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Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol
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Consideration of further commitments for Annex I Parties under the Kyoto Protocol

Compilation of pledges for emission reductions and related assumptions provided by Parties to date and the associated emission reductions: update July 2010

Note by the secretariat

Summary

This document presents an update of document FCCC/KP/AWG/2010/INF.1 which contains a compilation of pledges for emission reductions and related assumptions provided by Parties to date and the associated emission reductions. It provides the background information from Parties on pledges and related assumptions, an overview of these pledges and estimates prepared by the secretariat of the emission reductions for Annex I Parties that are Parties to the Kyoto Protocol individually and in aggregate, in accordance with pledges. It also provides an overview of the information and estimates of possible contribution of factors, such as the use of the Kyoto Protocol mechanisms and land use, land-use change and forestry to achieving emissions reductions in accordance with the pledges.

Contents

I. Introduction

A. Mandate

1. The Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP), at its eleventh session,[1] requested the secretariat to prepare a paper compiling pledges for emission reductions and related assumptions provided by Parties to date and the associated emission reductions, for consideration by the AWG-KP at its twelfth session.

2. The AWG-KP, at its twelfth session,[2] invited Annex I Parties in a position to do so to submit to the secretariat, by 2 July 2010, available new data and information on their expected use in the next commitment period of land use, land-use change and forestry (LULUCF) and emissions trading and the project-based mechanisms, including expected carry-over of units from the first commitment period to the next commitment period (referred to hereinafter as carry-over), as well as related assumptions made when presenting their pledges for emission reduction targets.[3]

3. The AWG-KP, at the same session, requested the secretariat to update document FCCC/KP/AWG/2010/INF.1 on the basis of information provided by Parties, as described in paragraph 2 above.

B. Scope of the note

4. This document has been prepared and updated in response to the above mandate. It comprises an introduction (chapter one) and three substantive chapters. Chapter two provides an overview of the information provided by Parties included in Annex I as defined in Article 1, paragraph 7, of the Kyoto Protocol (referred to hereinafter as Annex I Parties[4]) relating to possible quantified emission reductions by 2020 (referred to hereinafter as pledges). Chapter three provides estimates prepared by the secretariat on emission reductions by Annex I Parties, individually and in aggregate, based on pledges, and possible contributions of factors, such as the use of l LULUCF and the Kyoto Protocol mechanisms, towards achieving such reductions. The annexes contain background information submitted by Annex I Parties in conjunction with the information on pledges and historical emission data reported by Annex I Parties in their annual submissions to the UNFCCC secretariat.

C. Possible action by the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol

5. The AWG-KP may wish to take note of the information contained in this document. It may also wish to identify next steps in the consideration of pledges presented by Annex I Parties.

[1] FCCC/KP/AWG/2010/3, paragraph 28.

[2] FCCC/KP/AWG/2010/7, paragraph 28 (b).

[3] The submissions by Parties are compiled by the secretariat into document FCCC/KP/AWG/2010/MISC.4.

[4] This also includes information on Kazakhstan that is a Party included in Annex I Party for the purposes of the Kyoto Protocol, while remaining a non-Annex I Party for the purposes of the Convention.

II. Background

A. Compilation of information provided by Annex I Parties on pledges for emission reductions

6. A number of Annex I Parties[5] made a joint submission on 5 May 2009 to the AWG-KP containing information on pledges for emission reductions by 2020. These Parties indicated that the joint submission is for information purposes only and does not constitute a collective political endorsement or acceptance by the submitting Parties of the information in the table contained in that submission. The submission is included in document FCCC/KP/AWG/2009/MISC.8.

7. At the eighth session of the AWG-KP, Iceland announced its decision to reduce emissions by 15 per cent from 1990 levels by 2020. During the same session, Liechtenstein announced its decision to reduce emissions by between 20 to 30 per cent from 1990 levels by 2020. This information is included in a submission received by the secretariat on 11 June 2009, which is contained in document FCCC/KP/AWG/2009/Misc.13/Add.1.

8. During the informal session of the AWG-KP held in Bonn on 10–14 August 2009, New Zealand announced a pledge to reduce emissions by 10 to 20 per cent from 1990 levels by 2020. Information on this pledge, as well as on pledges made by Monaco and the Russian Federation, in addition to the pledges referred to in paragraph 6, is included in a joint submission by a group of Annex I Parties, which is contained in document FCCC/KP/AWG/2009/MISC.15.

9. During the first part of the ninth session of the AWG-KP, Japan announced its decision to reduce its emissions by 25 per cent from 1990 levels by 2020. During the same session, Croatia announced its decision to reduce emissions by five per cent during the period 2013–2020 from the base year established by decision 7/CP.12, which is equivalent to a 6 per cent increase from 1990 levels by 2020. Further, Norway announced its decision aiming to reduce emissions by 40 per cent from 1990 levels by 2020. The information on the pledges made by Japan and Croatia is included in a submission received by the secretariat on 19 October 2009, which is contained in document FCCC/KP/AWG/2009/10/Add.4/Rev.2.

10. Kazakhstan informed the secretariat in a letter dated 9 November 2009 from its Prime Minister of its decision to reduce emissions of greenhouse gases (GHGs) from 1992 levels by 15 per cent by 2020 and by 25 per cent by 2050. This followed the proposal by Kazakhstan for an amendment to Annex B to the Kyoto Protocol to include a voluntary quantitative commitment for maintaining the anthropogenic GHG emissions of Kazakhstan for 2008–2012 at 100 per cent of their 1992 levels (FCCC/CP/2008/7, chapter VI).

11. During the eleventh session of the AWG-KP, the Russian Federation announced its decision to reduce emissions by between 15 to 25 per cent from 1990 levels by 2020.

12. Parties proposed pledges, in the form of a single value or a range of values, subject to certain conditions and in certain contexts. The information on these conditions and contexts is contained in annex I.

[5] Australia, Belarus, Canada, European Union and its member States, Iceland, Japan, New Zealand, Norway, Switzerland and Ukraine.

13. In addition, a number of Annex I Parties submitted to the secretariat, by 31 January 2010 or shortly thereafter, information in the context of the Copenhagen Accord[6] on their quantified economy-wide emission targets for 2020.[7] The information submitted by Annex I Parties on their economy-wide emission targets for 2020 is identical to the information on pledges for emission reductions announced in the context of the work of the AWG-KP, with a few exceptions. In particular, Canada submitted an economy-wide target of 17 per cent emission reduction from 2005 levels by 2020, Iceland informed Parties that it is ready to reduce emissions by up to 30 per cent from 1990 levels by 2020, and Monaco increased its target to 30 per cent emission reduction from 1990 levels by 2020. In addition, the Russian Federation officially submitted an economy-wide target of 15 to 25 per cent emission reduction from 1990 levels by 2020, which is the same as in the pledge it made during the eleventh session of the AWG-KP.

B. Information on the possible contribution of the land use, land-use change and forestry sector, and Kyoto Protocol mechanisms to meeting the pledges for emission reductions of Annex I Parties

14. The AWG-KP, at the second part of its ninth session, requested Annex I Parties to provide the secretariat with information on the possible contribution of the LULUCF sector and the use of the Kyoto Protocol mechanisms in meeting the pledges for emission reductions. The AWG-KP, at its twelfth session, invited Annex I Parties in a position to do so to submit to the secretariat available new data and information on these matters, as well as on the expected carry-over of units from the first commitment period to the next commitment period, and related assumptions made by Annex I Parties when presenting their pledges for emission reduction targets. The information provided by Annex I Parties,[8] as compiled by the secretariat, is contained in table 1 and annex II.

C. Overview of pledges for emission reductions provided by Annex I Parties

15. Table 1 below provides an overview prepared by the secretariat of the pledges by Annex I Parties for emission reductions, including: values of the pledges; the reference year; and information on whether the LULUCF sector and the use of the Kyoto Protocol mechanisms are included, and their expected contribution in meeting of the pledges. This table reflects the latest information officially announced by Annex I Parties, including the information submitted in the context of the Copenhagen Accord.

[6] The Conference of the Parties at its fifteenth session adopted decision 2/CP.15 which took note of the Copenhagen Accord.

[7] In paragraph 4 of the Copenhagen Accord, pledges by Annex I Parties are referred to as "quantified economy-wide emission targets".

[8] The European Union and Japan submitted relevant information, which is compiled in document FCCC/KP/AWG/2010/MISC.4.

Table 1

Overview of pledges for emission reductions by Annex I Parties, and related information on land use, land-use change and forestry, and the Kyoto Protocol mechanisms

	Information relating to pledges		*LULUCF*[a]		*Kyoto Protocol mechanisms*[a]	
Party	*Range or single value by 2020*	*Reference year*	*Inclusion and conditions*	*Expected contribution*	*Inclusion and conditions*	*Expected contribution*
Australia	–5 to –15%; or –25%	2000	Yes	To be determined	Yes	The majority of the abatement effort will take place domestically
Belarus	–5 to –10%	1990	Yes	Subjected to agreement on the new rules the pledge could increase by 5%	The pledges are conditional on access to the Kyoto mechanisms	To be determined
Canada	–17%	2005	Yes	Preliminary range of –2 to +2% of total 2006 emissions	Yes	Preliminary estimates: mechanisms account for less than 5% of total reductions
Croatia[b]	–5%	1990	Yes	To be determined	To be determined	To be determined
European Union (EU-27)	–20 to –30%	1990	No for–20% pledge; Yes for –30% pledge	Preliminary range of –0.7 to +2.1% of 1990 emissions for the –30% pledge	Yes	Preliminary estimates: 4% of 1990 levels for –20% pledge and 9%of 1990 levels for –30% pledge
Iceland	–15% to –30%	1990	Yes	Substantial contribution	Yes	Limited use of mechanisms
Japan	–25%	1990	To be determined	The contribution of forest management may vary from –2.9% to +1.5% relative to the 1990 level, depending on the accounting rules for LULUCF	To be determined	To be determined
Kazakhstan	–15%	1992	To be determined	To be determined	To be determined	To be determined
Liechtenstein	–20 to –30%	1990	No	Not applicable	Yes	10 to 40%
Monaco	–30%	1990	No	Not applicable	Yes	To be determined
New Zealand	–10 to –20%	1990	Yes	Uncertain	Yes	Uncertain

Party	*Information relating to pledges*		*LULUCF*[a]		*Kyoto Protocol mechanisms*[a]	
	Range or single value by 2020	*Reference year*	*Inclusion and conditions*	*Expected contribution*	*Inclusion and conditions*	*Expected contribution*
Norway	–30 to –40%	1990	Yes	Around 6% of 1990 emissions (3 Mt CO_2 eq), in accordance with current rules	Yes for –30% pledge; Yes for –40% pledge	Around one third of reductions from the reference scenario (7–9 Mt CO_2eq) for –30% pledge
Russian Federation	–15 to –25%	1990	Yes	To be determined	To be determined	To be determined
Switzerland	–20 to –30%	1990	Yes, under present accounting rules	Debits range between 0.24 – 3.98 Mt CO_2 eq depending on accounting rules. This is equivalent to a range of 0.45 – 7.55 % of total 1990 emission levels excluding LULUCF	Yes, with legally binding cap on the use of mechanisms of maximum 50% of the reduction target.	Preliminary estimate of around 36% of the 20% pledge and 42% of the 30% pledge
Ukraine	–20%	1990	To be determined	To be determined	Yes	To be determined

Abbreviations: LULUCF = land use, land-use change and forestry.

[a] Further information on the possible contribution of the LULUCF sector and the Kyoto Protocol mechanisms in meeting the pledges is contained in annex II.

[b] A decrease of 5 per cent in emissions relative to the base year, calculated in accordance with decision 7/CP.12, is equivalent to an increase of 6 per cent in emissions by 2020 relative to 1990.

16. Annex I Parties have presented pledges expressed as a percentage reduction, relative to a base year, which is to be achieved by 2020 and, therefore, they do not denote the average emissions in a commitment period. These pledges may need to be transformed into quantified emission limitation and reduction objectives (QELROs) in order to establish the commitments of Parties for the next commitment period within Annex B to the Kyoto Protocol. The issues related to the transformation of pledges into QELROs are included in the updated technical paper[9] for consideration by the AWG-KP at its thirteenth session.

III. Emission reductions by Annex I Parties individually and in aggregate

A. Individual and aggregate emission reductions for Annex I Parties in accordance with the pledges for emission reductions

17. The secretariat has calculated emission reductions for Annex I Parties individually and in aggregate in accordance with pledges. The calculations are based on GHG inventory data that were available on the UNFCCC website on 30 March 2010, which contain emission data from the base year up to 2007. These emission data are based on the submissions made in 2009 by Annex I Parties, which are the most recent submissions reviewed[10] by expert review teams and include any re-submission by these Parties during the review process. In performing these calculations, the secretariat took into account for the levels of emissions in the base year, the provisions of Article 3, paragraphs 7 and 8, of the Kyoto Protocol, and assumed that the decision by Annex I Parties to use 1990 or 1995 as its base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride for the first commitment period remains unchanged. These emission data are presented in annex III.

18. Alternatively, calculations may have been made using emissions of the base year that was used to establish the assigned amounts for the first commitment period of the Kyoto Protocol. However, it was not possible to perform such calculations for all Parties because the base year values for the Kyoto Protocol are not available for Belarus, Croatia and Kazakhstan, and because some Annex I Parties, in defining their pledges, have used reference years other than the base year used to establish their assigned amounts for the first commitment period of the Kyoto Protocol. In addition, data show that, as a result of methodological improvements, some Parties increased their base year emissions while others decreased these emissions relative to the base year values of emissions that were used to establish their assigned amounts for the first commitment period of the Kyoto Protocol. Overall, the aggregate level of base year emissions for Annex I Parties in accordance with the 2009 GHG inventory submission shows only a small change, less than 0.3 per cent, relative to the value used to establish the assigned amounts for these Parties.

19. The secretariat prepared two sets of calculated emission reductions for the Parties that have submitted information on pledges in order to deal with uncertainties associated with the rules on how to treat the LULUCF sector in the second commitment period:

(a) The first set was calculated using emissions reported for 1990[11] or any other reference year specified by the Parties in their pledges, excluding emissions and removals

[9] FCCC/TP/2010/3.

[10] GHG inventories submitted by all Annex I Parties in 2009 have been reviewed, except for the submission from Kazakhstan.

[11] In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition that are member States of the European Union use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

from the LULUCF sector, but including emissions from deforestation in accordance with the accounting rules in Article 3, paragraph 7, of the Kyoto Protocol[12] (referred to hereinafter as emissions excluding LULUCF);

(b) The second set was calculated using emissions reported for 1990 or any other reference year specified by the Parties in their pledges, including emissions and removals from the LULUCF sector (referred to hereinafter as emissions including LULUCF).

20. The results of these calculations are included in table 2 below, which shows the emission reductions for individual Parties and the aggregate value of reduction, together with emission levels reported for 1990, 2000 and 2007. In the case of emissions including LULUCF, emission reductions in aggregate of Annex I Parties are expected to be between 17 and 25 per cent below 1990 levels by 2020. In the case of emissions excluding LULUCF, despite differences for some Parties, emission reductions in aggregate of Annex I Parties are expected to be the same as in the case including LULUCF, that is between 17 and 25 per cent below 1990 levels by 2020.

21. Given the uncertainties associated with conditions outlined by Annex I Parties in conjunction with the pledges, and the lack of clarity, at the time of preparation of this document, over the accounting rules for the LULUCF sector, and the contribution of the Kyoto Protocol mechanisms in achieving the pledges, the ranges of aggregate emission reductions presented in paragraph 20 above should be considered as preliminary.

B. Possible contribution of the land use, land-use change and forestry sector to pledges for emission reductions

22. The rules and approaches to guide the treatment of LULUCF in the second commitment period are under consideration by the AWG-KP, and some of these rules and approaches may lower the overall level of ambition of the pledges and affect the expected reduction in the level of aggregate emissions.

23. In response to the request by the AWG-KP (see paragraph 14), Parties provided information to the secretariat on the possible contribution of LULUCF to the pledges. This information has been compiled by the secretariat and included in annex II. It suggests that in some cases Parties have not yet determined whether or not LULUCF should be included in the pledge. Even where there is an indication that the LULUCF sector has been included in the pledge and values of the possible contribution from the LULUCF sector are provided, Parties, with a few exceptions, provided preliminary ranges of such values and it is not always clear which accounting rules have been used to calculate these values.

24. Overall, according to the preliminary estimates by the secretariat based on data provided by Parties, the annual contribution from the LULUCF sector to the aggregate emission reductions by Annex I Parties could be around 1.0 Gt CO_2 eq, which corresponds to 8 per cent of the aggregate emissions from Annex I Parties in 1990. These preliminary estimates depend on the rules and approaches to guide the treatment of LULUCF which are yet to be agreed by Parties in the context of the AWG-KP.

[12] The provisions of Article 3, paragraph 8, of the Kyoto Protocol, and the decisions by Annex I Parties to use 1990 or 1995 as the base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride for the first commitment period were also taken into account by the secretariat when performing the calculations for 1990.

C. Use of the Kyoto Protocol mechanisms, carry-over of units from the first commitment period and methodological issues, and impact on pledges for emission reductions

25. In response to the request by the AWG-KP (see paragraph 14), Parties provided information to the secretariat on the possible contribution of the Kyoto Protocol mechanisms to the pledges. This information has been compiled by the secretariat and is included in annex II.

26. Most Annex I Parties have confirmed that they intend to meet the pledges primarily through domestic action and that the use of the Kyoto Protocol mechanisms is expected to be supplementary to such action, although not all of these Parties have provided quantitative information on the expected scale of use of the Kyoto Protocol mechanisms.

27. Related to the use of the Kyoto Protocol mechanisms is the use of units carried over from the first commitment period. If a Party retires a number of units for the first commitment period at least equivalent to its cumulative emissions for that period for the purpose of compliance with its commitments under Article 3, paragraph 1, of the Kyoto Protocol, then it can carry over units, in accordance with decision 13/CMP.1, paragraphs 15 and 16, to the second commitment period. This includes assigned amount units (AAUs) that have not been retired or cancelled. This also includes units from project based mechanisms that have not been retired or cancelled, namely certified emission reductions (CERs), and emission reductions (ERUs) not converted from removal units (RMUs), subject to a quantified limitation to a maximum of 2.5 per cent each for CERs and ERUs of the assigned amount for an Annex I Party for the first commitment period.

28. The actual number of units to be carried over will depend on: (a) the cumulative emissions reported by Parties during the first commitment period; (b) the degree to which Parties with surplus units will choose to carry over these units rather than transfer these units to Parties that need such units to comply with the commitments under Article 3, paragraph 1, of the Kyoto Protocol for the first commitment period; (c) the number of units acquired by Annex I Parties under the clean development mechanism; and (d) the decision by each Annex I Party on whether to cancel any units voluntarily. Preliminary estimates by the secretariat suggest that the number of units to be carried over from the first commitment period to the second commitment period could be within the range of 7–11 Gt CO_2 eq, depending on methods of estimation and assumptions used, and without including the acquisition of CERs by Annex I Parties.

29. The carry over of units from the first commitment period by an Annex I Party would have an effect on the level of individual effort required by that Party to meet its QELRO for the second commitment period and/or an effect on the level of aggregate effort required by all Annex I Parties to meet their QELROs for the second commitment period. Therefore, the carry over of units could potentially reduce the aggregate level of efforts by Annex I Parties to reduce emissions in the second commitment period.

30. In addition to the carry over of units from the first commitment period, a number of matters that are currently under consideration by the AWG-KP may have a direct impact on the emission estimates for the base year and trends, and therefore on the emission reduction effort needed to meet the pledges. This includes the revision of global warming potentials, the inclusion of new GHGs and the use of the *2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories* for emission estimates. At this stage it is not possible to determine the nature and scale of the effects that these choices would have on the individual pledges and on their aggregated value.

Table 2

Greenhouse gas emission trends, and emission reductions by Annex I Parties individually and in aggregate in accordance with the pledges for emission reductions

	Total GHGs excluding LULUCF, including emissions from deforestation, in Tg CO_2 eq[a]			*Total GHGs including LULUCF, in Tg CO_2 eq*			*Pledges as percentage of reference year emissions*			*Total GHGs excluding LULUCF, in Tg CO_2 eq*[a]			*Total GHGs including LULUCF, in Tg CO_2 eq*		
Party	*1990*[b]	*2000*	*2007*	*1990*	*2000*	*2007*	*Min*	*Max*	*Reference year*	*Reference year level*[c]	*Min 2020*	*Max 2020*	*Reference year level*	*Min 2020*	*Max 2020*
Australia	547.8	567.2	618.0	453.8	404.4	825.9	–5%	–25%	2000	567.2[d]	538.8[d]	425.4[d]	404.4[d]	384.2[d]	303.3[d]
Belarus	129.1	71.0	80.0	107.1	43.7	55.1	–5%	–10%	1990	129.1	122.7	116.2	107.1	101.7	96.4
Canada	591.8	717.1	747.0	540.2	636.8	792.5	–17%	–17%	2005	731.0	606.7	606.7	731.0[e]	606.7[e]	606.7[e]
Croatia	31.3	26.0	32.4	27.2	20.7	26.1	–5%	–5%	1990[f]	31.3[f]	33.2[f]	33.2[f]	27.1[f]	28.8[f]	28.8[f]
European Union (EU27)[g]	5 709.6	5 044.3	5 034.6	5 217.2	4 659.4	4 625.3	–20%	–30%	1990	5 709.6	4 567.7	3 996.8	5 217.2	4 173.8	3 652.0
Iceland	3.4	3.7	4.5	4.9	5.1	5.7	–15%	–30%	1990	3.4	2.9	2.4	4.9	4.2	3.4
Japan	1 259.4	1 346.0	1 374.3	1 195.4	1 265.4	1 292.9	–25%	–25%	1990	1 259.4	944.6	944.6	1 195.4	896.5	896.5
Kazakhstan	300.2	159.3	281.2	291.4	152.0	275.1	–15%	–15%	1992	316.5	269.0	269.0	309.2	262.9	262.9
Liechtenstein	0.2	0.3	0.2	0.2	0.2	0.2	–20%	–30%	1990	0.2	0.2	0.2	0.2	0.2	0.2
Monaco	0.1	0.1	0.1	0.1	0.1	0.1	–30%	–30%	1990	0.1	0.1	0.1	0.1	0.1	0.1
New Zealand	61.9	70.6	75.6	43.7	50.6	51.7	–10%	–20%	1990	61.9	55.7	49.5	43.7	39.3	35.0
Norway	49.7	53.4	55.1	37.4	36.3	29.2	–30%	–40%	1990	49.7	34.8	29.8	37.4	26.2	22.4
Russian Federation	3 311.8	2 030.4	2 192.8	3 359.6	2 368.0	2 005.8	–15%	–25%	1990	3 311.8	2 815.0	2 483.8	3 359.6	2 855.6	2 519.7
Switzerland	52.7	51.6	51.3	50.4	52.4	50.6	–20%	–30%	1990	52.7	42.2	36.9	50.4	40.3	35.3
Ukraine	926.0	389.7	436.0	852.9	338.1	392.5	–20%	–20%	1990	926.0	740.8	740.8	852.9	682.3	682.3
Total in Tg CO_2 eq	**12 975.1**	**10 530.7**	**10 983.1**	**12 181.5**	**10 033.2**	**10 428.7**					**10 774.4**	**9 735.4**		**10 102.8**	**9 145.0**
Total in % 1990 emissions		**–19%**	**–15%**		**–18%**	**–14%**					**–17%**	**–25%**		**–17%**	**–25%**
Total in % 2000 emissions											**2%**	**–8%**		**1%**	**–9%**
Total in % 2007 emissions											**–2%**	**–11%**		**–3%**	**–12%**

Abbreviations: GHGs = greenhouse gases, LULUCF = land use, land-use change and forestry.

Notes: (1) For Parties using reference years other than 1990, pledges can be calculated as a percentage reduction from 1990 levels (without LULUCF) as follows: Australia, –2 to –22%; Canada, –3%; and Kazakhstan, –12%.

(2) The differences between, on the one hand, the aggregate emission reductions calculated based on emissions in 1990 excluding emissions from the LULUCF sector but including emissions from deforestation and, on the other hand, those calculated excluding all emissions and removals from the LULUCF sector, are negligible, with a very few exceptions. For this reason the calculations based on emissions excluding all emissions and removals from the LULUCF sector are not shown in this table.

(3) For some Parties the information relating to pledges used to estimate the minimum values in 2020 is conditional. Therefore the aggregate emission reductions by 2020 could be lower than the values shown in this table.

(4) The estimates in this table are based on the 2009 GHG inventory submissions by Annex I Parties, which were available on the UNFCCC website on 30 March 2010 and reviewed by expert review teams for all Parties except Kazakhstan.

[a] Emissions from deforestation are included only for those Parties where the LULUCF sector was a net source of emissions in 1990, and that therefore meet the criteria in Article 3, paragraph 7, of the Kyoto Protocol for including emissions from deforestation in their base year emissions for the purposes of calculating their assigned amount, that is Australia and the European Union (for four member States only).

[b] The level of total GHG emissions excluding LULUCF in the base year, as included by Annex I Parties in their 2009 inventory submissions, taking into account the provisions of Article 3, paragraphs 7 and 8, of the Kyoto Protocol, and assuming that the decision by Annex I Parties to use 1990 or 1995 as the base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride for the first commitment period remains unchanged.

[c] The level of total GHG emissions excluding LULUCF, as included by Annex I Parties in their 2009 inventory submissions, taking into account the provisions of Article 3, paragraphs 7, of the Kyoto Protocol, and the provisions of Article 3, paragraphs 8, of the Kyoto Protocol if the selected reference year is 1990, and assuming that the decision by Annex I Parties to use 1990 or 1995 as the base year for hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride for the first commitment period remains unchanged.

[d] Emission data presented here do not reflect the formal accounting that applies to Australia under the Kyoto Protocol. As a result, these data differ from figures published in Australia's White Paper: Australia's Low Pollution Future (2008) and the Party's submission "Strengthening Australia's National Ambition for 2020" (FCCC/KP/AWG/2009/MISC.13), which equate to Australia's commitment to reduce emissions by 5–25% below 2000 levels by 2020 to a reduction of 4–24% on 1990 levels. This is based on data available at <http://www.ageis.greenhouse.gov.au>.

[e] Canada's estimates for LULUCF include large, highly variable impacts of natural disturbances such as forest fires and forest insect infestations. It is not possible to use these values in estimating Canada's emission reduction goal. As a result, the values shown for Canada do not include LULUCF.

[f] A decrease of 5 per cent in emissions relative to the base year for Croatia, calculated in accordance with decision 7/CP.12, is equivalent to an increase of 6 per cent in emissions by 2020 relative to 1990.

[g] Emission data for the European Union includes emissions from the 2009 inventory submission of the European Union which, in accordance with the provisions of Article 4 of the Kyoto Protocol, includes emissions of 15 member states and emissions of the remaining member States that are also included in Annex I to the Convention. These data are used to calculate the total emissions of Annex I Parties instead of data of individual member States of the European Union. As of 1 December 2009, the European Union replaces and succeeds the European Community. In accordance with decisions 9/CP.2 and 11/CP.4, some Parties with economies in transition that are member states of the European Union use base years other than 1990: Bulgaria (1988), Hungary (average of 1985 to 1987), Poland (1988), Romania (1989) and Slovenia (1986).

Annex I

Information relating to pledges for emission reductions as submitted by Annex I Parties and compiled by the secretariat

Australia

1. On 4 May 2009, Prime Minister Kevin Rudd committed the Australian Government to reducing Australia's greenhouse gas (GHG) emissions by 25 per cent from 2000 levels by 2020 if the world agrees on an ambitious global deal capable of stabilizing levels of GHGs in the atmosphere at 450 ppm CO_2 eq or lower. The Australian Government retained its previous policy commitment to unconditionally reduce Australia's emissions by five per cent from 2000 levels by 2020, and to reduce emissions by up to 15 per cent by 2020, if there is a global agreement which falls short of securing atmospheric stabilization at 450 ppm CO_2 eq, and under which major developing economies commit to substantially restraining emissions and advanced economies take on commitments comparable to those of Australia (FCCC/KP/AWG/2009/MISC.15, page 3).

2. In the context of the Copenhagen Accord, Australia provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

Belarus

3. Belarus has stated that if the amendment adopted under decision 10/CMP.2 comes into effect before the end of the first commitment period, for the period after 2012, Belarus will consider the option of assuming the commitment to meet the target of 90–95 per cent of 1990 emission levels. If this amendment does not come into effect, Belarus will refrain from voluntary commitments for the post-Kyoto period that would establish the target lower than 100 per cent of 1990 emission levels (FCCC/KP/AWG/2009/MISC.15, page 3).

4. In the context of the Copenhagen Accord, Belarus provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

Canada

5. In the medium-term, the Government of Canada is committed to reducing Canada's total GHG emissions by 20 per cent by 2020 relative to 2006 levels. This equals a reduction in annual emissions of approximately 145 Mt by 2020. This commitment has been developed as a domestic goal on Canada's long-term emission reduction pathway. It does not assume or provide for significant use of the Kyoto mechanisms, in particular emissions trading under Article 17 of the Kyoto Protocol. In the long-term, the Government is committed to reducing Canada's GHG emissions by 60–70 per cent below 2006 levels by 2050 (FCCC/KP/AWG/2009/MISC.15, page 3).

6. In the context of the Copenhagen Accord, Canada provided the secretariat an updated quantified economy-wide emission target of 17 per cent emissions reduction from 2005 levels by 2020. Canada, in its submission, elaborated that the new pledge allows it to

align its effort with that of the United States of America <http://unfccc.int/home/items/5264.php>.

Croatia

7. The Croatian medium-term target for the period 2013–2020 is 33.2 Mt CO_2 eq, which is a decrease of five per cent according to the base year established by decision 7/CP.12, or an increase of six per cent according to its 1990 level of 31.3 Mt CO_2 eq. With this target, Croatia will stabilize its GHG emissions at a level that is consistent with the Kyoto Protocol requirements. The target for the period 2013–2020 has been established on the basis of elements of the EU "Climate and energy package" that Croatia will implement in the period concerned (FCCC/KP/AWG/2009/10/Add.4/Rev.2, page 9).

8. In the context of the Copenhagen Accord, Croatia provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

The European Union and its member States

9. The European Union agreed in 2008 on its "Climate and energy package". This package includes a unilateral commitment to jointly reducing GHG emissions of the European Union and its 27 member States (EU-27) by at least 20 per cent by 2020 relative to 1990 levels and by 30 per cent relative to 1990 levels provided that other developed countries commit themselves to comparable emission reductions and that economically more advanced developing countries contribute adequately according to their responsibilities and respective capabilities consistent with staying below 2°C (FCCC/KP/AWG/2009/MISC.15, page 3).

10. In the context of the Copenhagen Accord, the EU-27 provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

Iceland

11. The Government of Iceland decided on 29 May 2009 to reduce net GHG emissions by 15 per cent from 1990 levels by 2020. In real terms, this ambition entails a 25 per cent reduction compared to Iceland's target in the Kyoto Protocol. This target is dependent upon the continued application of the decisions included in the Marrakesh Accords, in particular the continuation of land use, land-use change and forestry (LULUCF) and of decision 14/CP.7. Iceland previously adopted the long-term goal of reducing emissions by 50 to 75 per cent by 2050 (FCCC/KP/AWG/2009/MISC.15, page 4).

12. In the context of the Copenhagen Accord, Iceland has provided the same pledge to reduce emissions by 15 per cent from 1990 levels by 2020, and stated that it is ready to cut emissions up to 30 per cent from 1990 levels by 2020, in a joint effort with the European Union, as part of a global and comprehensive agreement for the period beyond 2012, provided that other developed countries commit themselves to comparable emissions reductions and that developing countries contribute adequately according to their responsibilities and respective capabilities <http://unfccc.int/home/items/5264.php>.

Japan

13. At the time of the United Nations Summit on Climate Change on 22 September 2009 in New York, the newly elected Prime Minister Yukio Hatoyama announced that Japan would aim to reduce its emissions by 25 per cent by 2020 if compared to the 1990 level, which is consistent with what the science had called for to halt global warming. Since Japan's efforts alone cannot halt climate change, its commitment is premised on the establishment of a fair and effective international framework, in which all major economies participate and agreement by those economies on ambitious targets (FCCC/KP/AWG/2009/10/Add.4/Rev.2, page 10).

14. In the context of the Copenhagen Accord, Japan provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

Kazakhstan

15. Kazakhstan will propose an amendment to Annex B to the Kyoto Protocol to include a voluntary quantitative commitment for maintaining the anthropogenic GHG emissions of Kazakhstan for 2008–2012 at 100 per cent of their 1992 levels (FCCC/CP/2008/7, chapter VI). Kazakhstan informed the secretariat in a letter by the Prime Minister dated 9 November 2009, of its decision to reduce GHG emissions by 15 per cent by 2020 and by 25 per cent by 2050 compared to 1992 levels.

16. In the context of the Copenhagen Accord, Kazakhstan provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

Liechtenstein

17. In the context of an ambitious global agreement, Liechtenstein intends to achieve a 20 per cent reduction in GHG emissions from 1990 levels by 2020. If other developed countries commit themselves to comparable emission reduction efforts and if economically more advanced developing countries take appropriate mitigation actions, Liechtenstein is prepared to consider a reduction target of up to 30 per cent within the framework of a comprehensive global agreement. The emission reduction goals mentioned above do not take into account activities from LULUCF. With respect to the establishment of a long-term emission reduction goal, Liechtenstein aims to reduce GHG emissions by 50 per cent from 1990 levels by 2050. Furthermore, Liechtenstein acknowledges the contributions of the flexible mechanisms of the Kyoto Protocol towards reducing GHG emissions and supports international efforts to further improve these mechanisms with respect to administrative efficiency and environmental integrity (FCCC/KP/AWG/2009/MISC.13/Add.1, page 9).

18. In the context of the Copenhagen Accord, Liechtenstein provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

Monaco

19. The Government of Monaco decided to reduce its GHG emissions by 20 per cent by 2020 and by 60 per cent by 2050 from 1990 levels. These targets do not take into account activities from LULUCF. It is expected that Monaco will achieve these emission reduction targets through the implementation of domestic actions and the use of the Kyoto Protocol

mechanisms such as the Clean Development Mechanism (CDM). In this regard, Monaco supports the continuation of emissions trading and the project based mechanisms as means that will be available to Annex I Parties to reach their emission reduction objectives in a global agreement. Monaco also supports the improvement of their effectiveness and contribution to sustainable development. In addition to the emission reductions mentioned above, Monaco aims to become carbon neutral by a date to be determined. (FCCC/KP/AWG/2009/MISC.15, page 4).

20. In the context of the Copenhagen Accord, Monaco provided the secretariat an updated quantified economy-wide emission target of 30 per cent emission reductions from 1990 levels by 2020, and mentioned that it would become carbon neutral by 2050. Monaco also informed Parties that it would achieve this target partly by using Kyoto Protocol mechanisms, such as the CDM <http://unfccc.int/home/items/5264.php>.

New Zealand

21. New Zealand has officially announced that it is prepared to take on a responsibility target for GHG emission reductions of between 10 per cent and 20 per cent below 1990 levels by 2020, if there is a comprehensive global agreement. This means that: (a) the global agreement sets the world on a pathway to limiting temperature rise to no more than 2°C; (b) developed countries make comparable efforts to those of New Zealand; (c) advanced and major emitting developing countries take action fully commensurate with their respective capabilities; (d) there is an effective set of rules for LULUCF; and (e) there is full recourse to a broad and efficient international carbon market. It is expected that New Zealand will meet its target through a mixture of domestic emission reductions, the storage of carbon in forests and the purchase of emission reduction units from other countries (FCCC/KP/AWG/2009/MISC.15, page 4).

22. In the context of the Copenhagen Accord, New Zealand provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

Norway

23. In the context of an ambitious global agreement, Norway intends to cut global emissions equivalent to 100 per cent of its own GHG emissions, becoming a carbon neutral nation by 2030. Norway will undertake to reduce total GHG emissions by 30 per cent relative to 1990 levels by 2020. The aim is to reduce two-thirds of emissions domestically, setting Norway on the pathway to becoming a low carbon society. Norway is prepared to reduce total GHG emissions by 40 per cent of its 1990 emissions by 2020, provided that major emitting Parties agree in Copenhagen on adequate emission reductions in line with the 2°C goal (FCCC/KP/AWG/2009/MISC.15, page 5 and the statement made by Norway during the first part of the ninth session of the Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP)).

24. In the context of the Copenhagen Accord, Norway provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

The Russian Federation

25. The range of values relating to quantified emission limitation and reduction objectives were initially 10 to 15 per cent emission reductions from 1990 levels by 2020

(included in document FCCC/KP/AWG/2009/MISC.15, page 2) During the eleventh session of the AWG-KP, the Russian Federation announced its decision to reduce emissions by between 15 to 25 per cent from 1990 levels by 2020.

26. In the context of the Copenhagen Accord, the Russian Federation provided the secretariat an quantified economy-wide emission target ranging between 15 to 25 per cent of emissions reductions from 1990 levels by 2020. The Russian Federation also stated that the range of GHG emission reductions will depend on the following conditions: (a) appropriate accounting of the potential of Russia's forestry as a contribution in meeting the obligations of anthropogenic emission reductions; (b) the assumption that all major emitters with legally binding obligations shall reduce anthropogenic GHG emissions <http://unfccc.int/home/items/5264.php>.

Switzerland

27. On 26 August 2009, Switzerland's Federal Council adopted a draft legal text concerning the national climate policy after 2012. It has been passed on to Parliament for consideration and the final adoption by Parliament is expected in 2011. The proposed legal text includes an objective to reduce GHG emissions by at least 20 per cent by 2020 compared to 1990 levels. In the context of a binding international agreement for the period 2013–2020, Switzerland would consider a higher reduction target of 30 per cent by 2020 compared to 1990 levels, under the condition that other developed countries commit themselves to comparable emissions reductions and that economically more advanced developing countries contribute adequately according to their responsibilities and respective capabilities. (FCCC/KP/AWG/2009/10/Add.4/Rev.2, page 11).

28. In the context of the Copenhagen Accord, Switzerland provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier <http://unfccc.int/home/items/5264.php>.

Ukraine

29. Ukraine is ready to commit to reducing GHG emissions by 20 per cent by 2020 and by 50 per cent by 2050. Imposing stricter obligations on Ukraine will not only restrict economic growth in a significant way, but will also prevent social and economic recovery of that country (FCCC/KP/AWG/2009/MISC.15, page 5).

30. In the context of the Copenhagen Accord, Ukraine provided information for its quantified economy-wide emission targets, and underlying conditions which is the same as information on pledges provided earlier. Ukraine also stated that the range of GHG emission reductions will depend on the following conditions: (a) to have an agreed position of developed countries on quantified emissions reduction targets of Annex I countries; (b) to keep the status of Ukraine as a country with an economy in transition and relevant preferences arising from such a status; (c) to keep the existing flexible mechanisms of the Kyoto Protocol; (d) to keep 1990 as the single base year for calculating Parties commitments; (e) to use provisions under Article 3, paragraph 13, of the Kyoto Protocol for calculation of the quantified emission reductions of the Annex I countries of the Kyoto Protocol for the relevant commitment period <http://unfccc.int/home/items/5264.php>.

Annex II

Information on the possible contribution of the land use, land-use change and forestry sector, and Kyoto Protocol mechanisms to pledges for emission reductions as submitted by Annex I Parties and compiled by the secretariat

Australia

1. Australia intends to reduce its greenhouse gas (GHG) emissions by 25 per cent below 2000 levels by 2020 if the world agrees to an ambitious global agreement sufficient to deliver long-term stabilization of GHGs in the atmosphere at 450 ppm or lower. This equates to a 24 per cent reduction below 1990 levels by 2020. Australia's intended contribution to global mitigation would more than halve the average GHG emissions of every Australian by 2020, relative to 1990 levels; and represent a 32 percentage point reduction from Australia's current Kyoto target. Clear rules for land use, land-use change and forestry (LULUCF) and markets enable ambitious action and reduce uncertainty. The analysis and modelling that informed Australia's ambition assumed, for land use, the current Kyoto Protocol provisions and decisions, including Article 3, paragraph 7, and the relevant decisions of the Marrakesh Accords as adopted by the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol at its first session. Notwithstanding links with the global carbon market, the Australian Government makes clear that the majority of the abatement effort will still take place domestically.

Belarus

2. **The most probable baseline scenario** envisages (a) a 5–8 per cent GDP growth rate, (b) a reduction in GDP energy intensity by 60 per cent of the current value, (c) an increase in the existing 11 per cent share of renewable energy by up to 20 per cent, (d) modernization of about 20 per cent of power units through introducing a combined cycle along with a cogeneration scheme, and (e) introduction of coal, brown coal and peat with a view to increasing the related installed capacity to more than 10 per cent of the total installed capacity in order to safeguard fuel supply. According to this scenario, in 2013–2020 Belarus will not be able to make any significant emission reductions compared to 1990 levels.

3. **Additional domestic efforts** will contribute only around five per cent emission reductions compared to 1990 levels. It is foreseen that the share of renewable energy will increase by up to 25 per cent. It will also be possible to increase the annual rate of energy intensity of GDP drop from today's 5–6 per cent to 8 per cent by 2020. An important driving factor for these potential emission reduction efforts by the Republic of Belarus is access to the Kyoto flexible mechanisms, which would intensify the transfer of the best technologies, replications of GHG emission reduction projects, capacity-building and experience enhancement for Belarusian industries in energy efficiency and energy saving fields.

4. **Flexible mechanisms:** Belarus will consider the option to take part in the clean development mechanism (CDM) after becoming eligible for other Kyoto Protocol mechanisms.

5. **If the LULUCF** sector is included (in Belarus it is a net carbon sink) the pledges would increase by another five per cent. This option is still under consideration and subject to agreement on the new LULUCF rules and modalities. Therefore, the LULUCF sector is considered by Belarus as a potential emission removal.

Canada

6. **LULUCF**: Preliminary analysis of the Canadian LULUCF sector shows that if the new LULUCF rules under consideration remove emissions from natural disturbances in the accounting, then the impact of anthropogenic LULUCF emissions and removals would be approximately between –2 per cent and +2 per cent of Canada's 2006 emissions, depending on the final decisions made on the LULUCF rules such as reference levels and harvested wood products.

7. **Flexible mechanisms**: Canadian rules on the use of international offsets by regulated entities have not been finalized. However, Canada's mid-term commitment does not assume or provide for significant use of the Kyoto Protocol mechanisms. It is expected that use of offsets will account for less than five per cent of total reductions.

The European Union and its member States

8. The illustration below is based on the EU legislation that is currently being implemented and the assumptions that the outcome of ongoing UNFCCC negotiations would lead to a commitment period 2013–2020 and to the content of future legislation needed to increase the EU's commitment from 20 to 30 per cent. It is indicative and cannot be seen as a commitment by the EU.

9. The estimated figures are based on assumptions on the future LULUCF accounting rules and on the future of flexible mechanisms currently under negotiation and will therefore be subject to change when such rules are established for the period following 2012. As a result, the figures mentioned in this document cannot be directly compared with figures provided by other Parties. For the same reasons, they cannot simply be deducted or added to the EU commitments to derive a so-called "domestic effort".

Illustration of the case of the EU's unilateral 20 per cent reduction commitment

10. The EU has unilaterally committed to a 20 per cent reduction of its GHG emissions by 2020 from 1990 levels. It should be noted that it does include emissions from domestic and international aviation. Given that the aviation sector has grown strongly since 1990, this means the reduction in the 'traditional' Kyoto sectors must be more ambitious in order to meet the 20 per cent commitment.

11. **Contribution of LULUCF to domestic emission reductions**: The 20 per cent target does not include the LULUCF sector.

12. **Possible use of Joint Implementation (JI) and CDM:** The distribution of the overall EU target to individual sectors in the EU is done compared to 2005 (a necessity given that there is no detailed breakdown of verified emission data for the sectors covered by the EU's emissions trading system (EU ETS) and the sectors outside the EU ETS (non-ETS) before 2005). The respective contributions of the different sectors to the overall reduction compared to 2005 are the following:

- Around 10 per cent below 2005 for the non-ETS economy sectors;
- Around 21 per cent below 2005 for the ETS sectors excluding aviation;

- Around five per cent below 2005 (actually average for 2004, 2005 and 2006) for the aviation sector covered in the ETS;
- The ETS target including aviation translated into a target of around 20 per cent below 2005 levels.

13. The EU legislation limits the use of JI and CDM credits to achieve those targets. Those limitations are different for different sectors and the actual use of JI and CDM may vary over time so that it is not possible to derive a definite limit for any single year, for example 2020. However, for illustrative purposes, if one assumes that JI and CDM credits are used at an equal rate over time, the ceiling in the non-ETS sectors translates to around 3.3 per cent of 2005 emission levels. This is around a third of the 10 per cent reduction target compared to 2005. Similarly, assuming that JI and CDM credits are used on an equal basis over time, the use-limit in the EU ETS sectors translates to around 5.5 per cent of 2005 emission levels. This represents around a quarter of the 20 per cent reduction target for these sectors compared to 2005. Adding up the two ceilings, the total estimated ceiling for JI and CDM use is around four per cent compared to 1990, or about a fifth of the reduction target of 20 per cent compared to 1990.

14. Moreover, it should be noted that JI and CDM ceilings are quantified for the whole period 2008–2020 within the EU ETS and the period 2013–2020 in the non-ETS sectors within EU legislation. In addition, the right to use JI and CDM can be carried forward into the period after 2020 if not used before 2020. As a consequence, actual use over the period can fluctuate and does not have to be equal across years. For instance, if the ETS sector or non-ETS sectors decide to bank JI and CDM credits into the next period, actual use of JI and CDM in 2020 might be lower. On the other hand, consumption of JI and CDM credits could be lower in the early years, possibly resulting in a higher consumption at later stages in the commitment period, for example in 2020.

Illustration of the case where the EU increases its reduction commitment to 30 per cent

15. The EU is willing to commit to a 30 per cent reduction in GHGs in the context of a global and comprehensive agreement for the period beyond 2012 provided that other developed countries commit themselves to comparable emission reductions and that developing countries contribute adequately according to their responsibilities and respective capabilities. It should be noted that the provisional figures below should not be considered as estimates for individual member States.

16. **Contribution of LULUCF to domestic emission reductions**: In case the EU commits to a 30 per cent reduction in GHGs in the context of a global and comprehensive agreement for the period beyond 2012, the LULUCF sector will be included. It should be noted that LULUCF is part of the domestic effort and should not be regarded as an offset mechanism. The contribution of LULUCF to the overall effort depends on accounting rules that have not yet been decided. The EU presented[1] a preliminary estimate at the twelfth session of the AWG-KP using four accounting options: (a) Existing Kyoto Protocol rules; (b) Gross-net with a discount factor of 85 per cent; (c) reference level submitted in COP 15 (in May 2010 for Russia); (4) Reference Level = 1990. The result of this estimate shows that the LULUCF contribution for the EU could result in a range between net removals equal to 0.7% per cent of 1990 emissions and net emissions equal to 2.1 per cent of 1990 emissions. It should be noted that there are differences between EU member states and that these estimates may contain large uncertainties. The EU recalls that in December 2009, it has submitted to the UNFCCC data on forest management reference levels, and it is currently working on most up-to-date information available, with a view to making a new

[1] Presentation available at <http://unfccc.int/files/meetings/ad_hoc_working_groups/kp/application/pdf/eu_awgkp12.pdf>.

submission as soon as possible, so that the information is available for the negotiation towards the next climate change talks in Bonn. These estimates below are made using the best available data at the time of this submission and maybe revised when new information becomes available.

17. **Possible use of JI and CDM:** In case the EU commits to a 30 per cent reduction in GHGs in the context of a global and comprehensive agreement for the period beyond 2012, the EU legislation foresees the use of a higher amount of offsets or credits compared to the case of the unilateral 20 per cent reduction commitment. It is currently foreseen that half of the additional reductions required could be met by use of credits from JI and CDM. So if the target is increased by 10 per cent (i.e. from 20 per cent to 30 per cent) an additional five per cent of reductions compared to 1990 could be met using JI-CDM. It should be noted, however, that the rules for the use of JI and CDM are not yet fully determined for that case. Given that under the 20 per cent target the JI and CDM ceiling was estimated to be about four per cent compared to 1990 (see above), the ceiling for use of JI and CDM could be about nine per cent compared to 1990 in the case of a 30 per cent reduction target. Again, it should be noted that these estimates are indicative as the actual use in 2020 could vary, depending on the time when JI and CDM are used over the period 2008–2020 (see above).

Carry - over

18. According to the latest UNFCCC accounting report[2] the EU 25 received the equivalent of 26,563 Mt in AAUs for the first commitment period of the Kyoto Protocol. According to current data, the EU and its member States are on track to comply with their Kyoto Protocol targets, and in many cases they will have reduced emissions to a greater extent than prescribed under the Kyoto Protocol (or the relevant EU decisions). According to the latest national communication of the European Union, expected emissions in 2010 will be 5,024 Mt (with existing measures scenario). Deducting latest emission figures for Malta and Cyprus, as they are not Parties to the Kyoto Protocol yet, this leaves about 5,011 Mt for the EU 25 in 2010. Assuming that emissions during the first commitment period would on average equal the projected volume for 2010, the EU 25 should expect to use a quantity of 25,054 Mt of their AAUs for compliance. This over-achievement of the targets would result in a potential carry-over of 1,508 Mt from the first commitment period.

19. According to the fifth national communication of the EU, the member States' intended use of flexible mechanisms is expected to increase the projected emission units for the EU-15 in the commitment period by 93 Mt in 2010, while use of carbon sinks is expected to increase this further by 42 Mt in 2010. In addition, the acquisition of emission credits stemming from the flexible mechanisms by the EU ETS operators is expected to increase the projected emission units in 2010 by a further 61.2 Mt. Over the five years of the first commitment period this would result in 981 Mt of emission units. If this quantity would be used for compliance in CP1, the EU25 could potentially carry forward an equivalent amount of AAUs in addition to the 1,508 Mt estimated above. The overall carry over from the over-achievement of Kyoto targets could therefore amount to as much as 2489 Mt.

20. The estimates above are subject to assumptions and uncertainties which will need to be discussed in more detail in the course of further work on this issue. Moreover, the actual impact on the level of effort implied by further emission reduction commitments of developed countries will depend on the extent to which the carry-over would be used for compliance in subsequent commitment periods.

[2] Document FCCC/KP/CMP/2009/15/Add.1.

Iceland

21. The pledge by the Government of Iceland to cut emissions by 15 per cent by 2020 compared to 1990 levels, and by 25 per cent compared with its current Kyoto target of +10 per cent for the first commitment period, is based on the premise of exerting comparative effort on other Annex I Parties, and with reference to an expert study on domestic technical and economic mitigation potential. This study indicates that with energy generation for electricity and heating coming almost 100 per cent from renewables, substantial technical mitigation potential in Iceland is largely limited to three sectors: transport, fisheries, and carbon sequestration by afforestation and revegetation. Iceland has not assigned a fixed share for the contribution of each of these sectors or other sectors to achieving its pledge, as there are large bands of uncertainty around each activity.

22. **LULUCF**: It is clear that a substantial share of mitigation efforts will have to be achieved through LULUCF activities. LULUCF activities also give Iceland some flexibility to honour its pledge if there are technical hurdles in cutting emissions in transport and fisheries and other sectors. As an example, emission cuts in the fisheries sector would depend largely on a shift to biofuels, which would be a pioneering effort with large uncertainties with regard to availability of biofuels and technological changes in ship fuel systems.

23. **Flexible mechanisms**: Iceland intends to fulfil its pledge mostly or even fully through domestic efforts and expects the role of offsets in achieving it to be small. Access to flexible mechanisms is, however, especially important for a small country such as Iceland, and it is therefore not possible to rule out the need to buy offsets.

Japan

24. Japan does not have the breakdown of its mid-term reduction target of 25 per cent target with regard to domestic actions, LULUCF and mechanisms. In order to achieve its mid-term reduction target, the Government of Japan and its experts are currently undertaking a detailed analysis of its domestic actions, including the study of several scenarios with different shares of contribution from domestic actions, and elaborating relevant policies and measures. The contribution from domestic actions, LULUCF and flexible mechanisms will figure highly in the development of various elements, including international negotiations. With regard to the contribution of forest management, which is the main activity of LULUCF, it may vary from +1.5 per cent to –2.9 per cent relative to the 1990 level, depending on accounting rules for LULUCF currently under negotiation by the AWG-KP.

Liechtenstein

25. **LULUCF**: Although an in-depth research showed considerable potential, the Government refrained from using LULUCF in meeting its pledge because of concerns over the environmental integrity, which may not be fully guaranteed and by the administrative burden needed when including the LULUCF sector.

26. **Flexible mechanisms**: Liechtenstein is a highly industrialized country characterized by a comparably clean high-tech industry, clean energy production systems and high standards in the building sector. Further strong efforts are envisaged to reduce emissions domestically . With a view to contributing (as much as possible) according to its capacities to the reduction in global GHG emissions, Liechtenstein commits itself to a high reduction

goal on the understanding that the use of Kyoto Protocol mechanisms is explicitly granted as an additional tool for being in compliance with the provisions of the Kyoto Protocol

New Zealand

27. Consistent with the Kyoto Protocol rules for the first commitment period, New Zealand has constructed its target pledge as a global responsibility target with a foundation of domestic mitigation. New Zealand has not based the stringency of its target pledge on specific assumptions about the quantity of reductions to be met domestically because of to the wide variability of factors driving emissions and reductions.

28. **Uncertainty relating to without measures emission projections**: While projections exist, actual future emissions will depend on a range of uncertain factors, such as the future structure of the economy, climatic conditions, external drivers of demand for commodity exports, technological development and the uptake of new emissions-reducing technologies.

29. **Uncertainties relating to the rules for a future international climate change agreement**: This is particularly important for New Zealand which, compared to other Annex 1 countries, has a disproportionately large, fast growing, planted production forest estate. Potential rule changes can therefore significantly impact on accounting for emissions/removals from LULUCF, even though the flux remains constant.

30. **Uncertainty of domestic reductions**: New Zealand's principal approach to reducing emissions is intended to be through an internationally linked all sectors, all gases emissions trading scheme. This approach to meeting New Zealand's future emission reduction obligations devolves responsibility to emitters. How they will actually respond is uncertain, and will depend crucially on the future world price of emissions, which is unknown.

Norway

31. Norway's decision to reduce its emissions by 30 per cent between 1990 and 2020 is unconditional. It is based on a political agreement on Norwegian climate policy made in Parliament in 2007. The aim is to achieve about two thirds of the necessary reductions domestically in relation to the reference scenario. This amounts to 15–17 Mt CO_2 eq in relation to this scenario. The reference scenario shows a growth between 1990 and 2020 from 50 to about 59 Mt CO_2 eq. Norway has further demonstrated its willingness to reduce emissions by 40 per cent by 2020 compared to 1990 levels provided that major emitting Parties agree in Copenhagen on adequate emission reductions for 2020 in line with the 2°C target. This pledge originates from the political platform established by the new Government in October 2009.

32. **LULUCF**: The contribution from LULUCF is assumed to be about 3 Mt CO_2 eq, which is estimated at six per cent in accordance with the current rules for Article 3, paragraphs 3 and 4, of the Kyoto Protocol. The large impact, which the LULUCF rules would have for Norwegian reduction figures, is further addressed in the LULUCF discussion in the AWG-KP. If rules for LULUCF are changed, Norway will revise the figures in the pledges accordingly. Norway will estimate further how the LULUCF sector will affect the 40 per cent target when the rules for this sector have been agreed.

33. **Flexible mechanisms**: The policies and measures needed to realize such domestic reductions, their applicability and associated costs, are subject to a major analytical effort to be concluded soon. About one third of the reductions from the reference scenario (7–9 Mt

CO_2 eq) to reach the 30 per cent reduction could consequently be reached through the net acquisition of units through flexible mechanisms.

Switzerland

34. **LULUCF**: As stated in the informal data submitted by Switzerland to the UNFCCC secretariat on 2 October 2009, the LULUCF sector is expected to turn into a net source in the second commitment period. The Swiss reduction target would include those LULUCF effects given that there is continuity with the current accounting rules (gross-net with cap) and Switzerland will reduce its emissions in other sectors accordingly. Swiss forests will be managed in the period 2013 till 2020 as sustainably as in the past, yet they are projected to become a net source of 0.5 Mt CO_2 eq per year according to model estimates, assuming that current trends of increasing harvesting will continue. The amount of debits resulting varies according to accounting rules between 0.07 (gross-net with an 85 per cent discount factor) and 3.97 Mt CO_2 eq per year (net-net with reference period 1990) for the forest sector only, corresponding to 0.13 per cent and 7.53 per cent of 1990s total GHGs excluding LULUCF or 0.26 per cent and 7.88 per cent of 1990's total GHGs including LULUCF. For the total LULUCF sector, debit of 0.24 (gross-net with 85 per cent-discount factor) and 3.98 Mt CO_2 eq. per year (net-net with reference period 1990) for all LULUCF activities are expected, depending on the accounting rules, corresponding to 0.45 per cent and 7.55 per cent of 1990's total GHGs excluding LULUCF or 0.48 per cent and 7.90 per cent of 1990s total GHGs including LULUCF. These numbers assume that all major LULUCF activities are accounted for – as Switzerland intends to ensure maximum environmental integrity – despite the fact that the forestry and the agriculture sectors are expected to be a source in the future.

35. **Flexible mechanisms**: Switzerland considers the use of flexible mechanisms to be an important part of global emission reduction efforts. It has been internationally agreed that these mechanisms will continue to be available in the second commitment period provided that they are supplemental to domestic action. Consequently, in order to reach the 20 per cent reduction target, Switzerland's domestic measures are designed to contribute to about two-thirds of the total emission reduction. The rest would be covered by the use of flexible mechanisms. Regarding the 30 per cent reduction target, the domestic measures are contributing to approximately 60 per cent of the total emissions reduction. There are several uncertainties related to these modeling estimates due to the wide variability of factors influencing the effectiveness of emission reduction measures and dependent on the development of underlying parameters (e.g. GDP, price of fossil fuels, etc.).

36. However, the draft legal text containing the Swiss national climate policy after 2012 contains a legally-binding limit for the use of flexible mechanisms of maximum 50 per cent of the reduction effort for both the 20 per cent as well as the 30 per cent targets. This leeway is necessary because of the Swiss electricity generation structure. Currently the electricity generation is almost carbon-free in Switzerland; this might change, depending on how Switzerland will cover a looming electricity supply gap in the future: gas-fired power is one considered option since even ambitious energy efficiency gains and renewable promotion may not suffice to bridge the gap.

Annex III

Table 3
Greenhouse gas emission trends for Annex I Parties according to their 2009 submissions of emissions inventories to the UNFCCC secretariat

Party	*GHGs excluding LULUCF, in Tg CO_2 eq*				*Total excluding LULUCF, including emissions from deforestation[a], in Tg CO_2 eq*				*GHGs including LULUCF, in Tg CO_2 eq*			
	1990	*2000*	*2006*	*2007*	*1990*	*2000*	*2006*	*2007*	*1990*	*2000*	*2006*	*2007*
Australia	416.2	494.9	534.5	541.2	547.8	567.2	618.6	618.0	453.8	404.4	551.1	825.9
Austria	79.0	81.1	91.5	88.0	79.0	81.1	91.5	88.0	65.9	64.1	74.4	70.8
Belarus	129.1	71.0	81.3	80.0	129.1	71.0	81.3	80.0	107.1	43.7	55.3	55.1
Belgium	143.2	145.1	136.6	131.3	143.2	145.1	136.6	131.3	141.8	143.6	135.6	129.8
Bulgaria	117.7	69.2	71.9	75.8	117.7	69.2	71.9	75.8	111.6	60.3	65.1	69.0
Canada	591.8	717.1	718.2	747.0	591.8	717.1	718.2	747.0	540.2	636.8	759.5	792.5
Croatia	31.4	26.0	30.8	32.4	31.4	26.0	30.8	32.4	27.2	20.7	23.3	26.1
Czech Republic	194.7	147.2	149.1	150.8	194.7	147.2	149.1	150.8	190.1	138.7	144.7	149.1
Denmark	70.4	69.2	72.5	68.1	70.4	69.2	72.5	68.1	71.0	70.8	71.6	67.0
Estonia	41.9	18.4	19.2	22.0	41.9	18.4	19.2	22.0	35.6	16.9	10.2	14.1
European Union[b]	5 551.4	5 042.0	5 092.4	5 032.2	5 553.4	5 044.3	5 094.8	5 034.6	5 217.2	4 659.4	4 653.0	4 625.3
Finland	70.9	69.5	79.9	78.3	70.9	69.5	79.9	78.3	53.1	51.1	47.7	53.1
France	565.5	560.6	546.4	535.8	565.5	560.6	546.4	535.8	525.5	515.7	475.5	463.4
Germany	1 215.2	1 008.2	980.0	956.1	1 215.2	1 008.2	980.0	956.1	1 187.0	976.1	964.4	940.0
Greece	105.6	127.1	128.1	131.9	105.6	127.1	128.1	131.9	102.4	124.7	123.0	128.2
Hungary	99.2	78.0	78.9	75.9	99.2	78.0	78.9	75.9	95.0	77.2	74.8	71.8
Iceland	3.4	3.7	4.2	4.5	3.4	3.7	4.2	4.5	4.9	5.1	5.5	5.7
Ireland	55.4	69.0	69.7	69.2	55.4	69.0	69.7	69.2	55.6	69.1	69.2	68.2
Italy	516.3	549.5	563.0	552.8	516.3	549.5	563.0	552.8	448.8	470.3	473.2	481.9
Japan	1 269.7	1 346.0	1 342.1	1 374.3	1 269.7	1 346.0	1 342.1	1 374.3	1 195.4	1 265.4	1 260.4	1 292.9
Kazakhstan	300.2	159.3	279.3	281.2	300.2	159.3	279.3	281.2	291.4	152.0	273.4	275.1

Party	*GHGs excluding LULUCF, in Tg CO_2 eq*				*Total excluding LULUCF, including emissions from deforestation[a], in Tg CO_2 eq*				*GHGs including LULUCF, in Tg CO_2 eq*			
	1990	*2000*	*2006*	*2007*	*1990*	*2000*	*2006*	*2007*	*1990*	*2000*	*2006*	*2007*
Latvia	26.7	10.1	11.7	12.1	26.7	10.1	11.7	12.1	5.3	–14.3	–20.9	–19.9
Liechtenstein	0.2	0.3	0.3	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.3	0.2
Lithuania	49.1	19.2	22.9	24.7	49.1	19.2	22.9	24.7	38.3	10.5	13.6	15.5
Luxembourg	13.1	10.0	13.3	12.9	13.1	10.0	13.3	12.9	13.3	9.5	12.9	12.5
Monaco	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Netherlands	212.0	214.4	208.5	207.5	212.7	215.3	209.5	208.5	214.6	216.9	210.9	210.0
New Zealand	61.9	70.6	77.6	75.6	61.9	70.6	77.6	75.6	43.7	50.6	53.7	51.7
Norway	49.7	53.4	53.5	55.1	49.7	53.4	53.5	55.1	37.4	36.3	30.9	29.2
Poland	454.3	389.4	399.4	398.9	454.3	389.4	399.4	398.9	431.3	365.1	358.9	358.4
Portugal	59.3	81.7	84.7	81.8	60.2	82.7	85.7	82.8	60.8	75.7	82.7	79.5
Romania	243.0	135.5	153.8	152.3	243.0	135.5	153.8	152.3	207.5	97.5	116.6	116.1
Russian Federation	3 319.3	2 030.4	2 185.9	2 192.8	3 319.3	2 030.4	2 185.9	2 192.8	3 359.6	2 368.0	2 208.1	2 005.8
Slovakia	73.3	48.4	48.9	47.0	73.3	48.4	48.9	47.0	70.9	46.0	45.9	43.8
Slovenia	18.6	18.9	20.6	20.7	18.6	18.9	20.6	20.7	15.4	13.7	15.8	14.9
Spain	288.1	385.8	433.1	442.3	288.1	385.8	433.1	442.3	266.8	359.5	405.7	414.3
Sweden	71.9	68.2	66.9	65.4	71.9	68.2	66.9	65.4	39.9	32.6	41.3	45.0
Switzerland	52.7	51.6	53.2	51.3	52.7	51.6	53.2	51.3	50.4	52.4	54.2	50.6
Turkey	170.1	280.0	332.7	372.6	170.1	280.0	332.7	372.6	125.2	212.4	256.7	296.4
Ukraine	926.0	389.7	436.8	436.0	926.0	389.7	436.8	436.0	852.9	338.1	401.5	392.5
United Kingdom of Great Britain and Northern Ireland	774.2	677.1	651.4	640.3	774.5	677.6	651.9	640.7	777.1	676.8	649.7	638.5
Total	**12 873.2**	**10 736.0**	**11 222.8**	**11 276.5**	**13 006.7**	**10 810.6**	**11 309.3**	**11 355.6**	**12 306.6**	**10 245.7**	**10 587.0**	**10 725.1**

Abbreviations: GHGs = greenhouse gases, LULUCF = land use, land-use change and forestry.

Note: The estimates in this table are based on submissions made by the Parties in 2009, which are available on the UNFCCC website and reviewed by expert review teams for all Parties except Kazakhstan.

[a] Emissions from deforestation are included only in the total emissions from Australia and the European Union (for four member States only) because for Australia and for four Parties that are member States to the European Union, the LULUCF sector was a net source of emissions in 1990 and these Parties therefore meet the criteria in Article 3, paragraph 7, of the Kyoto Protocol for including emissions from deforestation in their base year emissions for the purposes of calculating their assigned amount.

[b] Emission data for the European Union includes emissions from the 2009 inventory submission of the European Union which, in accordance with the provisions of Article 4 of the Kyoto Protocol, includes emissions of 15 member states and emissions of the remaining member States that are also included in Annex I to the Convention. These data are used to calculate the total emissions of Annex I Parties instead of data of individual member States of the European Union. As of 1 December 2009, the European Union replaces and succeeds the European Community.