United Nations

FCCC/TRR.4/FIN

Framework Convention on Climate Change

Distr.: General
16 June 2020

English only

# Report on the technical review of the fourth biennial report of Finland

Developed country Parties were requested by decision 2/CP.17 to submit their fourth biennial report to the secretariat by 1 January 2020. This report presents the results of the technical review of the fourth biennial report of Finland, conducted by an expert review team 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". The review took place from 9 to 13 March 2020 remotely.

GE.20-07945(E)

*2007945*

# Contents

# Abbreviations and acronyms

| | |
|---|---|
| AEA | annual emission allocation |
| Annex I Party | Party included in Annex I to the Convention |
| AR | Assessment Report of the Intergovernmental Panel on Climate Change |
| BR | biennial report |
| $CH_4$ | methane |
| $CO_2$ | carbon dioxide |
| $CO_2$ eq | carbon dioxide equivalent |
| CTF | common tabular format |
| Dremfia | dynamic regional sector model for Finnish agriculture |
| EEP | Energy and Environment Partnership Program |
| EKOREM | model for calculating the energy use of building stock |
| ERT | expert review team |
| ESD | European Union effort-sharing decision |
| EU | European Union |
| EU ETS | European Union Emissions Trading System |
| F-gas | fluorinated gas |
| Finnfund | Finnish Fund for Industrial Cooperation Ltd. |
| GEF | Global Environment Facility |
| GHG | greenhouse gas |
| GWP | global warming potential |
| HFC | hydrofluorocarbon |
| IMPAKTI | tool for calculating the emission mitigation impact of measures promoting the use of renewable energy |
| IPPU | industrial processes and product use |
| LULUCF | land use, land-use change and forestry |
| NA | not applicable |
| NC | national communication |
| NE | not estimated |
| NECP | National Energy and Climate Plan |
| $NF_3$ | nitrogen trifluoride |
| non-Annex I Party | Party not included in Annex I to the Convention |
| NO | not occurring |
| $N_2O$ | nitrous oxide |
| PaMs | policies and measures |
| PFC | perfluorocarbon |
| POLIREM | model for calculating the energy use of building stock |
| $SF_6$ | sulfur hexafluoride |
| SF-GTM | Finnish forest sector model |
| UNFCCC reporting guidelines on BRs | “UNFCCC biennial reporting guidelines for developed country Parties” |
| UNFCCC reporting guidelines on CTF tables | common tabular format for the “UNFCCC biennial reporting guidelines for developed country Parties” |
| UNFCCC reporting guidelines on NCs | “Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications” |
| WAM | ‘with additional measures’ |
| WEM | ‘with measures’ |
| WOM | ‘without measures’ |
| Yasso07 | carbon and decomposition model for forest soils |

# I. Introduction and summary

## A. Introduction

1. This is a report on the centralized technical review of the BR4[1] of Finland. The review was organized by the secretariat 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", particularly "Part IV: UNFCCC guidelines for the technical review of biennial reports from Parties included in Annex I to the Convention" (annex to decision 13/CP.20).

2. In accordance with the same decision, a draft version of this report was transmitted to the Government of Finland, which provided comments that were considered and incorporated, with revisions, into this final version of the report.

3. The review was conducted together with the review of one other Annex I Party from 9 to 13 March 2020 remotely[2] by the following team of nominated experts from the UNFCCC roster of experts: Donnie Boodlal (Trinidad and Tobago), Olia Glade (New Zealand), Britta Maria Hoem (Norway), Maria Jose Lopez (Belgium), Rinzin Namgay (Bhutan), Marcela Itzel Olguin-Alvarez (Mexico), Karima Oustadi (Italy), Daniel Perczyk (Argentina), Dagay Sonam (Bhutan) and Iordanis Tzamtzis (Greece). Ms. Lopez and Ms. Olguin-Alvarez were the lead reviewers. The review was coordinated by Karin Simonson, Pedro Torres and Davor Vesligaj (secretariat).

## B. Summary

4. The ERT conducted a technical review of the information reported in the BR4 of Finland in accordance with the UNFCCC reporting guidelines on BRs (annex I to decision 2/CP.17).

### 1. Timeliness

5. The BR4 was submitted on 20 December 2019, before the deadline of 1 January 2020 mandated by decision 2/CP.17. The CTF tables were also submitted on 20 December 2019.

### 2. Completeness, transparency of reporting and adherence to the reporting guidelines

6. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by Finland in its BR4 mostly adheres to the UNFCCC reporting guidelines on BRs.

Table 1
**Summary of completeness and transparency of mandatory information reported by Finland in its fourth biennial report**

| *Section of BR* | *Completeness* | *Transparency* | *Reference to description of recommendation(s)* |
|---|---|---|---|
| GHG emissions and removals | Complete | Transparent | – |
| Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies | Complete | Transparent | – |
| Progress in achievement of targets | Complete | Mostly transparent | Issues 1–2 in table 4<br>Issue 2 in table 9 |

[1] The BR submission comprises the text of the report and the CTF tables, which are both subject to the technical review.

[2] Owing to the circumstances related to the coronavirus disease 2019, the technical review of the BR submitted by Finland had to be conducted remotely.

| *Section of BR* | *Completeness* | *Transparency* | *Reference to description of recommendation(s)* |
|---|---|---|---|
| Provision of support to developing country Parties | Complete | Mostly transparent | Issue 1 in table 13 |

*Note*: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III below. The assessment of completeness and transparency by the ERT in this table is based only on the "shall" reporting requirements.

# II. Technical review of the information reported in the fourth biennial report

## A. Information on greenhouse gas emissions and removals related to the quantified economy-wide emission reduction target

### 1. Technical assessment of the reported information

7. Total GHG emissions[3] excluding emissions and removals from LULUCF decreased by 22.3 per cent between 1990 and 2017, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 38.1 per cent over the same period. GHG emissions excluding emissions and removals from LULUCF peaked at 85,630.23 kt $CO_2$ eq in 2003 and decreased to 55,387.25 kt $CO_2$ eq in 2017. There was a downward trend in GHG emissions relative to gross domestic product, indicating a decline in the GHG emission intensity of the economy.

8. Table 2 illustrates the emission trends by sector and by gas for Finland. Note that information in this paragraph and table 2 is based on Finland's 2019 annual submission, which has not yet been subject to review. In its BR4 (section 2.1) Finland reported instant preliminary estimates of GHG emissions for 2018, which indicate that total GHG emissions excluding emissions and removals from LULUCF in 2018 were 1.8 per cent higher than in 2017 and 21 per cent lower than in 1990. All emission data in subsequent chapters of this report are based on Finland's BR4 CTF tables unless otherwise noted. The emissions reported in the 2019 annual submission are the same as reported in CTF table 1.

Table 2
**Greenhouse gas emissions by sector and by gas for Finland for 1990–2017**

| | *GHG emissions (kt $CO_2$ eq)* | | | | | *Change (%)* | | *Share (%)* | |
|---|---|---|---|---|---|---|---|---|---|
| | *1990* | *2000* | *2010* | *2016* | *2017* | *1990–2017* | *2016–2017* | *1990* | *2017* |
| *Sector* | | | | | | | | | |
| 1. Energy | 53 557.74 | 53 746.22 | 60 237.15 | 43 385.83 | 41 022.58 | –23.4 | –5.4 | 75.3 | 74.1 |
| A1. Energy industries | 18 969.25 | 22 137.73 | 30 947.49 | 19 149.62 | 17 553.66 | –7.5 | –8.3 | 26.7 | 31.7 |
| A2. Manufacturing industries and construction | 13 663.07 | 12 201.69 | 10 249.57 | 7 023.94 | 6 853.20 | –49.8 | –2.4 | 19.2 | 12.4 |
| A3. Transport | 12 097.37 | 12 114.41 | 12 712.36 | 12 077.59 | 11 484.02 | –5.1 | –4.9 | 17.0 | 20.7 |
| A4. and A5. Other | 8 705.01 | 7 170.97 | 6 186.02 | 4 996.41 | 4 953.35 | –43.1 | –0.9 | 12.2 | 9.0 |
| B. Fugitive emissions from fuels | 123.03 | 121.42 | 141.70 | 138.28 | 178.35 | 45.0 | 29.0 | 0.2 | 0.3 |
| C. $CO_2$ transport and storage | NA, NO | NA, NO | NA, NO | NO, NA | NO, NA | NA | NA | NA | NA |
| 2. IPPU | 5 393.00 | 5 985.31 | 6 177.04 | 6 107.77 | 5 922.38 | 9.8 | –3.0 | 7.6 | 10.7 |
| 3. Agriculture | 7 510.32 | 6 548.26 | 6 629.53 | 6 557.21 | 6 500.90 | –13.4 | –0.9 | 10.5 | 11.7 |

[3] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of $CO_2$ eq excluding LULUCF and including indirect $CO_2$ emissions, unless otherwise specified.

| | *GHG emissions (kt $CO_2$ eq)* | | | | | *Change (%)* | | *Share (%)* | |
|---|---|---|---|---|---|---|---|---|---|
| | *1990* | *2000* | *2010* | *2016* | *2017* | *1990–2017* | *2016–2017* | *1990* | *2017* |
| 4. LULUCF | –14 771.59 | –18 885.02 | –22 149.46 | –18 525.97 | –20 377.72 | 38.0 | 10.0 | NA | NA |
| 5. Waste | 4 671.95 | 3 850.03 | 2 583.25 | 1 993.50 | 1 888.27 | –59.6 | –5.3 | 6.6 | 3.4 |
| 6. Other[a] | NO | NO | NO | NO | NO | NA | NA | NA | NA |
| *Gas*[b] | | | | | | | | | |
| $CO_2$ | 57 138.65 | 57 147.20 | 64 165.37 | 47 294.81 | 44 758.01 | –21.7 | –5.4 | 80.1 | 80.8 |
| $CH_4$ | 7 746.33 | 6 608.40 | 5 369.07 | 4 732.99 | 4 606.06 | –40.5 | –2.7 | 10.9 | 8.3 |
| $N_2O$ | 6 362.09 | 5 739.06 | 4 753.69 | 4 658.50 | 4 688.52 | –26.3 | 0.6 | 8.9 | 8.5 |
| HFCs | 0.02 | 715.40 | 1 383.77 | 1 359.14 | 1 278.58 | 6 392 800.0 | –5.9 | 0.0 | 2.3 |
| PFCs | 0.21 | 2.65 | 1.41 | 4.44 | 5.84 | 2 681.0 | 31.6 | 0.0 | 0.0 |
| $SF_6$ | 52.48 | 26.06 | 21.79 | 48.03 | 50.23 | –4.3 | 4.6 | 0.1 | 0.1 |
| $NF_3$ | NO | NO | NO | NO | NO | NA | NA | NA | NA |
| **Total GHG emissions excluding LULUCF** | **71 133.01** | **70 129.82** | **75 626.97** | **58 044.31** | **55 334.13** | **–22.2** | **–4.7** | **100.0** | **100.0** |
| **Total GHG emissions including LULUCF** | **56 361.42** | **51 244.80** | **53 477.51** | **39 518.34** | **34 956.41** | **–38.0** | **–11.5** | **NA** | **NA** |
| **Total GHG emissions excluding LULUCF, including indirect $CO_2$** | **71 299.79** | **70 238.77** | **75 695.11** | **58 097.91** | **55 387.25** | **–22.3** | **–4.7** | **NA** | **NA** |
| **Total GHG emissions including LULUCF, including indirect $CO_2$** | **56 528.19** | **51 353.75** | **53 545.65** | **39 571.94** | **35 009.53** | **–38.1** | **–11.5** | **NA** | **NA** |

*Source*: GHG emission data: Finland's 2019 annual submission.

[a] Emissions and removals reported under the sector other (sector 6) are not included in the total GHG emissions.

[b] Emissions by gas without LULUCF and including indirect $CO_2$ emissions.

9. The decrease in total emissions was driven mainly by an increase in the use of renewable energy sources and an increase in imported electricity. Emissions from manufacturing industries and construction have declined by 49.8 per cent since 1990, owing mainly to the increased use of biofuels in the forest industry and the decline in electricity generated on site in the industrial sector. Emissions from the agriculture sector decreased owing to reduced nitrogen fertilization of agricultural fields and a reduction in animal husbandry. Emissions from the waste sector decreased owing to an increase in recycling and reuse and a rise in energy use from waste materials. Increased recovery of landfill gas since 1990 has also contributed to the decrease in emissions. The use of F-gases increased significantly in 1990–2008, mainly because of an increase in the use of F-gases in refrigeration and air conditioning and in aerosols.

10. Finland's national inventory arrangements were established in accordance with the Government resolution of 30 January 2003 on the organization of climate policy activities of government authorities. In 2015, the role of Statistics Finland as the national entity was enforced through the Climate Change Act (609/2015). The changes in these arrangements since the BR3 include an updated agreement between Statistics Finland and the Energy Authority to reflect changes in the inventory preparation process since 2015 (i.e. implementation of new guidelines for national GHG inventories, and implementation of the EU monitoring mechanism regulation (regulation 525/2013)). The updated agreement has not brought about any significant changes in the national inventory arrangements.

## 2. Assessment of adherence to the reporting guidelines

11. The ERT assessed the information reported in the BR4 of Finland and recognized that the reporting is complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

## B. Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies

### 1. Technical assessment of the reported information

12. For Finland the Convention entered into force on 3 May 1994. Under the Convention Finland committed to contributing to the achievement of the joint EU economy-wide emission reduction target of 20 per cent below the 1990 level by 2020.

13. The target for the EU and its member States is formalized in the EU 2020 climate and energy package. The legislative package regulates emissions of $CO_2$, $CH_4$, $N_2O$, HFCs, PFCs and $SF_6$ using GWP values from the AR4 to aggregate the GHG emissions of the EU until 2020. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. Operators and airline operators can make use of such units to fulfil their requirements under the EU ETS, and member States can make use of such units for their national ESD targets, within specific limitations.

14. The EU 2020 climate and energy package includes the EU ETS and the ESD (see paras. 25–26 below). The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors. An EU-wide emission cap has been put in place for 2013–2020 with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. Emissions from ESD sectors are regulated through member State specific targets that add up to a reduction at the EU level of 10.0 per cent below the 2005 level by 2020.

15. The European Commission set out its vision for a climate-neutral EU in November 2018 and the European Council endorsed in December 2019 the objective of making the EU climate-neutral by 2050. As part of the European Green Deal, launched in December 2019, the European Commission proposed the first European Climate Law to enshrine the 2050 climate-neutrality target into law on 4 March 2020. The European Green Deal also calls for increased ambition in the 2030 emission reduction target to at least 50 per cent below the 1990 level. Member States will set out any increased ambition in their update of the NECPs.

16. Finland has a national target of reducing its total GHG emissions to 16 per cent below the 2005 level by 2020 for emissions under the ESD. This target has been translated into binding quantified AEAs for 2013–2020. Finland's AEAs change following a linear path from 31,776.52 kt $CO_2$ eq in 2013 to 28,513.53 kt $CO_2$ eq in 2020.[4]

### 2. Assessment of adherence to the reporting guidelines

17. The ERT assessed the information reported in the BR4 of Finland and recognized that the reporting is complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

## C. Progress made towards achievement of the quantified economy-wide emission reduction target

### 1. Mitigation actions and their effects

#### (a) Technical assessment of the reported information

18. Finland provided information on its package of PaMs implemented, adopted and planned, by sector and by gas, in order to fulfil its commitments under the Convention. Finland reported on its policy context and legal and institutional arrangements in place for implementing its commitments and monitoring and evaluating the effectiveness of its PaMs.

[4] European Commission decision 2017/1471 amended decision 2013/162/EU to revise member States' AEAs for 2017–2020.

19. Finland provided information on a set of PaMs similar to those previously reported, with a few exceptions. Additional PaMs reported in the BR4 compared with the BR3 include using mechanisms under the Kyoto Protocol and flexibility mechanisms under the ESD, subsidies for energy efficiency in buildings, revising the Land Use and Building Act, promoting renewable energy use in electricity production, mandatory energy audits for large companies as required by the EU energy efficiency directive, and restricting the use of certain F-gases in the air-conditioning systems of new passenger cars and light-duty vehicles.

20. Finland indicated that there have been no major changes since its previous submission to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of progress towards its target.

21. In its reporting on its PaMs, Finland provided the estimated emission reduction impacts for some of its PaMs. Where estimated impacts were not provided, the Party supplied an explanation. Finland was not able to provide quantitative information on the impacts of some of its mitigation actions, such as using Kyoto Protocol mechanisms, implementing the EU ETS in Finland and measures targeting international bunkers. The Party reported that it was not able to estimate the effects of some mitigation actions owing to the complexity of some measures and overlap with other measures (e.g. in the case of the EU ETS), the uncertainty of the implementation of some actions (e.g. flexibility measures of the ESD and measures related to international bunkers) and the difficulty of estimating mitigation impacts (e.g. of measures for providing advice and information). Finland estimated the impacts of some of its PaMs as groups, such as for F-gases and for PaMs in the waste sector, and explained that this approach aims to prevent double counting and improve the accuracy of estimated emission reduction impacts.

22. Finland reported on its self-assessment of compliance with its emission reduction targets and national rules for taking action against non-compliance. Finland has not established specific national rules for taking action against domestic non-compliance with emission reduction targets; it explained that such rules were established in EU legislation.

23. The key overarching related cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. The package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for $CO_2$ emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely the 7$^{th}$ Environment Action Programme and the clean air policy package. The 2030 climate and energy framework, adopted in 2014, includes more ambitious targets, which will be updated as part of the European Green Deal.

24. The achievement of the Energy Union objectives and targets is ensured through a combination of Energy Union initiatives and coherent national policies set out in NECPs. The NECPs are periodically updated to reflect changes to EU policy, such as the implementation of the European Green Deal.

25. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce 40–45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as $N_2O$ emissions from chemical industry, PFC emissions from aluminium production and $CO_2$ emissions from some industrial processes that were not covered in the previous phases of the EU ETS (since 2013). For 2030, an emission reduction target of 43 per cent below the 2005 level has been set for the EU ETS.

26. The ESD became operational in 2013 and covers transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture and waste, together accounting for 55–60 per cent of the GHG emissions of the EU. The aim of the ESD is to decrease GHG emissions in the EU by 10.0 per cent below the 2005 level by 2020, and it includes binding annual targets for each member State for 2013–2020. The effort-sharing regulation, successor to the ESD, was adopted in

2018. It sets national emissions reduction targets for 2030 ranging from 0 to 40 per cent below the 2005 level, and trajectories with annual limits for 2021–2030, for all member States, and keeps many of the flexibilities of the ESD.

27. Finland highlighted the EU-wide mitigation actions that are under development, such as the commitment under the Paris Agreement to reduce GHG emissions by at least 40 per cent below the 1990 level by 2030. As with the EU 2020 climate and energy package, the reduction obligations are divided between the EU ETS and the ESD. The reduction target is 43 per cent under the EU ETS and 30 per cent under the ESD below the 2005 level by 2030. Finland's 2030 target for reducing ESD emissions is 39 per cent compared with the 2005 level.

28. Among the mitigation actions that will have a significant impact on future emissions are increasing use of renewable energy sources to 38 per cent of final energy consumption by 2020, increasing the share of biofuels in gasoline and diesel to 10 per cent by 2020 and improving energy efficiency.

29. Finland introduced national-level policies to achieve its target under the ESD and other domestic emission reduction targets. The key policies reported are the National Energy and Climate Strategy for 2030 and the Medium-term Climate Change Policy Plan (approved in September 2017). The mitigation actions that will enable Finland to attain its target under the ESD are outlined in the Medium-term Climate Change Policy Plan. The mitigation effects of promoting renewable energy and energy efficiency measures are the most significant. Other policies that have delivered significant emission reductions are the EU F-gas regulation and the EU directive relating to HFC emissions from air-conditioning systems in vehicles, as well as the waste tax and landfill policies aimed at reducing waste production and increasing recycling.

30. Finland highlighted the domestic mitigation actions that are under development, such as improving the energy efficiency of cars and vans; additional mitigation actions targeting F-gases, such as promoting alternative low-GWP non-HFC technologies in refrigeration and air-conditioning equipment; phasing out oil heating in the public sector; improving energy efficiency and promoting use of alternative fuels in machinery; promoting use of biogas in agriculture; promoting continuous perennial cropping on organic soils; and promoting afforestation and 'silvopaludiculture' (i.e. afforestation with raised groundwater table) of cultivated organic soils. Most of the planned mitigation actions reported in the BR4 will result in mitigation effects after 2020. Table 3 provides a summary of the reported information on the PaMs of Finland.

Table 3
**Summary of information on policies and measures reported by Finland**

| *Sector* | *Key PaMs* | *Estimate of mitigation impact in 2020 (kt $CO_2$ eq)* | *Estimate of mitigation impact in 2025 (kt $CO_2$ eq)* | *Estimate of mitigation impact in 2030 (kt $CO_2$ eq)* | *Estimate of mitigation impact in 2035 (kt $CO_2$ eq)* |
|---|---|---|---|---|---|
| Policy framework and cross-sectoral measures | Implementing the EU ETS in Finland | | | | |
| Energy | Phasing out coal use in energy production | NE | NE | 650.00 | 400.00 |
| Transport | Improving the energy efficiency of vehicles | NE | 347.00 | 610.00 | 793.00 |
| | Improving the energy efficiency of cars and vans (additional measures) | 186.00 | 427.00 | 942.00 | 1 482.00 |
| | Improving the energy efficiency of heavy-duty vehicles (additional measure) | NA | 105.00 | 260.00 | 441.00 |
| | Improving the energy efficiency of the transport system | 300.00 | NE | NE | NE |
| | Improving the energy efficiency of the transport system (additional measure) | NA | 323.00 | 408.00 | 313.00 |
| | Promoting use of biofuels in the transport sector | 1 579.00 | 1 509.00 | 1 467.00 | 1 454.00 |

| *Sector* | *Key PaMs* | *Estimate of mitigation impact in 2020 (kt $CO_2$ eq)* | *Estimate of mitigation impact in 2025 (kt $CO_2$ eq)* | *Estimate of mitigation impact in 2030 (kt $CO_2$ eq)* | *Estimate of mitigation impact in 2035 (kt $CO_2$ eq)* |
|---|---|---|---|---|---|
| | Promoting use of biofuels in the transport sector (additional measure) | NA | 987.00 | 1 243.00 | 1 014.00 |
| Renewable energy | Promoting use of woodchips and other wood-based energy | 6 444.00 | 8 103.00 | 8 900.00 | 8 625.00 |
| | Promoting wind power | 4 099.00 | 4 941.00 | 5 699.00 | 6 569.00 |
| | Promoting solar power | 90.00 | 264.00 | 525.00 | 975.00 |
| | Promoting renewable energy (electricity) | 420.00 | 732.00 | 250.00 | NA |
| | Promoting biogas in electricity and heat production | 369.00 | 352.00 | 338.00 | 304.00 |
| Energy efficiency | Voluntary energy efficiency agreements for 1997–2007, 2008–2016 and 2017–2025 | 8 318.00 | 8 830.00 | 9 431.00 | 10 484.00 |
| | Ecodesign and Energy Labelling Act (1005/2008, amendment 1009/2010) | 3 326.00 | 3 621.00 | 3 611.00 | 3 519.00 |
| | Building regulations (2003, 2008 and 2010) | 3 394.00 | 4 525.00 | 5 655.00 | 6 785.00 |
| | Updated building regulations (2017) | 224.00 | 373.00 | 521.00 | NA |
| | Subsidies for energy efficiency in buildings | 323.00 | 323.00 | 323.00 | NA |
| | Improving the energy performance of buildings undergoing renovation or alteration | 367.00 | 647.00 | 940.00 | NA |
| | Energy audit programme | 389.00 | 352.00 | 376.00 | 365.00 |
| IPPU | Aggregated impact of PaMs related to F-gases under the WEM scenario | 1 921.00 | 2 386.00 | 2 966.00 | 3 362.00 |
| | Aggregated impact of PaMs related to F-gases under the WAM scenario | NA | 204.00 | 218.00 | 121.00 |
| LULUCF | National Forest Strategy 2025 | NE | NE | NE | NE |
| | Activities targeting organic soils | NA | 575.00 | 1 150.00 | 1 160.00 |
| Agriculture | Promoting use of biogas | NE | NE | 360.00 | NA |
| | Management of organic soils | NE | NE | 440.00 | NA |
| Waste | Aggregated impact of PaMs under the WEM scenario | 2 870.00 | 3 166.00 | 3 361.00 | 3 497.00 |

*Note*: The estimates of mitigation impact are estimates of emissions of $CO_2$ eq avoided in a given year as a result of the implementation of mitigation actions.

31. Finland attaches significant importance to tracking progress in implementing PaMs. Progress in implementing climate policies is captured in the Government of Finland's annual climate reports, which are submitted to Parliament. The first report was submitted to Parliament in June 2019 for its consideration.

32. The ERT noted that "NA" as used by the Party when reporting mitigation actions and their impacts in CTF table 3 stands for "not available" and that it reported this notation key in several instances in CTF table 3 where the mitigation impacts were not estimated for various reasons (see para. 21 above). The ERT also noted that for some mitigation actions the Party reported the value "0" for the years prior to the date of implementation. During the review, the Party informed the ERT that the notation keys were defined for the purpose of the BR reporting and that the notation key definitions in 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" are specific to GHG inventory reporting and may not be applicable to the reporting of information on PaMs. The ERT acknowledged this information, but noted that the comparability with other Parties could be improved by (1) changing the definition of "NA" to "not applicable" and reporting that notation key in CTF table 3 for the years when the effect of the mitigation action had not yet occurred owing to its adoption or implementation in later or earlier years, and (2)

reporting "NE" where the effect of mitigation actions cannot be estimated. In response, the Party noted that, until common guidance on the use of notation keys is agreed, transparent and comparable reporting will likely be best achieved by explaining the footnotes used by a Party in its reporting.

### (b) Policies and measures in the energy sector

33. **Energy efficiency.** Finland has made notable progress in improving its energy efficiency and its mitigation actions on energy efficiency have achieved significant results. The BR4 includes information on PaMs aimed at improving energy efficiency, such as the voluntary energy efficiency agreements for industry, municipalities, private services, the property and building sector and oil-heated buildings, which has the highest estimated mitigation impact of the Party's measures (8,318.00 kt $CO_2$ eq in 2020). The energy efficiency agreements are part of the actions adopted by Finland in the context of the EU directive on energy efficiency, which was implemented nationally by the Energy Efficiency Law in 2015.

34. PaMs on ecodesign and energy labelling are other important mitigation actions implemented by Finland, with an estimated mitigation impact of 3,326.00 kt $CO_2$ eq in 2020. Other measures include economic instruments, such as taxation and subsidies, research, education and dissemination of information.

35. **Energy supply and renewables.** Finland's main PaMs in the energy sector are the EU ETS, increasing the share of renewable energy in energy consumption and energy conservation measures. The majority of district heating and combined heat and power production, which play an important role in Finland owing to its weather characteristics, is covered by the EU ETS. Emissions under the EU ETS in Finland have decreased, owing mainly to the reduction in fossil fuel consumption for electricity production and the increase of electricity imports. Under its National Energy and Climate Strategy for 2030, Finland will phase out the use of coal for energy production by 2030 and no new power plants burning hard or brown coal will be built, nor will Finland invest in any coal-based replacements.

36. Finland's target is to increase the share of renewable energy in its final energy consumption to 38 per cent by 2020 (the share in 2017 was 41.0 per cent, which is above the target). The most important renewable energy sources include wood and wood-based fuels (accounting for 73.0 per cent of renewable energy sources in 2017), hydropower (11.0 per cent), wind power (3.5 per cent), and ground and air source heat pump energy (4.8 per cent). Use of renewable energy sources is also promoted for ESD sectors through subsidies, tax exemptions and dissemination of information.

37. **Residential and commercial sectors.** Policy measures include standard-setting, using economic instruments, disseminating information, and education and research. The main policy instruments are the national building regulations for new and existing buildings (2003, 2008, 2010 and 2017), which were adopted in the context of the EU directive on the energy performance of buildings (directive 2002/91/EC) and the directive on the energy performance of buildings (re-cast) (directive 2010/31/EU), with an estimated mitigation impact of 3,618.00 kt $CO_2$ eq in 2020. These regulations contain requirements for promoting zero-energy buildings, energy certification of buildings, and inspecting heating and air-conditioning systems in buildings, for example. These policy instruments also favour use of district heating and renewable energy in buildings.

38. **Transport sector.** Finland has a target to reduce emissions from the transportation sector by 15.0 per cent in 2020 compared with the 2005 level, established in the Climate Policy Programme for the Transport Sector and in the Long-term Climate and Energy Strategy. To achieve the target, Finland has introduced several measures, of which the most important is promoting biofuel use in the transport sector (with a target of 20.0 per cent biofuel in the petrol and diesel delivered for consumption in 2020), with an estimated mitigation impact of 1,579.00 kt $CO_2$ eq in 2020. An additional measure for promoting biofuels, which will take effect from 2021, aims to increase the biofuel energy content of all liquid fuels sold for road transport to 30.0 per cent by 2030.

39. Other measures include improving the energy efficiency of transport systems by promoting more environmentally friendly modes of transport and curbing growth in vehicle-

kilometres travelled. An additional measure for energy-efficient transport systems, with a starting year of implementation of 2019, involves reducing the number of single-person car journeys, and halting the increase in the use of passenger cars in urban areas regardless of growth in population. Finland estimates that the emission reduction effects of improving the energy efficiency of the transport system will be as much as 408.00 kt $CO_2$ eq in 2030.

40. Finland promotes and implements the decisions of the International Civil Aviation Organization and the International Maritime Organization to limit emissions from aviation and marine bunker fuels. As an EU member State, Finland implements the EU ETS for aviation for flights from Finland to other countries in the European Economic Area (EU, Iceland, Liechtenstein and Norway). In 2017, aircraft operators had to purchase EU emission allowances from the stationary sector of the EU ETS to comply with the aviation emissions cap. The Ministry of Transport and Communications is actively involved in EU policymaking to enhance the effectiveness of the EU ETS for aviation.

41. **Industrial sector.** The main measure targeting fuel combustion emissions in the industrial sector is the EU ETS. In Finland, emissions under the EU ETS have decreased, mainly owing to the decline in fossil fuel consumption and the increase in imported electricity.

### (c) Policies and measures in other sectors

42. **Industrial processes.** Emissions from industrial processes in Finland are mainly from iron and steel, hydrogen and cement production, which are part of the EU ETS. In addition to the EU ETS, other policies aimed at reducing emissions from the industrial sector include policies targeting F-gases, such as the EU F-gas regulation (regulation 517/2014) and the EU directive relating to emissions from air-conditioning systems in vehicles (directive 2006/40/EC). These policies consist mainly of using alternative HFCs with lower GWP, banning use of HFCs for some applications, and regulating leak checking and repair for equipment and recovery of HFCs.

43. **Agriculture.** The EU Common Agricultural Policy plays an important role in relation to the adopted PaMs in the sector. Farming subsidies have had a significant influence on agricultural activities and hence on the emissions from this sector. Subsidies are regulated under the Rural Development Programme for Mainland Finland 2014–2020, which includes measures to tackle emissions such as supporting long-term cultivation of grass on organic soils and supporting systems for investment in renewable energy, such as biogas plants. The mitigation impact of PaMs in the agriculture sector was estimated for the 2030 time-horizon under the Medium-term Climate Change Policy Plan.

44. **LULUCF.** Finland's forest policy aims at sustainable forest management. The main policy instruments include the Forest Act and the National Forest Strategy 2025. Legislation related to preventing forest damage and trade in forest reproductive material, timber measurement, jointly owned forests and organizations in the forestry sector also plays an important role in strengthening the sustainability and health of forests. The LULUCF sector is a net sink in Finland but can vary greatly from one year to the next, depending on the evolution of forestry production. For example, net removals in 1990 and 2017 were estimated at 14,771.59 and 20,377.72 kt $CO_2$ eq, respectively. Other PaMs in the LULUCF sector include activities targeting organic soils, with estimated mitigation impacts ranging from 575.00 kt $CO_2$ eq in 2025 to 1,160.00 kt $CO_2$ eq in 2035.

45. **Waste management.** The main PaMs in the waste sector are the Waste Tax Act (1126/2010), whereby waste fractions that could be technically and environmentally recovered, but are disposed of at landfill sites, are taxed; the Waste Act (646/2011); the Decree on Waste (179/2012); the Decree on Packaging and Packaging Waste (518/2014); and the Decree on Landfills (transposed from EU directive 1999/31/EC on landfill of waste). These policies have helped to increase recycling and recovery of waste, reduce landfilling and increase the use of energy from waste materials. Increased recovery of landfill gas since 1990 has also contributed to the decrease in emissions from the waste sector. The aggregated estimated impact of mitigation actions in the waste sector is 2,870.00 kt $CO_2$ eq in 2020.

### (d) Response measures

46. Finland reported on its assessment of the economic and social consequences of its response measures. The Party presented the assessment of several initiatives aimed at minimizing adverse impacts. It reported in its BR4 that it supports developing countries by helping them to build their capacity and develop their economic infrastructure, thus helping them to diversify their economies and improve energy production, for example with projects through the EEP in the Mekong region in Asia and in Southern and Eastern Africa. Finland has also worked to reform fossil fuel subsidies and promote carbon pricing and taxation.

### (e) Assessment of adherence to the reporting guidelines

47. The ERT assessed the information reported in the BR4 of Finland and identified issues relating to transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 4.

Table 4
**Findings on mitigation actions and their effects from the review of the fourth biennial report of Finland**

| *No.* | *Reporting requirement, issue type and assessment* | *Description of the finding with recommendation or encouragement* |
|---|---|---|
| 1 | Reporting requirement specified in paragraph 6<br>Issue type: transparency<br>Assessment: recommendation | The ERT noted that a number of mitigation actions reported by Finland as planned had already been adopted or implemented. For example, the mitigation action for phasing out coal use in energy production is reported as planned in CTF table 3, whereas in the BR4 it is stated that a bill on the measure was submitted to Parliament in 2018.<br>During the review, the Party confirmed that phasing out coal use in energy production, promoting use of bioliquids in heating buildings, promoting renewable energy (electricity), promoting use of bioliquids in machinery, and promoting use of biofuels in the transport sector (additional measure) were reported as planned mitigation actions and that their current status is implemented. Moreover, improving the energy efficiency of the transport system (additional measure) and improving the energy efficiency of heavy-duty vehicles were also reported in CTF table 3 as planned, when their current status is adopted. The Party explained that it had used 1 January 2018 as the date for splitting measures between the WEM and WAM scenarios, as stated in the BR4, and that the information is CTF table 3 is consistent with this date and the reported projections.<br>The ERT recommends that Finland further explain its classification of mitigation actions as planned or implemented (e.g. using a custom footnote in CTF table 3). |
| 2 | Reporting requirement specified in CTF table 3<br>Issue type: transparency<br>Assessment: recommendation | Finland reported "NA" in CTF table 3 for the impact of the mitigation action "Act (132/1999) and Decree (895/1999) on Land use and Building applied to reduce emissions due to land use and urban form", implemented in 1999, for 2020, 2025 and 2030, and 6,785.00 kt $CO_2$ eq for 2035. The Party also reported "NA" in CTF table 3 for the impact of the mitigation action "Improving the energy efficiency of vehicles", implemented in 2008 and included in the WEM scenario, for 2020, and values ranging from 347.00 to 793.00 kt $CO_2$ eq for 2025–2035. Further, Finland reported "0.00" in CTF table 3 for the impact of the mitigation action "Improving the energy efficiency of cars and vans (additional measures)" for 2020, and values ranging from 427.00 to 1,482.00 kt $CO_2$ eq for 2025–2035.<br>During the review, the Party informed the ERT that no estimates of mitigation impact were made for the mitigation action "Act (132/1999) and Decree (895/1999) on Land use and Building applied to reduce emissions due to land use and urban form" and that the figure entered for 2035 is an error. The Party explained that for the mitigation action "Improving the energy-efficiency of vehicles" it was not possible to provide a proper estimation for 2020 owing to the differences in the calculation system versions used to estimate the scenarios for its BR3 and BR4. Further, the Party explained that for the mitigation action "Improving the energy efficiency of cars and vans (additional measures)" the mitigation impact should be 186 kt $CO_2$ eq in 2020, instead of "0.00" as reported in CTF table 3.<br>The ERT recommends that Finland include in its next BR information on missing estimates of mitigation impacts in CTF table 3 or adequately explain in the textual part |

| No. | Reporting requirement, issue type and assessment | Description of the finding with recommendation or encouragement |
|---|---|---|
| | | of the BR or in a footnote to CTF table 3 why this is not possible owing to national circumstances, in accordance with the information provided during the review. |

*Note*: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs or to the CTF table number from the UNFCCC reporting guidelines on CTF tables. The reporting on the requirements not included in this table is considered to be complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs.

## 2. Estimates of emission reductions and removals and the use of units from market-based mechanisms and land use, land-use change and forestry

### (a) Technical assessment of the reported information

48. For 2016, Finland reported in CTF table 4 annual total GHG emissions excluding LULUCF of 58,097.91 kt $CO_2$ eq, which is 18.5 per cent below the 1990 level. In 2016, emissions from sectors relating to the target under the ESD amounted to 31,358.14 kt $CO_2$ eq and were 3.5 per cent higher than Finland's AEA for that year (30,312.14 kt $CO_2$ eq).

49. For 2017, Finland reported in CTF table 4 annual total GHG emissions excluding LULUCF of 55,387.25 kt $CO_2$ eq, which is 22.3 per cent below the 1990 level. In 2017, emissions from sectors relating to the target under the ESD amounted to 30,062.24 kt $CO_2$ eq and were 0.4 per cent lower than Finland's AEA for that year (30,177.15 kt $CO_2$ eq).

50. On its use of units from LULUCF activities, Finland reported in CTF tables 4 and 4(a) that in 2016 and 2017 it did not use any units from LULUCF activities. Finland also reported that it does not intend to use units from market-based mechanisms under the Kyoto Protocol. It reported in the BR4 that targets have been, and are foreseen to be, met with domestic PaMs, but otherwise it can use units from market-based mechanisms to meet its targets for 2018–2020. Finland further reported in CTF tables 4 and 4(b) that it did not use any units from market-based mechanisms in 2016 or 2017. Table 5 illustrates Finland's total GHG emissions and the use of units from market-based mechanisms to achieve its target.

51. The ERT noted that Finland left some blank cells in CTF tables 4 and 4(b), for example on the quantity of units from other market-based mechanisms expressed in kt $CO_2$ eq in CTF table 4 and on use of other units in CTF 4(b), instead of reporting a notation key. During the review, the Party explained that there are no requirements, guidance or rules in relation to reporting notations keys in the CTF tables, contrary to the case of GHG emissions inventory reporting in the common reporting format tables. The ERT considers that the transparency of the reporting, the consistency of the information and the comparability with other Parties could be improved if Finland were to use notation keys for reporting in CTF tables 4 and 4(b), instead of leaving blank cells. The Party noted that blank cells are common in reporting by most Parties and that the use of blanks cells in CTF tables 4 and 4(b) does not reduce the comparability of the reporting because the meaning of the blank cells is clear.

Table 5
**Summary of information on the use of units from market-based mechanisms by Finland to achieve its target**

| Year | ESD emissions (kt $CO_2$ eq)[a] | AEA (kt $CO_2$ eq) | Use of units from market-based mechanisms (kt $CO_2$ eq)[b] | Annual AEA surplus/deficit (kt $CO_2$ eq)[c] | Cumulative AEA surplus/deficit (kt $CO_2$ eq) |
|---|---|---|---|---|---|
| 2013 | 31 588.12 | 31 776.52 | NA | 188.40 | 188.40 |
| 2014 | 30 146.83 | 31 288.40 | NA | 1 141.57 | 1 329.97 |
| 2015 | 29 886.48 | 30 800.27 | NA | 913.79 | 2 243.75 |
| 2016 | 31 358.14 | 30 312.14 | NA | –1 046.00 | 1 197.75 |
| 2017 | 30 062.24 | 30 177.15 | NA | 114.91 | 1 312.66 |
| 2018 | NA | 29 622.61 | NA | NA | NA |

*Sources*: Finland's BR4 and CTF table 4(b) and information provided by the Party during the review.
[a] Emissions without LULUCF and excluding indirect $CO_2$ emissions.
[b] The use of "NA" indicates that the Party stated in its BR that it does not intend to use market-based mechanisms to achieve its target.

[c] A positive number (surplus) indicates that ESD emissions were lower than the AEA, while a negative number (deficit) indicates that ESD emissions were greater than the AEA.

52. In assessing the progress towards achieving the 2020 joint EU target, the ERT noted that Finland's emission reduction target for the ESD is 16 per cent below the base-year level (see para. 16 above). In 2017, Finland's emissions covered by the ESD were 0.4 per cent (114.91 kt $CO_2$ eq) below the AEA under the ESD. Finland indicated that it does not plan to use market-based mechanisms to achieve its target. Recognizing that Finland does not intend to use market-based mechanisms, the Party has a cumulative surplus of 1,312.66 kt $CO_2$ eq with respect to its AEAs between 2013 and 2017.

53. The ERT noted that Finland is making progress towards its ESD target by implementing mitigation actions that are delivering significant emission reductions.

### (b) Assessment of adherence to the reporting guidelines

54. The ERT assessed the information reported in the BR4 of Finland and recognized that the reporting is complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

## 3. Projections overview, methodology and results

### (a) Technical assessment of the reported information

55. Finland reported updated projections for 2020 and 2030 relative to actual inventory data for 2017 under the WEM scenario. The WEM scenario reported by Finland includes implemented and adopted PaMs until 2017.

56. In addition to the WEM scenario, Finland reported the WAM scenario. The WAM scenario includes PaMs planned after 2017.

57. Finland did not report a WOM scenario because, as explained in the BR4, some of the mitigation PaMs (e.g. improving energy efficiency and using renewable energy) have been implemented since the 1970s and the development of such a scenario would require significant efforts, particularly to predict the characteristics of the industrial sector in the economy. During the review, the Party explained that, taking national circumstances into account, it would not be possible to develop a meaningful WOM scenario. The ERT acknowledged the information provided by the Party during the review.

58. Finland provided a definition of its scenarios, explaining that its WEM scenario includes PaMs implemented by 31 December 2017, such as the EU ETS, increasing renewable energy and energy conservation measures, measures in the transport sector as part of the Climate Policy Programme for the Transport Sector and the national Long-term Climate and Energy Strategy, the EU F-gas regulation and the EU directive relating to HFC emissions from air-conditioning systems in vehicles, the EU Common Agricultural Policy, the National Forest Strategy 2025 and the Waste Tax Act.

59. The WAM scenario includes, in addition, the PaMs that had been planned and approved by the Government or were implemented after 1 January 2018, such as phasing out the use of coal, cost-effective new electricity production from renewable energy, introducing a 10 per cent blend of bioliquids in light fuel oil used in machinery and heating, promoting use of biofuels in the transport sector, improving the energy efficiency of vehicles, improving the energy efficiency of the transport system, promoting use of alternative low-GWP non-HFC technologies in refrigeration and air-conditioning equipment, continuous perennial cropping in organic soils, afforestation, and promoting biogas production.

60. The definitions indicate that the scenarios were prepared according to the UNFCCC reporting guidelines on BRs.

61. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, and on a gas-by-gas basis for $CO_2$, $CH_4$, $N_2O$, PFCs, HFCs and $SF_6$ (treating PFCs and HFCs collectively in each case) and include both direct and indirect emissions for 2020 and 2030. $NF_3$ emissions do not occur in the

country. The projections are also provided in an aggregated format for each sector and for the Party total including indirect $CO_2$ emissions with and without LULUCF using GWP values from the AR4. Finland reported on factors and activities affecting emission projections for each sector.

62. Finland reported emission projections for indirect GHG emissions from $CH_4$ and non-$CH_4$ volatile organic compounds.

63. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and were not included in the totals. Finland actively participated in the work of the International Maritime Organization and the International Civil Aviation Organization. The emission projections for international aviation and marine transport are based on actual emissions from those sectors in 2017. The estimates provided by Finland for international aviation and marine transport are 2.30 and 1.20 Mt $CO_2$ eq, respectively, for 2020, and 3.10 and 1.40 Mt $CO_2$ eq, respectively, for 2030 (see issue 2 in table 9).

64. In its BR4 Finland reported projections for the WEM and WAM scenarios, split between the EU ETS and the ESD, in figure (sections 5.3–5.4) and tabular (section 5.2) formats. Finland indicated that the split of the emission projections is based on the data set of GHG emissions for 2005–2017 for the EU ETS and the ESD and emissions that were previously considered under the ESD but are now considered under the EU ETS (e.g. emissions from domestic aviation and some industrial processes). However, GHG emission information for this data set was not reported in the BR4. During the review, Finland provided GHG emission information for 2005–2017 for the three categories used for splitting the projections between the EU ETS and the ESD. According to this information, under the WEM scenario, EU ETS emissions will decrease by 34.6 and 48.6 per cent in 2020 and 2030, respectively, compared with the 2005 level and ESD emissions will decrease by 14.7 and 23.8 per cent in 2020 and 2030, respectively, compared with the 2005 level. Under the WAM scenario, EU ETS emissions will decrease by 34.6 and 50.3 per cent in 2020 and 2030, respectively, compared with the 2005 level and ESD emissions will decrease by 15.5 and 37.2 per cent in 2020 and 2030, respectively, compared with the 2005 level.

65. The ERT notes that the Party reporting in its next BR information on historical GHG emissions separately for the EU ETS and the ESD, as well as emissions that were previously considered under the ESD but since 2005 have been considered under the EU ETS, along with the emission projections split between the EU ETS and the ESD for the reported scenarios, would improve transparency and facilitate assessment of Finland's progress towards achieving its target.

### (b) Methodology, assumptions and changes since the previous submission

66. The methodology used for the preparation of the projections is identical to that used for the preparation of the emission projections for the NC7. Projected GHG emissions are based on the National Energy and Climate Strategy for 2030 and the Medium-term Climate Change Policy Plan (2017), with updates for macroeconomic development and power market projections. Related information has been reported in CTF tables 5, 6(a) and 6(c). Finland reported background data and assumptions for the projections in the relevant chapters of the BR4, along with supporting information explaining the methodologies and models used, such as the draft NECP of 20 December 2018[5] and Finland's national system for PaMs and projections[6] submitted to the European Commission.

67. The projections in the BR4 take into account updated estimates of GHG emissions and removals for the whole GHG inventory time series (1990–2017) as well as any updates to models and assumptions. The latest reported year in the most recent GHG inventory at the time of the BR4 preparation (2017) was used as the starting point for the projections. The ERT noted that the final version of Finland's NECP was published on the same date as its BR4 was submitted.

[5] See https://ec.europa.eu/energy/sites/ener/files/documents/finland_draftnecp.pdf.

[6] See http://cdr.eionet.europa.eu/fi/eu/mmr/art04-13-14_lcds_pams_projections/pams/pams/envxhjklq/Finland_National_system_2019.pdf.

68. To prepare its projections, Finland relied on key underlying assumptions relating to economic development indicators, the structure of the economy, the structure of industry, population growth and structure, energy prices and tax levels. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections and the most recent GHG inventory available at the time.

69. Economic growth and the change in the structure of the economy were key considerations in estimating energy consumption and emissions. Reforms aimed at consolidating the public sector carried out by the Government in 2015–2019, as well as similar past governmental interventions, were crucial for enhancing sustainable economic growth and increasing the employment rate. Finland included the impact of these reforms in the economic growth assumptions for the WEM and WAM projections. For 2017–2030, Finland assumes economic growth in the services sector, with annual average gross domestic product growth of 1.4 per cent for 2017–2020 and 2.1 per cent for 2020–2030.

70. The ageing population of Finland is the most significant factor affecting labour input and thus development of the national economy in the short and medium term. The population is assumed to increase annually by an average of 0.35 per cent for 2017–2030, from 5.51 million in 2017 to 5.59 and 5.77 million in 2020 and 2030, respectively, with an ageing profile. The price of crude oil is assumed to be EUR 13.86/GJ in 2020 and EUR 17.33/GJ in 2030. The price of coal is assumed to be EUR 2.64/GJ and EUR 3.79/GJ and the price of natural gas EUR 8.91/GJ and EUR 10.49/GJ in 2020 and 2030, respectively. EU ETS emission allowance prices are expected to rise to EUR 15.5/t $CO_2$ and EUR 34.7/t $CO_2$ in 2020 and 2030, respectively. Finally, Finland reported energy taxation rates for 2019 in its BR4 (table 4.3) and explained during the review that it did not apply estimates of future tax levels and that the constant tax levels used are those of 2019.

71. Finland provided information on the changes since the submission of its NC7 and BR3 in the assumptions, methodologies, models and approaches used in the projection scenarios. Most of the measures included in the WAM scenario in the NC7 have been implemented and included in the WEM scenario. The most significant change since the BR4 is the result of the ongoing shut down of conventional condensing power plants in the country. In addition, the country's combined heat and power plants are being affected by the low electricity price level in the Nordic–Baltic power market and are likely to be shut down in the future, which will in turn result in lower use of fossil fuels in power plants.

72. The Party also provided supporting documentation to explain the changes that occurred in the models used for the projections since its NC7 and BR3 (e.g. regarding the MELA forestry model). During the review, Finland clarified, in relation to the Yasso07 model, that although the model version has not changed, an update of the model input data affected the estimate of carbon sinks in mineral soils and, in turn, the projections.

73. Finland reported in CTF table 5 the key variables and assumptions used in the preparation of the projection scenarios. It reported 57 variables and assumptions in CTF table 5 in the BR4 compared with 5 variables reported in the BR3. The ERT acknowledges the improved transparency in Finland's reporting.

74. Finland provided information on its sensitivity analyses. The sensitivity analyses were conducted for the WEM scenario by varying the economic growth of industry, services and the building sectors. No sensitivity analysis was conducted for the transport sector, and the energy use in the transport sector was kept constant. In the sensitivity analyses, annual growth in forest volume and metal industry was assumed to be 1.0 per cent lower than under the WEM scenario from 2018 onward. Lower economic growth was assumed for the building sector in comparison with the original assumption, and the development of the other industry and service sectors was varied by lowering the annual growth by 1.0 per cent compared with under the WEM scenario. According to the results of the analysis, GHG emissions in 2020 and 2030 would be 0.50 and 1.50 Mt $CO_2$ eq lower than under the WEM scenario. Most of the emission reductions would take place in the EU ETS sector, namely 0.40 Mt $CO_2$ eq in 2020 and 1.30 Mt $CO_2$ eq in 2030.

### (c) Results of projections

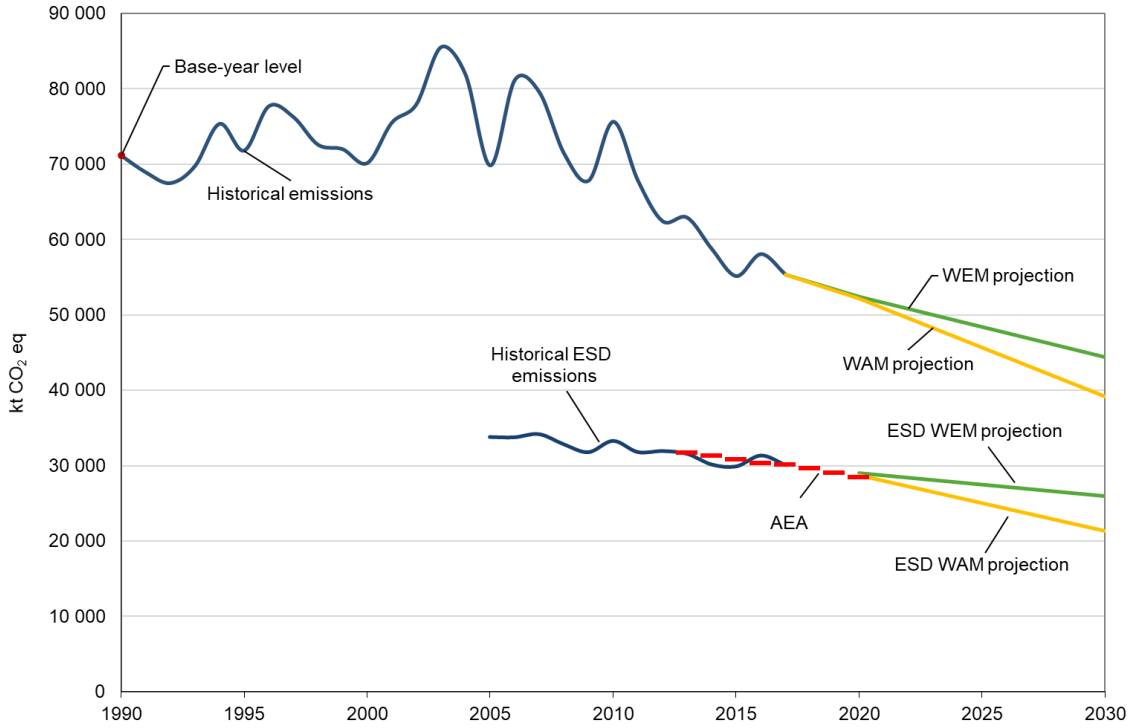
75. The projected emission levels under different scenarios and information on the quantified economy-wide emission reduction target are presented in table 6 and figure 1.

Table 6
**Summary of greenhouse gas emission projections for Finland**

| | *Total GHG emissions* | | *Emissions under the ESD* | |
|---|---|---|---|---|
| | *GHG emissions[a] (kt $CO_2$ eq per year)* | *Change in relation to 1990 level (%)* | *ESD emissions[b] (kt $CO_2$ eq per year)* | *Comparison to 2020 AEA (%)* |
| 2020 AEA under the ESD[c] | NA | NA | 28 513.53 | 100.0 |
| Inventory data 1990 | 71 299.79 | NA | NA | NA |
| Inventory data 2017 | 55 387.25 | –22.3 | 30 062.24 | 105.4 |
| WEM projections for 2020 | 52 456.54 | –26.4 | 28 997.63 | 101.7 |
| WAM projections for 2020 | 52 191.36 | –26.8 | 28 732.44 | 100.8 |
| WEM projections for 2030 | 44 424.85 | –37.7 | 25 958.40 | NA |
| WAM projections for 2030 | 39 154.79 | –45.1 | 21 341.07 | NA |

*Source*: Finland's BR4 and CTF table 6. ESD emissions and projections data provided by Finland during the review.
[a] GHG emissions excluding LULUCF and including indirect $CO_2$ emissions.
[b] ESD emissions excluding LULUCF and excluding indirect $CO_2$ emissions.
[c] The quantified economy-wide emission reduction target under the Convention is a joint target of the EU and its member States. The target is to reduce emissions by 20.0 per cent compared with the base-year (1990) level by 2020. Finland's target under the ESD is 16.0 per cent below the 2005 level by 2020.

Figure 1
**Greenhouse gas emission projections reported by Finland**




*Sources*: EU transaction log (AEAs) and Finland's BR4 and CTF tables 1 and 6. ESD emissions and projections data provided by Finland during the review.

76. Finland's total GHG emissions excluding LULUCF and including indirect $CO_2$ in 2020 and 2030 are projected to be 52,456.54 and 44,424.85 kt $CO_2$ eq, respectively, under the WEM scenario, which represents a decrease of 26.4 and 37.7 per cent, respectively, below the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be lower than those in 1990 by 26.8 and 45.1 per cent and amount to around 52,191.36 and 39,154.79 kt $CO_2$ eq, respectively.

77. Finland's target under the ESD is to reduce ESD emissions by 16.0 per cent below the 2005 level by 2020 (see para. 16 above). Finland's AEAs, which correspond to its national emission target under the ESD, change linearly from 31,776.52 kt $CO_2$ eq in 2013 to 28,513.53 kt $CO_2$ eq for 2020. According to the projections under the WEM scenario reported in the BR4, ESD emissions are estimated to reach 28,997.63 kt $CO_2$ eq by 2020. Under the WAM scenario, Finland's ESD emissions in 2020 are projected to be 28,732.44 kt $CO_2$ eq. The projected level of emissions under the WEM and WAM scenarios is 1.7 and 0.8 per cent, respectively, above the AEAs for 2020. The ERT noted that the Party's current cumulative surplus of AEAs is 1,312.66 kt $CO_2$ eq, which suggests that Finland may need to use the flexibility allowed under the ESD to meet its target under both the WEM and WAM scenarios.

78. Finland reported ESD emission projections, excluding emissions and removals from the LULUCF sector and including indirect $CO_2$ emissions, for 2020 under the WEM and WAM scenarios in Mt $CO_2$ eq in the BR4 (table 5.2). The ERT considers that transparency could be improved if Finland reported projected emissions for the EU ETS and the ESD in kt $CO_2$ eq in its BR.

79. In addition to its target under the ESD, Finland is required to achieve a domestic target under the EU 2020 climate and energy package of a 38 per cent share of renewable energy sources in final energy consumption by 2020 and a 50 per cent share by 2030, and an increase in energy efficiency. Furthermore, under the EU effort-sharing regulation, Finland is required to decrease its emissions by 39 per cent by 2030 compared with the 2005 level.

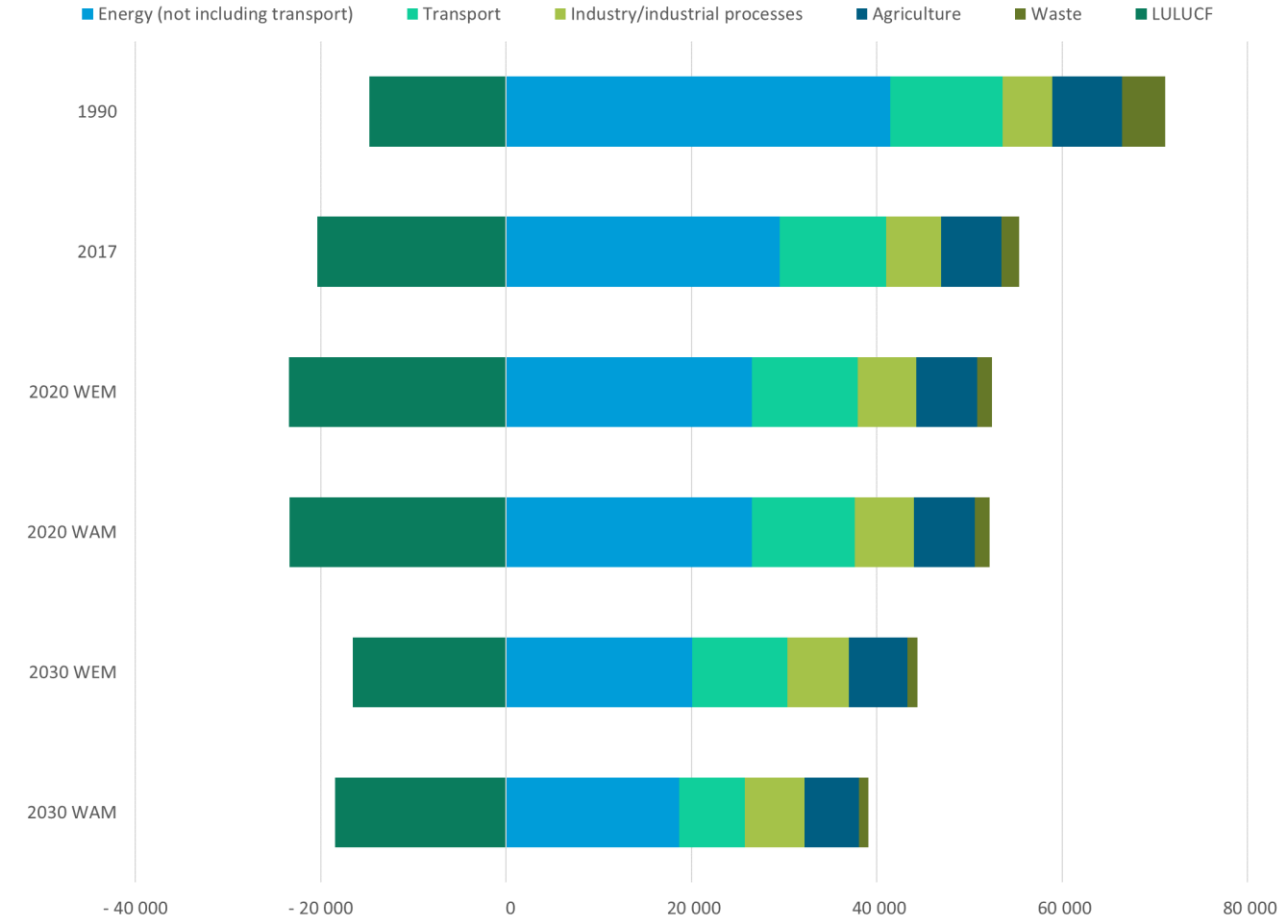
80. Renewable energy is considered to be one of the most significant means of Finland achieving its national energy and climate targets. In 2017, the share of renewable energy sources in final energy consumption was 41 per cent, showing a slightly increasing trend from 2015. Under the WEM scenario, the share of renewable energy is expected to be above 40 per cent in 2020.

81. The ERT noted that, according to Finland's NECP, the target of a 50 per cent share of renewable energy sources by 2030 has been revised slightly upwards to 51 per cent. Finland explained that the BR4 was submitted before the approval of the NECP (on 16 December 2020) and therefore such information was not included in the BR4. On the basis of the information reported in the NECP (figure 3, table 4), under the WAM scenario the overall share of renewable energy in final energy consumption in 2030 is estimated at 54 per cent. The ERT also noted that there is no quantitative information in the BR4 regarding the target for increasing energy efficiency, although such information is in the NECP. More specifically, the indicative targets for 2020 and 2030 for final energy consumption are 310 TWh (corresponding primary energy consumption of 417 TWh) and 290 TWh (corresponding primary energy consumption 405 TWh), respectively. The ERT further noted that, according to the NECP, there is a realistic possibility of achieving the national energy target for 2020, but this depends significantly on the weather conditions. Finland expects to achieve its 2030 target by implementing the additional measures reported in its NECP and BR4. The projections indicate that Finland expects to meet its domestic target.

82. The ERT noted that in CTF tables 6(a) and 6(c) Finland reported historical and projected emissions for the energy sector including emissions from transport. The ERT also noted that reporting historical and projected emissions from the energy sector excluding those from transport in CTF tables 6(a) and 6(c) would facilitate comparison of reported information across Parties.

83. Finland presented the WEM and WAM scenarios by sector for 2020 and 2030, as summarized in figure 2 and table 7.

Figure 2
**Greenhouse gas emission projections for Finland presented by sector**




*Source*: Finland's BR4 CTF table 6.

Table 7
**Summary of greenhouse gas emission projections for Finland presented by sector**

| | *GHG emissions and removals (kt $CO_2$ eq)* | | | | | *Change (%)* | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *2020* | | *2030* | | *1990–2020* | | *1990–2030* | |
| *Sector* | *1990* | *WEM* | *WAM* | *WEM* | *WAM* | *WEM* | *WAM* | *WEM* | *WAM* |
| Energy (not including transport) | 41 460.37 | 26 535.97 | 26 535.99 | 20 051.03 | 18 647.46 | –36.0 | –36.0 | –51.6 | –55.0 |
| Transport | 12 097.37 | 11 375.20 | 11 109.99 | 10 266.07 | 7 107.89 | –6.0 | –8.2 | –15.1 | –41.2 |
| Industry/industrial processes | 5 393.00 | 6 324.25 | 6 324.25 | 6 646.28 | 6 427.97 | 17.3 | 17.3 | 23.2 | 19.2 |
| Agriculture | 7 510.32 | 6 572.10 | 6 572.11 | 6 339.27 | 5 849.28 | –12.5 | –12.5 | –15.6 | –22.1 |
| LULUCF | –14 771.59 | –23 460.46 | –23 349.00 | –16 523.86 | –18 480.87 | 58.8 | 58.1 | 11.9 | 25.1 |
| Waste | 4 671.95 | 1 596.62 | 1 596.62 | 1 077.82 | 1 077.82 | –65.8 | –65.8 | –76.9 | –76.9 |
| Other (specify) | 166.78 | 52.40 | 52.40 | 44.38 | 44.38 | –68.6 | –68.6 | –73.4 | –73.4 |
| **Total GHG emissions excluding LULUCF and including indirect $CO_2$** | **71 299.79** | **52 456.54** | **52 191.36** | **44 424.85** | **39 154.79** | **–26.4** | **–26.8** | **–37.7** | **–45.1** |

*Source*: Finland's BR4 CTF table 6.
*Note*: The category other includes indirect $CO_2$ emissions.

84. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the energy sector (not including transport), amounting to projected reductions of 14,924.40 kt $CO_2$ eq (36.0 per cent) between 1990 and 2020. In the transport sector emission reductions are projected to be 722.17 kt $CO_2$ eq (6.0 per cent) between 1990 and 2020. Emission reductions in the waste and agriculture sectors are projected to be 3,075.33 kt $CO_2$ eq (65.8 per cent) and 938.22 kt $CO_2$ eq (12.5 per cent), respectively. GHG emissions from the IPPU sector are projected to increase by 931.25 kt $CO_2$ eq (17.3 per cent).

85. The pattern of projected emissions reported for 2030 under the same scenario remains the same, with projected emission reductions amounting to 21,409.34 kt $CO_2$ eq (51.6 per cent) in the energy sector (not including transport), and 1,831.30 kt $CO_2$ eq (15.1 per cent) in the transport sector. In the waste and agriculture sectors projected emission reductions amount to 3,594.13 kt $CO_2$ eq (76.9 per cent) and 1,171.05 kt $CO_2$ eq (15.6 per cent), respectively. GHG emissions from the IPPU sector are projected to increase by 1,253.28 kt $CO_2$ eq (23.2 per cent) in 2030.

86. Emissions from the EU ETS sector reached their peak in the mid-2000s and are expected to continue declining owing to the decreased use of coal, natural gas and peat. Measures such as increasing the use of renewable energy sources (including substituting fossil fuels), increasing the import of electricity, developing nuclear power plants in the 2020s and using biofuels in transport contribute to the decrease in GHG emissions under the WEM scenario.

87. In the IPPU sector, emission projections are affected by the increase in industrial production, the EU F-gas regulation and the EU directive relating to emissions from air-conditioning systems in vehicles. In agriculture, emission projections are affected by the use of synthetic fertilizers and the management of organic soils. However, after 2020 the decline in livestock numbers and nitrogen fertilization is expected to lead to a slight reduction in the total emissions (estimated at a 1.0 per cent decrease in 2030 compared with the 2005 level). Emissions from waste will be reduced as a result of implementing the EU landfill directive, reducing waste generation, and limiting waste disposal as a result of the national legislation and strategy, and, in the long term, as a consequence of the restrictions on landfilling of organic waste.

88. The net sink capacity of the LULUCF sector is projected to increase under the WEM scenario by 8,688.87 kt $CO_2$ eq (58.8 per cent) by 2020 and by 1,752.27 kt $CO_2$ eq (11.9 per cent) by 2030 compared with the 1990 level. The PaMs in the context of the National Forest Strategy, such as diversifying forest management and increasing use of wood to replace fossil resources, drive the projected emissions and removals.

89. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2020 presented by sector remain the same. The additional measures considered in the WAM projection include additional energy efficiency measures, particularly in the transport sector; technology-neutral tendering processes; increased energy production from biorefineries; phasing out coal use in energy production during the 2020s; introducing a 10 per cent blend of bioliquids in light fuel oil used in machinery and heating; promoting use of alternative low-GWP non-HFC technologies in refrigeration and air-conditioning equipment; promoting long-term grass cultivation and afforestation on organic soils; using the biogas produced in the agriculture sector to replace fossil fuels; and preventing deforestation and increasing afforestation. No additional measures are included for the waste sector in the WAM scenario.

90. Finland presented the WEM and WAM scenarios by gas for 2020 and 2030, as summarized in table 8.

Table 8
**Summary of greenhouse gas emission projections for Finland presented by gas**

| | *GHG emissions and removals (kt $CO_2$ eq)* | | | | | *Change (%)* | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *2020* | | *2030* | | *1990–2020* | | *1990–2030* | |
| *Gas* | *1990* | *WEM* | *WAM* | *WEM* | *WAM* | *WEM* | *WAM* | *WEM* | *WAM* |
| $CO_2$[a] | 57 138.65 | 42 064.24 | 41 798.93 | 35 415.02 | 30 858.34 | –26.4 | –26.8 | –38.0 | –46.0 |
| $CH_4$ | 7 746.33 | 4 362.74 | 4 362.56 | 3 678.83 | 3 628.46 | –43.7 | –43.7 | –52.5 | –53.2 |
| $N_2O$ | 6 362.09 | 4 747.77 | 4 748.08 | 4 743.02 | 4 298.32 | –25.4 | –25.4 | –25.4 | –32.4 |
| HFCs | 0.02 | 1 232.97 | 1 232.97 | 535.60 | 317.57 | 6 164 750.0 | 6 164 750.0 | 2 677 900.0 | 1 587 750.0 |
| PFCs | 0.21 | 4.39 | 4.39 | 4.11 | 3.83 | 1 990.5 | 1 990.5 | 1 857.1 | 1 723.8 |
| $SF_6$ | 52.48 | 44.43 | 44.43 | 48.27 | 48.27 | –15.3 | –15.3 | –8.0 | –8.0 |
| $NF_3$ | NO | NO | NO | NO | NO | NA | NA | NA | NA |
| **Total GHG emissions without LULUCF** | **71 299.79** | **52 456.54** | **52 191.36** | **44 424.85** | **39 154.79** | **–26.4** | **–26.8** | **–37.7** | **–45.1** |

*Source*: Finland's BR4 CTF table 6.
[a] Finland included indirect $CO_2$ emissions in its projections.

91. For 2020, the most significant reductions are projected for $CO_2$ and $CH_4$ emissions: 15,074.41 kt $CO_2$ eq (26.4 per cent) and 3,383.59 kt $CO_2$ eq (43.7 per cent), respectively.

92. For 2030, under the WEM scenario, the most significant reductions are projected for $CO_2$ and $CH_4$ emissions: 21,723.63 kt $CO_2$ eq (38.0 per cent) and 4,067.50 kt $CO_2$ eq (52.5 per cent), respectively.

93. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2020 presented by sector remain the same. Under the WAM scenario, the most significant reductions are also projected for $CO_2$ and $CH_4$ emissions: 26,280.31 kt $CO_2$ eq (46.0 per cent) and 4,117.87 kt $CO_2$ eq (53.2 per cent), respectively.

94. Furthermore, under both the WEM and WAM scenarios, a notable increase in HFC and PFC emissions is projected for 2020 and 2030 compared with the 1990 level. Under the WEM scenario, the increase in HFC emissions is estimated at 1,232.95 kt $CO_2$ eq (6,164,750.0 per cent) and 535.58 kt $CO_2$ eq (2,677,900.0 per cent) for 2020 and 2030, respectively, and the increase in PFC emissions is estimated at 4.18 kt $CO_2$ eq (1,990.5 per cent) and 3.90 kt $CO_2$ eq (1,857.1 per cent) for 2020 and 2030, respectively. Under the WAM scenario, projections of both HFC and PFC emissions for 2020 are the same as under the WEM scenario. For 2030, projections of HFC and PFC emissions increase to 317.57 kt $CO_2$ eq (1,587,750.0 per cent) and 3.83 kt $CO_2$ eq (1,723.8 per cent), respectively, as a result of the additional measures intended to promote use of alternative low-GWP non-HFC technologies in refrigeration and air-conditioning equipment.

95. Finland used several models and approaches for developing the WEM and WAM projection scenarios and referred to the BR3 (section 5.8.3) in its BR4 for the description of the models and approaches used for the projections. The ERT noted that a number of important characteristics associated with a number of models were missing (e.g. weaknesses and strengths, references). During the review, Finland provided the requested information on the models and assumptions used.

96. Finland has a target of climate neutrality by 2035 and a 'negative path' thereafter. This is expected to be achieved by increasing emission reductions on the one hand and strengthening carbon sinks on the other. On the basis of the WAM scenario for at least 2030 this target does not seem to be achievable. During the review, Finland explained that the target for carbon neutrality by 2035 is a new target, first introduced in June 2019 as part of the Prime Minister's Government Programme. The climate-neutrality target is a far more challenging target than the current energy and climate targets that Finland has for 2030. Currently, Finland has not yet decided on or introduced all the policy measures for achieving the climate-neutrality target, which is why the current scenarios do not reflect adequate progress towards reaching climate neutrality by 2035. Finland informed the ERT that a new

National Climate and Energy Strategy and a new Medium-term Climate Policy Plan will be launched by the summer of 2021, and a climate programme for the land-use sector will be developed by the end of 2021. These documents will incorporate the additional policy measures required for reaching the 2035 carbon-neutrality target, and subsequently the projection scenarios will be updated accordingly.

### (d) Assessment of adherence to the reporting guidelines

97. The ERT assessed the information reported in the BR4 of Finland and identified issues relating to completeness and transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 9.

Table 9
**Findings on greenhouse gas emission projections reported in the fourth biennial report of Finland**

| *No.* | *Reporting requirement, issue type and assessment* | *Description of the finding with recommendation or encouragement* |
|---|---|---|
| 1 | Reporting requirement specified in paragraph 35<br>Issue type: transparency<br>Assessment: encouragement | The Party did not report historical GHG emissions or projections of indirect $CO_2$ emissions for the WEM scenario in CTF table 6(a), although it did so for the WAM scenario in CTF table 6(c) under the category other. However, indirect $CO_2$ emissions for the WEM scenario were reported in the textual part of BR4.<br>During the review, Finland explained that the estimates of indirect $CO_2$ emissions were not uploaded to CTF table 6(a) owing to technical problems encountered during data entry.<br>The ERT encourages Finland to report indirect $CO_2$ emissions in CTF table 6(a) as in CTF table 6(c). |
| 2 | Reporting requirement specified in paragraph 36<br>Issue type: transparency<br>Assessment: recommendation | The Party reported emission projections regarding fuel sold to ships and aircraft engaged in international transport in section 5.3.2 of its BR4, stating that a constant growth rate of 2.0 per cent for international marine transportation and 3.0 per cent for international aviation was applied, on the basis of the 2017 GHG emissions. Finland noted that the impact of measures reported in CTF table 3 (aimed at improving energy efficiency and increasing use of alternative fuels) was not taken into account for the projections. However, the projected emissions reported for 2020 are lower than those in 2017, which seems unlikely to be accurate. In particular, emission projections for 2020 for international marine transportation and international aviation are estimated at 0.70 and 1.80 Mt $CO_2$ eq, respectively, while emissions in 2017 were estimated at 1.10 and 2.10 Mt $CO_2$ eq, respectively.<br>During the review, Finland explained that this error in the projections was the result of using outdated estimates of GHG emissions for 2017 for the projections for both international aviation and marine transport, and it provided the ERT with updated projections, according to which GHG emissions in 2020 and 2030 are estimated at 1.20 and 1.40 Mt $CO_2$ eq, respectively, from marine transport, and 2.30 and 3.10 Mt $CO_2$ eq, respectively, from aviation bunkers.<br>The ERT recommends that Finland improve the transparency of its reporting by ensuring that the emission projections for fuel sold to ships and aircraft engaged in international transport are reported consistently with the most up-to-date estimates of historical GHG emission estimates. |
| 3 | Reporting requirement specified in paragraph 43<br>Issue type: transparency<br>Assessment: encouragement | In section 5.7.3 of the BR4 Finland refers to the BR3 (section 5.8.3) for the description of the models and approaches used for the projections. However, the BR3 lacks information on a number of associated characteristics of the models used for the projections, such as a summary of the weaknesses and strengths of the IMPAKTI, F-gas and Dremfia models.<br>During the review, Finland provided the requested information on the weaknesses and strengths of the models.<br>The ERT encourages Finland to report in its next BR information on the weaknesses and strengths of the models used for projections. |
| 4 | Reporting requirement specified in paragraph 44<br>Issue type: transparency | In section 5.7.3 of the BR4 Finland refers to the BR3 (section 5.8.3) for the description of the models and approaches used for the projections. However, the BR3 lacks references for the EKOREM, POLIREM, IMPAKTI, F-gas, Dremfia, SF-GTM and Yasso07 models. |

| *No.* | *Reporting requirement, issue type and assessment* | *Description of the finding with recommendation or encouragement* |
|---|---|---|
| | Assessment: encouragement | During the review, Finland provided the references for the models.<br>The ERT encourages Finland to report in its next BR the references to the models used for projections. |
| 5 | Reporting requirement specified in paragraph 45<br>Issue type: transparency<br>Assessment: encouragement | The Party did not report in its BR4 the main differences in results between the projections in the BR4 and BR3 for the WAM scenario.<br>During the review, Finland explained that the WAM projections reported in its BR3 and BR4 include almost the same PaMs, with the difference being that in the BR4 the WAM scenario includes in addition the impact of phasing out oil heating in the public sector and measures for reducing emissions from machinery.<br>The ERT encourages Finland to report any differences in assumptions, methods and results in relation to the WAM projections compared with the previous BR in an effort to increase transparency. |
| 6 | Reporting requirement specified in paragraph 47<br>Issue type: transparency<br>Assessment: encouragement | The Party reported the energy taxation rates in 2019 and related information on energy taxation in its BR4 (section 4.3). However, no information was reported in the BR4 or in CTF table 5 on the underlying assumptions for the tax levels used for the projections.<br>During the review, Finland explained that no estimates of future tax levels were made, but constant tax levels over time were used in the projections, as presented in section 4.3 of its BR4.<br>The ERT encourages Finland to report the underlying assumptions used in the projections in relation to tax levels in order to increase the transparency of the reporting. |

*Note*: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs.

## D. Provision of financial, technological and capacity-building support to developing country Parties

### 1. Technical assessment of the reported information

#### (a) Approach and methodologies used to track support provided to non-Annex I Parties

98. In its BR4 Finland reported information on its provision of financial, technological and capacity-building support to non-Annex I Parties.

99. Finland provided details on how the support it has provided is "new and additional", including how it has determined resources as being "new and additional". Finland's process for determining that resources are "new and additional" is to use the overall Finnish climate funding (as grants), of approximately EUR 26.8 million in 2009, as the baseline figure against which it compares any further support by year.

100. Finland reported the support that it has provided to non-Annex I Parties, distinguishing between support for mitigation and adaptation activities and recognizing the capacity-building elements of such support. It explained how it tracks finance for adaptation and mitigation using the Rio markers, which were developed for the Organisation for Economic Co-operation and Development, Development Assistance Committee Creditor Reporting System. The Rio markers are used for tracing financial support (and avoiding double counting) related to adaptation and mitigation, and biodiversity and desertification.

101. The BR4 includes information on the national approach to tracking the provision of support, indicators, delivery mechanisms used, and allocation channels tracked. Finland included information on how it has refined its approach to tracking climate support and methodologies as compared with what was reported in its NC7. The methodology used by Finland to track finance for adaptation and mitigation has not changed since the BR2.

102. Finland reported the support it has provided to non-Annex I Parties through bilateral, regional and other multilateral channels. During the review, Finland explained that investment funding was included in the reporting for the first time in the BR3 and that there

have been no changes in the BR4 in terms of the approach or coverage used since the NC7 and BR3. The ERT considers that transparency could be improved if Finland explicitly reported in its next BR that no changes to the approach for tracking support provided to non-Annex I Parties have occurred since its previous NC and BR.

103. Finland described the methodology and underlying assumptions used for collecting and reporting information on financial support, including guidelines. As reported in the BR4 (section 6.2), the methodology used for preparing information on international climate support is based on the Rio markers, using data from the Development Assistance Committee Creditor Reporting System, together with project-level information provided from multilateral organizations.

104. Finland reported on its efforts in promoting private investment in the mitigation and adaptation activities of non-Annex I Parties, following a 2016 Government report to Parliament on Finland's development policy.[7] Examples of the mechanisms that the Party has used to mobilize resources from the private sector include Finnfund, EEP and the GEF. Compared with the BR3, the BR4 provides additional information regarding Finland's provision of special support to the least developed countries, other lower-income countries and lower middle-income countries under a joint climate fund with the International Finance Corporation, the World Bank's private sector arm that is used to create markets and to make investments in climate solutions possible that otherwise would have been difficult to implement.

### (b) Financial resources

105. Finland reported information on its provision of financial support to non-Annex I Parties as required under the Convention, including on financial support provided, committed and pledged, allocation channels and annual contributions.

106. Finland described how its resources address the adaptation and mitigation needs of non-Annex I Parties. It also described how those resources assist non-Annex I Parties in mitigating GHG emissions and adapting to the adverse effects of climate change and any economic and social consequences of response measures, and contribute to technology development and transfer and capacity-building related to mitigation and adaptation. Furthermore, Finland promotes integration of some of these climate-related goals (e.g. low-carbon development, increased capacity to adapt to climate change) into partner countries' own developing planning.

107. With regard to the most recent financial contributions aimed at enhancing implementation of the Convention by developing countries, Finland reported that its climate finance has been allocated on the basis of the principles in Finland's Development Policy Programme. In addition, climate change is one of the cross-cutting themes of Finland's Development Policy, aiming to enhance the rights of the most vulnerable, promote gender equality, and improve climate change preparedness and mitigation.

108. Finland supports the climate finance of partner developing countries following the Paris Declaration on Aid Effectiveness. For example, Finland supports the needs and priorities of non-Annex I Parties by establishing bilateral cooperation plans developed through detailed project planning and close consultation, or in the case of multilateral channels (e.g. the GEF), through their participation in board-level decision-making processes. Table 10 summarizes the information reported by Finland on its provision of financial support.

Table 10
**Summary of information on provision of financial support by Finland in 2017–2018**
(Millions of United States dollars)

| | *Year of disbursement* | |
|---|---|---|
| *Allocation channel of public financial support* | *2017* | *2018* |
| Official development assistance | 1 016.21 | 1 043.33 |

[7] See https://um.fi/publication/-/asset_publisher/iYk2EknIlmNL/content/valtioneuvoston-selonteko-suomen-kehityspolitiikka-yksi-maailma-yhteinen-tulevaisuus-kohti-kestavaa-kehitysta.

| | *Year of disbursement* | |
|---|---|---|
| *Allocation channel of public financial support* | *2017* | *2018* |
| Climate-specific contributions through multilateral channels, including: | 2.68 | 6.39 |
| GEF | 2.68 | 4.03 |
| Least Developed Countries Fund | 0.00 | 2.36 |
| Financial institutions, including regional development banks | 90.10 | 13.62 |
| United Nations bodies[a] | 4.18 | 3.64 |
| Climate-specific contributions through bilateral, regional and other channels | 37.60 | 30.39 |

*Sources*: BR4 CTF tables and Query Wizard for International Development Statistics, available at http://stats.oecd.org/qwids/.

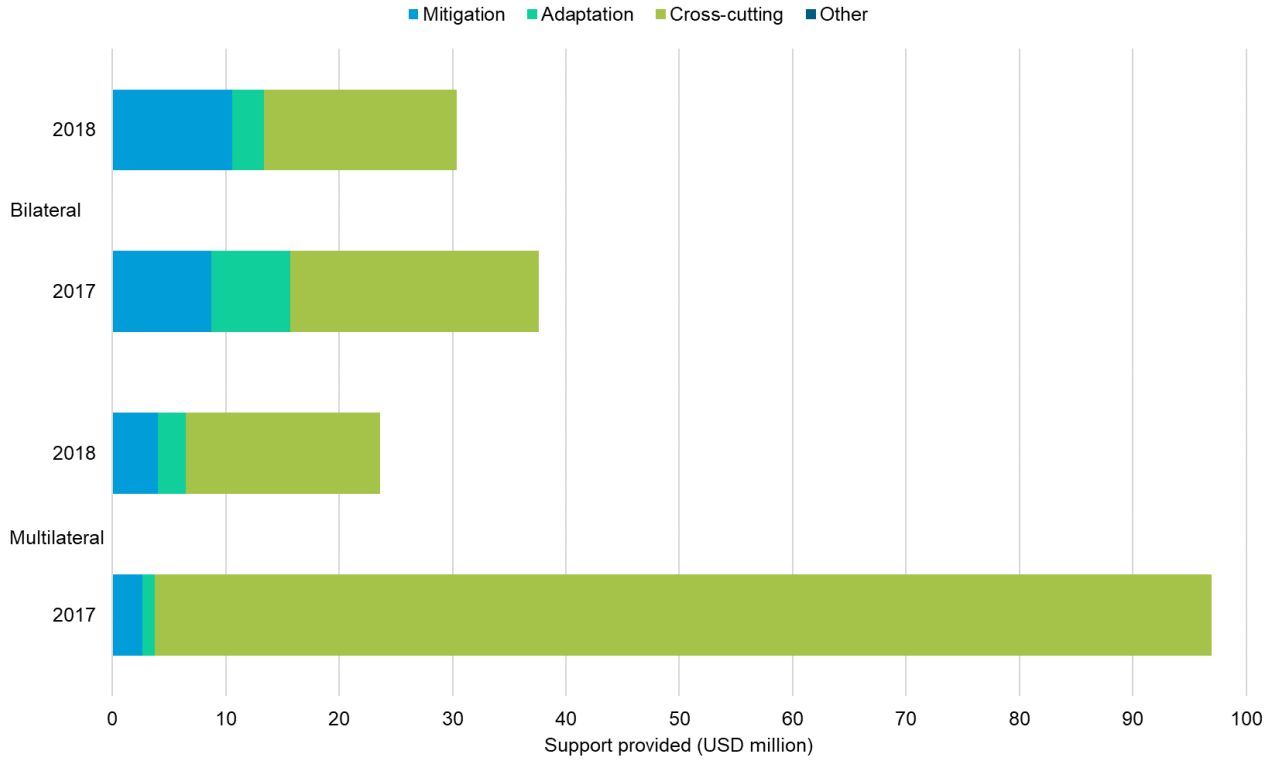
[a] The amount for 2018 differs from what is reported in the BR4 CTF tables as it does not include the USD 944,176.00 provided to Annex I Parties.

109. Finland reported on its climate-specific public financial support, totalling USD 134.57 million in 2017 and USD 54.04 million in 2018 (these values exclude the funding provided to Annex I Parties reported in CTF table 7). The decrease in support from 2017 to 2018 was partly due to year-on-year variations in fund disbursement schedules (see para. 111 below). Nevertheless, Finland has increased its contributions by 7.4 per cent since the BR3, as reported in its local currency. With regard to future financial pledges aimed at enhancing the implementation of the Convention by developing countries, Finland announced under its Paris Pledge for Action[8] its intention to provide EUR 530 million in 2016–2019, allocating a substantial amount from this pledge to climate finance in developing countries.

110. During the review, Finland explained that it has already reported investments from this pledge under contributions to Finnfund and the International Finance Corporation in its BR3 and BR4, and that it expects to report new climate-relevant contributions to these funds in its BR5. In addition, Finland reported on other climate finance provided for 2018–2022, such as via the Energy and Environment Partnership Trust Fund in cooperation with the Nordic Development Fund (EUR 15 million in total), and the GEF (EUR 32 million in total in the seventh replenishment period). During the reporting period, Finland placed a particular focus on Colombia, Ethiopia, Honduras, Indonesia, Kenya, the Lao People's Democratic Republic, Mozambique, Nepal, the United Republic of Tanzania, Viet Nam and Zambia, as well as sub-Saharan Africa, to which it allocated USD 67.99 million. Information on financial support from the public sector provided through multilateral and bilateral channels and the allocation of that support by target area is presented in figure 3 and table 11.

[8] See http://www.parispledgeforaction.org/.

Figure 3
**Provision of financial support by Finland in 2017–2018**




*Source*: Finland's BR4 CTF tables 7, 7(a) and 7(b).

Table 11
**Summary of information on channels of financial support used in 2017–2018 by Finland**
(Millions of United States dollars)

| | *Year of disbursement* | | | | *Share (%)* | |
|---|---|---|---|---|---|---|
| *Allocation channel of public financial support* | *2017* | *2018* | *Difference* | *Change (%)* | *2017* | *2018* |
| Detailed information by type of channel | | | | | | |
| Multilateral channels | | | | | | |
| Mitigation | 2.68 | 4.03 | 1.34 | 50.1 | 2.8 | 17.0 |
| Adaptation | 1.03 | 2.48 | 1.45 | 141.2 | 1.1 | 10.5 |
| Cross-cutting | 93.26 | 17.14 | –76.12 | –81.6 | 96.2 | 72.5 |
| Other | 0.00 | 0.00 | – | – | – | – |
| **Total multilateral** | **96.97** | **23.65** | **–73.32** | **–75.6** | **100.0** | **100.0** |
| Bilateral channels | | | | | | |
| Mitigation | 8.76 | 10.57 | 1.81 | 20.7 | 23.3 | 34.8 |
| Adaptation | 6.91 | 2.83 | –4.08 | –59.0 | 18.4 | 9.3 |
| Cross-cutting | 21.93 | 16.99 | –4.94 | –22.5 | 58.3 | 55.9 |
| Other | – | – | – | – | – | – |
| **Total bilateral** | **37.60** | **30.39** | **–7.21** | **–19.2** | **100.0** | **100.0** |
| **Total multilateral and bilateral** | **134.57** | **54.04** | **–80.53** | **–59.8** | **100.0** | **100.0** |

*Source*: Finland's BR4 CTF tables 7, 7(a) and 7(b).
*Note*: The figures in this table differ from those provided by the Party in CTF tables 7 and 7(a) because the former excludes USD 0.94 million (EUR 0.8 million) that Finland allocated to Ukraine (Annex I Party) in 2018.

111. The BR4 includes detailed information on the financial support provided though multilateral, bilateral and regional channels in 2017 and 2018. More specifically, Finland

contributed through multilateral channels, as reported in the BR4 and in CTF table 7(a), USD 96.97 million and 23.65 million for 2017 and 2018, respectively, reflecting a significant decrease of 75.6 per cent from 2017 to 2018. This decrease was partly due to a major five-year support programme with the International Finance Corporation of the World Bank, under which the first and largest instalment of financial support was disbursed in 2017 (60 per cent of the total), while the remaining amount will be disbursed over the duration of the programme. The contributions were made to specialized multilateral climate change funds, such as the Least Developed Countries Fund, the Green Climate Fund and the World Bank. Most of the financial support provided is for cross-cutting projects, such as enhancing sustainable management practices and increasing the capacities of developing countries in Asia, Africa and Latin America to monitor forest resources, including to combat illegal logging.

112. The BR4 and CTF table 7(b) include detailed information on the total financial support provided though bilateral and regional channels in 2017 and 2018 (USD 37.60 million and 30.39 million, respectively). The Party's contribution through these channels decreased from 2017 to 2018 by 19.2 per cent. Finland's financial contribution through bilateral and regional channels in 2017 and 2018 combined was mainly allocated to cross-cutting projects for mitigation and adaptation activities (51.1 per cent). Other relevant financial contributions were allocated to forestry (21.7 per cent) and energy (11. 5 per cent). The remaining 16 per cent of the total amount disbursed in both years was allocated to activities related to meteorology, water and sanitation, education and agriculture.

113. The BR4 provides information on the types of support provided. In terms of the focus of public financial support, as reported in CTF table 7 for 2017, the shares of the total public financial support allocated for mitigation, adaptation and cross-cutting projects were 8.5, 5.9 and 85.6 per cent, respectively. In addition, 72.0 per cent of the total public financial support was allocated through multilateral channels and 28.0 per cent through bilateral, regional and other channels. In 2018, the shares of total public financial support allocated for mitigation, adaptation and cross-cutting projects were 27.0, 9.8 and 63.2 per cent, respectively. Furthermore, 44.0 per cent of the total public financial support was allocated through multilateral channels and 56.0 per cent through bilateral, regional and other channels.

114. The ERT noted that in 2017 a majority of financial contributions made through multilateral channels were allocated to cross-cutting sectors (98.5 per cent) and agriculture (0.6 per cent), as reported in CTF table 7(a). The corresponding allocations for 2018 were also directed mostly to cross-cutting sectors (95.1 per cent). In 2017, a majority of financial contributions made through bilateral and regional channels were allocated to cross-cutting sectors (36.7 per cent) and forestry (33.7 per cent), as reported in CTF table 7(b). The corresponding allocations for 2018 were directed mostly to cross-cutting sectors (68.9 per cent) and the energy sector (15.4 per cent).

115. CTF tables 7(a) and 7(b) include information on the types of financial instrument used for providing assistance to developing countries, which include grants, equity investments, loans and interest subsidies. The ERT noted that grants, in terms of both the amount spent and the number of projects and programmes funded in 2017 and 2018, accounted for most of the total public financial support.

116. Finland reported information on how it uses public funds to promote private sector financial support for developing countries to increase mitigation and adaptation efforts in developing countries, for example through Finnfund and Finnpartnership (the Finnish Business Partnership Programme). Other examples of how Finland supports climate finance and technology transfer activities with participation from the private sector include EEP, the Finland–International Finance Corporation Blended Finance for Climate Fund, and the Energy and Environment Partnership Trust Fund administered by the Nordic Development Fund. Finland clarified that private finance is mainly mobilized for renewable energy projects, energy and material efficiency, avoiding deforestation and enhancing adaptation to climate change.

117. Finland reported on the difficulty of collecting information and reporting on private financial flows leveraged by bilateral climate finance for mitigation and adaptation activities in non-Annex I Parties, which is not conducted on a regular basis owing to confidentiality

issues and inappropriate mechanisms for data collection. During the review, the Party explained that another limitation of reporting on financial support through programmes such as EEP (i.e. in the Mekong region in Asia and in Southern and Eastern Africa) is that these programmes are run through open calls for proposals, for which there are no requirements to provide information on the allocation of funds or information on country plans; thus an assessment on private financial flows per country cannot be conducted owing to lack of information.

### (c) Technology development and transfer

118. Finland provided information on steps, measures and activities related to technology transfer, access and deployment benefiting developing countries, including information on activities undertaken by the public and private sector. Finland provided examples of support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties. One example of such support is the EEP, which helps partnering countries to develop, adopt and scale up technologies that improve their access to and promote efficient use of renewable energy, while supporting its deployment locally.

119. The ERT took note of the information provided in CTF table 8 on recipient countries, target areas, measures and focus sectors of technology transfer programmes. According to its BR4, Finland's support in recent years has been allocated mainly to renewable energy and energy efficiency projects, hydrometeorological services, and tools and methods for enhancing sustainable use of forest resources. Finland's support for transferring environmentally sound technologies covers both 'soft' and 'hard' technologies in countries in Africa, Asia and Latin America.

120. The ERT noted that Finland reported on its measures and activities, including on activities implemented or planned since its NC7 and BR3, as well as success and failure stories in relation to technology transfer, and in particular on measures taken to promote, facilitate and finance the transfer and deployment of climate-friendly technologies. Finland reported that engaging partner countries in preparing cooperation plans, having local partners in project management, and maintaining continuous support through training and capacity-building, among other activities, have been key factors for the success of these projects.

121. For example, a large amount of the reported support to non-Annex I Parties has been allocated to mitigation projects in the energy sector, for about 20 countries in Southern and Eastern Africa and the Mekong region in Asia (EEP Mekong programme). Through the EEP Mekong programme, Finland has promoted the substitution of fossil fuels and reducing $CH_4$ emissions by facilitating the production of biogas from agroindustry waste streams and households in countries such as Cambodia and Thailand. EEP has also promoted the manufacture of clean and efficient cookstoves in Africa where, in addition to reducing black carbon and $CO_2$ emissions, this has helped to alleviate the need for deforestation and has resulted in health benefits because of people's reduced exposure to indoor smoke. In addition, in cooperation with the World Bank, Finland has successfully promoted sustainable forestry programmes in countries such as the Lao People's Democratic Republic. For example, from 2016 to 2017, these programmes helped the Lao Government to achieve a 75 per cent reduction in illegal logging and associated timber exports, and thereby avoiding 4.5 Mt $CO_2$ eq emissions.

122. In its BR4, the Party reported on success stories regarding technology development and transfer to non-Annex I Parties. However, the ERT noted that the Party could benefit from including lessons learned. During the review, Finland explained that, since its BR3, both success and failure stories have been given special attention. However, the Party has faced some challenges in reporting this information owing to limited human resources to collect the information and lack of fixed measures for assessing it. Finland also explained that its Ministry for Foreign Affairs is currently conducting a broader process to enhance development cooperation overall, which includes aspects such as risk and knowledge management. The Party further explained that this process may help it to report on success and failure stories in the future.

### (d) Capacity-building

123. In its BR4 and CTF table 9, Finland supplied information on how it has provided capacity-building support for mitigation, adaptation and technology that responds to the existing and emerging needs identified by non-Annex I Parties. Finland described individual measures and activities related to capacity-building support in textual and tabular format. Examples include support for hydrometeorological institutions in central Asia and South Sudan; an international course on environmental law and diplomacy (see para. 125 below); a capacity-building programme for the waste management sector in Peru; and support for carbon market related capacity-building in developing countries in Asia (via the Asian Development Bank's Technical Support Facility).

124. Finland reported that it has supported climate-related capacity development activities relating to adaptation, mitigation, climate financing and markets, and systematic observation (hydrometeorology). Finland also reported on how it has responded to the existing and emerging capacity-building needs of non-Annex I Parties by following the principles of national ownership, stakeholder participation, country-driven demand, and cooperation between donors and across programmes.

125. Finland's support provided to developing countries has encompassed a variety of areas, including hydrometeorological services, waste management, carbon markets and international environmental law and diplomacy. In some cases, this capacity-building support has been provided continuously for more than a decade. For example, since 2004, Finland has funded an international course on multilateral environmental agreements (covering different environmental themes including climate change issues) organized by the University of Eastern Finland, the United Nations Environment Programme and partners in developing countries. Over the years, the course has supported international environmental negotiations by fostering contacts between developing and developed countries as well as training current and future negotiators of multilateral environmental agreements (e.g. the UNFCCC). Regarding issues related to adaptation, Finland is considered a world-leading donor for its training support for meteorological and hydrological services in countries such as Kyrgyzstan, South Sudan, the Sudan and Tajikistan through the Inter-Institutional Cooperation Instrument.

## 2. Assessment of adherence to the reporting guidelines

126. The ERT assessed the information reported in the BR4 of Finland and identified an issue relating to transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table 12.

Table 12
**Findings on provision of support to developing country Parties from the review of the fourth biennial report of Finland**

| *No.* | *Reporting requirement, issue type and assessment* | *Description of the finding with recommendation or encouragement* |
|---|---|---|
| 1 | Reporting requirement specified in paragraph 13<br>Issue type: transparency<br>Assessment: recommendation | In its reporting on the provision of financial support in CTF table 7(a), the Party included financial support provided to an Annex I Party (i.e. Ukraine).<br>During the review, the Party explained that Ukraine is a country eligible for support under official development assistance and has an economy in transition, as categorized under the Convention. Thus, through a multilateral channel (i.e. the Nordic Environment Finance Corporation), Finland disbursed to Ukraine EUR 800,000 in 2018.<br>The ERT recommends that Finland increase the transparency of its reporting on financial support provided to non-Annex I Parties by providing clear information on the total amount of financial support provided to developing Parties in CTF tables 7 and 7(a). If support to Annex I Parties is included in the totals of CTF tables 7 and 7(a), the Party should clarify this by, for example, using a footnote to the CTF tables and explaining the issue in the textual part of the BR. |

*Note*: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs.

# III. Conclusions and recommendations

127. The ERT conducted a technical review of the information reported in the BR4 and CTF tables of Finland in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the reported information mostly adheres to the UNFCCC reporting guidelines on BRs and provides an overview of emissions and removals related to the Party's quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; the progress of Finland towards achieving its target; and the Party's provision of support to developing country Parties.

128. Finland's total GHG emissions excluding LULUCF and including indirect $CO_2$ covered by its quantified economy-wide emission reduction target were estimated to be 22.3 per cent below its 1990 level, whereas total GHG emissions including LULUCF and including indirect $CO_2$ were 38.1 per cent below its 1990 level, in 2017. Emission decreases were driven mainly by the increase in the level of annually imported electricity, the decrease in the use of fossil fuel based condensing power plants and the increased share of renewable energy in annual energy production.

129. Under the Convention, Finland committed to contributing to the achievement of the joint EU quantified economy-wide emission reduction target of a 20 per cent reduction in emissions below the 1990 level by 2020. The target covers all sectors and $CO_2$, $CH_4$, $N_2O$, HFCs, PFCs and $SF_6$, expressed using GWP values from the AR4. Emissions and removals from the LULUCF sector are not included.

130. Under the ESD, Finland has a target of reducing its emissions by 16 per cent below the 2005 level by 2020. The 2013–2020 linear progression in Finland's AEAs (its national emission target for ESD sectors) is 31,776.52–28,513.53 kt $CO_2$ eq.

131. In 2017, Finland's ESD emissions were 0.4 per cent (114.91 kt $CO_2$ eq) below the AEA under the ESD. In addition, the ERT noted that in 2017 Finland did not use any units from market-based mechanisms. Taking the use of market-based mechanisms for 2013–2017 into account, Finland has a cumulative surplus of 1,312.66 kt $CO_2$ eq with respect to its AEAs. Finland is therefore considered to be on track to meet its target under ESD.

132. The GHG emission projections provided by Finland in its BR4 correspond to the WEM and WAM scenarios. Under these scenarios, emissions are projected to be 26.4 and 26.8 per cent below the 1990 level by 2020, respectively. According to the projections under the WEM scenario, ESD emissions are estimated to reach 28,997.63 kt $CO_2$ eq by 2020. Under the WAM scenario, Finland's ESD emissions in 2020 are projected to be 28,732.44 kt $CO_2$ eq. The projected level of emissions under the WEM and WAM scenarios is 1.7 and 0.8 per cent, respectively, above the AEAs for 2020. The ERT noted that the Party's current cumulative surplus of AEAs is 1,312.66 kt $CO_2$ eq, which suggests that Finland may need to use the flexibility provided under the ESD to meet its target under both the WEM and WAM scenarios.

133. Finland's main policy framework relating to energy and climate change is provided by the EU ETS and the ESD. Key legislation supporting Finland's climate change goals includes the National Energy and Climate Strategy for 2030 and the Medium-term Climate Change Policy Plan. The mitigation actions with the most significant mitigation impact are increasing the use of renewable energy sources to 38 per cent of final energy consumption by 2020, increasing the share of biofuels in gasoline and diesel to 10 per cent by 2020 and improving energy efficiency. These measures mainly impact the energy sector, including transport.

134. Finland continues to provide climate financing to developing countries in line with its climate finance programmes, such as its Development Policy Programme and Finland's Development Policy. It has increased its contributions by 7.4 per cent since the BR3; its public financial support in 2017 and 2018 totalled USD 134.57 and 54.04 million, respectively. The observed changes between 2017 and 2018 are mainly due to year-on-year variations in fund disbursement schedules. Considering the aggregated contributions for 2017 and 2018, Finland provided more support for mitigation than for adaptation. The biggest share of financial support went to cross-cutting projects, such as enhancing the availability

and sustainability of forest, nature and environmental practices and data, and to projects in the energy and forestry sectors.

135. Finland continues to provide information on support for technology development and transfer and capacity-building. Priority in technological support was given to projects and/or programmes concerning renewable energy and energy efficiency, hydrometeorological services, and tools and methods for enhancing the sustainable use of forest resources. For example, sustainable forestry programmes in the Lao People's Democratic Republic have led to a significant reduction in illegal logging and associated timber exports, thereby avoiding the corresponding emissions. Finland has specific programmes and financial arrangements for transferring environmentally sound technologies covering both 'soft' and 'hard' technologies in countries in Africa, Asia and Latin America.

136. The capacity-building support to developing countries that Finland continues to provide includes support to hydrometeorological services in central Asia and South Sudan, an international environmental law and diplomacy course, a capacity-building programme for the waste management sector in Peru and support for carbon market related capacity-building in developing countries in Asia. Some of these capacity-building activities have been provided constantly for more than a decade, which has helped to prepare current and future generations of people working as negotiators in relation to multilateral environmental agreements.

137. In the course of the review, the ERT formulated the following recommendations for Finland to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR, namely to improve the transparency of its reporting by:

(a) Providing more information on progress in achieving its targets in the textual part of its BR and in CTF table 3 (e.g. using custom footnotes), explaining why some mitigation actions were reported as planned when they had already been adopted or implemented (see issue 1 in table 4);

(b) Including information on missing estimates of mitigation impacts in CTF table 3 or adequately explaining in the textual part of the BR or in a footnote to CTF table 3 why this is not possible due to national circumstances (see issue 2 in table 4);

(c) Ensuring that emission projections for fuel sold to ships and aircraft engaged in international transport are reported consistently with the most up-to-date estimates of historical GHG emissions (see issue 2 in table 9);

(d) Providing clear information on the total amount of financial support provided to developing country Parties in CTF tables 7 and 7(a) (see issue 1 in table 12).

# Annex

## Documents and information used during the review

### A. Reference documents

2019 GHG inventory submission of Finland. 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-2019.

BR4 of Finland. Available at https://unfccc.int/sites/default/files/resource/FI_BR4_TK_2019-12-19.pdf.

BR4 CTF tables of Finland. Available at https://unfccc.int/sites/default/files/resource/fin_2020_v1.0.xlsx.

Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention. Available at https://unfccc.int/topics/mitigation/workstreams/pre-2020-ambition/compilation-of-economy-wide-emission-reduction-targets-to-be-implemented-by-parties-included-in-annex-i-to-the-convention.

European Green Deal. Available at https://ec.europa.eu/info/files/communication-european-green-deal_en.

"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". Annex to decision 24/CP.19. Available at http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications". FCCC/CP/1999/7. Available at http://unfccc.int/resource/docs/cop5/07.pdf.

"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". Annex to decision 13/CP.20. Available at http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf.

NECP of Finland. Available at http://julkaisut.valtioneuvosto.fi/handle/10024/161977.

Report on the individual review of the annual submission of Finland submitted in 2018. FCCC/ARR/2018/FIN. Available at https://unfccc.int/sites/default/files/resource/arr2018_FIN.pdf.

Report on the technical review of the BR3 of Finland. FCCC/TRR.3/FIN. Available at https://unfccc.int/sites/default/files/resource/trr.3_FIN.pdf.

"UNFCCC biennial reporting guidelines for developed country Parties". FCCC/SBSTA/2014/INF.6. Annex I to decision 2/CP.17. Available at http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf.

### B. Additional information provided by the Party

Responses to questions during the review were received from Riitta Pipatti (Statistics Finland).