



United Nations

FCCC/SBI/2021/15



Framework Convention on
Climate Change

Distr.: General
14 October 2021

English only

Subsidiary Body for Implementation

Fifty-second to fifty-fifth session

Glasgow, 31 October to 6 November 2021

Item 6(c) of the provisional agenda

Matters relating to the mechanisms under the Kyoto Protocol

**Report of the administrator of the international transaction log
under the Kyoto Protocol (for 2020 and 2021)**

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

Summary

This seventeenth 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 period from 1 October 2020 to 30 September 2021. It contains information on transactions of Kyoto Protocol units, as requested by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its sixth session, and information on the outcomes of the 23rd Registry System Administrators Forum.



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
NIR	national inventory report
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

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.1.¹ 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.²
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.³

B. Scope of the report

4. This seventeenth annual report of the ITL administrator to the CMP, covering the reporting period from 1 October 2020 to 30 September 2021, 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.
6. The SBI may also wish to provide guidance to the ITL administrator on finalizing the data exchange standards,⁴ as divergent views on implementing the carry-over process for Parties included in Annex I⁵ without quantified emission limitation or reduction commitments for the second commitment period of the Kyoto Protocol have meant that the work could not be completed.
7. The SBI may further wish to provide guidance to the ITL administrator with regard to the expiry date of tCERs issued for the second commitment period.

II. Work undertaken in the reporting period

A. Summary

8. The ITL administrator convened the 23rd RSA Forum and continued to coordinate the tasks of its working groups.
9. Activities related to the thirteenth annual assessment of national registries and the accounting of Kyoto Protocol units were conducted, including generating SIARs on the basis of information on changes in national registries and the SEF tables contained in the NIRs for 2020.

¹ Decision 13/CMP.1, annex, para. 38.

² Decision 16/CP.10, para. 6(m).

³ Decision 12/CMP.1, para. 11.

⁴ See decision 24/CP.8, para. 3.

⁵ As defined in Article 1, para. 7, of the Kyoto Protocol.

10. The administrator continued to support the operations of the ITL. Detailed information on its operational activities and performance is provided in chapter II.C below.

B. Implementation activities

1. Software releases

11. During the reporting period there were two releases of ITL software. A first release was deployed at the end of 2020 with minor updates to address application log issues and improve the logging mechanism. Another software release was carried out in July 2021 in order to simplify the code logic for accounting quantity limits and levels in the second commitment period and to ensure compatibility with more recent versions of the database system used in the ITL.

2. Standard electronic format reporting application

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

13. CMP 11 requested the ITL administrator to develop an application to facilitate the submission of the SEF tables for reporting Kyoto Protocol units for the second commitment period and to report on progress in developing and testing that application in its annual report.⁷ The ITL administrator developed an application to enable the preparation of the SEF tables, as specified in its eleventh annual report.⁸

14. During the reporting period, the ITL administrator prepared and released version 3.8.3 of the SEF reporting application, which was successfully used by Parties to generate the SEF reports for the 2021 reporting cycle.

3. Common operational procedures

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

4. Maintenance and technology refresh

16. To replace the vendor-operated certificate authority used to issue digital certificates for national registries, which is set to expire in January 2022, the ITL administrator introduced a consolidated certificate authority in March 2021 to further manage both client and server digital certificates. This new certificate authority is operated and managed by the ITL administrator to reduce operational costs and minimize delays to certificate procurement. The progressive migration and renewal of existing digital certificates under the new certificate authority was initiated in May 2021 and completion is scheduled for January 2022.

17. To maintain the ITL service and protect against cybersecurity threats, regular software patching was carried out for the ITL components, including operating systems, application servers and database servers, and network components. In addition, a security audit of the ITL service was conducted in the last quarter of 2020 to identify any open vulnerabilities on the service following the migration to the cloud in 2019. No critical vulnerabilities were detected, and remediation work was carried out for the lower-rated findings as per the recommendations.

18. To comply with industry security standards, earlier versions of the Transport Layer Security encryption protocol used for communication between the ITL and national registries were phased out.

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

⁷ Decision 3/CMP.11, para. 19.

⁸ FCCC/SBI/2015/INF.12, para. 13.

5. Data centre hosting and infrastructure

19. Following 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 the agreed levels.

20. Jointly with the cloud service provider, the ITL administrator carried out specific 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 the service delivery arrangements by keeping abreast of new developments and emerging products in the cloud technology landscape.

C. Operational activities

1. Provision of support for registry testing

22. The ITL administrator supported the functional testing for the second commitment period of one national registry.⁹ It also supported operational activities and changes for six national registries, including service migration, connectivity support and disaster recovery testing, and initialization testing for one national registry.

2. Disaster recovery testing

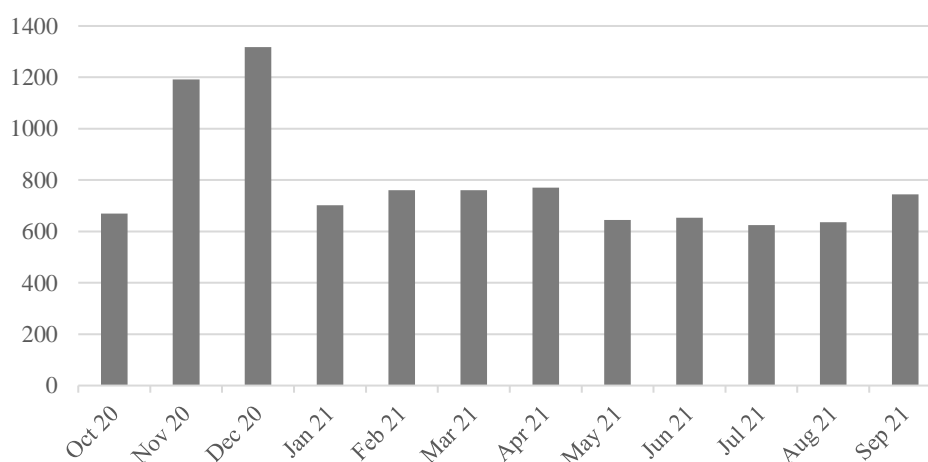
23. In November 2020, disaster recovery testing was successfully carried out on the ITL infrastructure for the first time since the cloud migration in 2019. The testing was based on a fully rewritten plan that reflects the new ITL architecture. The service on the secondary site was restored well within the three-hour recovery time target. Issues with the standby instance were identified during the test and addressed shortly thereafter. The next disaster testing exercise is scheduled for November 2021 and will ensure that the findings from the previous test have been addressed.

3. Transaction data and their analysis

24. The level of activity in the ITL can be measured using various transactional and operational metrics. Figure 1 shows the number of transactions proposed to the ITL in the production environment¹⁰ each month during the reporting period. The breakdowns by registry of the number of transactions and the number of Kyoto Protocol units subject to transactions proposed to the ITL in the reporting period are shown in annexes II and III, respectively.

Figure 1

Number of transactions proposed to the international transaction log



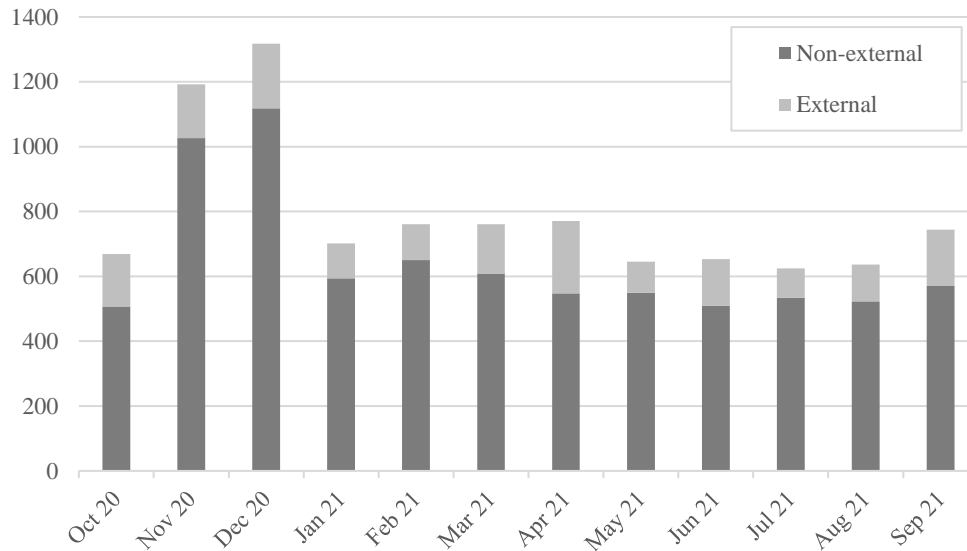
⁹ In accordance with annex H to the data exchange standards, which contains functional test suites covering modalities, rules and guidelines for emissions trading under Article 17 of the Kyoto Protocol.

¹⁰ The live system of the ITL used to support emissions trading under the Kyoto Protocol.

25. 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 during the reporting period.

Figure 2

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



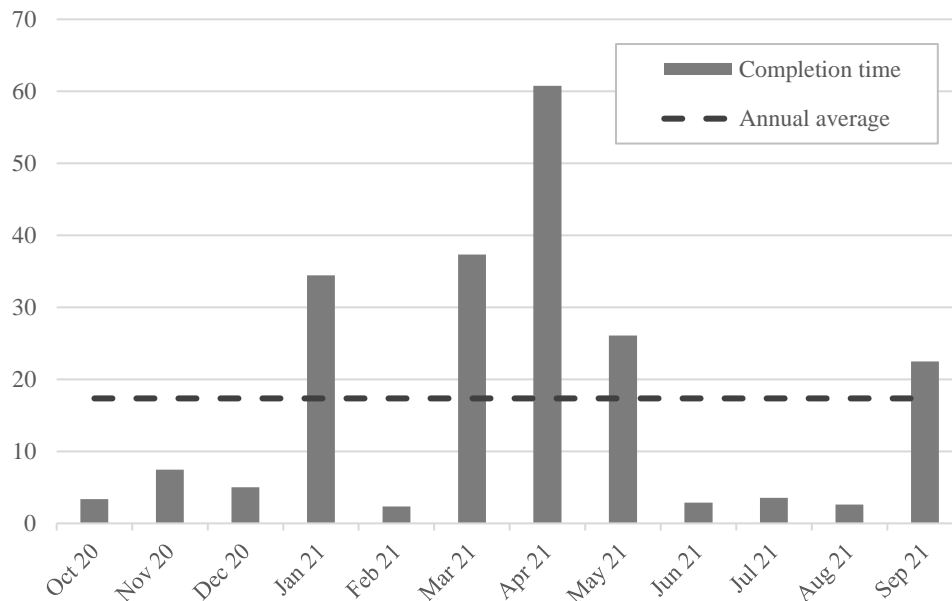
26. Transactions proposed to the ITL end with the status terminated, cancelled or completed.

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). The monthly average transaction completion times in the reporting period are shown in figure 3.

Figure 3

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

(Seconds)



28. The longer average transaction completion times observed in January, March, April, May and September are due to unexpected national registry downtime, which caused some ongoing transactions to take longer to complete.

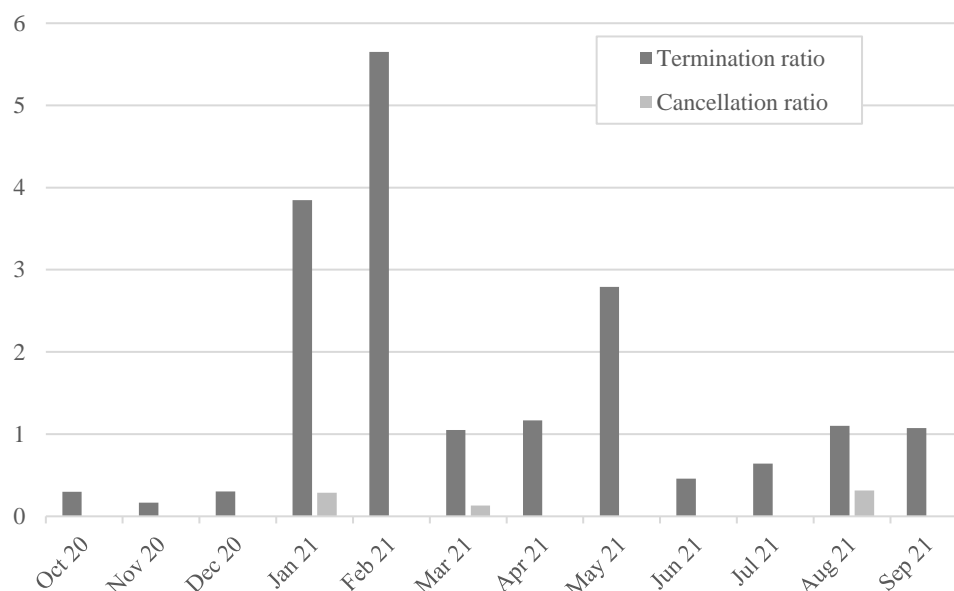
29. Transactions that are not compliant with the data exchange standards are terminated by the ITL. The transaction termination ratio, an indicator of the level of internal checking performed by registries to ensure that the proposed transaction is accurate, is obtained by dividing the number of terminated transactions by the number of transactions proposed in a given time frame. The evolution of the termination ratio in the reporting period 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. Figure 4 also provides the transaction cancellation ratios in the reporting period.

Figure 4

International transaction log transaction cancellation and termination ratios

(Per cent)

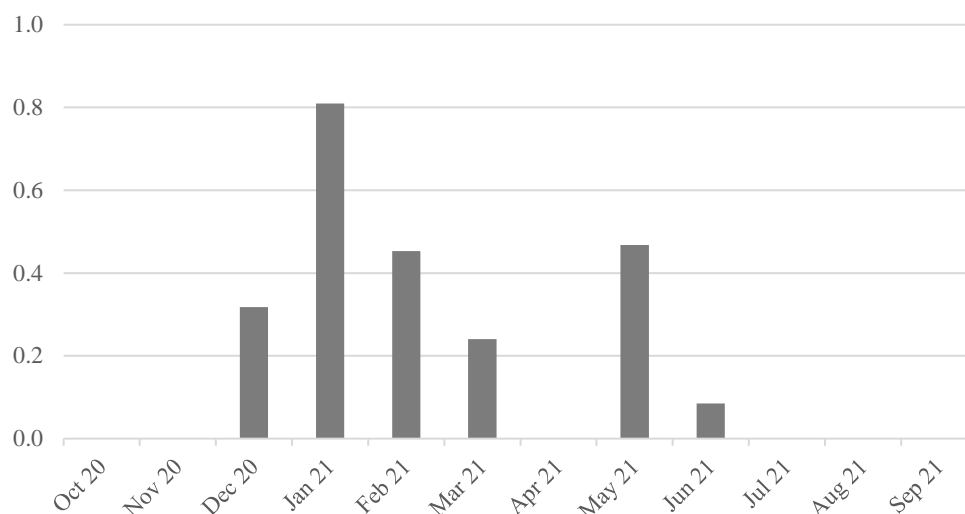


31. The higher termination ratios observed in January and February are due to failed second commitment period reserve checks for transfers after assigned amount limits were set and before their actual issuance in national registries. The higher termination ratio in May was due to operational issues on the side of national registries.

32. 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. Figure 5 shows the inconsistent reconciliation ratios in the reporting period.

Figure 5
International transaction log inconsistent reconciliation ratios

(Per cent)



33. 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. Given that there were no unplanned outages during the reporting period, the availability of the ITL was 100 per cent. The availability of the ITL taking into account planned outages was 99.37 per cent.

34. 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 2021, 683,205,766 CERs for the second commitment period had been issued for 1,467 CDM projects.

4. Status of carry-over

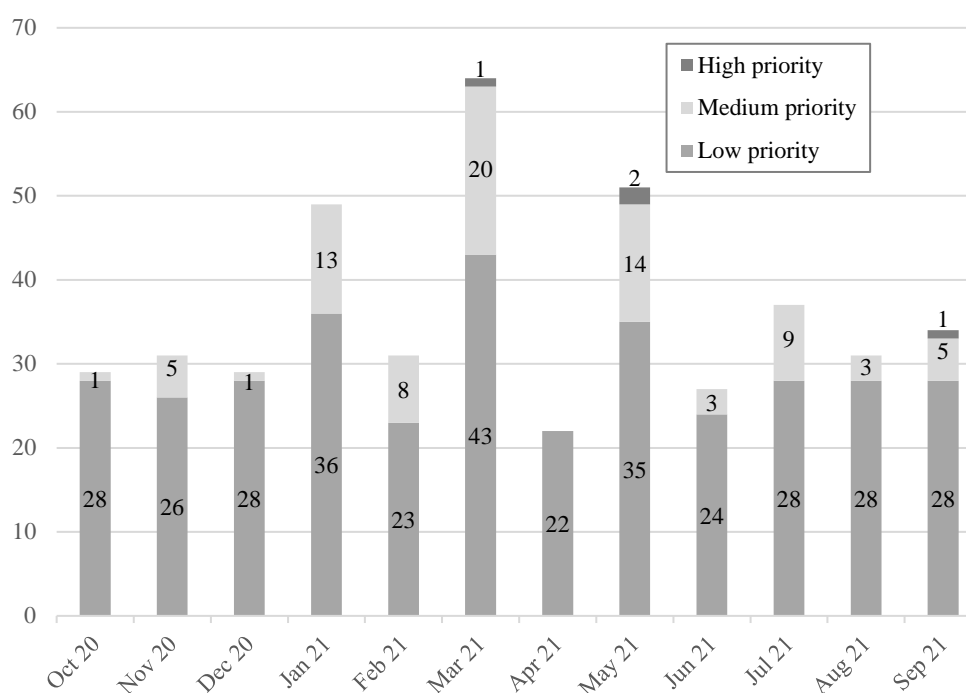
35. Following completion of the true-up period, 20 Parties carried over units issued for the first commitment period to the second commitment period. A total of 137,153,029 CERs, 168,128,873 ERUs and 1,116,485,770 AAUs had been carried over as at 30 September 2021.

5. Service desk

36. 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 the 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).

37. Figure 6 tracks the number of support requests handled by the ITL service desk during the reporting period, 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 the 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**

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

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

40. Owing to diverging 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 with complete support for the second commitment period processes. 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 all Kyoto Protocol units.

41. 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 with regard to the expiration date of these tCERs, which are due to expire at the end of the commitment period following the one during which they were issued.

7. Communications

42. 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. This platform will be transitioned to Microsoft Teams in 2021.

43. 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 13 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 accounting framework of the Kyoto Protocol.

D. Independent assessment of national registries and go-live activities

1. Annual assessment activities

44. The process of creating the SIARs¹¹ 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, and guides the activities carried out by assessors when reviewing reported changes and accounting information. The final SIARs are forwarded to the expert review teams for consideration as part of the review of national registries.¹²

45. The ITL administrator continues to encourage and promote the engagement of RSAs in the SIAR process¹³ with a view to stimulating the sharing of information on national registry related reporting and review and thus improving the quality of the information on national registries in the annual submissions and optimizing the ITL cost structure.

46. Before a registry assessment by the SIAR assessors, a Party submits an NIR and an SEF report to the secretariat. During the reporting period, 38 Parties submitted their NIRs with information on changes in their national registries and SEF reports with information on transactions applicable to the second commitment period.

47. The following issues regarding the assessed registries were identified and addressed in the recommendations provided by the assessors in the final SIARs:

(a) Some Parties did not fully comply with the requirement contained in decision 13/CMP.1, annex, paragraphs 44–48, to make information publicly accessible;

(b) Some Parties did not fully comply with the requirement contained in decision 15/CMP.1, annex, paragraph 32, to provide complete information on changes to their national registry;

(c) Some Parties did not take action after receiving a notification about the impending expiry of tCERs or ICERs.

2. Go-live activities

48. Since no go-live processes were initiated by registries, the ITL administrator did not need to provide relevant support. As at 30 September 2021, 38 national registries and the CDM registry were connected to the ITL (see annex I).

E. 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 one another and to provide input to the development of common operational procedures, recommended practices and information-sharing measures for registry systems.¹⁴

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 23rd RSA Forum took place virtually from 21 to 22 September 2021, with 70 participants registered. Presentations and discussions on the operations of registry systems covered:

(a) The status of ITL operations;

(b) The long-term preservation of registry system records;

(c) The implementation of the new certificate authority for registry systems;

¹¹ See decision 16/CP.10, para. 5(a).

¹² As per decision 16/CP.10, para. 6(k).

¹³ As per decision 16/CP.10, para. 6(c).

¹⁴ As per decision 16/CP.10.

- (d) The true-up period for the second commitment period;
 - (e) The reporting processes for the independent assessment of national registries conducted during the reporting period and preparations for the next reporting cycle.
52. Presentations were made and discussions held to promote information-sharing among RSAs and to provide feedback on related or emerging initiatives on the following matters:
- (a) The status of the CDM;
 - (b) The status of negotiations under Article 6 of the Paris Agreement;
 - (c) The Carbon Offsetting and Reduction Scheme for International Aviation;
 - (d) The Climate Warehouse initiative of the World Bank.
53. During the Forum, RSAs agreed to:
- (a) Explore in more detail the long-term preservation of national registry records;
 - (b) Streamline the annual SIAR process by focusing the assessments on the SEF tables;
 - (c) Transition to the new certificate authority in 2021, or by early 2022 at the latest.

F. Other activities

54. 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 40.¹⁵
55. 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.
56. Following the discussions at the 23rd RSA Forum, RSAs, in collaboration with the ITL administrator, will in early 2022 further explore operationalizing the long-term preservation of registry system records.
57. 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

58. Effective from 1 March 2020, the functions of the ITL administrator have been assumed 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

59. The resource requirements for activities relating to the ITL and its administrator, to be funded from supplementary sources for the bienniums 2006–2007,¹⁶ 2008–2009,¹⁷ 2010–

¹⁵ FCCC/SBI/2014/8, para. 72.

¹⁶ See document FCCC/SBI/2005/8/Add.2.

¹⁷ See document FCCC/SBI/2007/8/Add.2.

2011,¹⁸ 2012–2013,¹⁹ 2014–2015,²⁰ 2016–2017,²¹ 2018–2019,²² 2020–2021²³ and 2022–2023,²⁴ were identified in the proposed programme budgets for the respective bienniums.

60. The budget for the ITL for the biennium 2020–2021²⁵ is EUR 4,610,775, including a working capital reserve of EUR 192,339.

61. CMP 3 requested the Executive Secretary to provide a breakdown of expenditure on the development and operation of the ITL with a view to optimizing its cost structure.²⁶ Table 1 shows the expenditure of the ITL in the biennium 2020–2021 as at 30 September 2021 by object of expenditure.

Table 1

Expenditure of the international transaction log in the biennium 2020–2021 as at 30 September 2021

(Euros)

<i>Object of expenditure</i>	<i>Expenditure</i>
Staff costs	816 463
Contractual and consultancy services	1 097 301 ^b
Expert groups	—
Travel of staff	–2 ^a
General operating expenses	3 930 ^b
Contributions to common services	90 267
Programme support costs	246 357
Total expenditure	2 254 316

^a Negative expenditure is attributed to the cancellation of commitments from previous years and refunds.

^b EUR 178,517 was obligated for contractual services and general operating expenses until the end of 2021 but not spent in the first nine months of 2021.

62. Table 2 shows the expected percentage breakdown of estimated expenditure on contractors and consultants in 2021. Operational services are activities performed by the developer and operators of the ITL to sustain its operations, such as infrastructure maintenance and the service desk. Software maintenance services are services 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 2021

<i>Object of expenditure</i>	<i>% of total expenditure</i>
Operational services	81
Production and disaster recovery environments	58
Service desk	12
Registry developer support	3
Security and disaster recovery testing	8
Software maintenance services	15
Consultancy	4

¹⁸ See document FCCC/SBI/2009/2/Add.3.

¹⁹ See document FCCC/SBI/2011/2/Add.3.

²⁰ See document FCCC/SBI/2013/6/Add.3.

²¹ See document FCCC/SBI/2015/3/Add.3.

²² See document FCCC/SBI/2017/4/Add.2.

²³ See document FCCC/SBI/2019/4/Add.2.

²⁴ See document FCCC/SBI/2021/4/Add.2.

²⁵ Decision 5/CMP.15, paras. 1–2.

²⁶ Decision 11/CMP.3, para. 14.

63. 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.²⁷

64. In 2021 the focus of the ITL was on ensuring that registry systems operate securely and reliably, and optimizing the delivery of all operational activities.

65. 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.

66. 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;

(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 the 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 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.

B. Income for activities

67. The scale of ITL fees and the status of fee payments for the biennium 2020–2021 as at 30 September 2021 are shown in annex IV. The status of fees as at 30 September 2021 is shown in annex V. A total of 11 Parties were credited with advances towards their 2022 ITL fees. The secretariat would like to express its gratitude to Parties that have paid their fees and remind Parties with outstanding fees to pay them without delay.

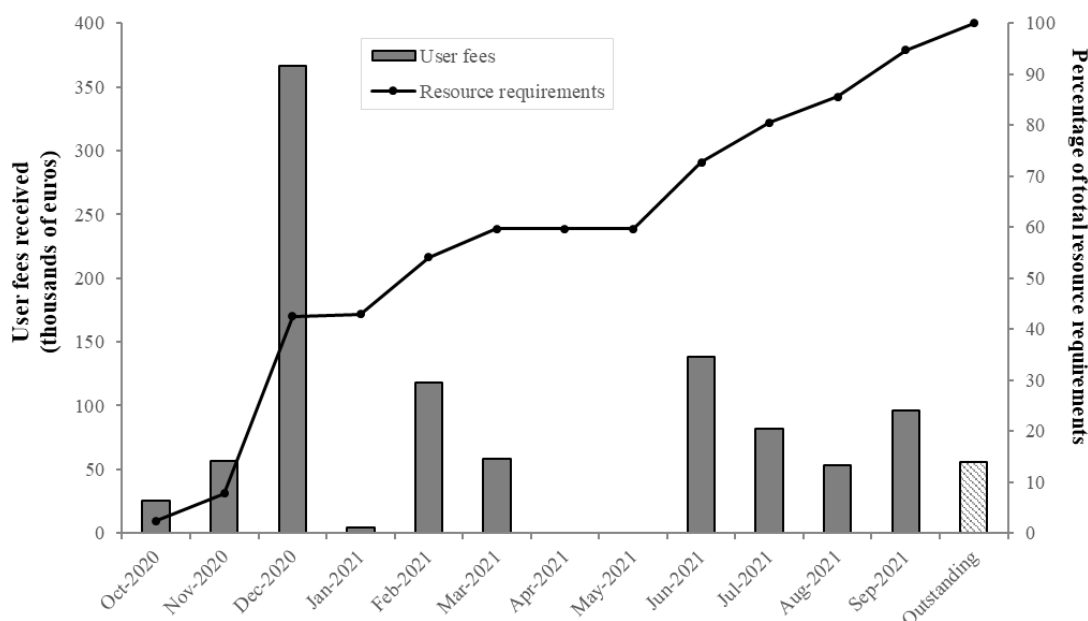
68. Delays in receiving user fees from Parties have been noted in previous annual reports of the ITL administrator. As at 30 September 2021, EUR 55,764 was still due for 2021 (5.3 per cent of the fees budgeted for 2021). Figure 7 shows the user fees that had been

²⁷ FCCC/KP/CMP/2008/11, para. 72.

received for 2021 in 2020 and 2021 as at 30 September 2021 and the cumulative percentage of resource requirements by month.

Figure 7

International transaction log user fees for 2021 received in 2020 and 2021 as at 30 September 2021



69. 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.²⁸

70. As at 31 December 2020, the unspent balance of the Trust Fund for the International Transaction Log was USD 8,841,581, not including the operating reserve of USD 235,999.²⁹

C. Optimization of the cost structure

71. The ITL administrator continues to seek ways to optimize the ITL cost structure and is currently considering or continuing the following measures:

- (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 optimizing the costs associated with these activities;
- (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.

²⁸ Decision 7/CMP.13, para. 7.

²⁹ These are preliminary figures.

72. During the reporting period, a further review of the processes and functions underpinning the ITL was completed with the following outcomes:

(a) The SIAR process has been simplified for the true-up period of the second commitment period by delaying the review of the changes to national registries and public information provided by those registries until the review of the true-up 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 that would otherwise be performed by consultants and contractors, such as managing digital certificates;

(b) The management of digital certificates has been streamlined in two ways. Firstly, digital certificates are now created and managed by the ITL administrator itself, thereby avoiding the cost of procuring them from an external vendor. Secondly, the processes related to issuing, renewing and revoking certificates have also been internalized, removing these functions from the purview of third-party vendors.

73. The ITL administrator is also considering a more detailed review of the ITL cloud operations model and the infrastructure support function, which are linked to a significant portion of operational costs. In particular, in the last quarter of 2021, the ITL administrator will carefully consider insourcing opportunities for activities and components with a view to optimizing the future operational costs of the ITL.

Annex I

Registry status as at 30 September 2021

<i>Registry</i>	<i>Issue date of SIAR</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 ^a	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

^a 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 2020 and 30 September
2021**

<i>Registry</i>	<i>Acquisition^a</i>	<i>Transfer^b</i>	<i>Forwarding^c</i>	<i>Internal transfer^d</i>	<i>Issuance^e</i>	<i>Retirement^f</i>	<i>Cancellation^g</i>	<i>Total</i>
CDM	0	23	563	0	455	0	4 044	5 085
Australia	84	102	0	0	1	0	467	654
Austria	2	9	0	1	1	0	9	22
Belarus ^h	0	0	0	0	0	0	0	0
Belgium	1	0	0	0	1	0	1	3
Bulgaria	0	0	0	0	1	0	3	4
Croatia	0	0	0	0	1	0	0	1
Cyprus	0	0	0	0	1	0	0	1
Czechia	2	14	0	0	1	0	1	18
Denmark	8	15	0	0	1	0	9	33
Estonia	0	0	0	0	1	0	0	1
European Union	312	258	0	0	1	0	507	1 078
Finland	16	21	0	2	1	0	2	42
France	36	11	0	0	1	0	17	65
Germany	77	147	0	0	1	0	196	421
Greece	3	0	0	0	1	0	0	4
Hungary	0	0	0	0	1	0	0	1
Iceland	0	0	0	0	1	0	0	1
Ireland	33	0	0	0	1	0	2	36
Italy	3	3	0	1	1	0	3	11
Japan	0	0	0	0	0	0	0	0
Kazakhstan ^h	0	0	0	0	0	0	0	0
Latvia	1	1	0	0	1	0	0	3
Liechtenstein	0	0	0	0	0	0	0	0
Lithuania	0	2	0	0	1	0	6	9
Luxembourg	1	0	0	0	1	0	0	2
Malta	4	0	0	0	2	0	0	6
Monaco	4	0	0	0	1	0	0	5
Netherlands	93	161	0	0	1	0	103	358
New Zealand	0	0	0	0	0	0	577	577
Norway	14	5	0	10	1	0	30	60
Poland	0	0	0	2	1	0	0	3
Portugal	0	0	0	0	1	0	0	1
Romania	1	0	0	0	1	0	6	8
Russian Federation ^h	0	0	0	0	0	0	0	0
Slovakia	0	0	0	0	1	0	0	1
Slovenia	51	55	0	0	1	0	5	112
Spain	15	20	0	0	1	0	51	87
Sweden	29	30	0	10	1	0	119	189
Switzerland	243	177	0	228	1	0	283	932
Ukraine	0	0	0	0	0	0	0	0
United Kingdom	15	17	0	2	1	0	17	52
Total	1 048	1 071	563	256	490	0	6 458	9 886

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

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

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

^c 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.

^d Transfer within the registry. See decision 13/CMP.1, annex, para. 30.

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

^f See decision 13/CMP.1, annex, para. 34.

^g See decision 13/CMP.1, annex, para. 33.

^h 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 2020 and 30 September 2021

<i>Registry</i>	<i>Acquisition^a</i>	<i>Transfer^b</i>	<i>Net transfer^c</i>	<i>Forwarding^d</i>	<i>Internal transfer^e</i>	<i>Issuance^f</i>	<i>Retirement^g</i>	<i>Cancellation^h</i>
CDM	0	2 186 363	2 186 363	64 755 207	0	79 746 414	0	33 214 414
Australia	14 230 883	21 407 332	7 176 449	0	0	4 511 619 826	0	10 176 926
Austria	27 075	4 736 690	4 709 615	0	2 631	405 712 317	0	292 854
Belarus ⁱ	0	0	0	0	0	0	0	0
Belgium	987 314	0	−987 314	0	0	584 228 513	0	1 875 593
Bulgaria	0	0	0	0	0	222 945 983	0	1 328 472
Croatia	0	0	0	0	0	162 271 086	0	0
Cyprus	0	0	0	0	0	47 450 128	0	0
Czechia	2 638	49 112	46 474	0	0	520 515 203	0	14 843
Denmark	542 367	4 942 368	4 400 001	0	0	269 377 890	0	332 917
Estonia	0	0	0	0	0	51 056 976	0	0
European Union	27 022 822	21 274 108	−5 748 714	0	0	15 813 089 338	0	4 443 780
Finland	297 942	866 655	568 713	0	44 210	240 544 599	0	11 451
France	4 511 083	420 778	−4 090 305	0	0	3 014 714 832	0	307 776
Germany	9 829 816	10 953 289	1 123 473	0	0	3 592 699 888	0	4 650 910
Greece	240 000	0	−240 000	0	0	480 791 166	0	0
Hungary	0	0	0	0	0	434 486 280	0	0
Iceland	0	0	0	0	0	15 327 217	0	0
Ireland	1 598 182	0	−1 598 182	0	0	343 519 892	0	2
Italy	32 000	47 570	15 570	0	1 025	2 410 291 421	0	6 720
Japan	0	0	0	0	0	0	0	0
Kazakhstan ⁱ	0	0	0	0	0	0	0	0
Latvia	7 167	7 167	0	0	0	76 633 439	0	0
Liechtenstein	0	0	0	0	0	0	0	0
Lithuania	0	1 529 913	1 529 913	0	0	113 600 821	0	40 016
Luxembourg	11 620	0	−11 620	0	0	72 454 473	0	0
Malta	155	0	−155	0	0	9 299 769	0	0

<i>Registry</i>	<i>Acquisition^a</i>	<i>Transfer^b</i>	<i>Net transfer^c</i>	<i>Forwarding^d</i>	<i>Internal transfer^e</i>	<i>Issuance^f</i>	<i>Retirement^g</i>	<i>Cancellation^h</i>
Monaco	20 072	0	-20 072	0	0	619 751	0	0
Netherlands	7 862 869	17 265 427	9 402 558	0	0	924 777 902	0	1 226 452
New Zealand	0	0	0	0	0	0	0	14 417 391
Norway	158 007	250 550	92 543	0	2 146 795	348 914 303	0	31 803
Poland	0	0	0	0	19 375	1 583 938 824	0	0
Portugal	0	0	0	0	0	429 581 969	0	0
Romania	297	0	-297	0	0	656 059 490	0	42 005
Russian Federation ⁱ	0	0	0	0	0	0	0	0
Slovakia	0	0	0	0	0	202 268 939	0	0
Slovenia	10 270 283	8 772 950	-1 497 333	0	0	99 425 782	0	398 511
Spain	463 123	456 737	-6 386	0	0	1 766 877 232	0	379 955
Sweden	1 752 366	799 567	-952 799	0	156 268	315 554 578	0	4 725 040
Switzerland	25 387 612	21 248 205	-4 139 407	0	12 216 979	361 768 524	0	13 095 390
Ukraine	0	0	0	0	0	0	0	0
United Kingdom	12 124 819	2 352 094	-9 772 725	0	124 178	2 744 937 332	0	1 722 194
Total	117 380 512	119 566 875	2 186 363	64 755 207	14 711 461	42 907 102 097	0	92 735 415

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

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

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

^c Net transfer is equal to transfer minus acquisition.

^d 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.

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

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

^g See decision 13/CMP.1, annex, para. 34.

^h See decision 13/CMP.1, annex, para. 33.

ⁱ Not currently connected to the ITL.

Annex IV

**Scale of international transaction log fees and status of fee payments
for the biennium 2020–2021 as at 30 September 2021**

Party	Scale of fees (%)	2020				2021			
		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	67 287	30 803	30 803	0	67 287	30 803	30 803	0
Austria	1.588	37 610	17 218	17 218	0	37 610	17 218	0	17 218
Belarus ^a	0.073	–	–	–	–	–	–	–	–
Belgium	1.973	46 729	21 392	21 392	0	46 729	21 392	21 392	0
Bulgaria	0.036	853	390	390	0	853	390	390	0
Croatia	0.079	1 871	857	857	0	1 871	857	857	0
Cyprus	0.061	1 445	662	662	0	1 445	662	662	0
Czechia	0.503	11 913	5 454	5 454	0	11 913	5 454	5 454	0
Denmark	1.323	31 334	14 344	14 344	0	31 334	14 344	14 344	0
Estonia	0.028	663	304	304	0	663	304	304	0
European Union	2.685	63 592	29 112	29 112	0	63 592	29 112	0	29 112
Finland	1.009	23 897	10 940	10 940	0	23 897	10 940	10 940	0
France	10.667	252 638	115 656	115 656	0	252 638	115 656	115 656	0
Germany	15.35	363 551	166 431	166 431	0	363 551	166 431	166 431	0
Greece	1.065	25 224	11 547	11 547	0	25 224	11 547	11 547	0
Hungary	0.437	10 350	4 738	4 738	0	10 350	4 738	4 738	0
Iceland	0.737	17 455	7 991	7 991	0	17 455	7 991	7 991	0
Ireland	0.797	18 876	8 641	8 641	0	18 876	8 641	8 641	0
Italy	9.090	215 289	98 558	98 558	0	215 289	98 558	98 558	0
Japan	14.939	353 817	161 971	161 971	0	353 817	161 971	161 971	0
Kazakhstan ^a	0.157	–	–	–	–	–	–	–	–
Latvia	0.032	758	347	347	0	758	347	347	0
Liechtenstein	0.188	4 453	2 039	2 039	0	4 453	2 039	2 039	0
Lithuania	0.055	1 303	597	597	0	1 303	597	597	0
Luxembourg	0.153	3 624	1 659	1 659	0	3 624	1 659	1 659	0
Malta	0.021	497	228	228	0	497	228	228	0
Monaco	0.181	4 287	1 963	1 963	0	4 287	1 963	1 963	0
Netherlands	3.352	79 389	36 344	36 344	0	79 389	36 344	36 344	0
New Zealand	0.961	22 760	10 419	10 419	0	22 760	10 419	10 419	0
Norway	2.319	54 923	25 143	25 143	0	54 923	25 143	25 143	0
Poland	0.896	21 221	9 715	9 715	0	21 221	9 715	9 715	0
Portugal	0.943	22 334	10 224	10 224	0	22 334	10 224	10 224	0
Romania	0.125	2 961	1 356	1 356	0	2 961	1 356	0	1 356
Russian Federation ^a	2.743	–	–	–	–	–	–	–	–
Slovakia	0.113	2 676	1 225	1 225	0	2 676	1 225	1 225	0
Slovenia	0.171	4 050	1 854	1 854	0	4 050	1 854	1 854	0
Spain	5.311	125 786	57 584	57 584	0	125 786	57 584	57 584	0
Sweden	1.917	45 402	20 785	20 785	0	45 402	20 785	20 785	0

		2020				2021			
			<i>Balance of fees after credit from unspent balances</i>	<i>Received</i>	<i>Outstanding</i>		<i>Balance of fees after credit from unspent balances</i>	<i>Received</i>	<i>Outstanding</i>
<i>Party</i>	<i>Scale of fees (%)</i>	<i>Budgeted (EUR)</i>	<i>(EUR)</i>	<i>(EUR)</i>	<i>(EUR)</i>	<i>Budgeted (EUR)</i>	<i>(EUR)</i>	<i>(EUR)</i>	<i>(EUR)</i>
Switzerland	2.760	65 368	29 925	29 925	0	65 368	29 925	29 925	0
Ukraine	0.745	17 645	8 078	0	8 078	17 645	8 078	0	8 078
United Kingdom	11.888	281 557	128 894	128 894	0	281 557	128 894	128 894	0
Total	–	2 305 388	1 055 388	1 047 310	8 078	2 305 388	1 055 388	999 624	55 764

^a 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 2021

(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 2010–2021^a and cumulative shortfall as at 30 September 2021

(Euros)

	2011 ^a	2012	2013	2014 ^b	2015 ^b	2016 ^b	2017 ^b	2018 ^b	2019 ^b	2020 ^b	2021 ^b
Fees budgeted original	3 014 423	2 885 010	2 885 010	2 740 760	2 740 760	2 675 679 ^c	2 675 675 ^c	1 352 260	1 352 260	1 055 388	1 055 388
Fees budgeted revised	–	–	–	–	–	2 602 275 ^d	2 602 275 ^d	–	–	–	–
Fees received	3 014 423	2 885 010	2 759 483	2 740 760	2 740 760	2 602 275	2 602 275	1 352 260	1 352 260	1 025 918	999 624
Shortfall	0	0	125 527	0	0	0	0	0	0	8 078	55 764
Cumulative shortfall	374 812	374 812	500 339	374 812	374 812	374 812	374 812	374 812	374 812	382 890	438 654

^a 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. Figures for 2010 are the same as for 2011.

^b 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.

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

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