6.4 mechanism registry, covering the overview of the registry's general functional aspects and issues that require decisions by the Supervisory Body, considering inputs provided by the Supervisory Body and any further matters identified by the secretariat relevant for consideration by the Supervisory Body.
4. The Supervisory Body also requested the secretariat to launch a call for inputs on issues related to account holders and services needed for these holders to inform the concept note.

2. Purpose

5. This note has been prepared to help the Supervisory Body provide guidance for the development of the mechanism registry including the business model requirements and processes necessary to operate the registry, software development approach and other functional aspects, including matters related to the preparation of a draft registry procedure to be considered in 2024.
6. The note is informed by the discussions that took place at the sixth meeting of the Supervisory Body and submissions received as a result of the call for inputs that was launched by the secretariat from 1 to 15 September 2023.

3. Contextual background

3.1. Definition of a registry and the mechanism registry

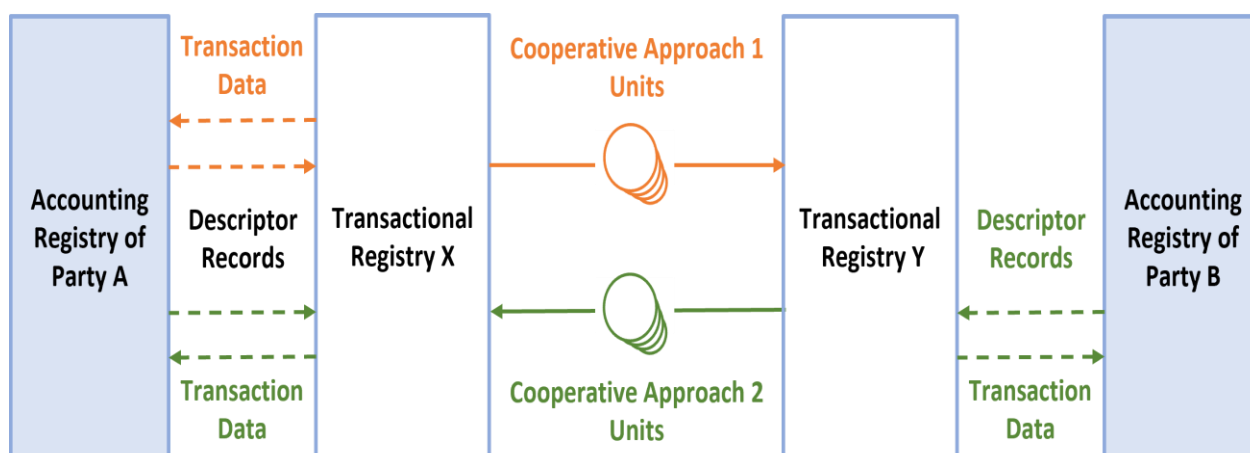
7. A registry is a quasi-financial system that is used to generate and track carbon credits throughout their lifecycle. Within a registry, carbon credits are generated and issued. Registries publicly track information necessary for compliance and voluntary carbon credit market integrity.

¹ Decision 3/CMA.3, annex, as contained in FCCC/PA/CMA/2021/10/Add.1 available at: https://unfccc.int/sites/default/files/resource/cma2021_10_add1_adv.pdf#page=37.

² Decision 7/CMA.4., annex 1, as contained in document FCCC/PA/CMA/2022/10/Add.2 available at: https://unfccc.int/sites/default/files/resource/cma2023_10a02E.pdf#page=41.

8. Registries are, therefore, designed to enhance transparency, accountability and trust among Parties, as they help to monitor and report on progress towards meeting their climate-related commitments.
9. There two types of registries: transactional and accounting.
 - (a) Transactional registries hold carbon credits in the form of uniquely identifiable "units" in "accounts" and facilitate the issuance and transfer of units between accounts of the same registry or between accounts in the registry and other transactional registries with which the registry has interoperability arrangements;
 - (b) Accounting registries do not hold units; they track the movements of units between accounts in other registry or registries for the purpose of aggregating the Party's activities under Article 6 for reporting purposes. Accounting registries are not concerned with transactional integrity or consistency of outcomes of reported transactions as these should be taken care of by transactional registries. Due to this arrangement, accounting registries are sometimes called "higher-tier" and transactional registries "underlying" registries. The mechanism registry is a transactional registry.

Figure 1. Accounting and transactional registries



10. The mechanism registry will be a standardized electronic accounting database that ensures the accurate accounting of the issuance, holding and acquisition of Issued Article 6.4 emission reductions (A6.4ERs), in particular Mitigation Contribution Units (MCUs), authorized A6.4ERs and Certified Emission Reduction Units issued by the Clean Development Mechanism (CDM) established by the Kyoto Protocol (CERs) eligible for transition from the CDM. The ultimate registry's scope of operations is unit tracking from issuance to use and, internally, this information on activities will be tracked in the mechanism information system.
11. Registry governance:
 - (a) The Conference of the Parties serving as the Meeting of the Parties to the Paris Agreement (CMA) gives guidance on the accounting framework and key design elements of the registry;

- (b) The Supervisory Body will approve the registry procedure and is in charge of overall oversight and reporting to the CMA;
 - (c) The secretariat will act as the registry administrator implementing the registry software and procedure and managing the day-to-day operations.
12. The registry operations and reporting will be performed according to a registry procedure.

3.2. History of registries under the UNFCCC

13. The UNFCCC process has established registries under the Kyoto Protocol. The experience of running registry systems under the Kyoto Protocol has delivered valuable insights into the optimal way of building such systems, which will enable Parties to devise an improved system for Article 6 registries. The CDM registry is particularly relevant as a source of information on how to build the mechanism registry.
14. Under the Kyoto Protocol, emission targets for industrialized country Parties to the Kyoto Protocol were expressed as levels of allowed emissions, or "assigned amounts", known informally as "Kyoto units", over the commitment period. Two types of registries have been implemented to add to Parties' holdings of Kyoto units and track their location:
- (a) Governments of industrialized country Parties have implemented national registries containing accounts within which units are held in the name of the government or in the name of legal entities authorized by the government to hold and trade units;
 - (b) The secretariat, under the authority of the CDM Executive Board, has implemented the CDM registry in the form of a standardized electronic database to issue CDM credits and distribute them to national registries. The CDM allows emission-reduction projects in developing countries to earn CER credits, with each credit equivalent to one tonne of CO₂. These CERs can be traded and used by industrialized countries to meet their commitments under the Kyoto Protocol. Accounts in the CDM registry are held only by CDM project participants, as the registry does not accept emissions-trading between accounts.
15. Each registry operates through a link with the International Transaction Log (ITL), a communication hub and independent checking system operated and administered by the secretariat. The ITL verifies that registry transactions are consistent with rules agreed under the Kyoto Protocol.
16. The issuance and forwarding of CERs is requested in the CDM registry through an automated link that the CDM registry established with the CDM information system (CDM-IS) maintained by the secretariat. The CDM-IS is a business process management system handling the process of capturing and reviewing project and monitoring data and the necessary approvals leading to the issuance and forwarding of the CERs.
17. In the sense described in section 3 above, the CDM registry is a transactional registry. It is fully capable of transferring CERs between its accounts and, via intermediation of the ITL, to other Kyoto registries.

3.3. Mechanism registry in the context of other arrangements under Article 6 of Paris Agreement

18. Under Article 6 of the Paris Agreement regime, units issued by the Article 6.4 mechanism may be authorized and become Internationally Transferred Mitigation Outcomes (ITMOs), acquiring all the rights/limitations and reporting requirements under Article 6.2.
19. Article 6.2 established the international registry and Parties may wish to have 6.4 units transferred into their accounts in their national registries or Party-specific sections of the international registry. Some Parties may use higher-tier accounts in their national registries or the international registry with the mechanism registry becoming the underlying registry for these accounts.
20. In September 2022, the secretariat prepared a technical paper on operations of the registry for the mechanism registry.³ The document discusses how the mechanism registry may be implemented and operated in accordance with chapter VI (Mechanism registry) of the annex to 3/CMA.3. The Supervisory Body may want to refer to this document for reference.

3.4. Implementation assumptions and requirements for the mechanism registry

21. The registry will have several key elements that ensure its smooth operation. These elements encompass various aspects of governance, management, and functionality.

3.4.1. Registry procedure

22. The following is a non-exhaustive list of elements that the registry procedure will include as per best practices:
 - (a) Definitions: Presenting a set of defined terms and concepts, providing clarity and transparency;
 - (b) Governance Arrangements: Establishing the governing structure and decision-making processes to oversee the registry's operations and policies;
 - (c) Units: Defining the units used within the registry, ensuring uniformity and accuracy;
 - (d) Accounts: Managing and maintaining accounts:
 - (i) Types: Categorizing accounts within the registry based on specific criteria or characteristics;
 - (ii) Status: Tracking and updating the status of accounts within the registry;
 - (iii) Administration of Accounts: Outlining the procedures for managing and maintaining accounts, including access control and security measures;
 - (iv) Representatives: Designating individuals or entities responsible for managing specific accounts within the registry;

³ https://unfccc.int/sites/default/files/resource/SBSTA57_Article%206.4_TP_Mechanism_registry.pdf.

- (e) Transactions: Recording and managing various types of transactions within the registry and establishing the rules and protocols governing how transactions are processed and validated;
 - (f) Reporting: Generating reports to provide insights and information about the registry's activities and performance;
 - (g) Confidentiality: Ensuring the protection of sensitive information within the registry and defining who has access to it;
 - (h) Service Availability: Ensuring the registry's continuous availability and performance to meet user needs;
 - (i) Fees: Specifying any fees or charges associated with registry services and transactions;
 - (j) Help Desk: Providing support services for users who may have questions or encounter issues while using the registry;
 - (k) Incident Management: Establishing procedures for addressing and resolving any incidents or problems that may arise within the registry;
 - (l) Interoperability Arrangements: Ensuring compatibility and integration with other systems or registries when necessary;
 - (m) Reconciliation procedures: Implementing processes to reconcile any discrepancies or inconsistencies in the registry data;
 - (n) Other: Addressing any additional elements or considerations that may be relevant to the specific registry procedure.
23. These elements collectively form the framework for a comprehensive and well-structured registry procedure, covering governance, management, and operational aspects to ensure effective functioning of the registry.

3.4.2. Software requirements

24. Software requirements, these have been made available as a subset of the functional requirements for the Article 6.2 International Registry⁴ and can be divided in two main types of features as follows:
- (a) **Functional features** that identify the functions that the registry needs to have in order to operate. The registry should therefore be able to perform the following functions:
 - (i) Maintain accounts for Parties and authorized activity participants, Adaptation Fund Board and centrally managed accounts;
 - (ii) Issue serialized units for authorized A6.4ERs and MCUs;

⁴ https://unfccc.int/sites/default/files/resource/Art.6.2%20International%20registry%20requirements%20v1.0_for%20publishing.pdf.

- (iii) Create serialized units for transitioned CERs, including tracking of the original serial numbers of the CERs;
 - (iv) Receive input on authorization to assign/maintain authorization status of A6.4ERs;
 - (v) Perform transactions with unit types between account types, including external transfers subject to CMA guidance;
 - (vi) Track first transfer for authorized A6.4ERs;
 - (vii) Implement business rules applicable to ITMOs as per the Article 6.2 guidance and will track authorized A6.4ERs consistently with the agreed electronic format on the basis of which, the registry will generate different reports;
- (b) **Technical features** of the registry software are a range of critical components that collectively will form a robust and functional system. These technical features work in harmony to establish a comprehensive system that not only efficiently manages and stores data, but also prioritizes data security, accessibility and compatibility with other systems. This holistic approach is pivotal for the effective operation of complex systems across various domains.

These components include:

- (i) **Database/Data Storage:** At the core of the system lies the database or data storage solution, which serves as the repository for all pertinent data and information;
- (ii) **Software Code:** Implementation of a software code that handles transaction management and the processing of business rules, ensuring data accuracy and consistency;
- (iii) **Access Security:** Establishment of measures to secure access to the system, including user and system authentication and authorization, guarding against unauthorized entry;
- (iv) **Infrastructure Security:** Ensuring the overall security of the system's infrastructure, protecting against external threats and vulnerabilities;
- (v) **User Interface:** Designing a user-friendly interface that allows system users to interact with and perform necessary functions efficiently:
 - a. **Public Interface:** Creating an interface accessible to the public or specific stakeholders to promote transparency and information dissemination;
 - b. **Account Holders Interface:** Providing a dedicated interface for account holders to manage their accounts and execute transactions;
- (vi) **Interoperability Features:** Incorporating features that enable seamless and compatible integration with other systems or platforms as follows:
 - a. **Mechanism Information System;**

- b. The Article 6.2 International Registry: Including the specific requirements and functionalities pertaining to the Article 6.2 international registry as a key component;
- c. The Article 6.2 Centralized Accounting and Reporting Platform: Integrating the Article 6.2 database into the Centralized Accounting and Reporting Platform (CARP), streamlining accurate and efficient accounting and reporting;
- d. Other as Required: Adapting the system to accommodate additional elements as needed, such as party registries, cancellation platforms, or trading platforms/carbon exchanges, depending on the specific use case and requirements.

3.4.3. Approach to acquisition of the mechanism registry solution

3.4.3.1. High-level implementation approach

- 25. In relation to the software development approach, it is important to highlight that the registry requirements are aligned with the requirements for other Article 6 infrastructure, including the mechanism information system and the CARP, including the Article 6 database and the international registry.
- 26. The registry development will follow the secretariat's standards and procedures for software development and best practice standards for registries.
- 27. It is planned that the mechanism registry and the international registry will be procured and developed as fully mutually consistent systems to:
 - (a) Simplify operations and ensure reporting consistency;
 - (b) Enable interoperability between the two registries that is not dependent on data exchange standards and communication protocols;
 - (c) Minimize implementation costs.

3.4.3.2. Cost estimates - key cost categories and cost drivers

- 28. Based in the experience with the CDM Registry, the secretariat foresees two categories of costs:
 - (a) Capital Expenses that include the costs for developing the requirements of the registry, and costs associated with the initial software development;
 - (b) Operational expenses comprised of hosting the registry and ongoing software development costs related to supporting the operations of the registry (staff costs).
- 29. Cost drivers that will determine the final costs include the following:
 - (a) Availability of a product on the market that may become a baseline for the development of the mechanism registry;
 - (b) The extent and complexity with which authorizations and changes to authorizations may affect the processing of transactions;

- (c) Scale of operations:
 - (i) Number of users;
 - (ii) Number of accounts;
 - (iii) Transaction volume;
 - (d) Requirements for interoperability;
 - (e) Timeline for go-live.
30. The estimation of registry development and maintenance costs include other aspects such as the finalization of the procurement process, the development of the registry procedure, and the projection of timeframes for CER transition and A6.4ERs issuance. All costs are being managed and reflected through the Resource Allocation Plan.

3.5. Units, accounts and transactions in the mechanism registry

31. The business model of a registry system is built upon three fundamental elements: the units it monitors; the accounts it uses to track these units; and the transaction procedures that govern their interactions. These critical components are detailed in decision 7/CMA4, Annex 1, chapter 4 as follows:

3.5.1. Units

32. The registry system deals with Authorized A6.4 ERs, MCUs, and CERs. These units represent the core assets being managed within the system.

3.5.2. Accounts

33. As mentioned above, the registry is a ledger of accounts comprised by accounts associated with Parties through the respective Designated National Authorities that use the registry and approve accounts for authorized entities and centrally managed accounts, including purpose accounts under the authority of the registry administrator (e.g. issuance, Share of Proceeds for adaptation, various cancellation accounts, including for administrative cancellation).
34. Accounts play an important role in tracking and managing units. These accounts serve as the framework through which the units are tracked and managed within the registry system.
35. Accounts differ in the functionality and transaction types they support. Some accounts are used for issuance of A6.4ERs and MCUs, other accounts are transitional accounts that support inward and outward transfer and some accounts only support only inward transfer and constitute the final destination for the units that are being cancelled or used. The various types of accounts include:
- (a) Pending account for issuance of all A6.4ERs, which is a transitory account. It is envisaged that units would not stay in the pending account. The draft activity cycle procedure for projects, paragraph 132(c), requires activity participants to provide distribution requests prior to issuance. Such requests shall be executed immediately upon issuance;

- (b) Holding account which may acquire A6.4ERs or CERs tracked in the mechanism registry;
- (c) Share of proceeds for adaptation account, which receives A6.4ERs in accordance with paragraph 58 of the rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement (RMPs);
- (d) Account for mandatory cancellation of A6.4ERs for overall mitigation in global emissions (OMGE) in accordance with paragraph 59 of the RMPs (mandatory cancellation for OMGE account);
- (e) Account for voluntary cancellation of A6.4ERs for OMGE in accordance with paragraph 70 of the RMPs (voluntary cancellation for OMGE account);
- (f) Retirement account for A6.4ERs and CERs for Nationally Determined Contribution (NDC) Use (per Party);
- (g) Account for cancellation of A6.4ERs for other international mitigation purposes (OIMP);
- (h) Voluntary cancellation for other purposes, which are accounts designed for voluntary cancellations that serve purposes other than NDC use or OIMP cancellation;
- (i) Account for administrative cancellation of A6.4ERs and CERs tracked in the mechanism registry for corrective actions and other purposes, as necessary.

3.5.3. Transactions

36. The registry system conducts two basic transactions to facilitate the movement and authorization of units:
- (a) Issuance: The process of generating units to accounts based on predefined criteria;
 - (b) Transfer: The movement of units from one account to another, often involving a change in ownership or custody.
37. Authorization in the sense referred to in Decision 7/CMA.4 affects the functioning of the business rules regulating transaction processing by the registry. For example, A6.4ERs authorized for NDC only cannot be transferred to an account for OIMP cancellation. Pursuant to paragraph 34 of Decision 7/CMA.4, the mechanism registry shall allow account holders to see the authorization status and the first transfer status of A6.4ERs held in their holding accounts.
38. In summary, the business model of a registry system revolves around the careful management of units, the utilization of various types of accounts to track these units, and the execution of essential transactions to facilitate their movement and authorization. These elements are crucial for the effective functioning of the registry system.

3.6. Reports

39. The secretariat proposes that the registry administrator prepare the following reports based on existing practices and experience in the CDM Registry:
- (a) Reports to Designated National Authorities: Monthly reports with disaggregated transactions and holdings reports for accounts associated with the Party, including quantitative information requirements pursuant to chapter IV (Reporting) of the annex to decision 2/CMA.3 in relation to authorized A6.4ERs;
 - (b) The mechanism registry will have a function to provide information for pre-filling the Agreed Electronic Format (AEF) on the operations describing the Party's participation in the 6.4 mechanism;
 - (c) Public reports: Monthly for all reports other than annual for retirement;
 - (i) Disaggregated: Issuance, all mandatory and voluntary cancellation, retirement;
 - (ii) Aggregated: Holdings per unit type and vintage;
 - (d) Other reports, including input to annual report of the Supervisory Body to the CMA and input to the annual report on infrastructure as per decision 2/CMA.6, annex, paragraph 36 (c).
40. The proposed reporting scheme is consistent with common reporting practice of registries. Disaggregated information on holdings is not public under the Kyoto Protocol and in the voluntary market, with national registries publishing information with a time lag according to domestic data protection legislation.
41. To match the frequency of reporting of such information as per Article 6.2., frequency of reporting may be revised over time.
42. The Supervisory Body may want to consider providing high-level guidance on the type of information that shall be made available and the appropriate levels of aggregation at which data may be disclosed to different stakeholder cohorts and publicly.

3.7. Fees

43. The Supervisory Body may want to consider charging fees for opening and maintenance of holding accounts. The maintenance fee shall apply for each year after the year in which the account was opened. The rationale is that registry operators commonly charge a one-off fee for account opening and annual account maintenance fees, in the range of several hundreds to over one thousand US dollars. The fee schedule of the draft activity cycle procedure does not consider services beyond those related to the specific activity, such as holding and transacting acquired units. Rates will be proposed by the secretariat as part of the draft procedure for the mechanism registry on the basis of a usage volume analysis.
44. Under the CDM, project participants pay share of proceeds for administration and no additional fees are charged for registry services, including for the voluntary cancellation platform services. However, the CDM registry does not support emissions trading, i.e. CERs are forwarded for trading and use to Annex I Party registries, noting that voluntary

cancellation was introduced in the CDM registry from 2012. The secretariat does not maintain standard rates for services.

3.8. Role of the mechanism registry administrator

45. Decision 3/CMA.3 paragraph 65 establishes that the secretariat shall serve as the mechanism registry administrator and maintain and operate the mechanism registry under the supervision of the Supervisory Body.
46. The functions that the registry administrator performs will be further elaborated in the mechanism registry procedure. To give an understanding of the scope of the responsibilities of the registry administrator these include the following:
 - (a) Managing user access;
 - (b) Opening and maintaining accounts;
 - (c) Performing issuance and special purpose transactions with A6.4ERs, including assigning units and changing units' authorization status (for A6.4ERs);
 - (d) Classifying and labelling transactions as first transfer (for A6.4ERs);
 - (e) Liaising with the Trustee of the Adaptation Fund;
 - (f) Supporting users;
 - (g) Reporting on the operations of the registry;
 - (h) Performing incident management;
 - (i) Liaising with registry and connected systems service providers;
 - (j) Liaising with other stakeholders including at the Registry System Administrator forum.

4. Subsequent work and timelines

47. During the first months of 2023 the secretariat developed the high-level software requirements and conducted an initial market research, including contacting service providers operating for the financial market.
48. Procurement of the registry has already been initiated and, according to plan, the public tender will end in December 2023. Implementation of the procured solution is planned to start in January 2024.
49. Pursuant to Decision 2/CMP17, Chapter III, paragraph 11 (a), the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP) requests the Executive Board, in coordination with the Supervisory Body and taking into account the timelines for implementing the mechanism registry and any relevant future decisions of the CMP and the CMA to develop and implement a procedure for project participants and Parties holding eligible certified emission reductions in the clean development mechanism registry, as well as the Trustee of the Adaptation Fund, to request the transfer of such certified emission reductions to the mechanism registry. The procedure for accepting such CERs in the mechanism registry is described in Section II A, Annex, 7/CMA.4, subject to

further procedural details to be elaborated by the secretariat in 2024. If there is a need to use CERs for NDC before the launch of the mechanism registry, this may be done upon the basis of the infrastructure available in the CDM.

50. Due to dependency on future decisions, the technical design of the mechanism registry will provide for flexibility to define specific rules at a later point in time, including on an on-going basis during operation.
51. For the development and operationalization of the registry and its procedure, the Supervisory Body will need to consider and address the following open matters. For these, the secretariat will provide further analysis and recommendations for further action/decision making/guidance by the Supervisory Body:
 - (a) Whether the units issued in the mechanism registry can remain in the pending account, subject to the approval of the draft activity cycle procedure for projects, which currently stipulates that this is not allowed;
 - (b) Whether entities authorized by a Party to open an account in the mechanism registry may receive units generated for an activity of which the entity is not an official participant;
 - (c) Whether secondary transfers between accounts in the mechanism registry (“trading”) are allowed;
 - (d) How to handle CERs after the end of the first or first updated NDC period when CERs can no longer be used;
 - (e) Whether fees should be charged for using the mechanism registry and what kind of structure of these fees would be optimal;
 - (f) If the mechanism registry should include additional services, such as the possibility of selling units for the purpose of voluntary cancellation through commercial platforms;
 - (g) The type of information that shall be made available and the appropriate levels of aggregation at which data may be disclosed to different stakeholder cohorts and publicly;
 - (h) Whether the Supervisory Body wants the secretariat to offer an interim solution to activity Participants to enable issuance of A6.4ERs until the mechanism registry is fully operational.
52. The Supervisory Body will consider the above-mentioned analysis and recommendations at its ninth meeting and, on the basis of decisions taken at the ninth meeting, the Supervisory Body will consider a draft procedure of the mechanism registry at its tenth meeting and the procedure will be adopted at its eleventh meeting.
53. The final adoption and operationalization of the registry is currently planned for quarter three of 2024.

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