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Reports on other activities

**Annual report on the technical review of greenhouse gas inventories
of Parties included in Annex I to the Convention**

Technical review of greenhouse gas inventories of Parties included in Annex I to the Convention

Report by the secretariat

Summary

This report provides information on the greenhouse gas inventory reviews conducted in the 2017 and 2018 review cycles, including on the selection of experts and lead reviewers, the composition of the expert review teams and plans for the 2019 review cycle. It also provides information on review training activities under the Convention, the 15th meeting of greenhouse gas inventory lead reviewers and progress made in updating the UNFCCC roster of experts and revising the standardized data comparisons, tools and other materials used in the reviews.

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I. Introduction

A. Mandate

1. The Conference of the Parties (COP), at its ninth session, requested the secretariat to prepare an annual report on greenhouse gas (GHG) inventory review activities, including any recommendations resulting from the meetings of inventory lead reviewers (LRs) participating in the technical review of GHG inventories of Parties included in Annex I to the Convention (Annex I Parties), for consideration by the Subsidiary Body for Scientific and Technological Advice (SBSTA).¹ COP 20 requested the secretariat to report annually to the SBSTA on the composition of expert review teams (ERTs), including the selection of experts and LRs, and on the actions taken to ensure the application of the selection criteria for ERTs.² The collective annual report to the SBSTA prepared by the LRs at their 15th meeting, containing suggestions on how to improve the quality, efficiency and consistency of the reviews,³ is contained in the annex.

2. COP 20 also requested the secretariat to include in the LR report referred to in paragraph 1 above any revised set of the standardized data comparisons, for consideration by the SBSTA, as well as information on the development of new and revised review tools and materials that support the tasks of the ERTs.⁴

3. Furthermore, COP 20 requested the secretariat to include in its report information on the training programme for review experts for the technical review of GHG inventories of Annex I Parties, in particular on examination procedures and the selection of trainees and instructors, in order to allow Parties to assess the effectiveness of the programme.⁵ In addition, the SBSTA requested the secretariat to include in that report information on progress made in updating the UNFCCC roster of experts.⁶

B. Scope of the report

4. This report provides information on activities relating to GHG inventory reviews conducted in the 2017 and 2018 review cycles and plans for the 2019 review cycle.⁷

5. The report focuses on the elements of the GHG inventory review process that are specific to the Convention and should be read in conjunction with the annual report on the technical review of GHG inventories and other information reported by Parties included in Annex I, as defined in Article 1, paragraph 7, of the Kyoto Protocol.⁸ The lessons learned from and problems encountered in the review process under the Convention have many elements in common with those in relation to the reviews under the Kyoto Protocol.

C. Possible action by the Subsidiary Body for Scientific and Technological Advice

6. The SBSTA will be invited to take note of this report.⁹

¹ Decision 12/CP.9, paragraph 10.

² Decision 13/CP.20, annex, paragraph 40.

³ Prepared in accordance with decision 13/CP.20, annex, paragraphs 44 and 78.

⁴ Decision 13/CP.20, paragraph 6, and annex, paragraph 78.

⁵ Decision 14/CP.20, paragraph 3.

⁶ FCCC/SBSTA/2006/5, paragraph 95.

⁷ For the 2018 review cycle, information as at 31 October 2018 has been provided.

⁸ FCCC/SBSTA/2018/INF.4.

⁹ In accordance with decision 13/CP.20, annex, paragraph 53.

II. Review activities

7. The GHG inventory review activities, along with some activities for the training of review experts and the organization of the meetings of LRs, are funded from the UNFCCC core budget. Some other related activities, such as refresher seminars for experienced reviewers, the strengthening of the secretariat's capacity to support review and training activities and the development of the GHG information system, continue to be funded by voluntary contributions to supplementary funds.

A. The 2017 cycle of individual greenhouse gas inventory reviews

8. The 2016 review cycle involved an exceptional number of experts and resources and an exceptional number of reports prepared, including two annual reports (for the 2015 and 2016 GHG inventory submissions, respectively). This resulted in the use of some of the financial resources initially planned for the 2017 review cycle from the core budget, leaving only enough core budget to organize the reviews of 22 inventory submissions and limiting the ability of the secretariat to organize the 2017 review cycle fully in accordance with the relevant mandates (decision 13/CP.20). Additional resources from the Trust Fund for Supplementary Activities were insufficient to organize the individual review for the remaining inventory submissions from Annex I Parties. Nevertheless, the secretariat was able to produce status reports for all 44 Annex I Parties, in accordance with decision 13/CP.20.¹⁰ The status report is the first stage of the overall review process and contributes to the consistency, completeness and timeliness of the review of GHG inventory submissions.

9. In 2017, six in-country reviews, three centralized reviews (covering 4 Parties) and two desk reviews (covering 2 Parties), covering a total of 22 Annex I Parties, were conducted. As at 31 October 2018, all review reports except one (that of Kazakhstan) had been published.¹¹ Table 1 provides information on the 2017 review cycle and the publication dates of each review report.

Table 1

2017 review cycle of the greenhouse gas inventory submissions, including publication dates of annual review reports

<i>Party</i>	<i>Review week dates (review type)</i>	<i>ARR 2017 publication date</i>
Australia	28 August to 2 September 2017 (DR)	30 April 2018
Austria	No individual review of the 2017 inventory submission	
Belarus	18–23 September 2017 (CR)	22 June 2018
Belgium	No individual review of the 2017 inventory submission	
Bulgaria	No individual review of the 2017 inventory submission	
Canada	11–16 September 2017 (CR)	26 January 2018
Croatia	No individual review of the 2017 inventory submission	
Cyprus	25–30 September 2017 (CR)	27 April 2018
Czechia	4–9 September 2017 (ICR)	23 March 2018
Denmark	No individual review of the 2017 inventory submission	
Estonia	No individual review of the 2017 inventory submission	
European Union	No individual review of the 2017 inventory submission	
Finland	No individual review of the 2017 inventory submission	
France	4–9 September 2017 (DR)	12 April 2018
Germany	No individual review of the 2017 inventory submission	

¹⁰ Decision 13/CP.20, annex, paragraph 91.

¹¹ The published review reports are available at <https://unfccc.int/node/65982>.

<i>Party</i>	<i>Review week dates (review type)</i>	<i>ARR 2017 publication date</i>
Greece	11–16 September 2017 (CR)	9 March 2018
Hungary	4–9 September 2017 (DR)	12 February 2018
Iceland	28 August to 2 September 2017 (ICR)	28 February 2018
Ireland	No individual review of the 2017 inventory submission	
Italy	No individual review of the 2017 inventory submission	
Japan	No individual review of the 2017 inventory submission	
Kazakhstan	18–23 September 2017 (ICR)	In preparation
Latvia	No individual review of the 2017 inventory submission	
Liechtenstein	No individual review of the 2017 inventory submission	
Lithuania	18–23 September 2017 (CR)	15 May 2018
Luxembourg	No individual review of the 2017 inventory submission	
Malta	25–30 September 2017 (CR)	25 January 2018
Monaco	25–30 September 2017 (CR)	23 March 2018
Netherlands	11–16 September 2017 (ICR)	30 May 2018
New Zealand	11–16 September 2017 (CR)	6 April 2018
Norway	No individual review of the 2017 inventory submission	
Poland	No individual review of the 2017 inventory submission	
Portugal	No individual review of the 2017 inventory submission	
Romania	No individual review of the 2017 inventory submission	
Russian Federation	11–16 September 2017 (ICR)	4 May 2018
Slovakia	18–23 September 2017 (CR)	14 March 2018
Slovenia	No individual review of the 2017 inventory submission	
Spain	18–23 September 2017 (ICR)	24 January 2018
Sweden	18–23 September 2017 (CR)	11 April 2018
Switzerland	28 August to 2 September 2017 (DR)	6 February 2018
Turkey	No individual review of the 2017 inventory submission	
Ukraine	4–9 September 2017 (ICR)	25 May 2018
United Kingdom of Great Britain and Northern Ireland	25–30 September 2017 (CR)	8 March 2018
United States of America	No individual review of the 2017 inventory submission	

Abbreviations: ARR = annual review report, CR = centralized review, DR = desk review, ICR = in-country review.

B. The 2018 cycle of individual greenhouse gas inventory reviews

1. Greenhouse gas inventory submissions

10. Between 6 April and 31 October 2017, the secretariat received submissions of annual GHG inventories for 2018 from all 44 Annex I Parties (see table 2).

11. The secretariat organized the 2018 review cycle taking into consideration the secretariat's work programme for the biennium 2018–2019.¹² In accordance with this work programme, while inventory submissions from Parties remain annual, the core budget contains a provision to support the individual reviews of these inventories only once per

¹² Contained in document FCCC/SBI/2017/4.

Party per biennium. Additional individual reviews can be carried out if supported through supplementary funding.

12. For the 2018 review cycle, as at 2 April 2018 the available support in terms of supplementary funding was insufficient to complement the resources from the core budget, and the secretariat organized individual reviews of 23 of the submissions referred to in paragraph 10 above.¹³ Ten of the individual reviews were organized as in-country reviews between 10 September and 10 November 2018, nine as three centralized reviews (in Bonn, between 17 September and 13 October 2018) and four as two desk reviews (between 10 September and 6 October 2018). The reports of these reviews are in preparation.

Table 2

Submission of greenhouse gas inventories in 2018 and review dates and types during the 2018 review cycle

<i>Party</i>	<i>Original submission date</i>		<i>Review dates (review type)</i>
	<i>NIR</i>	<i>CRF tables</i>	
Australia	13 April 2018	13 April 2018	Not subject to individual review
Austria	12 April 2018	12 April 2018	10–15 September 2018 (DR)
Belarus	12 April 2018	12 April 2018	Not subject to individual review
Belgium	13 April 2018	13 April 2018	24–29 September 2018 (ICR)
Bulgaria	14 April 2018	12 April 2018	8–13 October 2018 (CR)
Canada	13 April 2018	13 April 2018	Not subject to individual review
Croatia	12 April 2018	12 April 2018	17–22 September 2018 (ICR)
Cyprus	13 April 2018	13 April 2018	Not subject to individual review
Czechia	12 April 2018	12 April 2018	Not subject to individual review
Denmark	14 April 2018	12 April 2018	1–6 October 2018 (DR)
Estonia	14 April 2018	13 April 2018	24–29 September 2018 (ICR)
European Union	14 April 2018	14 April 2018	24–29 September 2018 (CR)
Finland	6 April 2018	6 April 2018	10–15 September 2018 (ICR)
France	13 April 2018	15 March 2018	Not subject to individual review
Germany	5 April 2018	13 April 2018	10–15 September 2018 (DR)
Greece	15 April 2018	15 April 2018	Not subject to individual review
Hungary	13 April 2018	13 April 2018	Not subject to individual review
Iceland	12 April 2018	13 April 2018	Not subject to individual review
Ireland	13 April 2018	12 April 2018	17–22 September 2018 (CR)
Italy	13 April 2018	13 April 2018	1–6 October 2018 (DR)
Japan	24 April 2018	24 April 2018	8–13 October 2018 (CR)
Kazakhstan	Not submitted ^a	23 April 2018	Not applicable
Latvia	13 April 2018	13 April 2018	17–22 September 2018 (CR)
Liechtenstein	12 April 2018	12 April 2018	17–22 September 2018 (CR)

¹³ For the 2018 review cycle the secretariat planned to organize individual reviews for the 2018 submissions of the 22 Annex I Parties whose 2017 submissions had not been reviewed. The 2017 GHG inventory submission of the Russian Federation was subject to individual review. During the organization of the 2018 reviews, the Russian Federation invited the secretariat to organize the in-country review of its GHG submission in 2018 (instead of in 2019, as the secretariat had planned) to facilitate domestic arrangements, as the GHG in-country review would take place the week after the in-country review of the Russian Federation's seventh national communication and third biennial review report.

<i>Party</i>	<i>Original submission date</i>		
	<i>NIR</i>	<i>CRF tables</i>	<i>Review dates (review type)</i>
Lithuania	13 April 2018	13 April 2018	Not subject to individual review
Luxembourg	5 April 2018	5 April 2018	1–6 October 2018 (ICR)
Malta	12 April 2018	12 April 2018	Not subject to individual review
Monaco	14 April 2018	14 April 2018	Not subject to individual review
Netherlands	13 April 2018	13 April 2018	Not subject to individual review
New Zealand	12 April 2018	12 April 2018	Not subject to individual review
Norway	13 April 2018	13 April 2018	17–22 September 2018 (ICR)
Poland	10 April 2018	10 April 2018	8–13 October 2018 (CR)
Portugal	11 April 2018	12 April 2018	10–15 September 2018 (ICR)
Romania	13 April 2018	13 April 2018	1–6 October 2018 (ICR)
Russian Federation	14 April 2018	14 April 2018	8–13 October 2018 (ICR)
Slovakia	10 April 2018	10 April 2018	Not subject to individual review
Slovenia	13 April 2018	13 April 2018	24–29 September 2018 (CR)
Spain	2 April 2018	2 April 2018	Not subject to individual review
Sweden	13 April 2018	13 April 2018	Not subject to individual review
Switzerland	13 April 2018	13 April 2018	Not subject to individual review
Turkey	14 April 2018	14 April 2018	24–29 September 2018 (CR)
Ukraine	23 May 2018	23 May 2018	Not subject to individual review
United Kingdom of Great Britain and Northern Ireland	13 April 2018	15 April 2018	Not subject to individual review
United States of America	12 April 2018	12 April 2018	5–10 November 2018 (ICR)

Note: As at 31 October 2018.

Abbreviations: CR = centralized review, CRF = common reporting format, DR = desk review, ICR = in-country review, NIR = national inventory report.

2. Organization of reviews and composition of expert review teams

13. In accordance with the “Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention, Part III: UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention”¹⁴ (hereinafter referred to as the UNFCCC Annex I inventory review guidelines), the GHG inventory review process is conducted in two stages: initial assessment by the secretariat, which results in status reports and assessment reports, and individual review by ERTs, which results in annual review reports.

14. The initial assessment stage provides an immediate quality assessment aiming to verify that the GHG inventory submission is consistent, complete and timely and its format correct. Status reports for all 44 GHG inventory submissions received were prepared and published on the UNFCCC website.¹⁵ Assessment reports provide a preliminary assessment of the inventory of an individual Party and identify any potential inventory problems, which are then assessed during the individual review stage. Assessment reports are not published

¹⁴ Decision 13/CP.20, annex.

¹⁵ The status reports are available at <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2018>.

but are provided to the respective Party and to the ERTs for further assessment. Assessment reports were prepared for all Parties that were subject to individual review during the 2018 review cycle.

15. In the 2018 review cycle, the secretariat coordinated the review of the GHG inventories of 23 Parties (see para. 12 above). Table 2 shows the review dates and type of review for each Party. The reports on the reviews are in preparation.

16. In accordance with annex I to decision 12/CP.9 and the annex to decision 14/CP.20, new experts who have taken the training courses for reviews under the Convention and have passed the corresponding examinations can participate in an ERT.¹⁶ In 2018, the secretariat invited 220 experts to participate in the GHG inventory reviews, 67 of whom declined on account of being unavailable owing to previous commitments, a heavy workload, a lack of financial resources or other reasons. In addition, 21 experts informed the secretariat of their availability on dates other than the scheduled review dates on which they were invited to participate or of their availability only on particular dates, which introduced additional challenges for the planning of the reviews.

17. In selecting members of ERTs, the secretariat seeks to ensure an overall geographical balance in the number of experts from Annex I Parties and Parties not included in Annex I to the Convention (non-Annex I Parties). In the 2018 review cycle, a total of 132 individuals from 57 Parties served as inventory experts on review teams. Of those experts, 53 were from non-Annex I Parties, 17 from Annex I Parties with economies in transition and 62 from other Annex I Parties.

18. Between 2000, when individual reviews of GHG inventory submissions were first conducted during the trial period, and 2018, 503 individual experts from 100 Parties (41 Annex I Parties and 59 non-Annex I Parties) participated in GHG inventory review activities.¹⁷

19. Table 3 provides a breakdown of the participation of experts by nominating Party in the 2018 review cycle (an expert participating in multiple reviews is counted as a different expert for each review). The table shows that experts from the following Annex I Parties were not involved in the review process in 2018: Austria, Belarus, Croatia, Cyprus, Hungary, Iceland, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Norway, Portugal and Slovenia. In general, there were several reasons for experts not participating in the 2018 review cycle: (1) some Annex I Parties, namely Cyprus, Iceland and Monaco, had not nominated any experts; (2) some Parties had nominated experts only recently and those experts had not yet taken the training courses and passed the relevant examinations; (3) some Parties had not fully updated their nominations to the UNFCCC roster of experts and some nominated experts included on the roster were not available for the reviews; (4) some experts had a heavy workload and other job obligations during the review period; and (5) some Annex I Parties were experiencing a shortage of financial resources for supporting their nominated experts' participation in the reviews; for example, in the course of the preparations for the 2018 review cycle, the secretariat received 13 requests from experts nominated by Annex I Parties for exceptional funding. Table 3 also shows that many Parties continued to strongly support the review process by providing multiple experts and that experts from the following Parties participated in four or more reviews in 2018: Belgium (4), Brazil (8), China (6), Japan (7), Switzerland (4), Ukraine (4) and United Kingdom of Great Britain and Northern Ireland (7). Such strong support is a key factor in making the reviews successful.

¹⁶ For more information on the training of review experts, see document FCCC/SBSTA/2018/INF.4, chapter V.

¹⁷ These totals do not include 12 observers that participated in the reviews between 2000 and 2008.

Table 3
Number of experts participating in the 2018 greenhouse gas inventory review cycle, by nominating Party

<i>Party</i>				
<i>Annex I Parties</i>		<i>Annex I Parties with economies in transition</i>		<i>Non-Annex I Parties</i>
Australia – 2	Netherlands – 2	Bulgaria – 2	Algeria – 1	Philippines – 1
Belgium – 4	New Zealand – 2	Czechia – 1	Argentina – 1	Republic of Moldova – 2
Canada – 3	Spain – 3	Estonia – 1	Benin – 2	San Marino – 2
Denmark – 3	Sweden – 3	Latvia – 1	Bhutan – 2	South Africa – 3
European Union – 1	Switzerland – 4	Poland – 2	Brazil – 8	Sudan – 1
Finland – 3	Turkey – 2	Romania – 3	Chile – 3	Swaziland – 1
France – 2	United Kingdom of Great Britain and Northern Ireland – 7	Russian Federation – 2	China – 6	Thailand – 3
Germany – 3	Ireland – 7	Slovakia – 1	Colombia – 2	The former Yugoslav Republic of Macedonia – 1
Greece – 2	United States of America – 3	Ukraine – 4	Egypt – 1	United Republic of Tanzania – 1
Ireland – 2			Ethiopia – 1	Uruguay – 1
Italy – 3			Ghana – 3	Viet Nam – 1
Japan – 7			India – 1	Zambia – 1
Kazakhstan ^a – 1			Kenya – 1	Zimbabwe – 2
			Mongolia – 1	

^a Kazakhstan is a Party included in Annex I for the purpose of the Kyoto Protocol.

20. When inviting experts to participate as LRs, the secretariat seeks to ensure an overall geographical balance in the number of experts from Annex I Parties and non-Annex I Parties. It also takes into consideration the experts' experience in the preparation and management of GHG inventories, previous participation in reviews, technical expertise in the GHG inventory sectors and successful completion of the training courses. In 2018, a total of 30 individuals from 22 Parties served as inventory LRs. Of those experts, 15 were from non-Annex I Parties and 15 from Annex I Parties (of which 1 was from an Annex I Party with an economy in transition).

21. For each in-country review the secretariat invited one review expert for each sector and one generalist to cover cross-cutting issues. For each desk review the secretariat invited two review experts for each sector (except for the energy sector in one desk review, where there were three experts) and two generalists to cover cross-cutting issues. For each centralized review, the secretariat invited between two and four review experts to cover each sector and two generalists to cover cross-cutting issues. In accordance with the conclusions of the 11th meeting of inventory LRs, the secretariat ensured that no land use, land-use change and forestry expert acted as an LR.¹⁸

22. The secretariat continues to reinforce ERTs undertaking centralized reviews with new review experts. In 2018, eight new experts who had taken the training courses and passed the examinations participated in reviews, assuming full responsibility as reviewers with some support from the LRs and experienced reviewers.

23. The secretariat is making efforts to further improve the timeliness of the publication of the review reports during the 2018 review cycle, while maintaining the required quality level, in particular by increasing the number of experts per team and updating the review materials, as shown in chapter VI below.

¹⁸ See paragraph 24 of the conclusions; available at <https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/review-process>.

3. 2019 review cycle

24. Annex I Parties will submit their 2019 GHG inventory submissions in accordance with the “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories”¹⁹ (hereinafter referred to as the UNFCCC Annex I inventory reporting guidelines) by 15 April 2019. The inventories will be reviewed in accordance with the UNFCCC Annex I inventory review guidelines and taking into consideration the secretariat’s work programme for the biennium 2018–2019 (see para. 11 above). The secretariat will organize the review of the 2019 GHG inventory submissions under the Convention so that the individual reviews take place in the third quarter of 2019.

III. Meeting of inventory lead reviewers

25. The 15th meeting of GHG inventory LRs was held in Bonn on 26 and 27 February 2018. A total of 38 experts from non-Annex I Parties and 61 experts from Annex I Parties were invited to the meeting. Of the 62 experts who attended, 32 were from non-Annex I Parties and 30 were from Annex I Parties. In the morning of 26 February, before the LRs meeting, the secretariat held a refresher seminar for LRs and experienced reviewers, which was attended by 60 experts (32 from non-Annex I Parties and 28 from Annex I Parties) (see para. 34 below).

26. In accordance with decisions 13/CP.20, 22/CMP.1 and 24/CMP.1, the meeting facilitated the work of LRs in fulfilling their task to ensure the consistency of reviews across all Parties and provided suggestions on how to improve the quality and efficiency of the reviews. These conclusions and recommendations will be reported to the SBSTA, in accordance with the annexes to decisions 13/CP.20 and 22/CMP.1 in conjunction with decision 4/CMP.11. Such reports provide the SBSTA with inputs for providing further guidance to the secretariat on the selection of experts and the coordination of the ERTs and the expert review process. In addition, COP 20 invited LRs to provide guidance on such matters as review tools, materials and templates,²⁰ and to provide suggestions on how to improve the quality, efficiency and consistency of the reviews.²¹

IV. UNFCCC roster of experts and availability of nominated experts

27. As at 31 October 2017, the UNFCCC roster of experts contained 1,147 GHG inventory experts, 618 from non-Annex I Parties and 529 from Annex I Parties. Among those experts, 519 have passed all mandatory examinations to act as reviewers of the annual reviews under Article 8 of the Kyoto Protocol and could be invited to participate in GHG reviews for Annex I Parties.

28. Many of the qualified experts in the roster have not actively participated in the reviews in recent years. In addition, significant workloads of the nominated experts at their respective offices prohibit them from devoting sufficient time to the online training programmes and subsequently taking part in annual GHG inventory reviews under the Convention and its Kyoto Protocol. The situation is exacerbated by the number of technical reviews of biennial reports submitted by Annex I Parties, as well as the technical analysis of biennial update reports submitted by non-Annex I Parties. These developments require more active GHG inventory experts to be nominated to the roster. In addition, some experts nominated to the roster have not yet taken the mandatory training courses or not yet passed all the relevant examinations for the training programmes for reviews under the Convention and its Kyoto Protocol. This is particularly problematic for the Kyoto Protocol reviews, for which decision 5/CMP.11 requires the experienced experts to take the updated courses to

¹⁹ Decision 24/CP.19, Annex I.

²⁰ Decision 13/CP.20, annex, paragraph 48.

²¹ Decision 13/CP.20, annex, paragraph 44.

become new LRs, generalist reviewers and KP-LULUCF reviewers for the second commitment period.²²

29. Taking account of this situation, in April 2018, the secretariat again invited national focal points (NFPs) to nominate new experts who can actively participate in reviews of GHG inventories, biennial reports and national communications submitted by Annex I Parties and in analysis of biennial update reports submitted by non-Annex I Parties. The secretariat also invited NFPs to regularly update the information on experts in the roster and remove the experts who are no longer available for the reviews. The secretariat informed NFPs that experts can enter or update their data in the roster database directly, and therefore the only action required by the NFP or the roster custodian is to approve the nomination or changes in the system.

30. In 2018, the secretariat continued to make an online form available on the UNFCCC website to facilitate the nomination of experts by Parties to the roster and to update the list of nominees and their details.²³ The secretariat also continuously improved the accessibility and user-friendliness of the information on the training programmes on the UNFCCC website and updated the content to reflect the latest developments.²⁴

V. Training of experts

A. Training programme for experts for the technical review of greenhouse gas inventories of Parties included in Annex I to the Convention

31. The COP requested the secretariat to implement the training programme for review experts for the technical review of GHG inventories of Annex I Parties, including the examination of experts, and to give priority to organizing an annual training seminar for the basic course and an annual refresher seminar for experienced GHG inventory review experts, subject to the availability of resources.²⁵ It encouraged Annex I Parties in a position to do so to provide financial support for the implementation of the training programme. The training programme consists of the basic course, a course on improving communication and facilitating consensus within ERTs and a course on the review of complex models and higher-tier methods. The basic course of the training programme provides a comprehensive introduction to the UNFCCC Annex I inventory review guidelines, an overview of the UNFCCC Annex I inventory reporting guidelines, guidance on procedures and approaches for the technical review of GHG inventories, general methodological guidance provided by the Intergovernmental Panel on Climate Change (IPCC) and detailed information on the specific aspects of the review of the five IPCC inventory sectors. In accordance with the annex to decision 14/CP.20, the updated basic course of the training programme, with updated information to meet the requirements of the revised UNFCCC Annex I inventory reporting guidelines and UNFCCC Annex I inventory review guidelines and the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*, was formally launched online in September 2015.

B. Implementation of the training programme

32. In 2018, the basic course facilitated by instructors (instructed course) was offered online for a six-week period in September and October. This was followed by an in-person three-day regional training seminar with examinations from 16 to 18 October in Bonn. A total of 39 inventory experts nominated by their NFPs were invited to take the basic course

²² See document FCCC/SBSTA/2017/INF.7, chapter V.

²³ See

http://unfccc.int/files/parties_and_observers/roster_of_experts/application/msword/new_form_as_of_19_may_2014_clean_version_for_the_web_doxc.doc and <http://www4.unfccc.int/sites/roe/Pages/Home.aspx>.

²⁴ See <http://unfccc.int/2763>.

²⁵ Decisions 12/CP.9, 10/CP.15 and 14/CP.20.

and 34 experts (21 from non-Annex I Parties and 13 from Annex I Parties) took the online course. Among them, 28 experts (19 from non-Annex I Parties and 9 from Annex I Parties) participated in the training seminar. At the training seminar, the trainees participated in a simulated centralized review using a real annual GHG inventory submission over two and a half days. On the last half day of the seminar, the trainees took the written exams for the overview course and the corresponding sectoral course that they completed online. Four highly experienced LRs, who are recognized for their knowledge and extensive experience in such training activities, acted as instructors throughout the online study period and during the regional seminar, and provided guidance to, and responded to questions from, the trainees.

33. For the experts who have sufficient experience of national GHG inventories, the secretariat offers an online course for a six-week period without the support of instructors (non-instructed course). Since the launch of the updated basic course in 2015, the secretariat has invited 388 experienced inventory reviewers, including LRs, to take the non-instructed online course, as encouraged in the annex to decision 14/CP.20, in order to update their skills and knowledge, and the relevant examinations. In-person examinations were organized, making use of existing opportunities where secretariat staff could be present, such as during an in-country review, session of the COP or LRs meeting. Some Annex I Parties organized the examinations for their experts and invited the secretariat to supervise them. A total of 29 experts participated in the non-instructed courses and took the examinations between 1 January and 31 October 2018. This resulted in 21 experts passing one or more examinations and four new experts passing the mandatory examinations to become a review expert under the Convention. In the same period, 25 experienced review experts took the opportunity to take the examinations after completing the updated online course.

34. In 2018, the secretariat organized a half-day refresher seminar for experienced GHG inventory reviewers on 26 February in conjunction with the 15th meeting of GHG inventory LRs, focusing on experiences from desk reviews and in-country reviews of GHG inventories in 2016; improving the drafting of findings and recommendations in review reports; efficient simultaneous use of the review issues tracking system and the review report template; and reviewing the information on land use, land-use change and forestry activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol in the second commitment period. A total of 62 experienced experts (32 from non-Annex I Parties and 30 from Annex I Parties), including LRs, participated in the refresher seminar.

35. Since June 2012, the secretariat has offered a course on the review of complex models and higher-tier methods online to both experienced and new experts. To date, 119 experts have registered and requested access to the course, and 25 experts have passed the optional examination.

36. Training activities for review experts are of crucial importance for ensuring the required quality and consistency of the review process. Such training is particularly valuable for experts from non-Annex I Parties since many of them do not work on GHG inventories on a daily basis or may not be familiar with national GHG inventories based on the higher-tier methodologies provided by the IPCC. The secretariat continues its efforts to encourage all available experts listed on the roster of experts nominated for GHG inventory review activities to take the relevant training courses and examinations. The secretariat facilitates the access of experts to the relevant training programmes, periodically invites Parties to nominate new experts for the training programmes and provides relevant information of the training courses on the UNFCCC website²⁶ and by other electronic means, such as the secretariat's newsletter.

²⁶ See

http://unfccc.int/national_reports/expert_training/training_programmes_for_experts/items/2763.php.

VI. Review tools and materials

37. Providing support to the UNFCCC reporting and review processes requires a number of information technology systems that differ in purpose, scope, size and degree of support. They vary from extensive, complex databases, such as the GHG Locator tool, to smaller, focused 'review tools' serving particular analytical purposes in the review process.

A. Greenhouse gas data warehouse and review tools

38. In order to fulfil its mandates, the secretariat developed and put in place a data warehouse to manage the storage and management of data related to GHG inventories and submissions. Such a complex software and database system is needed to enable the processing of extensive sets of GHG data reported by Annex I Parties, and it allows the generation of key reports and review tools as well as feeding the GHG data interface. The data warehouse is currently being upgraded to reflect the changes stemming from the revised reporting and review inventory guidelines and to address technology obsolescence issues.

39. The data warehouse upgrade is necessary not only for the GHG data interface and the production of streamlined aggregate GHG information, but also for the redesign of the existing review tools. The update covers all the existing review tools, especially the GHG Locator and the Submission Comparison Tool.

40. The GHG inventory LRs, at their 15th meeting,²⁷ noted that the development of the new data warehouse with GHG emission data from Parties' GHG inventory submissions is still ongoing and could not be completed because of insufficient funding. They also noted that this affects the functioning of the review tools, the GHG data interface, the status reports and the aggregate GHG information that are linked to the data warehouse.

B. Aggregate information on greenhouse gas emissions by sources and removals by sinks

41. The COP requested the secretariat to compile and tabulate aggregate information and trends concerning GHG emissions by sources and removals by sinks from the latest available GHG inventory submissions of Annex I Parties, and any other inventory information, and to publish that information on the UNFCCC website as well as in a stand-alone document.²⁸ The last aggregate GHG information was published on 29 June 2018.²⁹

C. Greenhouse gas data interface

42. The GHG data interface is an online portal on the UNFCCC website³⁰ that allows public access to GHG data reported by Parties under the Convention and its Kyoto Protocol. The interface is currently being upgraded, as mandated at SBSTA 38,³¹ following the adoption of the revised UNFCCC Annex I inventory reporting guidelines. The upgrade is being undertaken together with the overhaul of the data warehouse and is ongoing; however, the financial resources received to date have been insufficient to complete the

²⁷ See paragraph 20 of the conclusions from the 15th meeting of GHG inventory LRs, which are contained in the annex.

²⁸ Decision 13/CP.20, paragraph 8.

²⁹ FCCC/WEB/AGI/2018, available at https://unfccc.int/sites/default/files/resource/AGI%20report_2018.pdf.

³⁰ <https://unfccc.int/process/transparency-and-reporting/greenhouse-gas-data/what-is-greenhouse-gas-data>.

³¹ FCCC/SBSTA/2013/3, paragraph 121.

necessary changes. As at 31 October 2018, six of the nine modules of the GHG data interface had been released on the UNFCCC website.³²

D. Standardized set of data comparisons

43. The COP requested the secretariat to develop and implement a standardized set of data comparisons and to include information on those data comparisons in its annual report to the SBSTA.³³

44. The GHG inventory LRs, at their 14th meeting, requested the secretariat to invite a group of experienced reviewers among the LRs to conduct an assessment of the standardized data comparisons. In response to this request, a group of experienced LRs conducted an assessment in accordance with decision 13/CP.20, paragraphs 4 and 5, and presented a proposal at the 15th meeting of the LRs. The LRs agreed with the proposal and requested the secretariat to implement it for the 2019 review cycle, subject to the availability of financial resources. Moreover, the LRs suggested additional recommendations to be considered for future work on revising the status report.

E. GHG Locator and other review tools

45. The GHG Locator tool is an application that provides ERTs with the time-series data from submitted common reporting format tables of all Annex I Parties in a user-friendly format. It shows quantitative information (e.g. emissions, implied emission factors and activity data) and qualitative information (e.g. notation keys) reported by all Annex I Parties. The Submission Comparison Tool is an application used by ERTs to compare submissions and parameters in a user-friendly format similar to that of the GHG Locator tool. These tools are used mostly by ERTs during the review process and by review officers in preparing the reviews. Other review tools, such as the Statistical Outlier Detection Tool (SODT) and the Key Category Analysis Tool, are exclusively used internally by review officers to prepare necessary outputs throughout different stages of the review process.

46. The GHG inventory LRs noted during their 15th meeting that the GHG Locator tool has been improved following the recommendations of the 14th meeting of LRs and that its overall functionality and performance was enhanced. However, the LRs noted that the tool was only available offline during the 2017 review cycle and recommended that the secretariat further enhance the review tools, in particular the online GHG Locator, the Submission Comparison Tool and SODT, and prioritize those improvements that can be completed for the 2018 review weeks subject to available financial resources.

47. Following the above-mentioned recommendation, the secretariat has further enhanced the review tools by providing a new online version of the GHG Locator tool (and making available an offline version) together with its user manual in advance of the launch of the 2018 review cycle. In addition, the secretariat has made available the online Submission Comparison Tool on the same platform.

48. As anticipated during the 15th meeting of GHG inventory LRs, the secretariat was not in the position to implement all the planned enhancements of the review tools due to limited financial resources. However, the secretariat also has plans to improve SODT, as requested by LRs, which will be implemented in 2019 considering the availability of financial resources.

F. Virtual team room

49. The GHG inventory virtual team room (iVTR) is an online application facilitating the reviews of GHG inventories of Annex I Parties by providing a collaborative and shared environment. The iVTR supports enhancing the consistency, timeliness and efficiency of the review process by facilitating the work and the exchange of information between ERTs,

³² <http://unfccc.int/9560>.

³³ Decision 13/CP.20, paragraphs 4 and 6.

Parties and the secretariat before, during and after the review week. The iVTR provides a platform where all users can share and store documents and issues identified in reviews, raise technical questions to clarify issues and exchange information and documents between ERTs and Parties, and collaboratively prepare the review reports (including monitoring the progress of report preparation). The iVTR underwent an enhancement process in the period 2016–2017.

50. During their 15th meeting, the LRs recognized the benefits of using the iVTR in the review process, and requested the secretariat to identify possibilities for further enhancing the review issues tracking system and the report preparation modules of the iVTR for the next review cycles.

Annex

Conclusions and recommendations from the 15th meeting of greenhouse gas inventory lead reviewers

1. The 15th meeting of greenhouse gas (GHG) inventory lead reviewers (LRs) was held in Bonn on 26 and 27 February 2018. A total of 38 experts from Parties not included in Annex I to the Convention (non-Annex I Parties) and 61 experts from Parties included in Annex I to the Convention (Annex I Parties) were invited to the meeting. Of the 62 experts who attended, 32 were from non-Annex I Parties and 30 were from Annex I Parties. The secretariat held a refresher seminar for LRs and experienced reviewers on the morning of 26 February, before the LRs meeting, which was attended by 60 experts (32 from non-Annex I Parties and 28 from Annex I Parties). The refresher seminar focused on simplifying the data analysis of GHG inventories through the use of review tools.
2. In accordance with decisions 13/CP.20, 22/CMP.1 and 24/CMP.1, the meeting contributed to facilitating the work of LRs in fulfilling their task to ensure the consistency of reviews across all Parties and provided suggestions on how to improve the quality and efficiency of the reviews. These conclusions and recommendations will be reported to the Subsidiary Body for Scientific and Technological Advice (SBSTA), in accordance with decisions 13/CP.20 and 22/CMP.1 in conjunction with decision 4/CMP.11. Such reports provide the SBSTA with inputs for providing further guidance to the secretariat on the selection of experts and the coordination of the expert review teams (ERTs) and the expert review process.
3. The Conference of the Parties requested LRs to provide guidance on such matters as review tools, materials and templates¹ and to provide suggestions on how to improve the quality, efficiency and consistency of the reviews.² It also requested SBSTA 48 to consider the experiences in conducting desk reviews, taking into consideration any relevant conclusions from the meetings of GHG inventory LRs up to 2017.³

I. Coordination and planning of the 2017 and 2018 review cycles

4. The LRs noted the secretariat's plan to organize the 2018 review cycle, which takes into consideration the secretariat's work programme for the biennium 2018–2019.⁴ In accordance with this work programme, while inventory submissions from Parties remain annual and technical reviews of the GHG inventories submitted by Annex I Parties are to be implemented every year for every Party involved, the core budget contains a provision to support the individual reviews of these inventories and the related supplementary information under the Kyoto Protocol only once per Party per biennium. Additional individual reviews can be carried out if supported through supplementary funding.
5. The LRs also noted with concern the information provided by the secretariat that, as at 27 February 2018, there were insufficient resources from the Trust Fund for Supplementary Activities to organize the 2018 review cycle for the additional 22 Parties (see para. 6 below) fully in accordance with the relevant mandates of decisions 13/CP.20, 22/CMP.1 and 4/CMP.11. Therefore, the secretariat's plan for the 2018 review cycle will cover only half of the Annex I Parties; the secretariat will expand the plan to cover the remaining 22 Parties, fully in accordance with the mandates, if enough resources are available in the fund in time for the organization of reviews.
6. The LRs also noted the proposal provided by the secretariat on the need for Parties to provide support to supplementary funding for activities related to reviews of the GHG

¹ Decision 13/CP.20, annex, paragraph 48.

² Decision 13/CP.20, annex, paragraph 44.

³ Decision 13/CP.20, paragraph 15.

⁴ See document FCCC/SBI/2017/4.

inventories of Annex I Parties by 2 April 2018 at the latest, in order to organize reviews by ERTs of up to 44 submissions, and to strengthen the capacity of the secretariat to improve the efficiency and timeliness of the 2018 review cycle. The LRs requested the secretariat to remind Parties of the need to increase contributions to the Trust Fund for Supplementary Activities to ensure the timely organization of reviews.

7. The LRs requested the secretariat to inform Annex I Parties as early as possible but no later than 30 April 2018 on the specific plans for the 2018 review cycle, including which Parties will be invited to host an in-country review.

8. The LRs took note of the significant number of declined invitations to review in the 2017 review cycle. To ensure sufficient participation in the 2018 review cycle, the LRs requested the secretariat to send the invitations to review as early as possible after the finalization of the review plan for 2018.

Desk reviews

9. At their 14th meeting, the LRs indicated their intent to consider the desk review option further at their 15th meeting, taking into consideration the additional experience gained in 2017. The LRs welcomed the improvements made to this review approach, noting in particular the development of a specific annual review report (ARR) template, which helps to focus these reviews on the assessment of the implementation of previous recommendations, recalculations and issues identified during earlier stages of the review process.

10. The LRs encouraged the secretariat to develop a list of all categories for which recalculations have changed, in any year of the time series, the emission/removal estimate for a category by more than 2 per cent and/or national total emissions by more than 0.5 per cent, at the level of the data entry in the background common reporting format tables, to be distributed to the ERT prior to each desk review.

11. The LRs emphasized their role in communicating to the ERT the priorities for desk reviews as specified in decision 13/CP.20, annex, paragraph 76.

12. The LRs noted the need for Parties to encourage and facilitate the participation of their experts in desk reviews, noting that without greater support from Parties it will be very hard for the secretariat to organize desk reviews and ensure geographical balance in the ERTs.

II. Training and availability of review experts

13. The LRs welcomed the information on training activities undertaken by the secretariat in 2017 and planned training activities in 2018. The LRs also welcomed the organization of the refresher seminar held prior to their 15th meeting on simplifying the data analysis of GHG inventories through the use of review tools.

14. The LRs noted with concern that not all the land use, land-use change and forestry (LULUCF) experts, both new and experienced, who participated in reviews in 2017 have met the mandatory requirement to pass the examination on the review of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol of the updated Kyoto Protocol training programme. The LRs noted that all such LULUCF experts, as well as new LRs, must fulfil this mandatory requirement to be able to take part in reviews under the Kyoto Protocol.

15. Noting that the training courses for the review under Article 8 of the Kyoto Protocol were planned to take place in June and July 2018 with the three-day examination period in late July 2018, the LRs strongly encouraged all experts, in particular LULUCF experts and new LRs, to take this opportunity and pass the mandatory required courses, including the course on application of adjustments, with a view to taking part in the reviews.

16. The LRs noted the importance of the training programme for review experts for the technical review of GHG inventories of Annex I Parties,⁵ which has the objective of facilitating review experts in acquiring appropriate technical knowledge and skills for the technical review of information reported under the Convention related to GHG inventories.

17. The LRs also noted, in particular, the importance of the hands-on training seminars to complete the instructed courses of the training programme referred to in paragraph 16 above, to be held regularly twice a year, one in Bonn and one regional, in order to invite more new inventory experts to acquire technical knowledge and skills and to take part in the technical reviews of information reported under the Convention related to GHG inventories, to take part in the training programme for the reviews under Article 8 of the Kyoto Protocol and subsequently to take part in the annual reviews under the Kyoto Protocol.

18. The LRs reiterated the importance of Parties nominating new experts with experience in GHG inventories, including robust general and sectoral technical expertise, to the UNFCCC roster of experts and regularly updating their nominations. They also reiterated the importance of the support from the Parties in ensuring that their experts can complete the required training programmes, in order to have more qualified reviewers available for the GHG inventory review process.

19. The LRs acknowledged the resource constraints, both human and financial, in the secretariat and encouraged Parties to continue to support the training activities by providing sufficient resources to continue and strengthen the implementation of the training programme.

III. Guidance on the development of review tools and materials

A. Review tools and materials

20. The LRs noted that the development of the new data warehouse with GHG emission data from Parties' GHG inventory submissions is still ongoing and could not be completed owing to insufficient funding. They also noted that this affects the functioning of review tools, the GHG data interface, the status reports under both the Convention and its Kyoto Protocol and the aggregate GHG information, which are linked to this warehouse.

21. The LRs noted that the GHG Locator, a review tool widely used by ERTs, has been improved following the recommendations of the 14th meeting of LRs and has been used during the 2017 review cycle as an offline tool. Moreover, they noted that the overall functionality and performance of this tool was enhanced in 2017, allowing more experts to use it before, during and after reviews. Despite the progress achieved, the LRs noted that the development of the online version of the GHG Locator is still pending.

22. Considering the feedback received from experts during the 2017 review cycle, the LRs noted the plan of the secretariat to further enhance the review tools, in particular the online GHG Locator, the Submission Comparison Tool and the Statistical Outlier Detection Tool. The LRs noted that there are insufficient financial resources to implement all the planned developments, but recommended that the secretariat prioritize those improvements that can be completed for the 2018 review weeks.

B. Status report

23. The LRs noted with appreciation the work of the group of experienced LRs who conducted an assessment of the standardized set of data comparisons in accordance with decision 13/CP.20, paragraphs 4 and 5, and as requested at the 14th meeting of the LRs.⁶ The LRs considered the proposals made by the group regarding changes to the status

⁵ Decision 14/CP.20, annex.

⁶ FCCC/SBSTA/2017/INF.8, annex, paragraph 24.

report.⁷ The LRs agreed with the proposal and requested the secretariat to implement it for the 2019 review cycle, subject to the availability of financial resources.

24. The LRs also noted that the group of experienced LRs referred to in paragraph 23 above suggested additional recommendations⁸ to those presented, indicating that they should be considered for future work on revising the status report.

C. Inventory virtual team room

25. The LRs noted that around 200 experts, LRs, review officers and Party representatives used the GHG inventory virtual team room (iVTR), including the modules library, questions and answers, review issues tracking system (RITS) and report preparation, during the 2017 review cycle. For the second year in a row, the iVTR users participating in a survey have indicated that iVTR improves the efficiency in conducting the review. The LRs noted this feedback indicating the benefits of continuing the use of the iVTR.

26. The LRs also noted some difficulties expressed by users in using some of the modules, including the RITS module for finding and tracking issues in a single database, and the report preparation module when used with different software platforms. They requested the secretariat to identify the possibilities of further enhancing the RITS and the report preparation modules of the iVTR for the next review cycles. The LRs noted the need for Parties to support the further development of the iVTR by providing additional financial resources.

27. The LRs requested the secretariat, in cooperation with a small group of LRs, to improve the RITS module based on the issues identified in the questionnaire and during the meeting.⁹ The LRs invited the secretariat to report on the progress made at their next meeting.

D. Other review materials

28. The LRs noted the need to annually review and update, as necessary, the *Handbook for the Review of National Greenhouse Gas Inventories* (hereinafter referred to as the review handbook) to reflect any updated review processes and procedures. In particular, for the 2018 review cycle, the LRs noted the need to ensure that the review handbook reflects

⁷ The proposal for the status report for Parties under the Convention is available at https://unfccc.int/files/national_reports/annex_i_ghg_inventories/review_process/application/pdf/status_report_template_revised_conv_v1_20180215.pdf and for Parties under the Kyoto Protocol at https://unfccc.int/files/national_reports/annex_i_ghg_inventories/review_process/application/pdf/status_report_template_revised_kp_v1_20180215.pdf.

⁸ Whether the Party is using the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and other Intergovernmental Panel on Climate Change guidelines, whether the Party has provided the relevant justification in the national inventory report for the categories for which it has not estimated emissions and removals on the basis of insignificance, and improving the presentation of methods and emission factors used with more information provided by sector and by gas with the shortcuts for methodologies and emission factors used in key categories.

⁹ Possible functions to improve the RITS module include (a) managing a full list of findings, serving as data repository; (b) tracking the assessment and treatment of issues from one review to another; (c) including questions and answers between ERT and Party, and recommendations, and being the basis for the elaboration of the draft ARR; (d) containing all issues and only reflecting findings in the ARR which should be available to the Party; (e) allowing exporting of issues and findings in Microsoft Excel format; (f) including tracking statistics (country, sector, LRs, category, etc.); (g) being updated once the ARR is finalized following the quality assessment/quality control process; (h) integrating the assessment report, and the questions and answers and report preparation modules of the iVTR; (j) having an automatic filling function for the key category status based on the already existing results of the key category analysis done by the secretariat; and (k) having the possibility of retrieving automatically information previously documented in RITS, for example in relation to recommendations in the previous ARR not implemented or not fully implemented.

the latest procedures related to RITS, the conduct of desk reviews, the application of the significance threshold and how to use the review tools.

29. The LRs requested the secretariat, in cooperation with a small group of LRs, to develop a decision tree to describe the steps for the use and application of the significance threshold in the review process for its use by all ERTs at the next review cycle. The LRs requested the secretariat to report on the experiences of using the decision tree at the next LRs meeting with a view to its potential improvement and inclusion in the review handbook for the 2019 review cycle.

IV. Improvements to the quality, efficiency and consistency of reviews, in accordance with decisions 13/CP.20 and 4/CMP.11

30. The LRs reaffirmed their role in leading ERTs and the review process, ensuring the quality and consistency of the reviews and supporting new experts. The LRs recognized their role in promoting the use of tools and materials and the need to follow up on the quality assurance process.

31. The LRs welcomed the presentation by the International Energy Agency (IEA) on comparing the IEA data with the data in the GHG submissions to the secretariat. The LRs concluded that the comparison is a cornerstone supporting the review process of the energy sector. They noted, in particular, that consolidation of methods and energy data across stakeholders at the national level is essential to enhance data quality and make the comparison results more effective. The LRs encouraged the LRs, the secretariat and IEA to collaborate to improve the usefulness of this comparison and requested the secretariat to invite a group of LRs and energy experts to provide guidance on the further elaboration and development of the IEA data comparison.

32. The LRs also welcomed the presentation by the European Environment Agency on the European Union internal review of its member States' GHG inventories.

33. The LRs discussed specific ways to improve the consistency and efficiency of the review process based on the experiences from the 2017 review cycle and the background paper on consistency prepared by the secretariat. In particular, the LRs recommended that LRs promote the following procedures:

(a) When assessing a Party's implementation of a previous recommendation in ARR table 3, ERTs should ensure that they make their assessment based on the original issue without expanding or modifying it. Any additional related issues should be included in ARR table 5;

(b) Where there are challenges in assessing the implementation of previous recommendations that cannot be assessed in an objective manner, the ERTs should consider closing previous vague or general recommendations if the rationale cannot be identified from previous ARRs.

34. While noting that the *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands* (hereinafter referred to as the Wetlands Supplement) has not been made mandatory for reporting under the Convention, the LRs noted that the Wetlands Supplement contains the best scientific information available at the time of its production. The LRs noted that once a Party has used emission factors or methodologies from the Wetlands Supplement, it should continue to use them until justifiably improved methodologies or emission factors are developed.

Future meetings of greenhouse gas inventory lead reviewers

35. The LRs recognized that the focus of the LRs meeting should be the improvement of the quality, consistency and efficiency of the review process. The LRs also recognized that the conclusions and recommendations from their meetings should contain the more critical

and relevant issues to be presented in a concise way and limited to the main scope in accordance with the mandate.

36. The LRs recommended that their future meetings be organized by the secretariat in consultation with the LRs and last up to three days, with activities in the following sequence:

- (a) A refresher seminar based on practical examples and exercises to allow active participation of LRs and other participants;
 - (b) Discussions co-chaired by LRs, including through breakout groups, to facilitate the exchange of experience and interaction among LRs. The themes for the discussions at each meeting should be prepared by the secretariat in consultation with the LRs well before each meeting. If necessary, discussion papers should be provided and participation of relevant external participants identified;
 - (c) Short summary presentations of information from the secretariat on relevant issues, such as revised tools prepared by the secretariat, statistics and information on the review process. The materials prepared by the secretariat on these issues should be provided in advance, allowing the LRs to be prepared and to be ready for participating in discussions and formulating questions as necessary during the meeting;
 - (d) Preparation and adoption of conclusions and recommendations.
-