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**Subsidiary Body for Scientific and  
Technological Advice**

## **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 2019 and 2020 review cycles, including the selection of experts and lead reviewers and the composition of the expert review teams, and on plans for the 2021 review cycle. It also provides information on review training activities under the Convention, the 17<sup>th</sup> meeting of greenhouse gas inventory lead reviewers, and progress in updating the UNFCCC roster of experts and the tools and other materials used in the reviews.

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\*\* The advance version of this document was issued on 23 December 2020.



## Abbreviations and acronyms

Annex I Party	Party included in Annex I to the Convention
Article 8 review guidelines	“Guidelines for review under Article 8 of the Kyoto Protocol”
COP	Conference of the Parties
COVID-19	coronavirus disease 2019
CO <sub>2</sub>	carbon dioxide
CR	centralized review
CRF	common reporting format
DR*	desk review
EEA	European Environment Agency
ERT	expert review team
EU	European Union
GHG	greenhouse gas
ICR*LR	in-country review
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
iVTR	inventory virtual team room
LR	lead reviewer
NA	not applicable
NIR	national inventory report
non-Annex I Party	Party not included in Annex I to the Convention
N <sub>2</sub> O	nitrous oxide
SBSTA	Subsidiary Body for Scientific and Technological Advice
UNFCCC Annex I inventory reporting guidelines	“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”
UNFCCC Annex I inventory review guidelines	“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”
2006 IPCC Guidelines	<i>2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>
2019 Refinement to the 2006 IPCC Guidelines	<i>2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories</i>

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\* Used only in tables 1 and 2.

## **I. Introduction**

### **A. Mandate**

1. COP 9 requested the secretariat to prepare an annual report on GHG inventory review activities, including any recommendations resulting from the meetings of inventory LRs participating in the technical review of GHG inventories of Annex I Parties, for consideration by the SBSTA.<sup>1</sup> COP 20 requested the secretariat to report annually to the SBSTA on the composition of ERTs, including the selection of experts and LRs, and on the actions taken to ensure the application of the selection criteria for ERTs.<sup>2</sup> The annual report to the SBSTA prepared by the LRs collectively at their 17<sup>th</sup> meeting, containing suggestions on how to improve the quality, efficiency and consistency of the GHG inventory reviews,<sup>3</sup> 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.<sup>4</sup>

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, to allow Parties to assess the effectiveness of the programme.<sup>5</sup> In addition, SBSTA 24 requested the secretariat to include in the report information on progress in updating the UNFCCC roster of experts.<sup>6</sup>

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

4. This report provides information on activities relating to GHG inventory reviews conducted in the 2019 and 2020 review cycles<sup>7</sup> and plans for the 2021 review cycle.

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<sup>8</sup> 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. The lessons learned and challenges in the review processes under the Convention and its Kyoto Protocol have many elements in common.

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

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

## **II. Submissions and review of information from Annex I Parties**

7. GHG inventory review activities, along with some training of review experts and the organization of LR meetings, are funded from the UNFCCC core budget. Some related activities, such as refresher seminars for experienced reviewers, strengthening the secretariat's capacity to support review and training activities and developing the GHG

<sup>1</sup> Decision 12/CP.9, para. 10.

<sup>2</sup> Decision 13/CP.20, annex, para. 40.

<sup>3</sup> Prepared in accordance with decision 13/CP.20, annex, paras. 44 and 78.

<sup>4</sup> Decision 13/CP.20, para. 6, and annex, para. 78.

<sup>5</sup> Decision 14/CP.20, para. 3.

<sup>6</sup> FCCC/SBSTA/2006/5, para. 95.

<sup>7</sup> For the 2020 review cycle, information as at 15 November 2020 has been provided.

<sup>8</sup> FCCC/SBSTA/2020/INF.4.

information system, continue to be funded by voluntary contributions to supplementary funds.

## A. 2019 cycle of individual greenhouse gas inventory reviews

8. Between 2 April and 24 May 2019, the secretariat received submissions of annual GHG inventories for 2019 from all 44 Annex I Parties. The secretariat organized the 2019 review cycle taking into consideration the secretariat's programme budget for the biennium 2018–2019.<sup>9</sup> In accordance with this programme, while Parties continued to submit inventories on an annual basis, the core budget provided for the individual inventory reviews to be supported only once per biennium for each Party. Additional individual reviews could be carried out if supported through supplementary funding.

9. For the 2019 review cycle, as at 30 April 2019 the available supplementary funding was insufficient to complement the resources from the core budget, and therefore the secretariat organized individual reviews of 24 of the submissions referred to in paragraph 8 above. Of the individual reviews, 6 were conducted as in-country reviews (between 2 September and 12 October 2019), 15 in five centralized reviews (in Bonn between 2 September and 12 October 2019) and 3 in two desk reviews (between 16 and 28 September 2019). All review reports had been published by 2 September 2020.<sup>10</sup> Table 1 provides information on the 2019 review cycle and the publication date of each review report.

Table 1

### 2019 review cycle for greenhouse gas inventory submissions

<i>Party</i>	<i>Review dates (review type)<sup>a</sup></i>	<i>Review report publication date</i>
Australia	2–7 September 2019 (CR)	18 May 2020
Austria	No individual review of the 2019 inventory submission	NA
Belarus	23–28 September 2019 (CR)	4 June 2020
Belgium	No individual review of the 2019 inventory submission	NA
Bulgaria	No individual review of the 2019 inventory submission	NA
Canada	23–28 September 2019 (CR)	11 May 2020
Croatia	No individual review of the 2019 inventory submission	NA
Cyprus	2–7 September 2019 (CR)	11 December 2019
Czechia	16–21 September 2019 (CR)	23 January 2020
Denmark	No individual review of the 2019 inventory submission	NA
Estonia	No individual review of the 2019 inventory submission	NA
EU	No individual review of the 2019 inventory submission	NA
Finland	No individual review of the 2019 inventory submission	NA
France	9–14 September 2019 (CR)	7 February 2020

<sup>9</sup> FCCC/SBI/2017/4.

<sup>10</sup> Available at <https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/inventory-review-reports-2019>.

<i>Party</i>	<i>Review dates (review type)<sup>a</sup></i>	<i>Review report publication date</i>
Germany	No individual review of the 2019 inventory submission	NA
Greece	30 September to 5 October 2019 (ICR)	31 March 2020
Hungary	2–7 September 2019 (CR)	14 February 2020
Iceland	16–21 September 2019 (DR)	19 March 2020
Ireland	No individual review of the 2019 inventory submission	NA
Italy	7–12 October 2019 (ICR)	29 May 2020
Japan	No individual review of the 2019 inventory submission	NA
Kazakhstan	23–28 September 2019 (CR)	2 September 2020
Latvia	No individual review of the 2019 inventory submission	NA
Liechtenstein	No individual review of the 2019 inventory submission	NA
Lithuania	2–7 September 2019 (ICR)	4 February 2020
Luxembourg	No individual review of the 2019 inventory submission	NA
Malta	9–14 September 2019 (CR)	15 May 2020
Monaco	9–14 September 2019 (ICR)	20 March 2020
Netherlands	16–21 September 2019 (CR)	22 April 2020
New Zealand	7–12 October 2019 (ICR)	2 June 2020
Norway	No individual review of the 2019 inventory submission	NA
Poland	No individual review of the 2019 inventory submission	NA
Portugal	No individual review of the 2019 inventory submission	NA
Romania	No individual review of the 2019 inventory submission	NA
Russian Federation	No individual review of the 2019 inventory submission	NA
Slovakia	23–28 September 2019 (DR)	3 March 2020
Slovenia	No individual review of the 2019 inventory submission	NA
Spain	16–21 September 2019 (CR)	20 March 2020
Sweden	23–28 September 2019 (DR)	30 January 2020
Switzerland	9–14 September 2019 (CR)	9 April 2020
Turkey	7–12 October 2019 (CR)	26 May 2020
Ukraine	23–28 September 2019 (CR)	25 March 2020
United Kingdom	30 September to 5 October 2019 (ICR)	7 February 2020
United States	7–12 October 2019 (CR)	20 July 2020

<sup>a</sup> In the secretariat's programme budget for the biennium 2018–2019, the core budget provided for the individual inventory reviews to be supported only once per biennium for each Party. Additional individual reviews could be carried out if supported through supplementary funding.

## B. 2020 cycle of individual greenhouse gas inventory reviews

### 1. Greenhouse gas inventory submissions

10. Between 18 March and 22 September 2020, the secretariat received submissions of annual GHG inventories for 2020 from all 44 Annex I Parties (see table 2).

11. The secretariat organized the 2020 review cycle taking into consideration the secretariat's programme budget for the biennium 2020–2021.<sup>11</sup>

12. For the 2020 review cycle, as at 30 April 2020 the available supplementary funding was insufficient to complement the resources from the core budget, and therefore the secretariat organized individual reviews of 25 of the submissions referred to in paragraph 10 above. Of the individual reviews, 21 were organized as centralized reviews and conducted remotely (between 2 September and 21 November 2020) and 4 as two desk reviews (conducted between 31 August and 14 November 2020). Table 2 shows the review dates and type of review for each Party.

Table 2

#### Submission and review of greenhouse gas inventories in 2020

Party	Original submission dates		Review dates (review type) <sup>a</sup>
	NIR	CRF tables	
Australia	27 May 2020	27 May 2020	16–21 November 2020 (CR)
Austria	15 April 2020	15 April 2020	21–26 September 2020 (CR)
Belarus	15 April 2020	15 April 2020	No individual review of the 2020 inventory submission
Belgium	14 April 2020	14 April 2020	26–31 October 2020 (CR)
Bulgaria	15 April 2020	15 April 2020	26–31 October 2020 (CR)
Canada	14 April 2020	14 April 2020	No individual review of the 2020 inventory submission
Croatia	10 April 2020	10 April 2020	26–31 October 2020 (CR)
Cyprus	15 April 2020	15 April 2020	2–7 November 2020 (CR)
Czechia	14 April 2020	14 April 2020	No individual review of the 2020 inventory submission
Denmark	15 April 2020	15 April 2020	2–7 November 2020 (CR)
Estonia	13 April 2020	13 April 2020	2–7 November 2020 (CR)
EU	15 April 2020	15 April 2020	9–14 November 2020 (DR)
Finland	9 April 2020	9 April 2020	31 August to 5 September 2020 (DR)
France	15 April 2020	15 April 2020	No individual review of the 2020 inventory submission
Germany	15 April 2020	18 March 2020	2–7 November 2020 (CR)
Greece	14 April 2020	14 April 2020	No individual review of the 2020 inventory submission
Hungary	15 April 2020	15 April 2020	26–31 October 2020 (CR)
Iceland	15 April 2020	15 April 2020	No individual review of the 2020 inventory submission
Ireland	15 April 2020	15 April 2020	12–17 October 2020 (CR)
Italy	12 April 2020	12 April 2020	No individual review of the 2020 inventory submission

<sup>11</sup> FCCC/SBI/2019/4.

<i>Party</i>	<i>Original submission dates</i>		
	<i>NIR</i>	<i>CRF tables</i>	<i>Review dates (review type)<sup>a</sup></i>
Japan	14 April 2020	14 April 2020	7–12 September 2020 (CR)
Kazakhstan	22 September 2020	15 April 2020	No individual review of the 2020 inventory submission
Latvia	14 April 2020	14 April 2020	12–17 October 2020 (CR)
Liechtenstein	15 April 2020	15 April 2020	7–12 September 2020 (CR)
Lithuania	15 April 2020	15 April 2020	No individual review of the 2020 inventory submission
Luxembourg	15 April 2020	15 April 2020	9–14 November 2020 (DR)
Malta	13 April 2020	8 April 2020	No individual review of the 2020 inventory submission
Monaco	15 April 2020	15 April 2020	No individual review of the 2020 inventory submission
Netherlands	15 April 2020	15 April 2020	No individual review of the 2020 inventory submission
New Zealand	15 April 2020	15 April 2020	No individual review of the 2020 inventory submission
Norway	3 April 2020	3 April 2020	31 August to 5 September 2020 (DR)
Poland	15 April 2020	15 April 2020	16–21 November 2020 (CR)
Portugal	3 April 2020	3 April 2020	26–31 October 2020 (CR)
Romania	14 April 2020	14 April 2020	2–7 November 2020 (CR)
Russian Federation	15 April 2020	15 April 2020	26–31 October 2020 (CR)
Slovakia	14 April 2020	14 April 2020	No individual review of the 2020 inventory submission
Slovenia	15 April 2020	13 April 2020	12–17 October 2020 (CR)
Spain	6 April 2020	6 April 2020	No individual review of the 2020 inventory submission
Sweden	14 April 2020	14 April 2020	21–26 September 2020 (CR)
Switzerland	14 April 2020	14 April 2020	No individual review of the 2020 inventory submission
Turkey	13 April 2020	13 April 2020	No individual review of the 2020 inventory submission
Ukraine	25 May 2020	25 May 2020	No individual review of the 2020 inventory submission
United Kingdom	15 April 2020	15 April 2020	No individual review of the 2020 inventory submission
United States	14 April 2020	14 April 2020	2–7 November 2020 (CR)

<sup>a</sup> In the secretariat's programme budget for the biennium 2020–2021, the core budget provided for the individual inventory reviews to be supported only once per biennium for each Party. Additional individual reviews could be carried out if supported through supplementary funding.

## 2. Organization of reviews and composition of expert review teams

13. In accordance with 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 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 that its format is correct. Status reports for 26 GHG inventory submissions received were prepared and published on the UNFCCC website.<sup>12</sup> 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 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 2020 review cycle.

15. In the 2020 review cycle, the secretariat coordinated the review of the GHG inventories of 25 Parties (see para. 12 above). The reports on the reviews were in preparation at the time of issuance of this document.

16. New experts who have taken the training courses for reviews under the Convention and have passed the corresponding examinations can participate in an ERT.<sup>13</sup> In 2020, the secretariat invited 183 experts to participate in the GHG inventory reviews, 50 of whom declined on account of previous commitments, a heavy workload, lack of financial resources or other reasons. Another seven 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 when planning 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 and non-Annex I Parties. In the 2020 review cycle, 142 individuals from 60 Parties served as inventory experts on review teams, of which 51 were from non-Annex I Parties, 21 from Annex I Parties with economies in transition and 70 from other Annex I Parties.

18. Between 2000, when individual reviews of GHG inventory submissions were first conducted during the trial period, and 2020, 523 individual experts from 100 Parties (41 Annex I Parties and 59 non-Annex I Parties) participated in GHG inventory review activities.<sup>14</sup>

19. Table 3 provides a breakdown of the participation of experts by nominating Party in the 2020 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 2020: Austria, Croatia, Cyprus, Hungary, Iceland, Liechtenstein, Luxembourg, Malta, Monaco, Portugal and Slovenia. In general, there were several reasons for experts not participating in the 2020 review cycle: (1) some Annex I Parties, namely Cyprus, Iceland and Monaco, had not nominated any experts; (2) some Parties had nominated experts but 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 in the roster were not available for the reviews; and (4) some experts had a heavy workload or other obligations during the review period. 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 2020: Australia (5), Belgium (9), Brazil (8), China (4), Georgia (4), Ghana (4), Japan (9), Switzerland (4), Turkey (6), United Kingdom of Great Britain and Northern Ireland (10), United States of America (5) and Zimbabwe (4). Such strong support is a key factor for the success of the reviews.

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<sup>12</sup> <https://unfccc.int/ghg-inventories-annex-i-parties/2020>.

<sup>13</sup> As per decisions 12/CP.9, annex I, and 14/CP.20, annex. For more information on the training of review experts, see document FCCC/SBSTA/2020/INF.4, chap. V.

<sup>14</sup> Not including 12 observers that participated in the reviews between 2000 and 2008.



Table 3  
**Number of experts participating in the 2020 greenhouse gas inventory review cycle, by nominating Party**

<i>Annex I Parties</i>		<i>Annex I Parties with economies in transition</i>	<i>Non-Annex I Parties</i>	
Australia – 5	Japan – 9	Belarus – 1	Argentina – 2	Mongolia – 1
Belgium – 9	Kazakhstan <sup>a</sup> – 1	Bulgaria – 3	Brazil – 8	North Macedonia – 2
Canada – 1	Netherlands – 3	Czechia – 1	Burundi – 1	Peru – 1
Denmark – 2	New Zealand – 2	Estonia – 1	Chile – 3	Republic of Moldova – 1
EU – 1	Norway – 1	Georgia – 4	China – 4	San Marino – 1
Finland – 1	Spain – 2	Latvia – 1	Colombia – 2	South Africa – 2
France – 1	Sweden – 2	Lithuania – 1	Costa Rica – 1	Sudan – 2
Germany – 1	Switzerland – 4	Poland – 1	El Salvador – 1	Thailand – 2
Greece – 2	Turkey – 6	Romania – 2	Gambia – 1	United Republic of Tanzania – 1
Ireland – 1	United Kingdom – 10	Russian Federation – 2	Ghana – 4	Uruguay – 1
Italy – 1	United States – 5	Slovakia – 1	Kazakhstan – 1	Vanuatu – 1
		Ukraine – 3	Kenya – 1	Zambia – 1
			Malaysia – 1	Zimbabwe – 4
			Mauritius – 1	

<sup>b</sup> 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 and non-Annex I Parties. It also takes into consideration the experts' experience in preparing and managing GHG inventories, previous participation in reviews, technical expertise in the GHG inventory sectors and successful completion of the training courses. In 2020, 20 experts from 17 Parties served as LRs, of which 10 were from non-Annex I Parties and 10 from Annex I Parties (of which one was an Annex I Party with an economy in transition).

21. For each desk review, the secretariat invited one or two review experts for each sector and one or two generalists to cover cross-cutting issues. For each centralized review conducted remotely, the secretariat invited two to four review experts for each sector and one or two generalists to cover cross-cutting issues. In accordance with the conclusions and recommendations from the 11<sup>th</sup> meeting of inventory LRs, the secretariat ensured that no land use, land-use change and forestry experts acted as LRs.<sup>15</sup>

22. The secretariat continues to reinforce ERTs undertaking centralized reviews with new review experts. In 2020, nine 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 2020 review cycle while maintaining the required quality, in particular by increasing the number of experts per team and updating the review materials (see chap. VI below).

### C. 2021 cycle of individual greenhouse gas inventory reviews

24. Annex I Parties are to submit their 2021 GHG inventory submissions in accordance with the UNFCCC Annex I inventory reporting guidelines by 15 April 2021. The inventories will be reviewed in accordance with the UNFCCC Annex I inventory review guidelines and

<sup>15</sup> See para. 45 of the conclusions, included in document FCCC/SBSTA/2014/INF.17.

taking into consideration the secretariat's programme budget for the biennium 2020–2021.<sup>16</sup> The secretariat will organize the review of the 2021 GHG inventory submissions under the Convention so that the individual reviews take place in the third quarter of 2021.

### **III. Meeting of greenhouse gas inventory lead reviewers**

25. The 17<sup>th</sup> meeting of GHG inventory LRs took place from 29 June to 3 July 2020. The in-person meeting scheduled to take place in Bonn from 2 to 4 March 2020 had to be postponed and held as a virtual meeting owing to the circumstances related to COVID-19. Of the 75 experts from non-Annex I Parties invited to the meeting, 56 attended, including one acting as a representative of the IPCC Task Force on National Greenhouse Gas Inventories. In the case of experts from Annex I Parties, 50 were invited and 36 attended. In addition, two members of the facilitative branch of the Compliance Committee, the Co-Chairs of the Paris Agreement Implementation and Compliance Committee, one representative of the European Commission, two representatives of EEA and two representatives of IEA attended the meeting as observers.

26. The meeting facilitated the work of the LRs in fulfilling their task of ensuring consistency of reviews across Parties and in providing suggestions on how to improve the quality, efficiency and consistency of the reviews.<sup>17</sup> The conclusions and recommendations from the meeting will be reported to the SBSTA.<sup>18</sup> Such reports provide the SBSTA with input for its guidance to the secretariat on selecting experts and coordinating ERTs and the review process. LRs were also invited to provide guidance on matters such as review tools and materials and review report templates.<sup>19</sup>

### **IV. UNFCCC roster of experts and availability of nominated experts**

27. As at 30 November 2020, the UNFCCC roster of experts included 1,731 GHG inventory experts: 1,133 from non-Annex I Parties, 595 from Annex I Parties and 3 from international organizations.<sup>20</sup> Among them, 557 have passed all mandatory examinations to participate in the annual reviews and could be invited to participate in GHG inventory reviews for Annex I Parties.

28. Many of the qualified experts on the roster have not actively participated in the reviews in recent years. In addition, the significant workloads of the nominated experts at their respective offices prohibit them from devoting sufficient time to the online training programmes and consequently from taking part in annual GHG inventory reviews under the Convention and its Kyoto Protocol. This is particularly problematic for reviews under the Kyoto Protocol, for which experienced experts are required to take the updated courses and pass the examinations to become new LRs, generalist reviewers and reviewers for activities under Article 3, paragraphs 3–4, of the Kyoto Protocol for the second commitment period.<sup>21</sup> Each year, national focal points are requested to nominate more GHG inventory experts to the roster. Simultaneously, the secretariat continues its efforts to invite nominated experts to the respective training programmes and encourage them to successfully complete the mandatory training courses for reviews under the Convention and its Kyoto Protocol by passing all the relevant examinations.

29. In May 2020, as in previous years, the secretariat called for nominations of new experts who can actively participate in the reviews of GHG inventories, biennial reports and

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<sup>16</sup> The COP approved the secretariat's programme budget for the biennium 2020-2021 in decision 17/CP.25.

<sup>17</sup> As per decision 13/CP.20, annex; decision 22/CMP.1, annex, in conjunction with decision 4/CMP.11; and decision 24/CMP.1, annex II.

<sup>18</sup> As per decisions 13/CP.20, annex, para. 44, and 22/CMP.1, annex, para. 40(a).

<sup>19</sup> Decision 13/CP.20, annex, para. 48.

<sup>20</sup> The roster is available at <https://www4.unfccc.int/sites/roestaging/Pages/Home.aspx>.

<sup>21</sup> As per decision 5/CMP.11, annex.

national communications submitted by Annex I Parties and the analysis of biennial update reports submitted by non-Annex I Parties. In the letter sent to all national focal points on this matter they were also invited to regularly update the information on experts included in the roster and to remove the experts who are no longer available for the reviews. The secretariat informed national focal points that the experts nominated to the roster are eligible to participate in the various training programmes the secretariat offers to those interested and able to participate in UNFCCC reviews and analyses. The letter contained a link to the training programme web page,<sup>22</sup> which include schedules of upcoming training activities.

30. In 2020, the secretariat continued to make an online form available on the UNFCCC website to facilitate experts' self-nomination to the roster and approval by the national focal points. The form also facilitates the direct, and therefore timely, updating of the list of nominees and their details by individual experts. Some cases were observed of self-nomination or update of information not being subsequently approved by the national focal point and therefore not being completed. The secretariat continues to assist national focal points and experts to ensure that they benefit from the self-nomination function, and requests cooperation from all Parties and experts in keeping the roster up to date. The secretariat is also continuously improving the accessibility and user-friendliness of the information on the training programmes on the UNFCCC website<sup>23</sup> and continues to update the content to reflect the latest developments.

## V. Training of experts

### A. Implementation of the training programme for experts for the technical review of greenhouse gas inventories of Annex I Parties

31. The basic course of the training programme for review experts for the technical review of GHG inventories of Annex I Parties, mandated by the COP and implemented by the secretariat,<sup>24</sup> 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 based on the methodological guidance provided by the IPCC and detailed information on the specific aspects of the review of the five IPCC inventory sectors.

32. In 2020, one partial cycle of the basic course facilitated by instructors was offered, comprising an online study period of eight weeks (2 March to 27 April 2020) for experts from Latin America and the Caribbean. The in-person training seminar that would typically follow the online instructed course was planned for 28 to 30 April 2020 in Nassau; however, owing to the circumstances related to COVID-19, the seminar was postponed. An online refresher study period and a virtual seminar for this cycle of trainees is planned for the first quarter of 2021. A total of 29 inventory experts nominated by their national focal points were invited to take the basic course, of which 28 experts from 25 non-Annex I Parties took the online course in 2020.

33. For 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. Since the launch of the updated basic course in 2015, the secretariat has sent invitations to experienced inventory reviewers, including LRs, to take the non-instructed online course<sup>25</sup> in order to update their skills and knowledge, and to take the relevant examinations. In-person examinations are organized, making use of existing opportunities where secretariat staff can be present, such as during the in-country reviews of biennial reports and national communications, sessions of the COP and the subsidiary bodies, and meetings of LRs.

<sup>22</sup> <https://unfccc.int/process/transparency-and-reporting/training-of-review-experts/training-programmes-for-experts>.

<sup>23</sup> As footnote 22 above.

<sup>24</sup> As per decisions 12/CP.9, 10/CP.15 and 14/CP.20.

<sup>25</sup> As encouraged in decision 14/CP.20, annex, para. 8.

Between 1 January and 30 November 2020, one expert participated in the non-instructed course and took the examinations.

34. In 2020, the secretariat completed preparations for a half-day refresher seminar for experienced GHG inventory reviewers on the topic of successfully leading a review team. The seminar was to be held in conjunction with the 17<sup>th</sup> meeting of GHG inventory LRs; however, since that meeting had to be conducted virtually, the refresher seminar was postponed as the materials and format were not suited to a virtual setting.

35. Since June 2012, the secretariat has offered an online course on the review of complex models and higher-tier methods to both experienced and new experts. In this reporting cycle, no experts took the course.

36. Since the first pilot training session in 2002, the secretariat, together with review experts, has been working on developing, enhancing and implementing the training programme for experts for the review of GHG inventory submissions of Annex I Parties in order to increase the number of experts who are qualified to take part in the reviews, and in particular to increase the number of experts from non-Annex I Parties with a view to realizing geographical balance in ERTs. Although the importance of training review experts for ensuring the quality and consistency of the review process is widely recognized among Parties and experts, there is a decreasing trend in the number of participants in the basic course sitting and passing the final examinations, which has become particularly evident since the basic course was updated in 2015.

37. At their 17<sup>th</sup> meeting, the LRs welcomed the information provided by the secretariat on training activities undertaken in 2019, ongoing and planned training activities for 2020, and improvements to training activities in 2019 and 2020.

38. The secretariat continues its efforts to encourage all available experts listed on the UNFCCC 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 national focal points to nominate new experts for the training programmes and provides information on the training courses on the UNFCCC website and by other electronic means, such as the secretariat's newsletter, which is circulated to national focal points and all experts nominated to the roster of experts.

## **VI. Review tools and materials**

39. Providing support for 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**

40. In order to fulfil its mandates, the secretariat established a data warehouse for storing and managing data related to GHG inventories and other submissions. Such a complex database is needed to process the extensive sets of GHG data reported by Annex I Parties, and it enables key reports and review tools to be generated and information in the GHG data interface to be updated. The upgrade of the data warehouse addressing the revised UNFCCC Annex I inventory reporting guidelines and the UNFCCC Annex I inventory review guidelines and technology obsolescence issues was completed in 2019.

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

41. COP 20 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 and in a stand-alone document.<sup>26</sup> The latest aggregate GHG information was published on 26 June 2020.<sup>27</sup>

### C. Greenhouse gas data interface

42. The GHG data interface is a portal on the UNFCCC website<sup>28</sup> that provides public access to GHG data reported by Parties under the Convention and its Kyoto Protocol. The upgrade of all modules of the data interface, following the mandate received at SBSTA 38,<sup>29</sup> was completed in 2019. Moreover, the data in the interface was updated in November 2020 to include information from the GHG inventory submissions that had been received as at 17 October 2020.

### D. Standardized set of data comparisons

43. COP 20 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.<sup>30</sup> Twenty-six status reports were generated for the 2020 review cycle using the new template agreed at the 16<sup>th</sup> meeting of LRs.

### E. GHG Locator and other review tools

44. The GHG Locator tool presents the time-series data from submitted CRF tables of all Annex I Parties in a user-friendly format.<sup>31</sup> It shows quantitative information (e.g. emission estimates, implied emission factors and activity data) and qualitative information (e.g. notation keys) reported by all Annex I Parties. The Comparison tool compares submissions and parameters in a user-friendly format.<sup>32</sup> Other review tools, such as the Statistical Outlier Detection tool and the Key Category Analysis tool, are exclusively used internally by review officers to prepare necessary outputs throughout different stages of the review process.

45. The LRs noted with appreciation the information provided by the secretariat at their 17<sup>th</sup> meeting on its recent work in updating the review tools, especially the GHG Locator and the Comparison tool during the 2019 review cycle. The LRs were interested to hear that the overall functionality and performance of the review tools had been enhanced, enabling more experts to use them. Following the recommendations from the 16<sup>th</sup> meeting of LRs, the secretariat continued to maintain and update the review tools for the 2020 annual review cycle.<sup>33</sup>

46. The supplementary contributions of several Parties enabled the secretariat to continue developing the Statistical Outlier Detection tool and integrating it into existing processes for preparing assessment reports. The LRs expressed their interest in the development of this tool, which will enable assessment reports to be prepared in an integrated manner. The first version of the new tool is expected to be presented to LRs at their 18<sup>th</sup> meeting. The LRs are looking forward to it being ready for use in the 2021 review cycle.

<sup>26</sup> Decision 13/CP.20, para. 8.

<sup>27</sup> Available at <https://unfccc.int/documents/228689>.

<sup>28</sup> <https://unfccc.int/process-and-meetings/transparency-and-reporting/greenhouse-gas-data/ghg-data-unfccc/ghg-data-from-unfccc>.

<sup>29</sup> FCCC/SBSTA/2013/3, para. 121.

<sup>30</sup> Decision 13/CP.20, paras. 4 and 6.

<sup>31</sup> Available at <http://rt.unfccc.int/locator>.

<sup>32</sup> Available at <http://rt.unfccc.int/comparison>.

<sup>33</sup> See paras. 18, 19, 23 and 24 of the conclusions and recommendations in the annex to document FCCC/SBSTA/2019/INF.4.

**F. Inventory virtual team room**

47. The GHG iVTR is an online application facilitating the review of GHG inventories of Annex I Parties. It supports the consistency, timeliness and efficiency of the review process by providing a collaborative environment for the work of ERTs, Parties and the secretariat before, during and after the review week. The iVTR is a platform where users can share and store documents, raise and clarify issues identified during reviews, ask technical questions, exchange information, and prepare and monitor the progress of the review reports.

48. At their 17<sup>th</sup> meeting, the LRs noted with appreciation the information provided by the secretariat on its recent work updating the iVTR. Moreover, the LRs recognized the benefits of using the iVTR during the review process and welcomed the new features that were made available for the 2019 and 2020 review cycles, including for preparing the assessment reports. The LRs also welcomed the development of the review issues database as a new module of the iVTR. The LRs appreciated the secretariat's efforts in further integrating the iVTR modules and continuing to improve the user-friendliness of the application.

## Annex

### Conclusions and recommendations from the 17<sup>th</sup> meeting of greenhouse gas inventory lead reviewers

#### I. Introduction

1. The 17<sup>th</sup> meeting of GHG inventory LRs took place from 29 June to 3 July 2020. The in-person meeting that had been scheduled to take place in Bonn from 2 to 4 March 2020 had to be postponed and held as a virtual meeting owing to the circumstances related to COVID-19. Of the 75 experts from non-Annex I Parties invited to the meeting, 56 attended, including one acting as a representative of the IPCC Task Force on National Greenhouse Gas Inventories. In the case of experts from Annex I Parties, 50 were invited and 36 attended. Two members of the facilitative branch of the Compliance Committee, the Co-Chairs of the Paris Agreement Implementation and Compliance Committee, one representative of the European Commission, two representatives of EEA and two representatives of IEA attended the meeting as observers.

2. The LRs noted with appreciation the presentations made by a member of the facilitative branch of the Compliance Committee on the branch's tool for analysing published annual review reports; the representatives of IEA on enhancing the quality of energy data in GHG inventories; the representatives of EEA on the review of GHG inventories under the EU effort-sharing decision;<sup>34</sup> and by a representative of the IPCC Task Force on National Greenhouse Gas Inventories on the 2019 Refinement to the 2006 IPCC Guidelines.

3. The meeting facilitated the work of the LRs in fulfilling their task of ensuring consistency of reviews across Parties and the quality and objectivity of the technical examinations therein,<sup>35</sup> and in providing suggestions on how to improve the quality, efficiency and consistency of the reviews.<sup>36</sup> In addition, at the meeting the LRs provided guidance on matters such as review tools, materials and review report templates.<sup>37</sup> The conclusions and recommendations from the meeting will be reported to the SBSTA.<sup>38</sup> Such reports provide the SBSTA with input for its guidance to the secretariat on selecting experts and coordinating ERTs and the review process.

#### II. Coordination and planning of the 2020 review cycle

4. The LRs took note of the information provided by the secretariat on the plan for the 2020 GHG inventory review cycle. The plan, which took into account the challenges attributable to COVID-19 (e.g. travel restrictions, difficulties in constituting regionally balanced ERTs), was finalized by the secretariat in May 2020 and accepted by Parties. That plan comprised 12 centralized reviews, 9 in-country reviews and 4 desk reviews conducted in August–November 2020. The LRs noted the contingency plan developed by the secretariat for mitigating potentially more severe or extended impacts of COVID-19 on the review process, which included options such as conducting all reviews as remote meetings, increasing the time dedicated to the reviews and prioritizing certain review tasks. The LRs also noted, from the responses to the secretariat's questionnaire to experts on their availability to participate in remote reviews and also from experience with similar review processes involving remote participation, several barriers to the ERTs participating in the reviews (e.g.

<sup>34</sup> Decision 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of EU member States to reduce their GHG emissions to meet the Community's GHG emission reduction commitments up to 2020.

<sup>35</sup> As per decision 13/CP.20, annex; decision 22/CMP.1, annex, in conjunction with decision 4/CMP.11; and decision 24/CMP.1, annex II.

<sup>36</sup> As per decision 13/CP.20, annex, paras. 42 and 44.

<sup>37</sup> As per decision 13/CP.20, annex, para. 48.

<sup>38</sup> As per decisions 13/CP.20, annex, para. 44, and 22/CMP.1, annex, para. 40(a).

lack of reliable Internet connection, difficulty in focusing on review tasks while working from home and different time zones making collaboration difficult).

5. The LRs requested the secretariat to proceed with the remaining organization of the 2020 review cycle and encouraged the secretariat to further refine the contingency plan, referred to in paragraph 4 above, to overcome the challenges of remote reviews. Given their role in leading the review process, the LRs recognized the need to make every effort to ensure that the impacts of COVID-19 on the process would be minimized, including any impacts on the timeliness and quality of the review reports. The LRs reiterated the need for Parties to continue encouraging, supporting and facilitating the participation of their experts in GHG inventory reviews, particularly in remote reviews.

### **III. Training and availability of review experts**

6. The LRs welcomed the information provided by the secretariat on training activities organized by the secretariat in 2019, ongoing and planned training activities for 2020 and improvements to training activities in 2019 and 2020. The LRs recalled the need for new and experienced experts and new LRs to fulfil the mandatory requirements of the relevant training courses under the Convention and its Kyoto Protocol, thus enabling them to participate in the GHG inventory reviews.

### **IV. Development of review tools and materials**

7. The LRs welcomed the development in 2019 and 2020 of the review issues database as a new module of the iVTR. They noted that all modules of the GHG data interface had been upgraded. The LRs reiterated the importance of cooperation and communication among stakeholders, particularly between the national inventory compilers and the providers of national energy statistics, for improving consistency between the energy balances used for GHG inventories and those reported to IEA.

## **V. Improvements to the quality, efficiency and consistency of reviews**

### **A. Consistency of reviews**

8. The LRs discussed ways of improving the consistency of the GHG inventory review process on the basis of experience from the 2019 review cycle and the background paper prepared by the secretariat on consistency issues identified during that cycle. In particular, the LRs recommended that they promote the following guidance and procedures:

(a) Assessment and review of models and tier 3 methods, including country-specific approaches, during in-country and centralized reviews: the LRs concluded that, to be in line with the 2006 IPCC Guidelines, and in order for their results to be understandable, assessable and credible, models and tier 3 methods, including country-specific approaches, must be reported and documented transparently. The LRs noted that it is not the responsibility of the ERT to judge the application by a Party of a model or tier 3 method, but the ERT should review whether input and output data and parameters of that model or method have been reported transparently and accurately and are consistent across the time series. The ERT should request the Party to provide complete information on models and tier 3 methods before the review week. The LRs also concluded that the in-depth review of estimates calculated using models and tier 3 methods should be prioritized during in-country reviews, while during centralized reviews the ERT should prioritize reviewing whether the models and tier 3 methods have been transparently and comprehensively documented in the NIR. The ERT should indicate in the review report whether the models and tier 3 methods were reviewed during a previous in-country review. The LRs consider that models and tier 3 methods, including country-specific approaches, can be deemed to have been transparently and comprehensively documented in the NIR when the information provided covers:



- (i) The reasons for selecting the particular model or method;
- (ii) The area of application of the original model, the reason for using the original for conditions outside its intended domain and the way in which the original has been adapted in cases where an existing model or method has been adapted for use;
- (iii) The main equations and processes of the model or method;
- (iv) The material assumptions made in developing and applying the model or method;
- (v) The domain of application of the model or method, including the range of conditions for which it has been developed to apply;
- (vi) The manner in which the model or method parameters were estimated;
- (vii) The key inputs and outputs of the model or method;
- (viii) The calibration and evaluation, using both calibration data and independent data, of the model or method;
- (ix) The approach undertaken for the uncertainty analysis and the sensitivity analysis, and the results of these analyses;
- (x) The quality assurance and quality control procedures applied, and the findings from carrying out these procedures;
- (xi) A comparison of the results from the model or method with the results from lower-tier or default methodologies;
- (xii) References to peer-reviewed literature where details of research on the model or method can be found.

(b) In relation to the topic referred to in paragraph 8(a) above, the LRs further concluded that, during an in-country review, the ERT should focus on considering input data, key assumptions, parameters and the type of model or method used, as well as on output data, in order to ascertain whether the model is suitable for the application. The ERT should also cross-check, where possible, a Party's assessment of the accuracy of the results from the model or tier 3 method, including country-specific approach, by comparing them with the results from the tier 1 or 2 method. The LRs noted that generally the aim of applying a tier 3 method is to increase the accuracy of the estimates, leading to a lower uncertainty than that of tier 1 estimates. After the overall assessment, the ERT should identify any instances of the 2006 IPCC Guidelines not being followed and should provide clear recommendations on the steps the Party needs to take to enhance transparency, resolve problems and improve the models and tier 3 methods, including country-specific approaches.

(c) Review of the allocation of greenhouse gas emissions from iron and steel between the industrial processes and product use and the energy sectors, and assessment of the reporting of emissions as included elsewhere: the LRs concluded that, whenever possible, the ERT should check that the total reported bottom-up calculated estimates of CO<sub>2</sub> emissions from the non-energy use of fuels, including uses as feedstock and reductant at different subcategory levels, are complete, consistent and transparent, and the feedstock or reductant requirements of processes are in balance with the non-energy use or feedstock supply recorded in the national energy statistics. The LRs noted that the ERT may request a Party to provide information, if this information is missing from the NIR, for the purpose of verifying the estimated emissions from iron and steel production and demonstrating that no double counting or omission has occurred. The LRs also noted that, if a Party provides accurate, clear information during the review, the ERT is able to determine whether all emissions have been accounted for, regardless of the GHG inventory sector. However, if the information provided by the Party is inaccurate or unclear (or is not provided), the ERT is unable to determine what proportion of emissions from iron and steel production have been reported under the energy sector (because reducing agent may also be used in other industries such as cement production, ferroalloys production and carbide production). The ERT should in both cases encourage the Party to provide accurate information (e.g. a carbon balance) in the NIR to increase the transparency of its reporting. If the ERT identifies an issue of accuracy, in particular an underestimation of emissions, it should recommend that the Party provide more

transparent information to demonstrate that there has been no double counting or omission of emissions from iron and steel production. The LRs also concluded that, when a Party allocates emissions differently from the recommended method of allocation in the 2006 IPCC Guidelines and reports emissions under the energy sector or the industrial processes and product use sector as included elsewhere, the ERT should check whether the Party has transparently reported where the emissions have been included and has ensured the accuracy of the estimates. If the Party has not done so, the ERT should follow up with a relevant recommendation;

(d) Inclusion of potential problems related to transparency in the list of potential problems and further questions raised by the ERT at the end of the review week ('Saturday paper') in accordance with the Article 8 review guidelines: the LRs concluded that it is crucial for them to ensure that the ERT has identified all potential problems with the GHG inventory, including those of transparency, well before the end of the review week. Therefore, the ERT should prioritize identifying potential problems related to transparency issues before the review week and discuss them. The ERT should then discuss these issues with the Party early in the review week, and communicate to the Party potential problems related to transparency as soon as possible and before the end of the review week. The LRs and review officers should present relevant guidance to the ERT early in the review process or at least at the beginning of the review week, clarifying the type of issues that should be included in the review report and in the list of potential problems and further questions raised by the ERT ('Saturday paper'), with an emphasis on transparency issues. The LRs noted that the quality control activities performed by the secretariat should start as early as possible during the review process. The LRs also concluded that the ERT should always include a potential problem in the 'Saturday paper' when it is not able to understand whether the issue leads to an underestimation of emissions or an overestimation of removals because the information provided in the NIR or requested from the Party before and during the review week is not sufficient to assess the likely level of emissions or removals or the accuracy of the estimates. The LRs further concluded that the ERT should provide clear guidance to the Party on the information that it is expected to provide, as soon as possible and before the end of the review week, to enable a final judgment to be made on the potential problem identified with the reported emissions;

(e) Consideration and assessment of issues related to indirect carbon dioxide emissions: the LRs concluded that, when indirect CO<sub>2</sub> emissions are reported by a Party, the ERT should assess the accuracy, consistency, comparability and transparency of the estimates. The LRs also concluded that, when an issue has been identified with the reported estimates in relation to these principles, the ERT should encourage the Party to improve the accuracy, consistency, comparability or transparency, as necessary, of the estimates and the relevant background information provided. The LRs noted that the ERT may cross-check the non-methane volatile organic compound estimates generating the indirect CO<sub>2</sub> emission estimates against those reported in the air pollutant inventories submitted under the Convention on Long-Range Transboundary Air Pollution. The ERT should ask the Party to explain any discrepancies and, where relevant, encourage the Party to correct the estimates. The LRs further concluded that, if a Party has decided to report indirect CO<sub>2</sub> emissions, the ERT should check that the Party has reported the national total GHG emissions with and without indirect CO<sub>2</sub>, and encourage the Party to continue reporting such emissions in subsequent GHG annual inventory submissions while ensuring that no double counting occurs;

(f) Consideration and assessment of a Party's implementation of a recommendation from a previous review: the LRs concluded that the ERT should consider whether a Party has implemented previous review recommendations by assessing the information provided in the NIR and relevant CRF tables, including information on changes in response to the review process, taking into account the recommendations provided in the previous three review reports. The LRs also concluded that reporting on progress in implementing a recommendation by previous ERT is in accordance with paragraph 50(i) of the UNFCCC Annex I inventory reporting guidelines, which states that the NIR shall include information on changes in response to the review process. If the Party did not provide in the NIR information on changes in response to the review process or its progress in this regard, the ERT should recommend that the Party include such information in the next NIR. The LRs

further concluded that, if the status of addressing any previous recommendation is not clear from the NIR, relevant CRF tables or the Party's response to the assessment report, the ERT should seek clarification from the Party through questions. On the basis of the Party's response to these questions, the ERT should include the status of implementation of any recommendation from a previous ERT in the review report. It should also include the rationale for its assessment;

(g) Assessment of the use of notation keys to report nitrous oxide emissions from nitrogen mineralization/immobilization in agricultural soils, while loss of soil carbon from change in management of mineral soils actually occurs and is reported under the land use, land-use change and forestry sector: the LRs concluded that, when carbon loss occurs as a result of land-use or management change, the ERT should check whether estimates of the associated direct and indirect N<sub>2</sub>O emissions have been reported under the agriculture sector, or whether they have been reported as not estimated with the justification that they fall under the insignificance threshold. The LRs also concluded that, if a Party does not estimate soil organic carbon changes in mineral soils under cropland remaining cropland in the land use, land-use change and forestry sector, instead reporting these emissions as not occurring, the ERT should recommend that the Party estimate such changes in addition to the associated N<sub>2</sub>O emissions from nitrogen mineralization. The LRs noted that, if a Party reports data in CRF table 3.D for nitrogen mineralization/immobilization in agricultural soils, these data should be consistent with the loss of soil organic carbon under cropland remaining cropland reported in CRF table 4.B.

9. The LRs noted that they could not agree on conclusions and recommendations for some of the consistency issues discussed during the meeting; in particular, on how to review the inventory if a Party has used the 2019 Refinement to the 2006 IPCC Guidelines, including country-specific approaches based on or consistent with the 2019 Refinement; the review of the use of methods from the IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*; and the assessment of the application of the insignificance criteria for gaps in the time series (specific years) or within a category. The LRs requested the secretariat to include the consideration of these issues in the next meeting of LRs, taking into account the discussions at their 17<sup>th</sup> meeting and the background paper prepared by the secretariat for this meeting on consistency issues identified during the 2019 review cycle.

## **B. Operationalization of reviews**

10. The LRs noted with appreciation the information provided on the recent work of the secretariat in updating the annual review report templates, the review tools and the iVTR.

11. The LRs considered the background paper prepared by the secretariat for the meeting and the presentations and information provided by the secretariat during the meeting. The LRs noted that the timeliness of publication of the review reports, the length of the reports and the number of issues identified in the reports all affect their usability. The LRs requested the secretariat to explore, with the support of a number of LRs and taking into consideration the UNFCCC Annex I inventory review guidelines and the Article 8 review guidelines, as well as the conclusions and recommendations from previous meetings of LRs, options for enhancing the efficiency and efficacy of the review report workflow. The LRs noted that these options could be implemented as comprehensive guidance for reviewers and review officers for use before, during and after the review week. The LRs requested the secretariat to undertake the following exercises and to prepare a short paper thereon for consideration at the next meeting of LRs:

(a) Explore the possibility of including in the annual review report template an additional or separate short summary on the overall assessment of the inventory, summarizing the information in the current table 2, or of revising and enhancing table 2;

(b) Develop decision trees for defining the type and extent of the review required, taking into account the quality of the inventory and the findings from the initial assessment by the secretariat, and evaluate the possibility of implementing a stepwise approach to the review process;

(c) Develop a checklist based on the “Handbook for the review of national greenhouse gas inventories”, with guidance on each sector, to be followed during the review week. This guidance could be particularly useful to new experts and therefore reduce the work of LRs in supporting them during reviews;

(d) Explore the feasibility of implementing an option in the iVTR for providing information to Parties on minor issues requiring correction – information that would complement the review reports and provisional main findings;

(e) Explore options for improving the readability and reducing the length of the review reports; for instance, by reducing the amount of text and promoting the use of figures, tables and annexes, where feasible, taking into consideration that ERTs should make every effort to keep the reports from exceeding 30 pages;<sup>39</sup>

(f) Consider the importance of focusing quality assurance and quality control procedures performed by the secretariat on substantive issues and consistency across Parties’ reports, analyse the bottlenecks related to the quality assurance and quality control process affecting the timeliness of report preparation, and analyse which barriers and bottlenecks are preventing the report deadlines from being met, and suggest ways to mitigate all of these challenges.

12. The LRs requested the secretariat to organize, after the 2020 review cycle, regional webinars for both inventory reviewers and inventory compilers from developed and developing countries on experiences from previous reviews, with a focus on key issues in GHG inventories and the review process, aiming to engage additional experts in the review process and to improve the capacity of inventory reviewers and compilers.

13. The LRs reiterated the need to continue to increase the number of review experts who can actively participate in the review process with the support of their nominating Parties in order to ensure completeness and balance in the expertise of ERTs. The LRs also reiterated the importance of Parties supporting their experts to ensure that they are fully available for the entire review process and mandatory training activities, and further stressed the importance of Parties nominating experts with GHG inventory experience and robust sectoral technical expertise to the UNFCCC roster of experts and regularly updating their nominations.

14. The LRs noted that, for Parties to the Kyoto Protocol, the review of the 2022 annual submissions (inventory year 2020) will be the last annual review of the second commitment period, and that the 2022 review reports will be those considered for the compliance accounting. The LRs also noted the importance of paying particular attention to the review of the 2022 annual submissions at the next meeting of LRs, allowing enough time for the recommendations to be implemented during the preparation of those submissions, and requested the secretariat to bear this aim in mind during the review of the 2020 and 2021 annual submissions and take all appropriate measures to achieve it, and encouraged LRs and ERTs to do the same.

15. The LRs wish to convey to the SBSTA the importance of using the lessons learned and experience from the GHG inventory review process for developing the enhanced transparency framework under the Paris Agreement.

## VI. Other matters

16. The LRs took note of the work of the secretariat in developing tools such as the frequently asked questions on the enhanced transparency framework under the Paris Agreement and the reference manual on the framework.<sup>40</sup> They also took note of the information provided by the secretariat on the implementation of the international consultation and analysis process, which helps developing country Parties to gain experience in preparing biennial update reports.

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<sup>39</sup> As per decision 13/CP.20, annex, para. 98.

<sup>40</sup> The latest draft version of the manual is available at <https://unfccc.int/documents/209929>.