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Report on the technical review of the third biennial report of Iceland

Developed country Parties were requested by decision 2/CP.17 to submit their third biennial report to the secretariat by 1 January 2018. This report presents the results of the technical review of the third biennial report of Iceland, 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".

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Abbreviations and acronyms

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
CRF	common reporting format
CTF	common tabular format
ERT	expert review team
ESD	effort-sharing decision
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
ISK	Icelandic króna
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NE	not estimated
NF_3	nitrogen trifluoride
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
non-ETS sectors	sectors not covered by the European Union Emissions Trading System
N_2O	nitrous oxide
OECD	Organisation for Economic Co-operation and Development
OECD DAC	OECD Development Assistance Committee
PaMs	policies and measures
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
RMU	removal unit
SF_6	sulfur hexafluoride
UNFCCC reporting guidelines on BRs	"UNFCCC biennial reporting guidelines for developed country Parties"
UNU	United Nations University
WAM	'with additional measures'
WEM	'with measures'
WOM	'without measures'

I. Introduction and summary

A. Introduction

1. This is a report on the in-country technical review of the BR3[1] of Iceland. 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 Iceland, which confirmed that it had no comment to the report.

3. The review was conducted from 17 to 22 September 2018 in Reykjavik by the following team of nominated experts from the UNFCCC roster of experts: Mr. Vincent Agusiegbe (Nigeria), Ms. Jolanta Merkeliene (Lithuania), Mr. Takashi Morimoto (Japan), Ms. Sina Wartmann (Germany) and Mr. Jongikhaya Witi (South Africa). Ms. Wartmann and Mr. Witi were the lead reviewers. The review was coordinated by Ms. Kyoko Miwa (UNFCCC secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the BR3 of Iceland in accordance with the UNFCCC reporting guidelines on BRs (annex I to decision 2/CP.17).

1. Timeliness

5. The BR3 was submitted on 16 March 2018, after the deadline of 1 January 2018 mandated by decision 9/CP.16, and was resubmitted on 21 March 2018.

6. Iceland did not inform the secretariat about its difficulties with making a timely submission in accordance with decision 13/CP.20 and decision 22/CMP.1. The ERT noted with great concern the delay in the submission and recommended that Iceland make its next submission on time. As the submission was not made within six weeks after the due date (by 15 February 2018), the delay was brought to the attention of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol and the Compliance Committee and made public.

7. Iceland informed the ERT that the delay in submission was related to the limited human capacities in general that are required for the process to gather the required information and data from different agencies and institutions.

8. The ERT considers that options for achieving a timely submission include improving the planning process and ensuring necessary arrangements for data collection and increasing capacities.

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

9. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by Iceland in its BR3 mostly adheres to the UNFCCC reporting guidelines on BRs.

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

Table 1
Summary of completeness and transparency of mandatory information reported by Iceland in its third biennial report

Section of BR	*Completeness*	*Transparency*	*Reference to description of recommendations*
GHG emissions and trends	Complete	Transparent	–
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Mostly transparent	Issue 1 in table 4
Progress in achievement of targets	Mostly complete	Mostly transparent	Issue 1 in table 6; issues 1 and 2 in table 8; issue 3 and 5 in table 11
Provision of support to developing country Parties	Partially complete	Mostly transparent	Issues 1 and 2 in table 12; issues 1 and 2 in table 15; issue 1 in table 16

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 third 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

10. Total GHG emissions[2] excluding emissions and removals from LULUCF increased by 28.5 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF increased by 8.5 per cent over the same period. Table 2 illustrates the emission trends by sector and by gas for Iceland.

Table 2
Greenhouse gas emissions by sector and by gas for Iceland for the period 1990–2016

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2015*	*2016*	*1990–2016*	*2015–2016*	*1990*	*2016*
Sector									
1. Energy	1 866.68	2 210.47	2 056.99	1 876.91	1 856.21	–0.6	–1.1	51.4	39.8
A1. Energy industries	13.83	11.04	11.19	3.64	2.21	–84.0	–39.3	0.4	0.0
A2. Manufacturing industries and construction	376.73	456.18	214.04	177.41	198.47	–47.3	11.9	10.4	4.3
A3. Transport	619.90	662.63	890.24	894.79	973.81	57.1	8.8	17.1	20.9

[2] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO_2 eq excluding LULUCF, unless otherwise specified. Values in this paragraph are calculated on the basis of the 2018 annual submission, version 3.

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2015*	*2016*	*1990–2016*	*2015–2016*	*1990*	*2016*
A4. and A5. Other	794.18	925.95	746.09	633.38	529.23	–33.4	–16.4	21.9	11.3
B. Fugitive emissions from fuels	62.04	154.66	194.71	167.69	152.49	145.8	–9.1	1.2	3.3
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	958.01	1 008.55	1 951.13	2 023.00	1 974.23	106.1	–2.4	26.4	42.3
3. Agriculture	628.61	581.09	580.97	602.06	601.56	–4.3	–0.1	17.3	12.9
4. LULUCF	10 093.10	10 089.43	10 283.40	10 247.59	10 222.05	1.3	–0.2	NA	NA
5. Waste	180.89	266.89	290.99	246.65	237.33	31.2	–3.8	5.0	5.1
6. Other	NO	NO	NO	NO	NO	NA	NA	NA	NA
Gas[a]									
CO_2	2 237.42	2 933.99	3 620.93	3 536.41	3 499.97	56.0	–1.3	61.6	74.7
CH_4	542.75	601.72	636.05	599.01	594.55	9.5	-0.7	14.9	12.7
N_2O	357.59	336.80	299.93	303.20	299.71	–16.2	–1.1	9.8	6.4
HFCs	0.69	43.28	145.83	204.76	191.97	27 724.2	–6.2	0.0	4.1
PFCs	494.64	149.89	171.67	103.70	91.86	–81.4	–11.4	13.6	2.0
SF_6	1.10	1.31	4.66	1.53	1.28	16.5	–16.5	0.0	0.0
NF_3	NA, NO	NA, NO	NO	NO	NO	NA	NA	NA	NA
Total GHG emissions without LULUCF	**3 634.19**	**4 066.99**	**4 879.07**	**4 748.61**	**4 669.34**	**28.5**	**–1.7**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**13 727.29**	**14 156.43**	**15 162.47**	**14 996.21**	**14 891.39**	**8.5**	**–0.7**	**NA**	**NA**

Source: GHG emission data: Iceland's 2018 annual submission, version 3.

[a] Emissions by gas without LULUCF and without indirect CO_2.

11. The increase in total emissions was driven mainly by an increase in CO_2 emissions from anode consumption in the metal industry, which were mostly attributable to the increase in aluminium production which accounts for 36.4 per cent of national total CO_2 emissions except for LULUCF in 2016 under the IPPU sector. The other major factors responsible for the increase in total emissions were CO_2 emissions from fuel combustion in road transport.

12. The summary information provided on GHG emissions was consistent with the information reported in the 2017 annual submission (version 5); however, it was not consistent with the latest available submission (version 6) that reflect recalculations of emissions based on the results of the in-country review of the annual GHG inventory in 2017.

13. In brief, Iceland's national inventory arrangements were established in accordance with Act No. 70/2012, which designated the Environment Agency of Iceland as the responsible authority for the national GHG inventories. The changes in the arrangements since the BR2 include a new regulation (no. 520/2017) that clarifies institutional, legal and procedural arrangements for the inventory, including the deadlines for data provision from line ministries.

2. Assessment of adherence to the reporting guidelines

14. The ERT assessed the information reported in the BR3 of Iceland and identified an issue relating to transparency and adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table 3.

Table 3
Findings on greenhouse gas emissions and trends from the review of the third biennial report of Iceland

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 2 Issue type: transparency Assessment: encouragement	Iceland reported in its BR3 information on GHG emissions and trends that was based on the GHG inventory submitted in April 2017 (version 5). The ERT noted that the Party resubmitted the CRF tables (version 6) in August 2017, in which recalculations of emissions were made on the basis of the results of the in-country review of the annual GHG inventory in 2017. Therefore, the information on GHG emissions and trends in the BR3, which is based on the GHG inventory submitted in April 2017, is not consistent with that in the most recent national inventory submission at the time when the BR3 was submitted. The ERT noted that Iceland provided an explanation of the differences between the resubmitted inventory in 2017 version 6 and the one used in the NC7 (NC7, p.31 and annex V). During the review, Iceland confirmed that the BR3 was prepared on the basis of the national inventory report submitted in April 2017. The ERT encourages Iceland to provide in its next BR information on GHG emissions and trends that is consistent with that provided in the most recent annual inventory submission.

Note: Paragraph number 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 adhering to the UNFCCC reporting guidelines on BRs.

B. Assumptions, conditions and methodologies related to the quantified economy-wide emission reduction target and related assumptions, conditions and methodologies

1. Technical assessment of the reported information

15. For Iceland, the Convention entered into force on 21 March 1994. Under the Convention, Iceland committed to a joint effort with the EU and its member States, in accordance with Article 4 of the Kyoto Protocol.[3] This commitment is further elaborated in Iceland's contribution to the achievement of the joint EU economy-wide emission reduction target of 20 per cent below the 1990 level by 2020 under the Doha Amendment to the Kyoto Protocol, by the agreement with the EU and its member States (European Commission decisions (EU) 2015/1339 of 13 July 2015 and 2015/146 of 26 January 2015).

16. 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 as well as new market mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. Companies can make use of such units to fulfil their requirements under the EU ETS. As Iceland is not a member State of the EU, the terms and conditions under which the Party contributes to the joint EU target have been agreed bilaterally between Iceland and the EU (2015/1340).[4] Under this agreement, Iceland

[3] See http://unfccc.int/resource/docs/2012/awglca15/eng/misc01a02.pdf.
[4] Available at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32015D1340.

includes emissions and removals from the LULUCF sector, which are calculated using an activity-based approach, as part of its target.

17. The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors from the EU member States plus Iceland, Liechtenstein and Norway (which are members of the European Economic Area). An EU-wide emissions cap has been put in place for the period 2013–2020 with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. Emissions from non-ETS sectors are regulated through EU member State specific targets that add up to a reduction at the EU level of 10 per cent below the 2005 level by 2020. Iceland does not have a target under the ESD, and the corresponding emissions are subject to a bilateral agreement between Iceland and the EU and its member States that covers all non-ETS sources, including LULUCF. Under this agreement, Iceland has a target to reduce emissions from non-ETS sectors by 22 per cent below the 2005 level by 2020, which has been translated into an emission reduction of 15,327.22 kt CO_2 eq for the period 2013–2020.

18. Iceland reported a general description of its target and related conditions and assumptions in its BR3, and CTF tables 2(a)–(f) contain the required information in relation to the description of Iceland's emission reduction target. During the review, Iceland provided additional information, which is contained in paragraphs 52–54 below.

19. The ERT noted that the information provided by the Party in its BR3 and CTF table 2(a)–(f) does not transparently explain the relationship between Iceland's target and the joint target of the EU and its member States, in particular whether Iceland's non-ETS sectors are under the ESD.

20. During the review, the Party provided additional information that clarifies the relationship between the two targets and confirms that Iceland's non-ETS sectors are subject to a target, but are not covered by the ESD (see para. 17 above and para. 29 below).

2. Assessment of adherence to the reporting guidelines

21. The ERT assessed the information reported in the BR3 of Iceland and identified an issue relating to transparency and adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table 4.

Table 4
Findings on the quantified economy-wide emission reduction target from the review of the third biennial report of Iceland

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 4	The BR3 does not include transparent information on how Iceland's target under the Convention relates to the joint target of the EU and its member States and whether Iceland has an emission reduction target under the ESD.
	Issue type: transparency Assessment: recommendation	During the review, Iceland explained how its target relates to the EU's joint target with regard to the EU ETS and non-ETS sectors and clarified that its non-ETS sectors are not covered by the ESD. Iceland, however, has a target for the non- ETS sectors and that is set under a bilateral agreement between the EU and its member States and Iceland. An agreement for the full participation of Iceland in the ESD for the period 2020–2030 is under negotiation. The ERT recommends that Iceland include in its next BR transparent information on how its target under the Convention relates to the joint target of the EU and its member States and on how Iceland's non-ETS sectors are linked to the ESD.

Note: Paragraph number 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 adhering to the UNFCCC reporting guidelines on BRs.

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

1. Mitigation actions and their effects

(a) Technical assessment of the reported information

22. Iceland provided information on its package of PaMs implemented, adopted and planned, by sector, in order to fulfil its commitments under the Convention and its Kyoto Protocol. In its BR3, Iceland reported on its policy context and legal and institutional arrangements put in place to implement its commitments and monitor and evaluate the effectiveness of its PaMs.

23. Iceland provided information on a set of PaMs similar to those previously reported, and a brief overview of a set of PaMs under development. During the review, the Party provided an update on the status of the PaMs (see paras. 24–30 below). Iceland also provided the information that no changes had been made since the previous submission to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target.

24. At the national level, Iceland has introduced policies to achieve its domestic emission reduction target for sectors not included in the EU ETS (see para. 28 below). In the NC7, the Party states that the main instrument for defining and implementing mitigation PaMs is a succession of climate action plans. The Climate Action Plan 2010 included participation in the EU ETS, a carbon tax, and measures in the transport and LULUCF sectors. The plan was complemented by the Special Climate Action Plan in 2015, which provided additional funding for the period 2016–2018 for selected measures complementary to the 2010 plan, with a focus on the transport and LULUCF sectors.

25. Iceland reported on its self-assessment of compliance with its emission reduction target and on national rules for taking action against non-compliance. The Climate Change Committee oversees the implementation of the climate action plans and progress towards the 2020 target.

26. The two-main overarching cross-sectoral policies reported by Iceland are its participation in the EU ETS and individual policies addressing emission sources not covered by the EU ETS.

27. 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) that 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 industries, PFC emissions from aluminium production and CO_2 emissions from industrial processes (since 2013). The EU ETS was transposed into Icelandic law in 2011 (Act No. 64/2011) for the participation by the Party in the EU ETS since 1 January 2012. Under this arrangement, relevant emission sources in Iceland, notably those of industrial processes including aluminium industries, came under the EU ETS.

28. For EU member States, the ESD became operational in 2013 and covers sectors outside the EU ETS, including 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 per cent below the 2005 level by 2020 through binding annual emission reduction/limitation targets specific to each member State for 2013–2020. Iceland, whose non-ETS emission sources account for 60 per cent of its total GHG emissions, is not part of the ESD as such. However, corresponding emissions are subject to a bilateral agreement between Iceland and the EU and its member States that covers all non-ETS sources, including LULUCF. Under this agreement, Iceland has a target to reduce

emissions from non-ETS sectors by about 22 per cent below the 2005 level by 2020, which has been translated into an emission reduction of 15,327.22 kt CO_2 eq for the period 2013–2020.

29. Iceland highlighted the mitigation actions that are under development, such as the enhancement of the carbon tax and the Party's participation in the ESD from 2021 to 2030 which is under negotiation. However, the ERT noted that these mitigation actions will impact GHG emissions only from 2019 onward and will thus deliver a limited contribution to Iceland's 2020 emission reduction target.

30. In its BR3, Iceland reported that a new Climate Action Plan 2018 had been agreed by the newly elected Icelandic Government in November 2017. During the review, Iceland updated the ERT on the status of the plan and the key measures included in it. The plan comprises 34 measures that cover all sectors, with a focus on: (1) the phase out of imported fossil fuels in transportation and a consequent shift to a carbon-free system running on renewable energy; and (2) an increase in carbon sequestration in land use, to be achieved by afforestation, revegetation and restoration of wetlands. While no additional budget has been provided for the Climate Action Plan 2010, the new plan in 2018 will receive almost ISK 7 billion in the period 2019–2023. The new plan is currently subject to public consultation, and an updated version, taking into account comments and suggestions by civil society, will be published in 2019. Given that the plan is under development, exactly how proposed measures and actions will be implemented and the extent of their impact are as yet unknown. However, given its allocation of ISK 7 billion, the plan is expected to have a significant impact in strengthening the mitigation efforts of Iceland.

31. Table 5 provides a summary of the reported information on the PaMs of Iceland.

Table 5
Summary of information on policies and measures reported by Iceland

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*	*Estimate of mitigation impact by 2030 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	Climate Action Plan 2010 and Special Climate Action Plan 2015	NE	NE
	Participation in EU ETS	NE	NE
Energy	Carbon tax	NE	NE
Transport	Implementation plan for clean transport	NE	NE
Renewable energy	National Renewable Energy Action Plan	NE	NE
Energy efficiency	Regulation no. 822/2004 on vehicle design and equipment and regulation no. 855/2012 on tyre labelling to implement EU regulations on the performance of vehicles	NE	NE
IPPU	Carbon tax	NE	NE
	Act No. 61/2013 on chemicals, regulation no. 970/2013 on ozone-depleting substances, and regulation no. 834/2010 to implement EC regulation no. 842/2006	NE	NE
Agriculture	–	NA	NA
LULUCF	Revegetation activity, including establishing vegetation on eroded or desertified land	NE	NE
	Replacement of existing regulations on revegetation and soil conservation with new bills	NE	NE

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*	*Estimate of mitigation impact by 2030 (kt CO_2 eq)*
	Planning land use under National Planning Strategy 2015–2026	NE	NE
Waste	National Plan on Waste Management for 2013–2024	NE	NE

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

32. While Iceland did not report the impacts of its PaMs, it provided information on indications that its mitigation actions are having an impact; for example, the significant increase in the sale of plug-in hybrid cars and the rapid build-up of charging stations, in which government support has played a part. Cycling and the use of public transport has also increased. The Party stated in the BR3 that there have been marked decreases in emissions from fisheries and fishmeal production, which are potentially due to actions promoted by industry but are also clearly supported by government action, such as the carbon tax and the promotion of a fisheries system that encourages minimum fishing effort for maximum gain. However, Iceland also stated that its cost-effective mitigation options are limited because energy generation mostly relies on renewable energy already, emissions from the IPPU sector are already covered under the EU ETS and livestock emissions are difficult to control as livestock is mostly free-ranging.

(b) Policies and measures in the energy sector

33. **Energy supply.** The BR3 states that 84 per cent of primary energy use in 2015 came from renewable energy sources – hydro and geothermal. Only 16 per cent came from imported fossil fuels, which were mainly used for transport and by fisheries. During the review, Iceland indicated that an additional power demand of 460 MW to 2050 had been forecasted by the Ministry of Energy and that this demand would be met using only renewable energy sources. Therefore, the ERT notes that supply-side measures are not considered a mainstream option for mitigation in the energy sector of Iceland.

34. **Renewable energy sources.** The BR3 states that in Iceland renewables account for 99 per cent of electricity production and 99 per cent of space heating. Implemented and planned PaMs in the energy sector therefore target a transition from fossil fuel to renewable energy use, for example through the electrification of fishmeal factories and a tax on liquid and gaseous fossil fuels (see para. 32 above and 42 below). Resolution no. 18/15626, adopted in May 2017, tackles fossil fuel use by transportation and fishing and aims to increase the share of renewable energy in the transport sector from 6 per cent in 2017 to 10 per cent in 2020 and 40 per cent in 2030. Regarding the fisheries sector, the Party aims to increase the share of renewables from less than 1 per cent in 2017 to 10 per cent in 2030. The regulation on the blending of fossil fuels with renewables in fuel for transport is reported, which is an example of a supply-side measure already implemented.

35. A carbon tax covering emissions from fossil fuels that are not included in the EU ETS was introduced on 1 January 2010 by Act No. 129/2009. The tax is levied on fossil fuels in liquid or gaseous form with respect to their carbon content. The tax is foreseen to be raised gradually in the period 2018–2020 to increase its impact.

36. Iceland reported in its BR3 a domestic target of a 67 per cent share of energy from renewable sources in the gross final energy consumption by 2020. The target was set out in the National Renewable Energy Action Plan, which was first published in accordance with directive 2009/28/EC, Article 4. The ERT noted that the share of renewable energy sources in Iceland in 2015 was about 70.2 per cent, and thus the 2020 target has already been surpassed by 3.2 per cent. Iceland is striving to further increase its share of renewable energy sources in the future by considering adding future power generation capacity only in the form of renewables.

37. **Energy efficiency.** The Party did not report any significant policies or measures for energy efficiency. The ERT notes that this is due to the Party's high self-sufficiency with renewable energy sources for space heating and domestic use.

38. **Residential and commercial sectors.** The Party did not report any significant policies or measures for the residential and commercial sectors. The ERT notes that this is due to the Party's high self-sufficiency with renewable energy sources for space heating and domestic use.

39. **Transport sector.** In its BR3 and CTF table 3, Iceland reported on several measures to address GHG emissions from the transport sector, including taxes and levies for vehicles comprising changes in excise duty, biannual fees and value added tax. The excise duty on passenger cars has, since 1 January 2011, been based on the registered emissions of CO_2, measured in g per km driven. The Party also reported on tax exemptions for electric and hydrogen-powered vehicles and on a network of charging stations for electric cars. The action plan on energy change (resolution no. 18/156 of May 2017) foresees an increase in the share of renewable energy in the transport sector from 6 per cent in 2017 to 10 per cent in 2020 and 40 per cent in 2030. Act No. 40/2013, as amended, stipulates the use of a minimum percentage of renewable fuel used in land transportation. A minimum of 3.5 per cent, calculated as part of the total energy content of the fuel, has been required since 1 January 2014, and a minimum of 5 per cent since 1 January 2015. Further measures address the promotion of public transport and cycling. The current draft of the Climate Action Plan 2018 foresees a ban on cars using fossil fuel. City planning for denser urban areas and better access by public transport for smart growth has been promoted in Reykjavik and other municipalities with the involvement of local authorities.

40. The NC7 includes information on how Iceland promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels. With regard to aviation, the EU ETS covers national flights and partly covers international flights. Iceland, as a member of ICAO, participated in the adoption of a global emission reduction scheme, the Carbon Offsetting and Reduction Scheme for International Aviation. Iceland is among the nations that have confirmed they will voluntarily participate in the scheme when its implementation starts. Preparation is under way and will include adoption and implementation of the proposed Chicago Convention on International Civil Aviation, Annex 16, Volume IV, through the process under ICAO.

41. Iceland is a member of IMO and has contributed actively in the discussions on and development of the IMO strategy on the reduction of GHG emissions from ships. In November 2017, Iceland ratified Annex VI of the International Convention for the Prevention of Pollution from Ships covering the prevention of air pollution from ships, which took effect in February 2018. The Party will implement the strategy, of which an initial strategy was adopted in 2018, as far as it applies to ships on the Icelandic register of ships. Iceland also welcomes the development of the IMO Energy Efficiency Design Index requirements and will apply them to Icelandic fishing vessels and other vessels to the extent that they fall under the scope of Annex VI of the International Convention for the Prevention of Pollution from Ships, but not to cargo and passenger ships on the Icelandic registry of ships engaged on international voyages.

42. **Industrial sector.** A key measure to address emissions from fossil fuels that are not included in the EU ETS is the carbon tax. A notable example of emission reductions can be seen in the fishmeal industry, which constitutes by far the largest fossil fuel consumption in the industry sector, and which is incentivized by, among other things, the carbon tax to shift to cleaner energy sources. Oil boilers used in the industry have gradually been replaced with electric boilers resulting in less oil consumption (see para. 33 above).

(c) Policies and measures in other sectors

43. **Industrial processes.** The most significant emission sources in the IPPU sector that are covered under the EU ETS are aluminium and ferroalloys production. In Iceland, the EU ETS covers installations including three aluminium plants, a ferrosilicon plant and a fishmeal factory. These installations are responsible for about 40 per cent of Iceland's GHG emissions. Four installations (three fishmeal factories and a mineral wool producer) were excluded from

the EU ETS because they have annual emissions below 25 kt CO_2 eq; however, they pay a fixed price per t CO_2 eq that is based on the annual average price per t CO_2 eq under the EU ETS.

44. Ozone-depleting substances are addressed through the implementation of EU legislation. Regulation 842/2006/EC regulating certain F-gases has been force since 2010 through Iceland's Act No. 61/2013 on chemicals and regulation no. 970/2013 on ozone-depleting substances. Regulation 517/2014/EC, the new F-gas regulation, is expected to enter into force in 2019, and the current draft of the Climate Action Plan 2018 of Iceland correspondingly foresees a ban of HFC use from 2030 onward.

45. **Agriculture.** During the review, Iceland explained to the ERT that the sector has limited emission reduction potential because agricultural activity is limited due to the country's geography and climate, and agricultural activities mainly focus on livestock rearing and the cultivation of grass fields for producing winter feed for livestock. Emissions related to agricultural soils are thus limited. Livestock emissions are relevant but cannot easily be controlled as the majority of livestock (sheep) is free-ranging. Thus, mitigation actions focus on reducing fertilizer use.

46. **LULUCF.** The Climate Action Plan 2010 listed the carbon sequestration by afforestation and revegetation as key measures. Iceland is thus implementing projects for enhancing forests as carbon sinks and adapting forestry to climate change, including regional afforestation projects and the Mt. Hekla afforestation project. Since 2016, the Soil Conservation Service of Iceland has run a programme on wetland restoration. The current draft of the Climate Action Plan 2018 foresees further afforestation, reforestation and rewetting activities.

47. **Waste management.** The total amount of solid waste generated in Iceland has significantly increased: from 400 kt in 1995 to more than 1,000 kt in 2016. During the review, Iceland explained to the ERT that this increase is partly linked to the large increase in tourism since 2013. The Party has transposed the acquis on waste covered by the EU directives targeting the reduction, reuse and recovery of waste. Regulation no. 737/2003 on waste management prescribes that municipalities must, in their regional waste management plans, describe what measures they will take to reduce biowaste destined for landfills. By 2020, biowaste going to landfills must be reduced to 35 per cent of the total amount of biowaste produced in 1995. Regulation no. 738/2003 requires the collection of landfill gases to be further outlined in operating permits. Landfill gas is now collected at two of Iceland's largest landfills, and the CH_4 collected is used for powering vehicles in the areas in which the landfills are located. In 2013, the Ministry for the Environment and Natural Resources published the National Plan on Waste Management for 2013–2024, and in 2016, established a waste prevention programme. The introduction of a landfill tax is currently being discussed with a view to implementing it in 2020. The current draft of the Climate Action Plan 2018 foresees a ban on landfilling organic waste from 2030.

(d) Response measures

48. Iceland did not report on the assessment of the economic and social consequences of response measures in its BR3. The Party presented during the review a few initiatives aimed at minimizing adverse impacts including technology transfer to developing country Parties in the areas of geothermal energy utilization. The Party also considers that its experimental project to establish the technology on the carbon dioxide capture and storage helps countries whose renewable energy options are limited to minimize adverse impacts.

(e) Assessment of adherence to the reporting guidelines

49. The ERT assessed the information reported in the BR3 of Iceland and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 6.

Table 6
Findings on the mitigation actions and their effects from the review of the third biennial report of Iceland

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 6 Issue type: completeness Assessment: recommendation	Iceland did not report the effects of its PaMs in CTF table 3. The Party explained that the overall emissions are small, and an economic analysis to evaluate the impacts would not be cost-effective. Iceland considers that its PaMs should have a positive effect given that comparable actions are taken in many neighbouring countries. The ERT noted that limited information for the Icelandic context is provided. During the review, Iceland explained that the estimations of impacts that had been reported in the BR2 were considered to be of insufficient quality and were thus not reported in the BR3. Work on new projections, including estimations of impacts for key PaMs, is under way. The ERT recommends that Iceland report in CTF table 3 the mitigation impacts for individual PaMs or clearly explain why this may not be possible due to its national circumstances.
2	Reporting requirement specified in paragraph 6 Issue type: completeness Assessment: encouragement	Iceland did not report the costs of its PaMs in the BR3 or in CTF table 3. During the review, Iceland explained that the budget allocations for existing and new PaMs are currently under discussion. The ERT encourages Iceland to improve the transparency of its reporting by reporting in its next BR (CTF table 3) the costs of PaMs.
3	Reporting requirement specified in paragraph 8 Issue type: completeness Assessment: encouragement	Iceland did not report in the BR3 information on the assessment of the economic and social consequences of response measures. During the review the Party presented a few initiatives aimed at minimizing adverse impacts (see para. 48 above). The ERT encourages Iceland to report in its next BR information on the assessment of the economic and social consequences of response measures.

Note: Paragraph number 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 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

50. For 2014 Iceland reported in CTF table 4 annual total GHG emissions excluding LULUCF of 4,455.09 kt CO_2 eq, which is 25.8 per cent above the 1990 level.

51. For 2015 Iceland reported in CTF table 4 annual total GHG emissions excluding LULUCF of 4,538.98 kt CO_2 eq, which is 28.1 per cent above the 1990 level.

52. On its use of units from LULUCF activities, Iceland reported in CTF tables 2(b) and (d) its intention to use LULUCF (activity-based accounting) for its target; however, the ERT noted that the Party did not report in CTF table 4 on the contribution from LULUCF. During the review, Iceland informed the ERT of its net removals of 345.0 and 381.4 kt CO_2 eq to offset 7.4 and 8.0 per cent of its total GHG emissions in 2014 and 2015, respectively. The ERT also noted that removals were based on the information in the annual GHG inventory submission in 2018. During the review, the Party explained that accounting of units from LULUCF is done in accordance with Article 8 of decision 529/2013/EU of the European Parliament and of the Council of 21 May 2013 on accounting rules for GHG emissions and

removals resulting from activities relating to LULUCF and on information concerning actions relating to those activities.[5]

53. The quantity of units from market-based mechanisms is not reported in CTF tables 4 and 4(b), but Iceland reported in the NC7 that it retains the option of using units from market-based mechanisms under the Kyoto Protocol in the future. Table 7 illustrates Iceland's total GHG emissions, the intended contribution of LULUCF (activity-based) that are equivalent with the expected amounts to be accounted as RMUs of LULUCF and the use of units from market-based mechanisms to achieve its target.

Table 7
Summary of information on the use of units from market-based mechanisms and land use, land-use change and forestry by Iceland to achieve its target

Year	*Emissions excluding LULUCF (kt CO_2 eq)*	*Contribution of LULUCF (kt CO_2 eq)*[a]	*Emissions including contribution of LULUCF (kt CO_2 eq)*	*Use of units from market-based mechanisms (kt CO_2 eq)*[b]
1990	3 634.19	NA	NA	NA
2010	4 879.07	NA	NA	NA
2011	4 614.56	NA	NA	NA
2012	4 641.05	NA	NA	NA
2013	4 635.15	–312.30	4 322.85	0
2014	4 664.86	–345.0	4 319.86	0
2015	4 748.61	–381.4	4 367.21	0
2016	4 669.34	–418.5	4 250.84	0

Sources: Iceland's BR3 and CTF tables 1, 4, 4(a)I, 4(a)II and 4(b), version 3 of the CRF tables submitted in 2018 and information provided by the Party during the review.

[a] Iceland did not report the contribution of the LULUCF sector in CTF table 4, but provided this information on the envisaged use of RMUs as contribution of the LULUCF sector during the review week.

[b] Iceland intends to use units from market-based mechanisms.

54. In assessing the progress towards the achievement of the 2020 target, the ERT noted that Iceland's emission reduction target under the Convention is 20.0 per cent below the 1990 level. As discussed above, in 2016 Iceland's annual total GHG emissions excluding LULUCF were 29.2 per cent (1,055.15 kt CO_2 eq) above the base-year level. The ERT also noted that in version 3 of the CRF tables submitted in 2018, Iceland's annual total GHG emissions excluding LULUCF in 2016 were 4,669.34 kt CO_2, and net removals by LULUCF in 2016 were estimated as 920.70 kt in total (on an activity basis, reported in the accounting table for activities under Article 3, paragraph 3, and Article 3, paragraph 4, of the Kyoto Protocol of the CRF table version 3 of 2018 submission). The ERT also noted that the amounts of net removals by activities under Article 3, paragraph 3, and Article 3, paragraph 4, of the Kyoto Protocol reported in the accounting table for 2013, 2014 and 2015 were 814.05 kt CO_2 eq, 846.74 kt CO_2 eq and 883.14 kt CO_2 eq, respectively. During the review, the Party provided the additional information on the envisaged amounts of RMUs to be used for the target. They are estimated as 312.3 kt CO_2 eq, 345.0 kt CO_2 eq, 381.4 kt CO_2 eq and 418.5 kt CO_2, for 2013, 2014, 2015 and 2016, respectively, based on the accounting rules mentioned in paragraph 52 above.

55. On this basis, total GHG emissions including the LULUCF (on an activity basis) for 2016 were 4,250.84 kt CO_2 eq, which is 636.65 kt CO_2 eq (17.6 per cent) above the emissions in 1990 (3,634.19 kt CO_2 eq). In 2013, 2014 and 2015 the situation was comparable with 2016. Total GHG emissions including the LULUCF (on an activity basis) were 4,322.85 kt

[5] https://publications.europa.eu/en/publication-detail/-/publication/5327fa89-e78d-41bd-9465-2974d473a1a5/language-en.

CO_2 eq in 2013, 4,319.86 kt CO_2 eq in 2014 and 4,367.21 kt CO_2 eq in 2015, which were 19.6, 19.5 and 20.8 per cent above the 1990 level, respectively.

56. During the review, Iceland clarified that it intends to use market-based mechanisms under the Kyoto Protocol to meet its target for the non-ETS sectors and thus its overall target, and explained that the estimations performed by the Environment Agency of Iceland in July 2018 indicate that units from market-based mechanisms equivalent to an amount of 4,908 kt CO_2 eq are required to achieve the 2020 target.

57. The ERT noted that Iceland faces challenges in implementing mitigation actions that deliver the emission reductions needed to make sufficient progress towards its target. The ERT also noted that the Party may face challenges in the achievement of its target under the Convention. Iceland acknowledged this during the review and also indicated its intention to acquire units from market-based mechanisms in order to meet its target.

58. Considering the high proportion of renewable energy sources in Iceland and its use of advanced mitigation technologies in the production processes of aluminium and non-ferrous metals, which are the largest emission sources, and also considering that the measures listed in the Climate Action Plan 2018 are still under consideration, the ERT notes that participation in the EU ETS and the use of units from market-based mechanisms are the prerequisites for the Party to attain its 2020 target.

(b) Assessment of adherence to the reporting guidelines

59. The ERT assessed the information reported in the BR3 of Iceland and identified issues relating to transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 8.

Table 8
Findings on estimates of emission reductions and removals and the use of units from the market-based mechanisms and land use, land-use change and forestry from the review of the third biennial report of Iceland

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 9	CTF table 4 does not include information on the contribution from LULUCF, despite information on annual emissions/removals from LULUCF activities being available in CTF table 4(a)II. No reference is made to CTF table 4(a)II.
	Issue type: transparency	During the review, in response to a question raised by the ERT, Iceland clarified that the information was omitted in error.
	Assessment: recommendation	The ERT reiterates the recommendation made in the previous review report that Iceland include in its next BR the contribution from LULUCF in CTF table 4.
2	Reporting requirement specified in paragraph 10	CTF table 4(b) does not present information on the use of market-based mechanisms. In its BR3, Iceland reported that it is considering the option of using units from market-based mechanisms to achieve its 2020 target.
	Issue type: completeness	During the review, in response to a question raised by the ERT, Iceland clarified that the Environment Agency of Iceland, responding to a request of the Ministry for the Environment and Natural Resources dated 7 July 2018, developed a first estimate of 4,908 kt CO_2 eq being required in certificates from market-based mechanisms to achieve its 2020 target. The Party expects that a decision on the allocation of budgets for the purchase of the required certificates to be finalized in 2019.
	Assessment: recommendation	The ERT recommends that Iceland include in CTF table 4(b) the information on its (intended) use of units from market-based mechanisms under the Convention or from other market-based mechanisms. The ERT reiterates the note in the previous review report that the Party can use notation keys for this purpose, provided they are transparently explained in a footnote to the table or in the text of the BR.

Note: Paragraph number 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 adhering to the UNFCCC reporting guidelines on BRs.

3. Projections overview, methodology and results

(a) Technical assessment of the reported information

60. Iceland reported updated projections for 2020 and 2030 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario, which is called as the "base case scenario" in Iceland's BR3, is based on the 2016 GHG inventory submission and includes implemented PaMs up to 2016.

61. In addition to the WEM (base case) scenario, Iceland reported the "case 2 (medium case) scenario" in its BR3, but not in the CTF tables. During the review, in response to a question raised by the ERT, the Party clarified the difference between the WEM ("base case scenario") and "case 2 (medium case) scenario": the PaMs included in both scenarios are the same, but in the "case 2 (medium case) scenario", future emissions from two planned silicon factories are included. The WAM and WOM scenarios as defined in accordance with the UNFCCC reporting guidelines on NCs are not included in the BR3.

62. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions for 1990–2030. The projections on a sectoral basis are also provided in an aggregated format for each sector as well as for a Party total using GWP values from the AR4. However, Iceland did not provide projections 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), or for NF_3 for any period.

63. Iceland did not report emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides.

64. Emission projections related to fuel sold to ships and aircraft engaged in international transport were not reported separately and were not included in the totals.

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

65. The methodology used for the preparation of the projections is different from that used for the preparation of the emission projections for the BR2. Iceland reported in the NC7 the assumptions such as possible mitigation potentials and options by sector, and the study that provide background information; however, the Party did not report supporting information further explaining what specific methodologies, models and approaches were used in the preparation of the projection scenarios in the BR3. In addition, the changes made since the BR2 were not explained in the BR3. During the review, in response to a question raised by the ERT, the Party provided the ERT with the required information. The projections for all sectors were revised on the basis of a study of the mitigation potential and options of Iceland published by the Economic Institute of the University of Iceland and commissioned by the Ministry for the Environment and Natural Resources.[6] The key assumptions, including future economic growth, population and electricity demand, were updated when revising the projections. Furthermore, the GWP values used for the projections were changed from the GWP values from the AR2 used in the BR2 to those from the AR4; therefore, GWP values used for the projections, the GHG emissions reported and the quantified economy-wide emission reduction target were consistent.

66. To prepare its projections, Iceland relied on the following key underlying assumptions: GDP growth rate, population, electricity production by generation type, aluminium and ferrosilicon production and the amount of solid waste generation. These variables and assumptions were partially reported in CTF table 5. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections and were largely based on official sources such as national plans (e.g. National Energy Authority 2016 fuel forecast[7] and National Energy Authority

[6] "Mitigation potentials in Iceland", available (in Icelandic) at http://www.ioes.hi.is/sites/hhi.hi.is/files/sjz/skyrsla_til_umhverfisraduneytis_lokadrog_10_feb_2017_logud3_jan_2018.pdf.

[7] Available at https://orkustofnun.is/gogn/Skyrslur/OS-2016/OS-2016-02.pdf.

2016 electricity forecast [8]) and data provided by line ministries. During the review, Iceland provided additional key underlying assumptions, including livestock population by animal type, the amount of solid waste by treatment type, oil consumption and number of vehicles; these parameters, used in the BR2, had been updated to reflect the latest situation.

67. The tourism industry in Iceland has rapidly increased in recent years. The total number of foreign visitors increased from about 0.3 million in 2000 to 1.8 million in 2016. This increasing trend has a potential impact on GHG emissions from, for example, road transport and the waste sector (see para. 47 above). The expected increase in the number of foreign tourists, which had not been incorporated in the projections for the BR2, was taken into account in the projections reported in the BR3. During the review, Iceland provided assumptions for growth in the number of tourists: is 2.5 per cent above GDP growth for the short term, 1.2 per cent above GDP growth in 2025 and 0.5 per cent above GDP growth in 2050 (based on expert assessment).

68. Iceland did not report any information on sensitivity analyses of the projections in the BR3. During the review, the Party confirmed that sensitivity analyses were not conducted for any assumptions or factors.

(c) Results of projections

69. The projected emission levels under different scenarios and information on the Kyoto Protocol target and the quantified economy-wide emission reduction target are presented in table 9 and the figure below.

Table 9
Summary of greenhouse gas emission projections for Iceland

	GHG emissions ($kt\ CO_2$ eq per year)	*Changes in relation to base-year[a] level (%)*	*Changes in relation to 1990 level (%)*
Kyoto Protocol base year[b]	3 633.56	NA	NA
Quantified emission limitation or reduction commitment under the Kyoto Protocol (2013–2020)[c]	Not available yet	NA	NA
Quantified economy-wide emission reduction target under the Convention[d]	Not available yet	NA	NA
Inventory data 1990[e]	3 542.75	–2.5	NA
Inventory data 2015[e]	4 538.97	24.9	28.1
WEM projections for 2020[f]	5 769.91	58.8	62.9
WEM projections for 2030[f]	5 589.67	53.8	57.8

[a] "Base year" in this column refers to the base year used for the target under the Kyoto Protocol, while for the target under the Convention it refers to the base year used for that target.

[b] The Kyoto Protocol base-year level of emissions is provided in the initial review report, contained in document FCCC/IRR/2016/ISL.

[c] The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target of the EU and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. The target for non-ETS sectors is 22 per cent for Iceland.

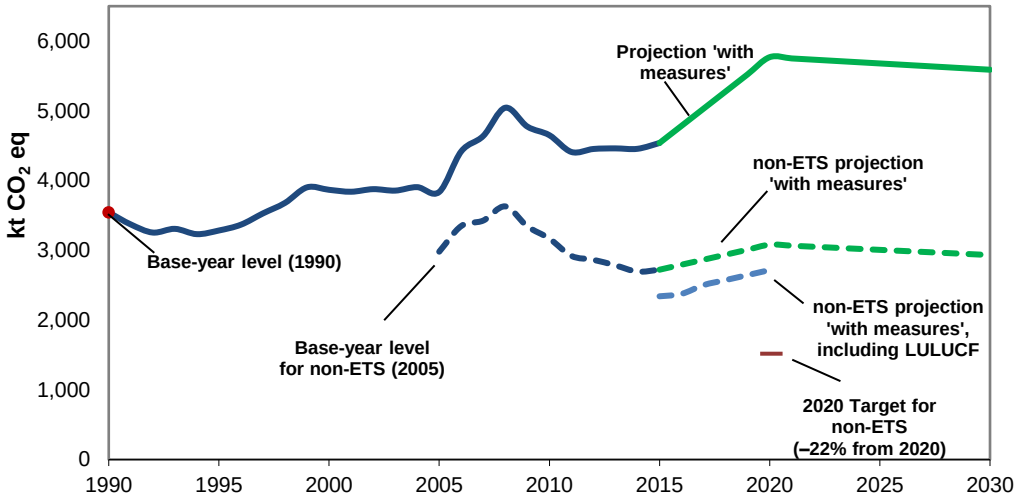
[d] The quantified economy-wide emission reduction target under the Convention is a joint target with the EU and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020.

[e] From Iceland's BR3 CTF table 6(a).

[f] From Iceland's BR3.

[8] Available at https://orkustofnun.is/gogn/Skyrslur/OS-2016/OS-2016-08.pdf.

Greenhouse gas emission projections reported by Iceland



Sources: (1) data for the years 1990–2015: Iceland's 2017 annual inventory submission, version 5; total GHG emissions excluding LULUCF; (2) data for the years 2016–2030: Iceland's NC7 and BR3; total GHG emissions excluding LULUCF.

70. Iceland's total GHG emissions excluding LULUCF are projected to be 5,769.91 and 5,589.67 kt CO_2 eq in 2020 and 2030, respectively, under the WEM scenario, which is an increase of 62.9 and 57.8 per cent, respectively, above the 1990 level. The 2020 projections suggest that Iceland should strive to contribute to the achievement of the joint EU economy-wide emission reduction target under the Convention (see para. 32 above).

71. Iceland's target for non-ETS sectors including LULUCF is to reduce its total emissions by 22 per cent below the 2005 level by 2020 (see para. 28 above). According to the projections under the WEM scenario, emissions from non-ETS sectors including LULUCF are estimated to reach 2,717.00 kt CO_2 eq by 2020, which is 8.8 per cent below the 2005 level. The ERT noted that this suggests that Iceland may face challenges in meeting its target under the WEM scenario.

72. Iceland presented the WEM scenario by sector for 2020 and 2030, as summarized in table 10.

Table 10
Summary of greenhouse gas emission projections for Iceland presented by sector

	GHG emissions and removals (kt CO_2 eq)			*Change (%)*	
		2020	*2030*	*1990–2020*	*1990–2030*
Sector	*1990*	*WEM*	*WEM*	*WEM*	*WEM*
Energy (not including transport)	1 160.01	955.64	1 047.61	–17.6	–9.7
Transport	617.06	954.32	686.36	54.7	11.2
Industry/industrial processes	954.20	2 819.92	2 827.70	195.4	196.3
Agriculture	646.47	768.52	835.16	18.9	29.2
LULUCF	10 133.65	10 274.30	10 274.30	1.4	1.4
Waste	165.01	272.52	192.83	65.2	16.9
Other (specify)	–	–	–	–	–

	GHG emissions and removals (kt CO_2 eq)			*Change (%)*	
		2020	*2030*	*1990–2020*	*1990–2030*
Sector	*1990*	*WEM*	*WEM*	*WEM*	*WEM*
Total GHG emissions without LULUCF	**3 542.75**	**5 769.91**	**5 589.67**	**62.9**	**57.8**

Source: Iceland's BR3 CTF table 6.

73. According to the projections reported for 2020 under the WEM scenario, the most significant emission increase is expected to occur in the industry/industrial processes sector, amounting to a projected increase of 1,864.7 kt CO_2 eq (195.4 per cent) between 1990 and 2020. The most significant emission reduction is expected to occur in the energy sector (excluding transport), amounting to a projected reduction of 204.4 kt CO_2 eq (17.6 per cent) between 1990 and 2020. The pattern of projected emissions reported for 2030 under the same scenario is significantly different since emissions are expected to turn downward after peaking around 2020. The most significant emission increase is expected to occur in the industry/industrial processes sector, amounting to a projected increase of 1,873.5 kt CO_2 eq (196.3 per cent) between 1990 and 2030. The most significant emission reduction is expected to occur in the energy sector (excluding transport), amounting to a projected reduction of 112.4 kt CO_2 eq (9.7 per cent) between 1990 and 2030.

74. The patterns of projected emissions from the transport and waste sectors under the WEM scenario are different in 2020 and 2030. The emissions from both sectors in 2020 are projected to increase compared with the 2015 level while in 2030 they are projected to decrease compared with the 2015 level. This is due to the assumptions that, in the transport sector, the emission reduction effects of electric and other low-emission cars will be clear after 2020, and in the waste sector, the amount of waste landfilled will decrease linearly to 15 per cent of total waste in 2030.

75. The main reason for the emission increase in the industry/industrial processes sector in 2020 is the increase in silicon production. The construction of two plants is currently under way, and two more are planned to be built by 2030 although Iceland reported that the expected emissions from these latter two were not included in the projections under the WEM scenario. The ERT noted that although there was no silicon production in Iceland in 2015, the projected emissions from silicon production are 913 kt CO_2 in 2030, accounting for approximately 16 per cent of projected total GHG emissions without LULUCF for that year; that is, silicon production will have a significant impact on total GHG emissions in 2020 and 2030.

76. The ERT noted that in CTF table 6(a) projected emissions from the LULUCF sector in 2020 and 2030 were reported to be the same as emissions in 2015: 10,274.30 kt CO_2. During the review, Iceland explained that there were no projections available for the LULUCF sector at the time of the preparation of the BR3 and therefore the value for 2015 was reported for 2020 and 2030.

77. Iceland did not present the WEM scenario by gas for 2020 and 2030. During the review, the Party explained that the study used for the projections treated GHG emissions on a sectoral basis, not by gas.

78. In the BR3, Iceland reported that it has started developing new projections in accordance with EU regulation 525/2013. To be completed in 2019, the new projections for the WEM scenario will take into account the policies included in the Climate Action Plan developed in 2018 (see paras. 30 and 39 above) and will cover all IPCC sectors and the years 2020, 2025, 2030 and 2035. The new projections will include GHG emissions with and without the LULUCF sector as well as provide separate values for the EU ETS and non-ETS sectors. During the review, the Party informed the ERT that the outcome of the preparatory work for the new projections would be included in the next BR submission.

79. During the review, in response to a question raised by the ERT, Iceland provided the projected contribution from the LULUCF sector, based on an activity-based approach, that will be used to achieve the Party's quantified economy-wide emission reduction target for 2020, which is 2,914 kt CO_2 eq. This value is the cumulative total between 2013 and 2020; the future values between 2017 and 2020 are estimated using the 2013–2016 average. Iceland also provided separate projections for the EU ETS and non-ETS sectors for 2020 and 2030, which facilitate the assessment of whether the Party is on track to achieving its target.

(d) Assessment of adherence to the reporting guidelines

80. The ERT assessed the information reported in the BR3 of Iceland and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 11.

Table 11
Findings on greenhouse gas emission projections reported in the third biennial report of Iceland

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 28 Issue type: completeness Assessment: encouragement	Iceland did not report a WAM or a WOM scenario in its BR3. During the review, Iceland explained that the WAM and WOM scenarios would be developed as part of the ongoing work on the preparation of new projections, if possible. The ERT encourages Iceland to include in its next BR the WAM and WOM scenarios.
2	Reporting requirement[a] specified in paragraph 30 Issue type: completeness Assessment: encouragement	Iceland did not report a sensitivity analysis of its projections in its BR3. During the review, Iceland explained that a sensitivity analysis was not conducted owing to the limited resources available. The ERT encourages Iceland to include in its next BR the results of a sensitivity analysis of its projections, reporting them in a qualitative and, where possible, quantitative manner.
3	Reporting requirement[a] specified in paragraph 35 Issue type: completeness Assessment: recommendation	Iceland did not report projections on a gas-by-gas basis in its BR3. During the review, Iceland explained that the study used for the projections treated GHG emissions on a sectoral basis, not by gas. The ERT recommends that Iceland provide in its next BR projections on a gas-by-gas basis.
4	Reporting requirement[a] specified in paragraph 35 Issue type: completeness Assessment: encouragement	Iceland did not report in its BR3 emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds and sulfur oxides. During the review, Iceland explained that projections for indirect GHGs were not prepared owing to the limited resources available. The ERT encourages Iceland to include in its next BR projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds and sulfur oxides.
5	Reporting requirement[a] specified in paragraph 36 Issue type: completeness	Iceland did not report projections related to fuel sold to ships and aircraft engaged in international transport in its BR3. During the review, Iceland explained that projections related to fuel sold to ships and aircraft engaged in international transport were not prepared although energy use

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	Assessment: recommendation	related to both aviation and navigation had been updated and could be converted to GHG emissions. The ERT recommends that Iceland include in its next BR projections related to fuel sold to ships and aircraft engaged in international transport, to the extent possible.
6	Reporting requirement[a] specified in paragraph 38 Issue type: completeness Assessment: encouragement	Iceland did not present diagrams illustrating unadjusted inventory data and a WEM projection of total GHG emissions for the period 1990–2020 in its BR3. The ERT also noted that no equivalent information to compare unadjusted inventory data and a WEM projection is provided in the BR3. The ERT encourages Iceland to include in its next BR diagrams illustrating unadjusted inventory data and a WEM projection of total GHG emissions for the period 1990–2020.
7	Reporting requirement[a] specified in paragraph 43 Issue type: completeness Assessment: encouragement	Iceland did not provide in its BR3 information on the type of model or approach used and its characteristics, a summary of the strengths and weaknesses of the model or approach used, and how the model or approach used accounts for any overlap or synergies that may exist among different PaMs. During the review, the Party explained that the projections for all sectors were on the basis of a study of the mitigation potential and options of Iceland published by the Economic Institute of the University of Iceland and commissioned by the Ministry for the Environment and Natural Resources (see para. 65 above). Iceland explained that, recognizing that the approach used to develop projections for the BR3 and their characteristics did not fully meet the requirements of the UNFCCC reporting guidelines for BRs, the work on the preparation of new projections is ongoing. The ERT encourages Iceland to include in it next BR information on the type of model or approach used and its characteristics, a summary of the strengths and weaknesses of the model or approach used, and how the model or approach used accounts or does not account for any overlap or synergies that may exist among different PaMs.
8	Reporting requirement[a] specified in paragraph 44 Issue type: transparency Assessment: encouragement	Iceland did not report in its BR3 the reference for the description of its model or approach used for the projection and its characteristics, summary of the strengths and weaknesses of the model or approach used, and how the model or approach used accounts for any overlap or synergies that may exist among different PaMs in relation to paragraph 43 of the UNFCCC reporting guidelines on BRs. The ERT encourages Iceland to include in its next BR the reference for the description on the type of model or approach used in relation to paragraph 43 of the UNFCCC reporting guidelines on BRs.
9	Reporting requirement[a] specified in paragraph 45 Issue type: completeness Assessment: encouragement	Iceland did not report in its BR3 information on the main differences in the assumptions, methods employed and results between projections in the BR3 and those in earlier BRs. During the review, Iceland explained that the projections for all sectors reported in the BR3 were revised on the basis of: a study of the mitigation potential and options conducted by assignment of the Ministry for the Environment and Natural Resources; and updated key assumptions, including future economic growth, population electricity demand. The Party also explained that the GWP values used for the projections were from the AR4 rather than the AR2. The ERT encourages Iceland to include in its next BR information on the main differences in the assumptions, methods employed and results between projections in the current BR and those in earlier BRs.
10	Reporting requirement[b] specified in paragraph 12 Issue type: completeness	Iceland did not report information on the changes since its most recent NC in the model or methodologies used for the preparation of projections in its BR3. During the review, Iceland explained that the projections for all sectors reported in the BR3 were revised on the basis of a study of the mitigation potential and options commissioned by the Ministry for the Environment and Natural Resources; and updated key assumptions, including future economic growth, population and

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
	Assessment: encouragement	electricity demand. The Party also explained that the GWP values used for the projections were from the AR4 rather than the AR2. The ERT encourages Iceland to include in its next BR information on the changes since its most recent BR in the model or methodologies used for the preparation of projections and provide supporting documentation.

Note: The reporting on the requirements not included in this table is considered to be complete, transparent and adhering to the UNFCCC reporting guidelines on NCs and on BRs.

[a] Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs.

[b] Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs.

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

1. Approach and methodologies used to track support provided to non-Annex I Parties

(a) Technical assessment of the reported information

81. In the BR3 Iceland reported information on the provision of financial, technological and capacity-building support required under the Convention. The ERT noted that the information reported is a summary of the information reported in chapter 7, on financial assistance and transfer of technology, of the NC7 and CTF tables 7–9. The Party references these sources in the BR3.

82. Iceland indicated what "new and additional" support it has provided and the information on how this support is "new and additional". Iceland explained in section 7.3.1 of the BR3 that it looks at the increasing official development assistance in nominal terms in ISK from 2013 to 2016 in order to identify "new and additional" financial resources in climate-related activities, but not as a percentage of gross national income. The Party suggested that this approach could be considered the national definition of "new and additional" financial resources.

83. Iceland reported the financial 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. Since 2012, Iceland has been implementing the OECD DAC statistical reporting method (the Creditor Reporting System), which includes the use of the Rio Markers for tracking finance for adaptation and mitigation – mainly bilateral public climate finance. In the NC7, Iceland explained that, although the Rio Markers have guidelines and technical eligibility criteria agreed within OECD DAC, the process of assigning markers to projects and programmes is subjective and can vary across institutions, and, equally, the quantification of climate-relevant contributions can vary across countries. The Party currently reports all programmes or projects as 100 per cent climate-relevant finance if they have been assigned either Rio Marker 1 ("Significant") or Rio Marker 2 ("Principal"). The Directorate for International Development Cooperation within the Ministry for Foreign Affairs follows the national State budgetary guidelines from the Ministry of Finance and Economic Affairs to track financial commitments which, from 2012, include specific budget lines for climate and environment projects in international development cooperation.

84. During the review, Iceland explained that it plans to develop an environment and climate change strategy to support implementation of its new international development policy for 2019–2023. The Directorate for International Development Cooperation will initiate the process to develop the strategy, which will be supported by an action plan, in late 2018. The results-based monitoring and evaluation framework of the action plan will positively impact the tracking of climate-related financial support. In addition, the process of developing the action plan might lead to a more coherent approach to using the Creditor

Reporting System and Rio Markers owing to a more informed human resource component within the Directorate.

85. The BR3 includes information on the national approach to tracking the provision of support, indicators, delivery mechanisms used and allocation channels tracked. In CTF table 7(a), Iceland reported financial contributions related to the implementation of the Convention, including through multilateral institutions such as the World Bank, the Least Developed Countries Fund, the Green Climate Fund, the Nordic Development Fund and various specialized United Nations bodies that fund climate change adaptation, mitigation, capacity-building and technology cooperation programmes in developing countries. Iceland made climate-specific contributions to the Least Developed Countries Fund (around ISK 19.6 million in 2015), Green Climate Fund (around ISK 19.6 million in 2015), Trust Fund for Supplementary Activities (around ISK 11.95 million in 2015), Nordic Development Fund (ISK 31.0 million in 2015) and UNU Division for Ocean Affairs and the Law of the Sea (ISK 2.3 million in 2015).

86. The ERT noted that Iceland included in CTF table 7(a) its contributions to core funding to multilateral institutions, which is not tracked with Rio Markers. During the review, the Party explained that, with respect to core funding to multilateral institutions that do not have an explicit climate change mandate, it is possible to retrieve information on the climate-relevant proportion of the projects they support from OECD DAC. This information is then used to identify the type of support for each Icelandic multilateral contribution. Apart from core funding, reporting on climate-specific finance through multilateral institutions is identified on the basis of the application of Rio Markers in the same manner as for bilateral climate-specific finance.

87. Iceland described the methodology used for collecting and reporting information on financial support, including the guidelines and approach of Iceland for preparing information on international climate support, but did not provide information on the underlying assumptions. During the review, in response to a question raised by the ERT, Iceland explained that financial commitments which include specific budget lines for climate and environment projects in international development cooperation are categorized using OECD DAC guidelines.

(b) Assessment of adherence to the reporting guidelines

88. The ERT assessed the information reported in the BR3 of Iceland and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 12.

Table 12
Findings on the approach and methodologies used to track support provided to non-Annex I Parties from the review of the third biennial report of Iceland

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 14 Issue type: completeness Assessment: recommendation	Iceland included in its BR3 a description of its national approach for tracking the provision of financial, technological and capacity-building support to non-Annex I Parties, but did not include comprehensive information on the delivery mechanisms used. During the review, Iceland explained that it has started developing a documented approach for tracking the provision of support to non-Annex I Parties. The Directorate for International Development Cooperation follows the national State budgetary guidelines from the Ministry of Finance and Economic Affairs to track financial commitments which, from 2012, include specific budget lines for climate and environment projects in international development cooperation. These commitments are then categorized using OECD DAC guidelines, such as the Rio Markers. The ERT recommends that Iceland include in its next BR a description of its national approach for tracking the provision of financial, technological and capacity-building support to non-Annex I Parties, and information on delivery mechanisms used.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
2	Reporting requirement specified in paragraph 15 Issue type: completeness Assessment: recommendation	Iceland did not report in its BR3 the underlying assumptions used to produce information on finance. During the review, Iceland explained that the Directorate for International Development Cooperation has a central database in which all projects are classified and tracked. In 2016–2017, the Directorate conducted an internal review of this database, including its Creditor Reporting System classification of projects, and found several discrepancies and a lack of coherence. As a result, several changes were made on how support programmes are categorized; for example, the UNU Fisheries Training Programme was initially categorized as "significant" for both adaptation and mitigation; however, having reviewed the programme's mandate and activities, it was downgraded to "not targeted" for mitigation. The ERT recommends that Iceland report in its next BR the underlying assumptions used to produce information on financial support.

Note: Paragraph number 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 adhering to the UNFCCC reporting guidelines on BRs.

2. Financial resources

(a) Technical assessment of the reported information

89. Iceland reported information on the provision of financial support required under the Convention, including on financial support provided, committed and pledged, allocation channels and annual contributions.

90. Iceland indicated what "new and additional" financial resources it has provided and the information on how it has determined such resources as being "new and additional".

91. Iceland described how its resources address the adaptation and mitigation needs of non-Annex I Parties. It did not describe how those resources assist non-Annex I Parties to mitigate and adapt to the adverse effects of climate change, facilitate economic and social response measures, and contribute to technology development and transfer and capacity-building related to mitigation and adaptation. Iceland reported information on the assistance that it has provided to developing country Parties that are particularly vulnerable to the adverse effects of climate change to help them to meet the costs of adaptation to those adverse effects. The Party stated in its BR3 that its international development cooperation strategy emphasizes the least developed countries, and the priority regions are sub-Saharan Africa – specifically Malawi, Mozambique and Uganda, with which Iceland has bilateral agreements on development cooperation. The sustainable use of natural resources is a key element in Iceland's development efforts; developing countries benefit from Icelandic expertise and experience in renewable energy and sustainable fisheries.

92. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, Iceland reported that its climate finance has been allocated on the basis of priority areas, such as water and sanitation, energy and fisheries. Iceland funds a water, sanitation and hygiene programme in Zambezia Province in Mozambique, which constituted the largest share of Iceland's adaptation efforts in both 2015 and 2016. Iceland also supports a fisheries programme in Mozambique, which has the objective of promoting sustainable and viable use of aquatic resources, and a geothermal exploration project in the East African Rift Valley, which helps build capacity and expertise in geothermal utilization. Table 13 includes some of the information reported by Iceland on its provision of financial support.

Table 13
Summary of information on provision of financial support by Iceland in 2015–2016
(Millions of United States dollars)

	Year of disbursement	
Allocation channel of public financial support	*2015*	*2016*
Official development assistance	39.86	58.72
Climate-specific contributions through multilateral channels, including:		
Global Environment Facility	–	–
Least Developed Countries Fund	0.148	0.093
Special Climate Change Fund	–	–
Adaptation Fund	–	–
Green Climate Fund	0.149	0.191
Trust Fund for Supplementary Activities	0.091	0.129
Financial institutions, including regional development banks	–	–
United Nations bodies	0.017	0.019
Other	0.235	–
Climate-specific contributions through bilateral, regional and other channels		
Other	0.235	–

Sources: (1) Query Wizard for International Development Statistics, available at http://stats.oecd.org/qwids/; (2) BR3 CTF tables.

93. Iceland in its NC7 indicated that there is no internationally agreed definition of what constitutes "new and additional" financial resources under Article 4, paragraph 3, of the Convention. One definition, supported by a number of countries, is that "new and additional" financial resources for climate-related activities should be additional to the international development aid goal of 0.7 per cent of gross national income. Iceland further indicated that utilizing this definition and bearing in mind that Iceland's official development assistance reached its peak of 0.37 per cent in 2008, it would not be in a position to identify any new and additional financial resources for climate-related activities. Hence, as was also done in previous years, Iceland decided to look at the increasing official development assistance volumes in 2016 (an increase of ISK 2087 million from 2012 to 2016). The new and additional funding was therefore drawn from the growing aid programme and has not diverted funds from existing development priorities or programmes. During the review, the Party further confirmed that it has increased the amount of official development assistance in nominal terms in ISK from 2013 to 2016, and it considers that this indicates its resources of financial support in climate-related activities are "new and additional". The Party suggested that this approach could be considered as Iceland's national definition of "new and additional" financial resources.

94. Iceland reported on its climate-specific public financial support, totalling USD 10.89 million in 2015 and USD 11.23 in 2016. During the reporting period, Iceland placed a particular focus on water and sanitation, agriculture, energy and fisheries. The ERT noted that Iceland reported in CTF table 7(b) its bilateral support allocated to non-Annex I Parties in 2015 and 2016. Information on financial support from the public sector provided through

multilateral and bilateral channels and the allocation of that support by priority is presented in table 14.

Table 14
Summary of information on channels of financial support used in 2015–2016 by Iceland
(Millions of United States dollars)

Allocation channel of public financial support	*Year of disbursement*				*Share (%)*	
	2015	*2016*	*Difference*	*Change (%)*	*2015*	*2016*
Support through bilateral and multilateral channels allocated for:						
Mitigation	2.08	3.83	1.75	83.9	19.1	34.1
Adaptation	6.24	5.91	–0.33	–5.3	57.3	52.6
Cross-cutting	2.56	1.49	–1.07	–41.8	23.6	13.3
Other	–	–	–	–	–	–
Total	**10.89**	**11.23**	**0.34**	**3.1**	**100.0**	**100.0**
Detailed information by type of channel						
Multilateral channels						
Mitigation	–	–	–	–	–	–
Adaptation	0.17	0.11	–0.05	–31.9	25.9	26.2
Cross-cutting	0.47	0.32	–0.16	–32.8	74.1	73.8
Other	–	–	–	–	–	–
Total	**0.64**	**0.43**	**-0.21**	**-32.6**	**100.0**	**100.0**
Bilateral channels						
Mitigation	2.08	3.83	1.75	83.9	20.3	35.4
Adaptation	6.07	5.79	–0.28	–4.6	59.3	53.7
Cross-cutting	2.09	1.18	–0.91	–43.8	20.4	10.9
Other	–	–	–	–	–	–
Total	**10.24**	**10.79**	**0.55**	**10.24**	**100.0**	**100.0**
Multilateral compared with bilateral channels						
Multilateral	0.64	0.43	–0.21	–32.6	5.9	3.8
Bilateral	10.24	10.79	0.55	5.4	94.1	96.2
Total	**10.89**	**11.23**	**0.34**	**3.1**	**100.0**	**100.0**

Source: CTF tables 7, 7(a) and 7(b) of the BR3 of Iceland.

95. The BR3 includes detailed information on the financial support provided through multilateral, bilateral and regional channels in 2015 and 2016. More specifically, Iceland contributed through multilateral channels, as reported in the BR3 and in CTF table 7(a), USD 7.19 and 8.75 million for 2015 and 2016, respectively. The contributions were made to

specialized multilateral climate change funds, such as the Green Climate Fund, the Least Developed Countries Fund and the Trust Fund for Supplementary Activities.

96. The BR3 and CTF table 7(b) also include detailed information on the total financial support provided through bilateral channels in 2015 and 2016 (USD 10.24 and 10.79 million), respectively. During the reporting period, Iceland explained that it placed a particular focus on water and sanitation, agriculture, energy and fisheries.

97. The BR3 provides information on the types of support provided. In terms of the focus of public financial support, as reported in CTF table 7 for 2015, the shares of the total public financial support allocated for mitigation, adaptation and cross-cutting projects were 19.1, 57.3 and 23.6 per cent, respectively. In addition, 5.9 per cent of the total public financial support was allocated through multilateral channels and 94.1 per cent through bilateral, regional and other channels. In 2016, the shares of total public financial support allocated for mitigation, adaptation and cross-cutting projects were 34.1, 52.6 and 13.3 per cent, respectively. Furthermore, 3.8 per cent of the total public financial support was allocated through multilateral channels and 96.2 per cent through bilateral, regional and other channels.

98. The ERT noted that in 2015 a majority of financial contributions made through multilateral channels were allocated to activities that are cross-cutting across mitigation and adaptation, as reported in CTF table 7(a). The corresponding allocations for 2016 were similarly directed to activities that are cross-cutting across mitigation and adaptation.

99. CTF tables 7(a) and 7(b) include information on the types of financial instrument used in the provision of assistance to developing countries, which are exclusively grants. The ERT noted that the grants provided in 2015 and 2016 accounted for all of the total public financial support.

100. During the review, Iceland clarified that private financial resources and transfer of technology for the purposes of adaptation to and mitigation of climate change have in recent years been channelled mainly through the public sector and not through the private sector. However, the private sector has been and is currently embedded in existing public support to developing countries, for example in projects related to geothermal exploration in the African region and water, sanitation and hygiene in Uganda and Malawi. Both Icelandic and local private sector partners are involved.

101. Iceland does not have a policy in place to promote the scaling up of private investments in mitigation and adaptation activities in developing countries. During the review, the Party informed the ERT that the international development policy for 2019–2023 currently under development places a strong emphasis on private sector engagement in development cooperation, including adaptation and mitigation activities. The Party also informed the ERT that a new Department for Regional Cooperation and Partnerships has been established within the Directorate for International Development Cooperation and is planning activities in the coming programme cycle. One of them is a three-year experimental project with the Sustainable Development Goal Fund of Iceland. The purpose of the fund is to encourage participation in and contribution to development cooperation by the business community, with the objective of reducing poverty and supporting job creation and sustainable growth in the world's poorest countries in accordance with the Sustainable Development Goals. Iceland expects that the projects supported through the fund will provide benefits and generate revenue in developing countries while having clear linkages to one or more of the Sustainable Development Goals.

(b) Assessment of adherence to the reporting guidelines

102. The ERT assessed the information reported in the BR3 of Iceland and identified issues relating to completeness and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 15.

Table 15
Findings on financial resources from the review of the third biennial report of Iceland

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 16	Iceland did not describe in the BR3 how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation.
	Issue type: completeness Assessment: recommendation	During the review, Iceland provided this information in tabular format and described the rationale for support of each programme it undertakes in developing country Parties. For example, in the UNU Fisheries Training Programme for the least developed countries, the rationale for support is based on the needs of the institution and is always linked to policies in the recipient country.
		The ERT recommends that Iceland include in its next BR, to the extent possible, information on how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation, as provided during the review.
2	Reporting requirement specified in paragraph 17	Iceland did not include in the BR3 information on the economic and social consequences of response measures related to the financial support it has provided to developing country Parties.
	Issue type: completeness Assessment: recommendation	During the review, Iceland explained that it has not financed impact research or other post-project studies on the socioeconomic impact of its international development cooperation other than what can be found in midterm reviews and evaluations. The Party informed the ERT that this element would be built into the conceptualization and design of its future support programmes.
		The ERT recommends that Iceland include in its next BR information on the economic and social consequences of response measures related to the financial support it has provided to developing country Parties.
3	Reporting requirement specified in paragraph 19	Iceland did not report on PaMs that promote the scaling up of private investments in mitigation and adaptation activities in developing countries.
		During the review, Iceland explained that it still does not have a policy in place to promote the scaling up of private investments in mitigation and adaptation activities in developing countries. The Party provided information on the emerging international development policy for 2019–2023, which places a strong emphasis on private sector engagement in development cooperation, including adaptation and mitigation activities (para. 100).
	Issue type: completeness Assessment: encouragement	The ERT encourages Iceland to include in its next BR information on the PaMs it has put in place to promote the scaling up of private investments in mitigation and adaptation activities in developing countries.

Note: Paragraph number 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 adhering to the UNFCCC reporting guidelines on BRs.

3. Technology development and transfer

(a) Technical assessment of the reported information

103. Iceland 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 sectors. Iceland provided examples of support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties.

104. 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. Most technology transfer support offered by Iceland targets aquaculture, water and sanitation in the case of adaptation, and geothermal energy in the case of mitigation. Adaptation-related programmes in developing countries are aimed at building technological capacity for fisheries in

developing countries such as Mozambique, and infrastructure support to water and sanitation for rural communities and schools in countries such as Malawi and Mozambique. The water, sanitation and hygiene (WASH) for children programme involves technology transfer support for developing water and sanitation infrastructure in rural communities and schools. The UNU Fisheries Training Programme involves research by and training for practising professionals from developing countries.

105. The ERT noted that Iceland reported on its PaMs as well as success 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, but not failure stories. Iceland provided information on steps taken to promote, facilitate and finance the transfer and deployment of climate-friendly technologies. Iceland's support for technology transfer in relation to the implementation of the Convention includes a broad spectrum of activities comprising transfer of both hard and soft technologies. The extent of this technology transfer is significant and cannot be clearly separated from other activities under the Party's international development cooperation, including financial flows. Many development projects funded by Iceland such as those for water, sanitation and hygiene and fisheries training include both technology transfer and capacity-building components. Recognizing that climate change disproportionally affects developing countries and aligning with Iceland's emphasis on the least developed countries in its international development cooperation strategy, the Government of Iceland focuses its technology transfer and capacity-building in low-income countries.

106. In terms of Iceland's measures related to the promotion, facilitation and financing of the transfer of, or access to, environmentally sound technologies, there is a focus on renewable energy. The sustainable use of natural resources is a priority area in Iceland's international development cooperation, where Icelandic technical expertise, extensive knowledge and experience in the use of geothermal energy contributes to the Sustainable Development Goals.

(b) Assessment of adherence to the reporting guidelines

107. The ERT assessed the information reported in the BR3 of Iceland and identified an issue relating to transparency and adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table 16.

Table 16
Findings on technology development and transfer from the review of the third biennial report of Iceland

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 22 Issue type: transparency Assessment: recommendation	Iceland reported all technology transfer programmes in CTF table 8 as implemented. No programmes were reported as ongoing. During the review, the ERT raised a question about the status of technology transfer programmes. In response, Iceland explained that some programmes, such as the Malawi and Mozambique programmes for water and sanitation and the East Africa Rift Valley programme for geothermal exploration and capacity-building, should have been reported as ongoing, as most of them have continued beyond 2016. The ERT recommends that Iceland enhance its QA/QC procedures in its next BR to ensure that the information reported in CTF table 8 reflects accurately the status of the Party's technology transfer programmes.

Note: Paragraph number 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 adhering to the UNFCCC reporting guidelines on BRs.

4. Capacity-building

(a) Technical assessment of the reported information

108. In the BR3 and CTF table 9, Iceland 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. Iceland described individual measures and activities related to capacity-building support in textual and tabular format. Examples include research and training of experts for land restoration, for fisheries, geothermal energy, gender equality and participation of women in international climate change negotiations. All these climate change related capacity-building programmes target the least developed countries.

109. Iceland reported that it has supported climate-related capacity development activities relating to adaptation, mitigation, climate financing and other sectors. Iceland also reported that it has responded to the existing and emerging capacity-building needs of non-Annex I Parties by supporting recipient country efforts in ownership (through land restoration and geothermal energy training programmes), in country-driven demand (through the capacity-building programme on gender equality) and in cooperation with donors and across programmes (through the Women Delegates Fund in collaboration with the Women's Environment and Development Organization). One example reported is Iceland's collaboration with the World Bank on the five-year project in the East Africa Rift Valley, which aimed to advance geothermal energy use in East Africa from 2013 to 2017. The project was implemented in collaboration with a number of private partners and institutions, and provided technology transfer and capacity-building to national experts and institutions in recipient countries. Through the UNU Iceland-based Programme[9], the Party builds the capacity of participating countries through the training of officials in geothermal energy, fisheries and sustainable land management, as well as in the broader area of gender equality and its relation to adaptation to and mitigation of climate change.

(b) Assessment of adherence to the reporting guidelines

110. The ERT assessed the information reported in the BR3 of Iceland and recognized that the reporting is complete, transparent and 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.

III. Conclusions and recommendations

111. The ERT conducted a technical review of the information reported in the BR3 and CTF tables of Iceland 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; progress made by Iceland in achieving its target; and the Party's provision of support to developing country Parties.

112. Iceland's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 28.5 per cent above its 1990 level, whereas total GHG emissions including LULUCF were 8.5 per cent above its 1990 level in 2016. Emission increases were driven by strong economic growth (55.5 per cent in GDP per capita), population increase (31.2 per cent) and the expansion of the aluminium production industry (by 400 per cent) and fuel combustion in road transport (57.1 per cent or 353.91 kt CO_2 eq). Those factors outweighed growth in the share of renewables in energy generation (geothermal power and hydropower), the transition to electric boilers in the fishmeal industry, the closure of the cement production plant in 2011 and afforestation and revegetation.

113. Under the Convention, Iceland 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 (activity-based) are included.

[9] For information, see https://unu.edu/about/unu-system/ftp-gtp-lrt#overview.

114. Iceland is not part of the ESD of the EU, as such, but corresponding emissions are subject to a bilateral agreement between Iceland and the EU and its member States that covers all non-ETS sources including LULUCF. Under this agreement, Iceland has a target to reduce emissions by about 22 per cent below the 2005 level by 2020 for non-ETS sectors, which has been translated into an emission reduction of 15,327.22 kt CO_2 eq for the period 2013–2020.

115. Iceland's main policy framework relating to energy and climate change is its succession of climate action plans: the Climate Action Plan 2010, the Special Climate Action Plan 2015 and the new Climate Action Plan 2018. Key legislation supporting Iceland's climate change goals includes Council Decision (EU) 2015/1340 concerning Iceland's participation in the joint fulfilment of commitments of the European Union, its member States and Iceland for the second commitment period of the Kyoto Protocol. The mitigation actions likely having the most significant mitigation impact, although the quantified impacts were not reported, are participation in the EU ETS and the introduction of a carbon tax, which is to be further strengthened by gradual increases over the period 2018–2020. Other measures include the National Renewable Energy Action Plan, the transition to non-fossil fuel use in transport (e.g. through exemptions from excise duty and carbon tax for CO_2 neutral fuels), reforestation and revegetation, and a reduction in the share of organic waste going to landfill.

116. For 2015 Iceland reported in CTF table 4 total GHG emissions excluding LULUCF of 4,409.97 kt CO_2 eq, or 24.5 per cent above the 1990 level. The Party indicated in its BR3 that it retains the option of using units from market-based mechanisms to achieve its target but it did not report on its estimated use of units from market-based mechanisms in the future. Based on Iceland's projected contribution from the LULUCF sector based on activity-based approach, RMUs of equivalent with 2,914 kt CO_2 eq. could be envisaged to be used for meeting the quantified economy-wide emission reduction target for 2020. During the review, the Party clarified that it intends to use market-based mechanisms under the Kyoto Protocol and has supporting legal/institutional arrangements. The Party indicated that the units from market-based mechanisms required to meet the target is estimated at 4,908 kt CO_2 eq. On the basis of the reported information, the ERT concludes that Iceland may face challenges in achieving its target unless sufficient units from market-based mechanisms are used.

117. The GHG emission projections provided by Iceland in the BR3 correspond to the WEM scenario. Under this scenario, emissions are projected to be 62.9 per cent above the 1990 level by 2020. On the basis of the reported information, the ERT concludes that Iceland may face challenges in achieving its target under the WEM scenario. According to the projections under the WEM scenario, emissions from non-ETS sectors including LULUCF are estimated to reach 2,717.00 kt CO_2 eq by 2020, which is 8.8 per cent below the 2005 level. The ERT noted that this suggests that Iceland may face challenges in meeting its target under the WEM scenario for non-ETS sectors.

118. The ERT noted that Iceland faces challenges in making progress towards its emission reduction target by implementing mitigation actions that deliver significant emission reductions and making use of units from the market-based mechanisms under the Convention and through the contribution of LULUCF.

119. On the basis of the results of the projections for 2020 under the WEM scenario, the ERT noted that Iceland may face challenges in achieving its target if it relies on domestic actions. In this regard, Iceland indicated in the BR3 that it plans to use units from market-based mechanisms and the contribution from the LULUCF sector in order to achieve its emission reduction target. During the review, the Party indicated that the required number of units from market-based mechanisms under the Kyoto Protocol to achieve its target is estimated at 4,908 kt CO_2 eq.

120. Iceland continues to provide climate financing to developing countries in line with its climate finance programmes such as its water and sanitation support programmes, the geothermal exploration project in the East Africa Rift Valley, and the gender and climate change programme in the least developed countries in Africa. It has increased its contributions by 62.1 per cent since the BR2; its public financial support in 2015 and 2016 totalled USD 10.89 and 11.23 million per year, respectively. For those years, Iceland provided less support for mitigation than for adaptation. The biggest share of financial support went to projects in the water and sanitation sector and to cross-cutting projects,

followed by the energy and agriculture sectors. Most technology transfer support offered by Iceland targets aquaculture, water and sanitation in the case of adaptation, and geothermal energy in the case of mitigation. Adaptation-related programmes in developing countries are aimed at building technological capacity for fisheries (e.g. Mozambique) and infrastructure support for water and sanitation in rural communities and schools (e.g. Malawi and Mozambique).

121. In the course of the review, the ERT formulated the following recommendations for Iceland to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR:

(a) To improve the completeness of its reporting by:

(i) Reporting in CTF table 3 the mitigation impacts for individual PaMs (see issue 1 in table 6);

(ii) Reporting in CTF table 4(b) on its (intended) use of units from market-based mechanisms under the Convention or from other market-based mechanisms (see issue 2 in table 8);

(iii) Providing projections on gas-by-gas basis (see issue 3 in table 11);

(iv) Providing projections related to fuel sold to ships and aircraft engaged in international transport (see issue 5 in table 11);

(v) Including a description of its national approach for tracking the provision of financial, technological and capacity-building support to non-Annex I Parties, and information on delivery mechanisms used (see issue 1 in table 12);

(vi) Including underlying assumptions used to produce information on financial support (see issue 2 in table 12);

(vii) Providing information on how it seeks to ensure that the resources it provides effectively address the needs of non-Annex I Parties with regard to climate change adaptation and mitigation (see issue 1 in table 15);

(viii) Providing information on the economic and social consequences of response measures related to the financial support it has provided to developing country Parties (see issue 2 in table 15);

(b) To improve the transparency of its reporting by:

(i) Providing information on how its target under the Convention relates to the joint target of the EU and its member States and how its non-ETS sectors are linked to the ESD (see issue 1 in table 4);

(ii) Providing information on the contribution from LULUCF in CTF table 4 (see issue 1 in table 8);

(iii) Enhancing its QA/QC procedures to ensure that the information reported in CTF table 8 reflects accurately the status of its technology transfer programmes (see issue 1 in table 16);

(c) To improve the timeliness of its reporting by submitting its next BR on time (see para. 6 above).

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Iceland. Available at https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories/submissions-of-annual-greenhouse-gas-inventories-for-2017.

2018 GHG inventory submission of Iceland. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2018.

BR3 of Iceland. Available at https://unfccc.int/sites/default/files/resource/Iceland_NC7_BR3_2018_Final_I.pdf.

BR3 CTF tables of Iceland. Available at https://unfccc.int/sites/default/files/resource/71853_Iceland-BR3-1-Iceland_ISL_2018_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.

"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.

NC7 of Iceland. Available at https://unfccc.int/sites/default/files/resource/Iceland_NC7_BR3_2018_Final_I.pdf.

Report on the individual review of the annual submission of Iceland submitted in 2017. FCCC/ARR/2017/ISL. Available at https://unfccc.int/sites/default/files/resource/docs/2018/arr/isl.pdf.

Report of the technical review of the second biennial report of Iceland. Available at https://unfccc.int/sites/default/files/resource/docs/2016/trr/isl.pdf.

Report on the technical review of the sixth national communication of Iceland. Available at https://unfccc.int/sites/default/files/resource/docs/2015/idr/isl06.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 Ms. Helga Barðadóttir (Ministry for the Environment and Natural Resources), including additional material. The following documents[1] were provided by Iceland:

Iceland's International Development Strategy 2013–2016 (in Icelandic). Available at https://www.althingi.is/altext/pdf/141/s/0995.pdf.

Sigfússonet, Bergur et al. (2018). "*Reducing emissions of carbon dioxide and hydrogen sulphide at Hellisheidi power plant in 2014-2017 and the role of CarbFix in achieving the 2040 Iceland climate goals*" Energy Procedia, vol. 146 p. 135-145.

Matter, JM, Stute, M,. Et al. (2016). Science, vol. 352.

Snæbjörnsdóttir, Sandra Ósk. (2017). *Mineral storage of carbon in basaltic rocks*. PhD dissertation, Faculty of Earth Sciences, University of Iceland, 156 pp. Available at https://hdl.handle.net/20.500.11815/244.

Veðurstofa Íslands. 2018. *Loftslagsbreytingar og áhrif þeirra á Íslandi Skýrsla vísindanefndar um loftslagsbreytingar 2018* (Climate change and their impact in Iceland Report of the Scientific Committee on Climate Change 2018). Reykjavik: Veðurstofa Íslands. Available at http://www.vedur.is/media/loftslag/Skyrsla-loftslagsbreytingar-2018-Vefur.pdf.

Orkustofnun. 2016. *Raforku spá 2016 – 2050, Endurreikningur á spá frá 2015 út frá nýjum gögnum og breyttum forsendum* (Power forecast 2016 – 2050, Reckoning of 2015 forecast based on new data and changed assumptions, Energy Forecast Committee). Reykjavík: Orkustofnun. Available at https://orkustofnun.is/gogn/Skyrslur/OS-2016/OS-2016-08.pdf.

Orkustofnun. 2016. *Eldsneytisspá 2016 – 2050, Orkuspárnefnd* (Fuel Forecast 2016 – 2050, Energy Forecast Committee). Reykjavík: Orkustofnun. Available at https://orkustofnun.is/gogn/Skyrslur/OS-2016/OS-2016-02.pdf.

Parliamentary Document. 2012. *Tillaga til þingsályktunar um áætlun um alþjóðlega þróunarsamvinnu Íslands 2013–2016* (Proposal for a parliamentary resolution on the Program for International Development Cooperation 2013-2016.) Parliamentary Document 995 - 582. Submitted to Parliament at 141th Legislative Congress 2012-2013. Reykjavík. Available at https://www.althingi.is/altext/pdf/141/s/0995.pdf.

[1] Reproduced as received from the Party.