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**Conference of the Parties serving as the meeting  
of the Parties to the Kyoto Protocol**

**Seventeenth session**

Sharm el-Sheikh, 6–18 November 2022

Item 3(b) of the provisional agenda

**Reports of the subsidiary bodies**

**Report of the Subsidiary Body for Implementation**

**Report of the administrator of the international transaction  
log under the Kyoto Protocol**

*Summary*

This eighteenth annual report of the administrator of the international transaction log provides information to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol on the activities of the administrator in the reporting period from 1 October 2021 to 30 September 2022.



## Abbreviations and acronyms

AAU	assigned amount unit
CDM	clean development mechanism
CER	certified emission reduction
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
COP	Conference of the Parties
ERU	emission reduction unit
EUTL	European Union transaction log
ITL	international transaction log
ICER	long-term certified emission reduction
RMU	removal unit
RSA	registry system administrator
RSA Forum	Registry System Administrators Forum
SBI	Subsidiary Body for Implementation
SEF	standard electronic format
SIAR	standard independent assessment report
tCER	temporary certified emission reduction
true-up period	additional period for fulfilling commitments for the second commitment period of the Kyoto Protocol

## **I. Introduction**

### **A. Mandate**

1. CMP 1 requested the secretariat to establish and maintain the ITL to verify the validity of transactions proposed by registries established under decisions 3/CMP.1 and 13/CMP.1.<sup>1</sup> The ITL is essential for implementing the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol.
2. COP 10 requested the secretariat, as the ITL administrator, to report annually to the CMP on organizational arrangements, activities and resource requirements and to make any necessary recommendations to enhance the operation of registry systems.<sup>2</sup>
3. CMP 1 also requested the SBI to consider, at its future sessions, the annual reports of the ITL administrator with a view to requesting the CMP to provide guidance, as necessary, in relation to the operation of registry systems.<sup>3</sup>

### **B. Scope of the report**

4. This eighteenth annual report of the ITL administrator to the CMP, covering the reporting period from 1 October 2021 to 30 September 2022, contains information on the implementation of the ITL and its operational status, including the facilitation of cooperation with RSAs through the RSA Forum and the independent assessment of registry systems. It also contains information on transactions of Kyoto Protocol units, organizational arrangements and resources.

### **C. Possible action by the Subsidiary Body for Implementation**

5. The SBI may wish to take note of the information in this report and to request the CMP to provide guidance to the secretariat and Parties, as necessary, concerning the implementation of registry systems and in particular the future operation of the ITL (see para. 55 below).
6. The SBI may also wish to provide guidance to the ITL administrator with regard to the expiry date of tCERs issued for the second commitment period of the Kyoto Protocol.
7. The SBI may further wish to provide guidance to the ITL administrator on finalizing the data exchange standards,<sup>4</sup> as divergent views on implementing the carry-over process for Parties included in Annex I<sup>5</sup> without quantified emission limitation or reduction commitments for the second commitment period have meant that the work could not be completed.

## **II. Work in the reporting period**

8. The ITL administrator convened the 24<sup>th</sup> RSA Forum and continues to coordinate the tasks of its working groups.
9. Activities related to the fourteenth annual assessment of national registries and the accounting of Kyoto Protocol units were conducted, including processing the SEF tables contained in the national inventory reports for 2021.
10. The ITL administrator continues to support the operations of the ITL. Detailed information on its operational activities and performance is provided in chapter II.B below.

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<sup>1</sup> Decision 13/CMP.1, annex, para. 38.

<sup>2</sup> Decision 16/CP.10, para. 6(m), endorsed by decision 12/CMP.1, para. 3.

<sup>3</sup> Decision 12/CMP.1, para. 11.

<sup>4</sup> See decisions 24/CP.8, para. 3, and 12/CMP.1, para. 2.

<sup>5</sup> As defined in Article 1, para. 7, of the Kyoto Protocol.

## **A. Implementation activities**

### **1. Software release**

11. One release of the ITL software was deployed, in June 2022, after successful acceptance testing. The release was necessary to support simplifications to the handling of land use, land-use change and forestry accounting quantities for the second commitment period as transmitted from the compilation and accounting database to the ITL.

### **2. Standard electronic format reporting application**

12. Parties included in Annex I report, in the SEF tables, information on AAUs, ERUs, RMUs, CERs, ICERs and tCERs from their national registry transferred or acquired in the calendar year preceding the reporting year.<sup>6</sup>

13. The ITL administrator continues to make available to Parties the SEF reporting application (version 3.8.3), which was successfully used by them to generate their SEF tables for the 2021 reporting cycle.

### **3. Common operational procedures**

14. No changes were made to the common operational procedures as they were deemed to be well established and still relevant.

### **4. Maintenance and technology refresh**

15. A consolidated certificate authority was introduced in March 2021, which is maintained by the ITL administrator to issue and manage the client, server and virtual private network digital certificates needed for the ITL and registry system infrastructure. The previous vendor-operated certificate authority was retired and decommissioned in January 2022 following a successful transition period in which all deployed certificates were migrated to the new authority that replaced it.

16. To maintain the ITL service and protect against cybersecurity threats, regular software patching was carried out on the ITL components, including operating systems, application and database servers, and network components. In addition, an endpoint detection and response solution as well as vulnerability assessment agents were deployed on the ITL servers in February 2022 to enhance the detection of cyberthreats and the overall security posture of the service.

17. To comply with industry security standards, older versions of the Transport Layer Security encryption protocol in use for communications between the ITL and registries were phased out in 2021. Support for the newest version (1.3) of the protocol was added to the ITL in June 2022 and is being tested by the registries.

18. A migration project to upgrade the database service of the ITL environments to the latest Oracle software was carried out and successfully completed in June 2022 with minimum service downtime.

### **5. Data centre hosting and infrastructure**

19. Following completion of the migration of the data centre hosting of the ITL infrastructure to a cloud-based environment in February 2019, the availability of the ITL has remained stable and its service well within agreed levels.

20. The ITL administrator, jointly with the cloud service provider, successfully carried out testing of the resilience and failover capacity of the network components forming the ITL infrastructure.

21. The secretariat continues to monitor the quality of the ITL service and identify areas for enhancing and optimizing service delivery by keeping abreast of new developments and products emerging in the cloud technology landscape.

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<sup>6</sup> As per decision 15/CMP.1, annex, para. 11.

## 6. Preparations for the true-up period

22. Following the recommendation of SBI 56 to CMP 17 on the date of completion of the expert review process under Article 8 of the Kyoto Protocol for the second commitment period,<sup>7</sup> the necessary preparations for the true-up period have started in relation to the ITL and supporting processes.

## B. Operational activities

### 1. Provision of support for registry testing

23. The ITL administrator supported operational activities and changes for five national registries, including coordinated functional testing, service migrations and disaster recovery testing, and provided connectivity support at application and virtual private network level.

### 2. Disaster recovery testing

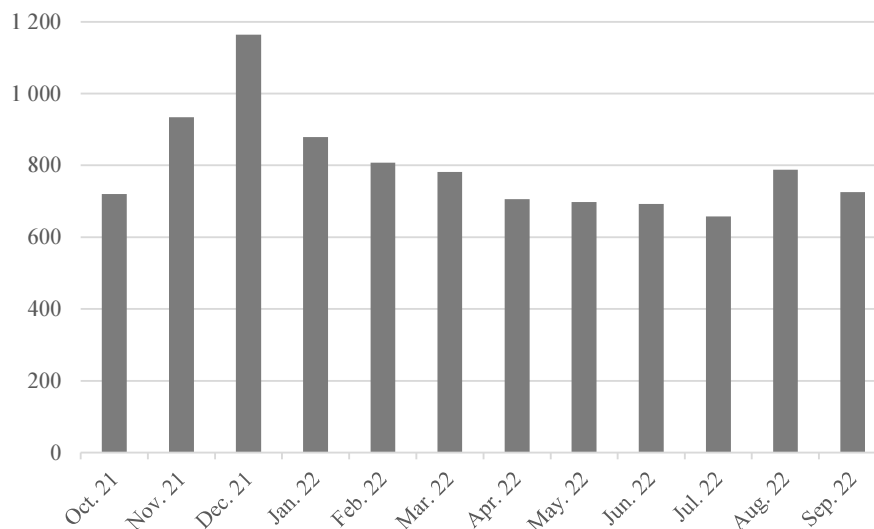
24. Disaster recovery testing of the ITL infrastructure was carried out in November 2021 on the basis of an updated disaster recovery plan to reflect the ITL architecture after its migration to cloud services. The test was successful and the restoration of the service on the secondary site was achieved well within the recovery time objective of three hours. Lessons learned from the previous testing in 2020 were taken into account and related adjustments verified during the testing. The next such exercise is scheduled for December 2022.

### 3. Transaction data and their analysis

25. The level of activity in the ITL can be measured using transactional and operational metrics. Figure 1 shows the number of transactions proposed to the ITL in the production environment<sup>8</sup> each month. Breakdowns by registry of the number of transactions and the number of Kyoto Protocol units subject to transactions proposed to the ITL are shown in annexes II and III respectively.

Figure 1

#### Number of transactions proposed to the international transaction log

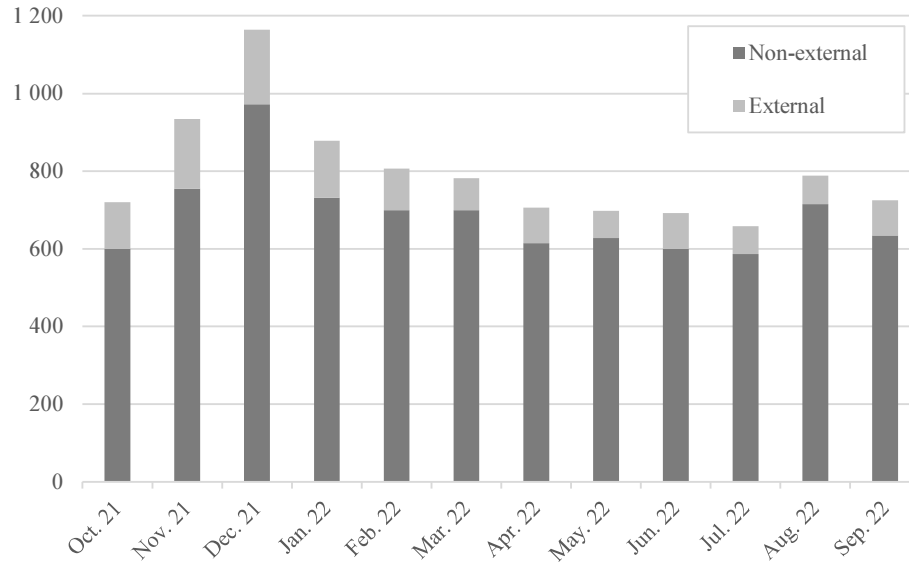


26. External transactions, in which the units involved leave the originating registry and arrive at a different registry, and non-external transactions, in which the units stay in the same registry, take place in the registry systems and the ITL. Figure 2 shows the evolution of the breakdown of external and non-external transactions in the ITL.

<sup>7</sup> See document FCCC/SBI/2022/10/Add.1, p.11.

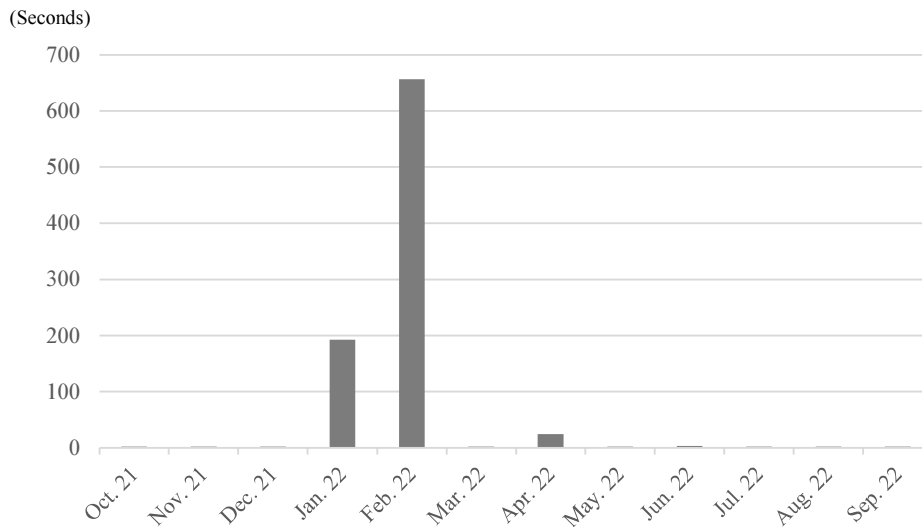
<sup>8</sup> The live system of the ITL used to support emissions trading under the Kyoto Protocol.

Figure 2  
**Number of external compared with non-external transactions in the international transaction log**



27. The transaction completion time includes the latency incurred as a result of the travel time of messages through the registry network and the processing time within registries, the ITL and the EUTL (if a European Union Emissions Trading System registry is involved in the transaction). Monthly average transaction completion times are shown in figure 3.

Figure 3  
**Monthly average completion times of transactions proposed to the international transaction log**



28. The longer average transaction completion times observed in January and February 2022 are due to unexpected national registry downtime, which caused some ongoing transactions to take longer to complete. The annual median completion time for a transaction to complete was 2.4 seconds.

29. Transactions that are not compliant with the data exchange standards are terminated by the ITL. The transaction termination ratio, an indicator of the level of internal checking performed by registries to ensure that the proposed transaction is accurate, is obtained by

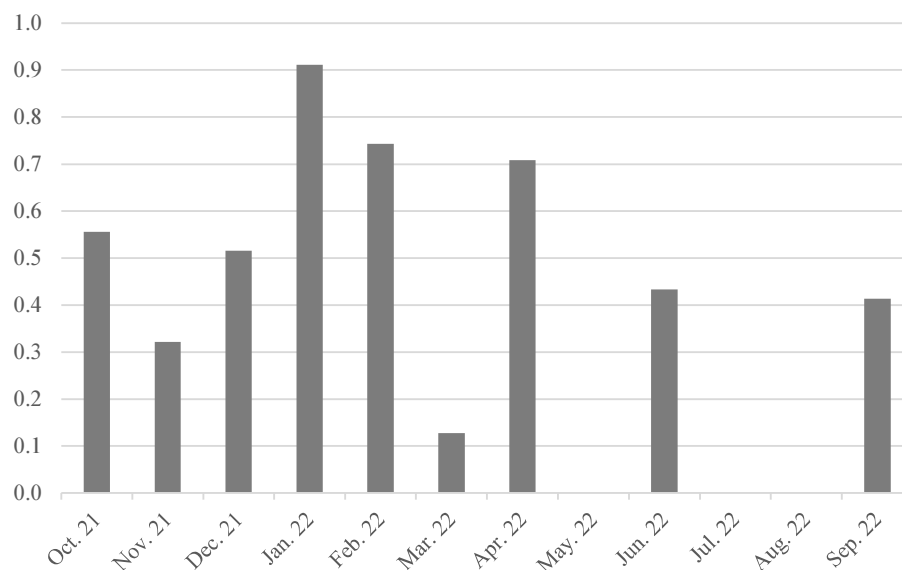
dividing the number of terminated transactions by the number of transactions proposed in a given time frame. The evolution of the termination ratio is shown in figure 4.

30. If a transaction has not reached a final status within 24 hours, it is automatically cancelled by a clean-up mechanism. The transaction cancellation ratio, an indicator of the extent of communication problems in registry systems, is obtained by dividing the number of cancelled transactions by the number of proposed transactions in a given time frame. There were no cancelled transactions in the reporting period.

Figure 4

**International transaction log transaction termination ratios**

(Per cent)

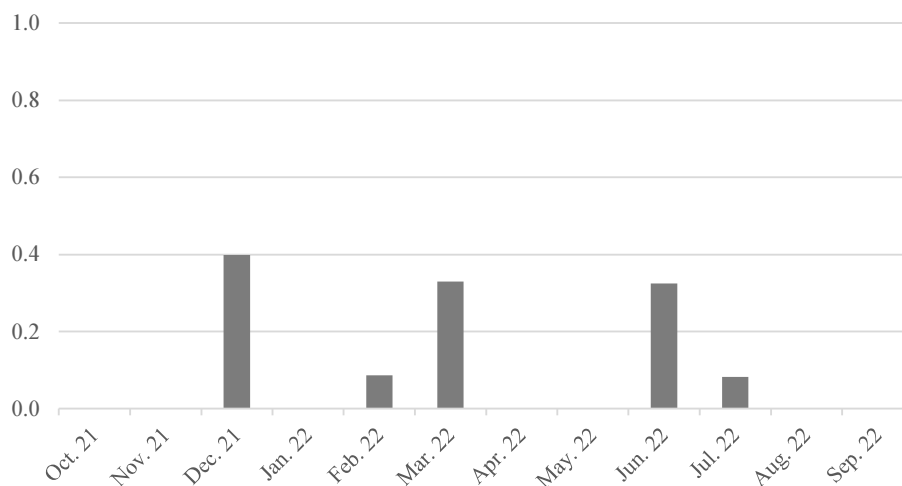


31. The reconciliation process ensures that holdings of Kyoto Protocol units are consistent between registries and the ITL. The occurrence of a reconciliation inconsistency indicates a discrepancy between the ITL and a registry's records. The inconsistent reconciliation ratio is obtained by dividing the number of inconsistent reconciliations by the number of reconciliations initiated in a given time frame. The ratio is an indicator of the capacity of registries to maintain accurate records of their Kyoto Protocol unit holdings (see figure 5).

Figure 5

**International transaction log inconsistent reconciliation ratios**

(Per cent)



32. The ITL facilitates communication between registries in performing their transactions. The ITL can become unavailable during planned maintenance windows, of which RSAs are informed in advance, or during unplanned outages caused by operational incidents. The availability of the ITL service was 99.98 per cent. The availability of the ITL taking into account planned outages was 99.17 per cent.

33. The ITL started to receive units applicable to the second commitment period in April 2013, when the first issuance of CERs for the second commitment period was made in the CDM registry. As at 30 September 2022, 823,868,341 CERs for the second commitment period had been issued for 1,626 CDM projects.

**4. Status of carry-over**

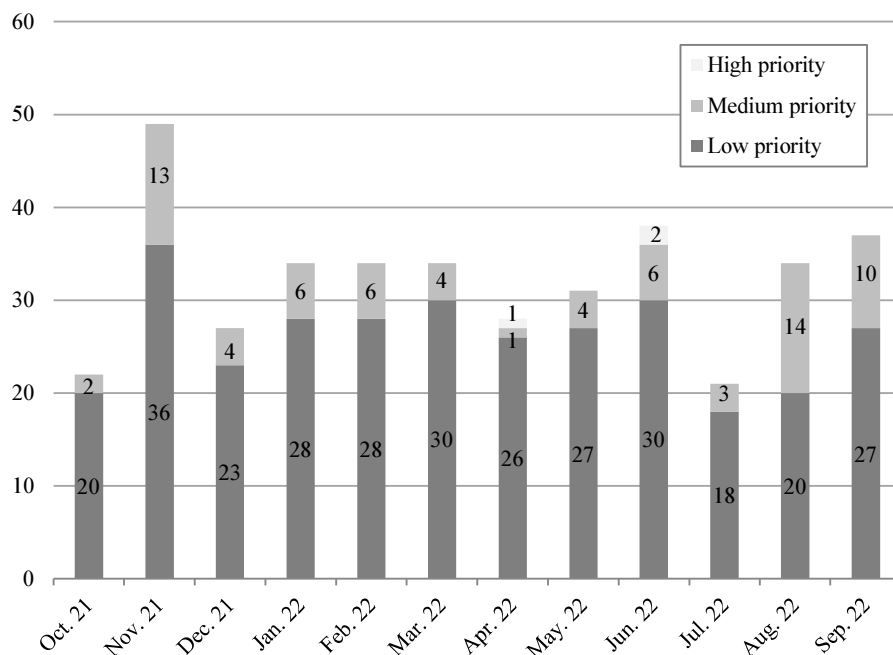
34. From 14 December 2016 to 30 September 2022, 20 Parties carried over units issued for the first commitment period to the second commitment period. A total of 138,407,652 CERs, 171,920,559 ERUs and 3,731,199,010 AAUs were carried over, including 1,254,623 CERs, 3,791,686 ERUs and 2,614,713,240 AAUs in the reporting period. As at 30 September 2022, 2,767,458,975 units valid for the first commitment period were available for carry-over.

**5. Service desk**

35. The ITL service desk is the focal point for all support provided to RSAs for operating and testing their registries. The service desk carries out technical activities related to the initialization and go-live processes under the supervision of the ITL administrator. The service desk provides continuous support to RSAs from 8 p.m. on Sundays until midnight on Fridays (Coordinated Universal Time).

36. Figure 6 tracks the number of support requests handled by the ITL service desk, categorized by priority. High-priority support requests are initiated when the processing of transactions from one or more registries cannot be performed. Medium-priority support requests are related to the performance or stability of the ITL, which may affect transaction processing. Low-priority support requests are related to information items or performance issues that do not directly affect transaction processing.

Figure 6  
**Number of support requests handled by the international transaction log service desk**





## 6. Change management activities

37. Since the go-live of the ITL, the administrator has established a change management procedure for making changes to the data exchange standards and common operational procedures governing various processes.

38. During the reporting period, no change requests were submitted and the ITL administrator continued to maintain the data exchange standards in collaboration with RSAs.

39. Owing to divergent views on implementing the carry-over process for Parties included in Annex I without quantified emission limitation or reduction commitments for the second commitment period, it has not been possible to issue a final version of the data exchange standards in order to provide support for all processes in relation to the second commitment period. The SBI may wish to provide guidance to the ITL administrator on this issue, the resolution of which is essential to ensuring accurate accounting of Kyoto Protocol units.

40. The SBI may also wish to provide guidance to the ITL administrator on the expiration date of tCERs issued for the second commitment period. Some RSAs have noted the lack of clarity in this regard, with tCERs due to expire at the end of the commitment period following the one in which they were issued.

## 7. Communications

41. The ITL administrator continues to facilitate collaboration among RSAs to ensure the accurate, efficient and secure operation of registry systems. To support this process, the ITL administrator utilizes and maintains a number of communication channels, including pages on the UNFCCC website and the RSA extranet collaboration platform.

42. The turnover in RSAs is relatively high, and the registry system and accounting of Kyoto Protocol units are complex matters, leading to a steep learning curve for newcomers. Since a large body of documentation and presentations, covering over 15 years of operations, is available on the RSA extranet, the ITL administrator continues to explore efficient ways of providing the most relevant presentations and documents to newcomers so that they may familiarize themselves quickly with the registry system processes and procedures and the Kyoto Protocol accounting framework.

## C. Independent assessment of national registries and go-live activities

### 1. Annual assessment activities

43. The process of preparing the SIARs<sup>9</sup> relies on the initial independent assessment of national registries. The process is followed by RSAs when reporting annually on changes in national registries and providing information on accounting of Kyoto Protocol units using the SEF tables, and guides the activities carried out by assessors when reviewing reported changes and accounting information. Once the SIARs are finalized, they are forwarded to the expert review teams for consideration as part of the review of national registries under Article 8 of the Kyoto Protocol.<sup>10</sup>

44. The ITL administrator continues to encourage and promote engagement of RSAs in the SIAR process<sup>11</sup> with a view to stimulating sharing of information on national registry related reporting and review and thus improving the quality of the information on national registries in Parties' annual submissions and optimizing the ITL cost structure.

45. During the reporting period, 38 Parties submitted their national inventory reports with information on changes in their national registries and SEF tables with information on transactions applicable to the second commitment period.

<sup>9</sup> See decision 16/CP.10, para. 5(a).

<sup>10</sup> As per decision 16/CP.10, para. 6(k).

<sup>11</sup> As per decision 16/CP.10, para. 6(c).

46. Under the SIAR process, a simplified assessment approach was applied, with a focus on ensuring that the SEF tables submitted by the Parties are consistent with ITL records, which was found to be the case for all of the Parties at completion of the SIAR process.

47. In response to the 2021 SIAR process and recommendations provided by the assessors, the ITL administrator implemented recommendations regarding the expiry of ICER and tCERs. As a result, there were no replacements of tCERs or ICERs to be completed by Parties as at 30 September 2022.

## **2. Go-live activities**

48. Since no go-live processes were initiated by registries during the reporting period, the ITL administrator did not need to provide relevant support. As at 30 September 2022, 38 national registries and the CDM registry were connected to the ITL (see annex I).

## **D. Registry System Administrators Forum**

49. The ITL administrator convenes the RSA Forum to coordinate the technical and management activities of RSAs, to provide a platform for RSAs to cooperate with each other and to provide input to the development of common operational procedures, recommended practices and information-sharing measures for registry systems.<sup>12</sup>

50. Participation in the RSA Forum is open to all national registry administrators, the CDM registry administrator and the EUTL administrator. Several experts from Parties to the Kyoto Protocol that are not included in Annex I to the Convention are also invited to attend.

51. The 24<sup>th</sup> RSA Forum took place in hybrid format from 27 to 28 September 2022, with 80 participants registered. Presentations and discussions on the operations of registry systems covered:

- (a) The status of ITL operations;
- (b) The certificate authority for registry systems;
- (c) The true-up period, including its impact on accounting of Kyoto Protocol units and transactions, the reporting and review processes under Articles 7–8 of the Kyoto Protocol and the independent assessment of national registries;
- (d) The reporting processes for the independent assessment of national registries conducted during the reporting period and preparations for the next reporting cycle.

52. In addition, there were presentations and discussions on the following, to promote information-sharing among RSAs and gather feedback on related initiatives:

- (a) The status of the CDM;
- (b) The status of negotiations under Article 6 of the Paris Agreement;
- (c) The infrastructure under Article 6 of the Paris Agreement;
- (d) Using distributed ledger technology for greenhouse gas emissions trading;
- (e) Implementing transactions of internationally transferred mitigation outcomes in a national registry;
- (f) Implementing and operating a new registry system;
- (g) The Carbon Offsetting and Reduction Scheme for International Aviation.<sup>13</sup>

53. RSAs agreed to:

- (a) Continue implementing the simplified annual SIAR process in 2023 by focusing on assessing the SEF tables;

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<sup>12</sup> As per decision 12/CMP.1, para. 5.

<sup>13</sup> The presentation on this was postponed to 20 October 2022 owing to the International Civil Aviation Organization Assembly taking place concurrently with the RSA Forum.

(b) Update the true-up period assessment procedure of the SIAR process to align it with needs for the second commitment period, and to meet in a working group setting to discuss the update early in 2023.

54. RSAs requested the ITL administrator and the secretariat to update the frequently asked questions document for the true-up period and to make available on the RSA extranet the presentation on long-term preservation of records from the 23<sup>rd</sup> RSA Forum together with the presentations from the 24<sup>th</sup> RSA Forum.

55. As part of the presentations on the true-up period, the ITL administrator presented the status of the ITL infrastructure, software and contracts underpinning its operations, and stressed that beyond mid-2025 it will become increasingly difficult to operate the ITL in a maintainable, predictable and secure manner owing to the obsolescence of the technologies in use and the difficulty of finding contractors with relevant technological expertise.

## **E. Other activities**

56. The purpose of the security working group is to elaborate options for enhancing information security controls in systems supporting emissions trading under the Kyoto Protocol, as requested at SBI 40.<sup>14</sup>

57. The security working group did not meet during the reporting period as there were no specific matters to discuss. It may meet in the future to discuss and coordinate the approach to implementing Transport Layer Security version 1.3 in registry systems.

58. The ITL administrator continues to monitor the negotiations under Article 6 of the Paris Agreement for any potential impacts on the ITL.

## **III. Organizational arrangements and resources**

59. The functions of the ITL administrator are performed by the Mitigation division of the secretariat. The Information and Communication Technology subdivision is responsible for software delivery and supporting the secretariat's information technology infrastructure, including the infrastructure sustaining the ITL.

### **A. Resource requirements and expenditure**

60. The resource requirements for activities relating to the ITL and the ITL administrator for 2006–2007,<sup>15</sup> 2008–2009,<sup>16</sup> 2010–2011,<sup>17</sup> 2012–2013,<sup>18</sup> 2014–2015,<sup>19</sup> 2016–2017,<sup>20</sup> 2018–2019<sup>21</sup>, 2020–2021<sup>22</sup> and 2022–2023<sup>23</sup> were identified in the proposed programme budgets for the respective bienniums.

61. The ITL budget for 2022–2023 is EUR 3,851,948, including a working capital reserve of EUR 161,030.<sup>24</sup>

62. CMP 3 requested the Executive Secretary to provide a breakdown of expenditure on developing and operating the ITL with a view to optimizing its cost structure.<sup>25</sup> Table 1 shows the expenditure of the ITL so far in 2022–2023.

<sup>14</sup> FCCC/SBI/2014/8, para. 72.

<sup>15</sup> See document FCCC/SBI/2005/8/Add.2.

<sup>16</sup> See document FCCC/SBI/2007/8/Add.2.

<sup>17</sup> See document FCCC/SBI/2009/2/Add.3.

<sup>18</sup> See document FCCC/SBI/2011/2/Add.3.

<sup>19</sup> See document FCCC/SBI/2013/6/Add.3.

<sup>20</sup> See document FCCC/SBI/2015/3/Add.3.

<sup>21</sup> See document FCCC/SBI/2017/4/Add.2.

<sup>22</sup> See document FCCC/SBI/2019/4/Add.2.

<sup>23</sup> See document FCCC/SBI/2021/4/Add.2.

<sup>24</sup> See decision 9/CMP.16, paras. 1–2.

<sup>25</sup> Decision 11/CMP.3, para. 14.

Table 1  
**Expenditure of the international transaction log in 2022–2023 as at 30 September 2022**  
 (Euros)

	<i>Amount</i>
Staff costs	340 824
Contractual and consultancy services	487 834
Expert groups	–
Staff travel	2 931
General operating expenses	4 702
Contributions to common services	40 500
Programme support costs	116 730
<b>Total</b>	<b>993 521</b>

63. Table 2 shows the expected percentage breakdown of estimated expenditure on contractors and consultants in 2022. Operational services are performed by the developer and operators of the ITL to sustain all its operations, such as infrastructure maintenance and the service desk. Software maintenance services are performed by the developer of the ITL to support any relevant software implementation activities, including those outlined in this report. Consultancy expenditure is incurred when the secretariat needs to consult experts in specific fields.

Table 2  
**Expected percentage breakdown of expenditure of the international transaction log on contractors and consultants in 2022**

	<i>Share of total expenditure (%)</i>
Operational services	86
Production and disaster recovery environments	60
Cloud platform	15
Cloud management services	34
Licenses	11
Service desk	16
Registry developer support	3
Security and disaster recovery testing	7
Software maintenance services	14
Consultancy	0

64. CMP 4 requested the ITL administrator to report on planned activities and the related resource requirements with a view to ensuring that adequate means are available to perform those activities.<sup>26</sup>

65. In 2022, ITL activities have focused on ensuring that registry systems operate securely and reliably, and on optimizing delivery of all operational activities.

66. Owing to the decrease in operational activities, the staffing level of the ITL during the reporting period was below the requirements included in its budget.

67. The ITL staff:

(a) Provide technical services through the ITL to enable national registries and the CDM registry to perform transactions of Kyoto Protocol units;

(b) Ensure reliable hosting for the ITL and perform upgrades to the hardware and software of the ITL infrastructure, as necessary;

<sup>26</sup> FCCC/KP/CMP/2008/11, para. 72.

- (c) Support national registries, the consolidated system of European Union Emissions Trading System registries, the EUTL, the CDM registry, the joint implementation and CDM information systems and the compilation and accounting database in order to maintain their connections and operations with the ITL;
- (d) Initialize, perform and support go-live events for registries not yet connected;
- (e) Support changes to the data exchange standards and new releases of ITL software and the SEF reporting application resulting from operational experience and changes adopted under the common operational procedure for change management;
- (f) Facilitate annual reporting on and review of national registries and accounting of greenhouse gas emission units under Articles 7–8 of the Kyoto Protocol;
- (g) Administer and maintain the RSA extranet;
- (h) Facilitate cooperation among RSAs through the RSA Forum and its working groups to ensure that registry systems are accurate, efficient and secure;
- (i) Support testing of the ITL and registry systems, including through disaster recovery testing and security audits, with a view to enhancing the reliability and security of the ITL;
- (j) Make available to RSAs and relevant experts from Parties to the Kyoto Protocol that are not included in Annex I to the Convention online training and guidance materials on the general functioning of the ITL and registry systems, the common operational procedures and other relevant knowledge areas;
- (k) Support the ITL administrator in meeting its obligations in accordance with all applicable decisions of the COP and the CMP;
- (l) Monitor and support the negotiations under Article 6 of the Paris Agreement to identify potential impacts on the ITL, and contribute knowledge and skills relevant to registry systems and greenhouse gas emissions trading to help advance the negotiations on those matters.

## **B. Income for activities**

68. The scale of ITL fees and status of fee payments for 2022–2023 as at 30 September 2022 are shown in annex IV. The status of fees and shortfalls as at 30 September 2022 is shown in annex V. Two Parties were credited with advances towards their ITL fees for 2023. The secretariat would like to express its gratitude to the Parties that have paid their fees and remind those Parties with outstanding fees to pay them without delay.

69. Delays in receiving user fees from Parties have been noted in previous annual reports of the ITL administrator. As at 30 September 2022, EUR 109,792 was still due for 2022 (14 per cent of the fees budgeted for 2022).

70. CMP 13 requested the ITL administrator to disclose in its annual report the unspent balance of the Trust Fund for the International Transaction Log from the previous biennium as at the time of publication of the report.<sup>27</sup>

71. As at 31 December 2021, the unspent balance of the Trust Fund for the International Transaction Log was USD 8,081,256, not including the operating reserve of USD 218,319.<sup>28</sup>

## **C. Optimization of cost structure**

72. In seeking ways to optimize the ITL cost structure, the ITL administrator is considering or continuing:

<sup>27</sup> Decision 7/CMP.13, para. 7.

<sup>28</sup> Preliminary figures.

- (a) Optimizing the data hosting, technology refresh, and licence and third-party support costs of the required software and hardware;
- (b) Systematizing, documenting and addressing typical incident, user error and user problem scenarios, while providing proactive guidance to registry systems, to minimize their reoccurrence and associated remedial costs;
- (c) Simplifying registry testing arrangements, registry contact management and digital certificate management with the goal of minimizing associated costs;
- (d) Engaging RSAs in the centralized annual review of national registries, thereby avoiding the cost of consultants and minimizing travel costs;
- (e) Providing options for virtual participation and remote meetings with the goal of reducing travel and meeting costs;
- (f) Identifying ways to employ secretariat staff instead of consultants or contractors, where possible, including options for consolidating activities related to the ITL service desk, software development and application support.

73. Optimizations resulting from the review in the previous reporting period of the processes and functions underpinning the ITL have led or will lead to significant efficiency gains:

- (a) The SIAR process has been simplified for the true-up period by delaying the review of changes to national registries and public information provided by those registries until the review of the true-up period report. The SEF tables continue to be assessed on an annual basis under the SIAR process. This simplification gives staff more time to perform tasks such as managing digital certificates that would otherwise be performed by consultants or contractors;
- (b) The management of digital certificates has been streamlined: the certificates are now created and managed by the ITL administrator and the processes for their issuance, renewal and revocation have also been internalized, thereby saving the costs of involving external vendors;
- (c) The frequency of security audits and/or disaster recovery testing will be adapted in line with the decrease in operational support needed for the future.

## Annex I

## Registry status as at 30 September 2022

<i>Registry</i>	<i>Issue date of independent assessment report</i>	<i>Date of live connection to the ITL</i>
CDM	Not applicable	14 November 2007
Australia	19 December 2008	19 December 2008
Austria	12 July 2007	16 October 2008
Belarus	—	—
Belgium	7 December 2007	16 October 2008
Bulgaria	10 April 2008	16 October 2008
Croatia	30 April 2008	11 December 2009
Cyprus	1 February 2017	4 November 2016
Czechia	1 August 2007	16 October 2008
Denmark	16 October 2008	16 October 2008
Estonia	12 November 2007	16 October 2008
European Union	1 February 2008	16 October 2008
Finland	16 November 2007	16 October 2008
France	9 November 2007	16 October 2008
Germany	23 November 2007	16 October 2008
Greece	27 September 2007	16 October 2008
Hungary	8 August 2007	11 July 2008
Iceland	3 January 2008	6 May 2010
Ireland	19 September 2007	16 October 2008
Italy	5 December 2007	16 October 2008
Japan	9 July 2007	14 November 2007
Kazakhstan	—	—
Latvia	13 November 2007	16 October 2008
Liechtenstein	7 December 2007	21 October 2008
Lithuania	29 October 2007	16 October 2008
Luxembourg	7 December 2007	16 October 2008
Malta	22 February 2017	4 November 2016
Monaco	9 April 2008	30 July 2015
Netherlands	19 September 2007	16 October 2008
New Zealand	27 July 2007	3 December 2007
Norway	27 September 2007	21 October 2008
Poland	5 December 2007	16 October 2008
Portugal	24 October 2007	16 October 2008
Romania	30 April 2008	16 October 2008
Russian Federation <sup>a</sup>	12 November 2007	4 March 2008
Slovakia	13 September 2007	16 October 2008
Slovenia	25 October 2007	16 October 2008
Spain	8 October 2007	16 October 2008
Sweden	9 November 2007	16 October 2008
Switzerland	8 August 2007	4 December 2007
Ukraine	10 December 2007	28 October 2008
United Kingdom	16 August 2007	16 October 2008

<sup>a</sup> Disconnected from the ITL on 30 December 2015 in accordance with decision 8/CMP.11.

## Annex II

**Number of transactions proposed to the international  
transaction log between 1 October 2021 and 30 September 2022**

<i>Registry</i>	<i>Acquisition<sup>a</sup></i>	<i>Transfer<sup>b</sup></i>	<i>Forwarding<sup>c</sup></i>	<i>Internal transfer<sup>d</sup></i>	<i>Issuance<sup>e</sup></i>	<i>Retirement<sup>f</sup></i>	<i>Cancellation<sup>g</sup></i>	<i>Total</i>
CDM	3	13	435	0	538	0	4 157	5 146
Australia	201	87	0	0	0	0	474	762
Austria	3	7	0	0	0	0	2	12
Belarus <sup>h</sup>	0	0	0	0	0	0	0	0
Belgium	0	0	0	0	0	0	5	5
Bulgaria	0	0	0	0	0	0	1	1
Croatia	0	0	0	0	0	0	0	0
Cyprus	0	0	0	0	0	0	0	0
Czechia	0	1	0	0	0	0	0	1
Denmark	0	7	0	0	0	0	0	7
Estonia	0	0	0	0	0	0	0	0
European Union	6	46	0	0	0	0	250	302
Finland	12	3	0	0	0	0	1	16
France	48	16	0	0	0	0	58	122
Germany	89	105	0	0	0	0	598	792
Greece	1	3	0	0	0	0	0	4
Hungary	0	0	0	0	0	0	0	0
Iceland	0	0	0	0	0	0	0	0
Ireland	4	1	0	2	0	0	2	9
Italy	12	9	0	0	0	0	43	64
Japan	0	0	0	0	0	0	4	4
Kazakhstan <sup>h</sup>	0	0	0	0	0	0	0	0
Latvia	0	0	0	0	0	0	0	0
Liechtenstein	1	0	0	0	1	0	0	2
Lithuania	0	0	0	0	0	0	0	0
Luxembourg	0	0	0	0	0	0	1	1
Malta	8	4	0	0	0	0	15	27
Monaco	3	0	0	0	0	0	0	3
Netherlands	116	122	0	0	0	0	189	427
New Zealand	0	0	0	0	0	0	196	196
Norway	10	5	0	1	0	0	5	21
Poland	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0
Romania	0	0	0	0	0	0	5	5
Russian Federation <sup>h</sup>	0	0	0	0	0	0	0	0
Slovakia	0	0	0	0	0	0	0	0
Slovenia	49	68	0	0	0	0	15	132
Spain	34	13	0	2	0	0	68	117
Sweden	22	46	0	2	0	0	65	135
Switzerland	176	259	0	269	0	0	609	1 313
Ukraine	0	0	0	0	0	0	0	0
United Kingdom	47	43	0	0	0	0	34	124
<b>Total</b>	<b>845</b>	<b>858</b>	<b>435</b>	<b>276</b>	<b>539</b>	<b>0</b>	<b>6 797</b>	<b>9 750</b>

*Note:* Completed transactions of AAUs, ERUs, RMUs, CERs, ICERs and tCERs have been accounted for.



- 
- <sup>a</sup> Acquisition from another national registry. See decision 13/CMP.1, annex, para. 30.
- <sup>b</sup> Transfer to another national registry. See decision 13/CMP.1, annex, para. 30.
- <sup>c</sup> Forwarding from the CDM registry to a national registry. See decision 3/CMP.1, annex, para. 66(b). Transfers from the CDM registry to a national registry in support of the Adaptation Fund are excluded.
- <sup>d</sup> Transfer within the registry. See decision 13/CMP.1, annex, para. 30.
- <sup>e</sup> See decisions 3/CMP.1, annex, paras. 64–66; 5/CMP.1, annex, paras. 36–37 and 13/CMP.1, annex, paras. 23–29. Issuance of ERUs by converting AAUs or RMUs is included.
- <sup>f</sup> See decision 13/CMP.1, annex, para. 34.
- <sup>g</sup> See decision 13/CMP.1, annex, para. 33.
- <sup>h</sup> Not currently connected to the ITL.

## Annex III

**Number of Kyoto Protocol units subject to transactions proposed to the international transaction log  
between 1 October 2021 and 30 September 2022**

<i>Registry</i>	<i>Acquisition<sup>a</sup></i>	<i>Transfer<sup>b</sup></i>	<i>Net transfer<sup>c</sup></i>	<i>Forwarding<sup>d</sup></i>	<i>Internal transfer<sup>e</sup></i>	<i>Issuance<sup>f</sup></i>	<i>Retirement<sup>g</sup></i>	<i>Cancellation<sup>h</sup></i>
CDM	1 180 883	1 905 434	724 551	81 833 915	0	141 645 230	0	43 452 021
Australia	27 674 830	15 417 712	-12 257 118	0	0	0	0	10 035 424
Austria	167 700	2 610 000	2 442 300	0	0	0	0	72 671
Belarus <sup>i</sup>	0	0	0	0	0	0	0	0
Belgium	0	0	0	0	0	0	0	21 200
Bulgaria	0	0	0	0	0	0	0	46 691
European Union	5 535 034	65 676 969	60 141 935	0	0	0	0	2 559 482
Croatia	0	0	0	0	0	0	0	0
Cyprus	0	0	0	0	0	0	0	0
Czechia	0	5 649	5 649	0	0	0	0	0
Denmark	0	4 900 000	4 900 000	0	0	0	0	0
Estonia	0	0	0	0	0	0	0	0
Finland	1 409 418	807 001	-602 417	0	0	0	0	999
France	6 303 870	1 673 760	-4 630 110	0	0	0	0	5 349 115
Germany	8 880 943	10 490 504	1 609 561	0	0	0	0	5 638 888
Greece	75 000	240 000	165 000	0	0	0	0	0
Hungary	0	0	0	0	0	0	0	0
Iceland	0	0	0	0	0	0	0	0
Ireland	5 733 933	5 288 933	-445 000	0	5 288 933	0	0	382
Italy	702 004	106 003	-596 001	0	0	0	0	189 209
Japan	0	0	0	0	0	0	0	1 766 753
Kazakhstan <sup>i</sup>	0	0	0	0	0	0	0	0
Latvia	0	0	0	0	0	0	0	0
Liechtenstein	6 631	0	-6 631	0	0	1 556 044	0	0
Lithuania	0	0	0	0	0	0	0	0
Luxembourg	0	0	0	0	0	0	0	76 225
Malta	1 221 743	894 421	-327 322	0	0	0	0	119 478

<i>Registry</i>	<i>Acquisition<sup>a</sup></i>	<i>Transfer<sup>b</sup></i>	<i>Net transfer<sup>c</sup></i>	<i>Forwarding<sup>d</sup></i>	<i>Internal transfer<sup>e</sup></i>	<i>Issuance<sup>f</sup></i>	<i>Retirement<sup>g</sup></i>	<i>Cancellation<sup>h</sup></i>
Monaco	6 979	0	-6 979	0	0	0	0	0
Netherlands	11 081 734	10 210 563	-871 171	0	0	0	0	2 764 922
New Zealand	0	0	0	0	0	0	0	25 336
Norway	57 999 866	263 099	-57 736 767	0	292 154	0	0	61 732
Poland	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0
Romania	0	0	0	0	0	0	0	11 257
Russian Federation <sup>i</sup>	0	0	0	0	0	0	0	0
Slovakia	0	0	0	0	0	0	0	0
Slovenia	10 980 385	9 809 638	-1 170 747	0	0	0	0	400 240
Spain	998 618	658 260	-340 358	0	18 736	0	0	864 412
Sweden	565 280	1 951 814	1 386 534	0	32 802	0	0	87 518
Switzerland	26 533 680	30 787 383	4 253 703	0	51 207 813	0	0	26 055 456
Ukraine	0	0	0	0	0	0	0	0
United Kingdom	3 561 468	8 828 290	5 266 822	0	0	0	0	1 707 740
<b>Total</b>	<b>170 619 999</b>	<b>172 525 433</b>	<b>1 905 434</b>	<b>81 833 915</b>	<b>56 840 438</b>	<b>143 201 274</b>	<b>0</b>	<b>101 307 151</b>

*Note:* Completed transactions of AAUs, ERUs, RMUs, CERs, ICERs and tCERs have been accounted for.

<sup>a</sup> Acquisition from another national registry. See decision 13/CMP.1, annex, para. 30.

<sup>b</sup> Transfer to another national registry. See decision 13/CMP.1, annex, para. 30.

<sup>c</sup> Net transfer is equal to transfer minus acquisition.

<sup>d</sup> Forwarding from the CDM registry to a national registry. See decision 3/CMP.1, annex, para. 66(b). Transfers from the CDM registry to a national registry in support of the Adaptation Fund are excluded.

<sup>e</sup> Transfer within the registry. See decision 13/CMP.1, annex, para. 30.

<sup>f</sup> See decisions 3/CMP.1, annex, paras. 64–66; 5/CMP.1, annex, paras. 36–37; and 13/CMP.1, annex, paras. 23–29. Issuance of ERUs by converting AAUs or RMUs is included.

<sup>g</sup> See decision 13/CMP.1, annex, para. 34.

<sup>h</sup> See decision 13/CMP.1, annex, para. 33.

<sup>i</sup> Not currently connected to the ITL.

## Annex IV

**Scale of international transaction log fees and status of fee payments  
for the 2022–2023 as at 30 September 2022**

Party	Scale of fees (%)	2022				2023			
		Budgeted (EUR)	Balance of fees after credit from unspent balances (EUR)	Received (EUR)	Outstanding (EUR)	Budgeted (EUR)	Balance of fees after credit from unspent balances (EUR)	Received (EUR)	Outstanding (EUR)
Australia	2.841	56 204	19 726	19 726	0	56 204	19 726	0	19 726
Austria	1.588	31 422	11 029	11 029	0	31 422	11 029	0	11 029
Belarus <sup>a</sup>	0.073	–	–	–	–	–	–	–	–
Belgium	1.973	39 035	13 700	13 700	0	39 035	13 700	0	13 700
Bulgaria	0.036	703	247	247	0	703	247	0	247
Croatia	0.079	1 572	552	552	0	1 572	552	0	552
Cyprus	0.061	1 207	424	424	0	1 207	424	0	424
Czechia	0.503	9 950	3 492	3 492	0	9 950	3 492	0	3 492
Denmark	1.323	26 168	9 184	9 184	0	26 168	9 184	0	9 184
Estonia	0.028	559	196	196	0	559	196	0	196
European Union	2.685	53 122	18 645	18 645	0	53 122	18 645	0	18 645
Finland	1.009	19 962	7 006	7 006	0	19 962	7 006	0	7 006
France	10.667	211 061	74 078	74 078	0	211 062	74 078	0	74 078
Germany	15.35	303 714	106 597	106 597	0	303 714	106 597	0	106 597
Greece	1.065	21 079	7 398	7 398	0	21 079	7 398	1 272	6 126
Hungary	0.437	8 647	3 035	3 035	0	8 647	3 035	0	3 035
Iceland	0.737	14 584	5 119	5 119	0	14 584	5 119	0	5 119
Ireland	0.797	15 763	5 532	5 532	0	15 763	5 532	0	5 532
Italy	9.090	179 847	63 122	63 122	0	179 847	63 122	0	63 122
Japan	14.939	295 585	103 744	0	103 744	295 585	103 744	0	103 744
Kazakhstan <sup>a</sup>	0.157	–	–	–	–	–	–	–	–
Latvia	0.032	641	225	225	0	641	225	0	225
Liechtenstein	0.188	3 724	1 307	1 307	0	3 724	1 307	0	1 307
Lithuania	0.055	1 096	385	385	0	1 096	385	0	385
Luxembourg	0.153	3 020	1 060	1 060	0	3 020	1 060	0	1 060
Malta	0.021	416	146	146	0	416	146	0	146
Monaco	0.181	3 579	1 256	1 256	0	3 579	1 256	1 256	0
Netherlands	3.352	66 320	23 277	23 277	0	66 320	23 277	0	23 277
New Zealand	0.961	19 011	6 672	6 672	0	19 011	6 672	0	6 672
Norway	2.319	45 882	16 104	16 104	0	45 882	16 104	0	16 104
Poland	0.896	17 728	6 222	6 222	0	17 728	6 222	0	6 222
Portugal	0.943	18 659	6 549	6 549	0	18 659	6 549	0	6 549
Romania	0.125	2 482	871	0	871	2 482	871	0	871
Russian Federation <sup>a</sup>	2.743	–	–	–	–	–	–	–	–
Slovakia	0.113	2 234	784	784	0	2 234	784	0	784
Slovenia	0.171	3 393	1 191	1 191	0	3 393	1 191	0	1 191
Spain	5.311	105 086	36 883	36 883	0	105 086	36 883	0	36 883
Sweden	1.917	37 938	13 316	13 316	0	37 938	13 316	0	13 316

<i>Party</i>	<i>Scale of fees (%)</i>	<i>2022</i>				<i>2023</i>			
		<i>Budgeted (EUR)</i>	<i>Balance of fees after credit from unspent balances (EUR)</i>	<i>Received (EUR)</i>	<i>Outstanding (EUR)</i>	<i>Budgeted (EUR)</i>	<i>Balance of fees after credit from unspent balances (EUR)</i>	<i>Received (EUR)</i>	<i>Outstanding (EUR)</i>
Switzerland	2.760	54 611	19 167	19 167	0	54 611	19 167	0	19 167
Ukraine	0.745	14 749	5 177	0	5 177	14 749	5 177	0	5 177
United Kingdom	11.888	235 221	82 556	82 556	0	235 221	82 556	0	82 556
<b>Total</b>	–	<b>1 925 974</b>	<b>675 974</b>	<b>566 182</b>	<b>109 792</b>	<b>1 925 974</b>	<b>675 974</b>	<b>2 528</b>	<b>673 446</b>

<sup>a</sup> Not currently connected to the ITL but will be subject to ITL fees in case of connection or reconnection to the ITL in accordance with decision 5/CMP.15, paras. 11–13.

## Annex V

### Fees for international transaction log activities and cumulative shortfall

Table V.1

#### Fees for international transaction log activities in 2007–2009 and cumulative shortfall as at 30 September 2022

(United States dollars)

	2007	2008	2009
Fees budgeted	2 500 000	4 518 060	4 745 741
Fees received	1 963 788	4 518 060	4 745 741
Shortfall	536 212	0	0
Cumulative shortfall	536 212	536 212	536 212

Table V.2

#### Fees for international transaction log activities in 2010–2016 and cumulative shortfall as at 30 September 2022

(Euros)

	2010 <sup>a</sup>	2011	2012	2013	2014	2015	2016
Fees budgeted original	3 014 423	3 014 423	2 885 010	2 885 010	2 740 760	2 740 760	2 675 679 <sup>c</sup>
Fees budgeted revised	–	–	–	–	–	–	2 602 275 <sup>d</sup>
Fees received	3 014 423	3 014 423	2 885 010	2 759 483	2 740 760	2 740 760	2 602 275
Shortfall	0	0	0	125 527 <sup>b</sup>	0	0	0
Cumulative shortfall	374 812	374 812	374 812	500 339	374 812	374 812	374 812

<sup>a</sup> The shortfall for 2009 in United States dollars was carried over to 2010 in euros using the average exchange rate of EUR 0.699 applicable on the day of conversion.

<sup>b</sup> Canada's shortfall of EUR 125,527 was not carried over to 2014 and the following years owing to Canada's withdrawal from the Kyoto Protocol and the resulting disconnection of its registry from the ITL.

<sup>c</sup> The amount of fees budgeted for the biennium 2016–2017 as per decision 8/CMP.11.

<sup>d</sup> The amount of fees budgeted for the biennium 2016–2017 decreased resulting from the disconnection of a Party from the ITL in 2015.

Table V.3

#### Fees for international transaction log activities in 2017–2022 and cumulative shortfall as at 30 September 2022

(Euros)

	2017	2018	2019	2020	2021	2022
Fees budgeted original	2 675 675	1 352 260	1 352 260	1 055 388	1 055 388	675 974
Fees budgeted revised	2 602 275	–	–	–	–	–
Fees received	2 602 275	1 352 260	1 352 260	1 025 918	1 036 814	566 182
Shortfall	0	0	0	0	0	109 792
Cumulative shortfall	374 812	374 812	374 812	374 812	374 812	484 604