COMPLIANCE COMMITTEE **CC/ERT/2014/2**
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Report of the technical review of the sixth national communication of the Netherlands

Note by the secretariat

The report of the technical review of the national communication of the Netherlands was published on 17 July 2014. For purposes of rule 10, paragraph 2, of the rules of procedure of the Compliance Committee (annex to decision 4/CMP.2, as amended by decisions 4/CMP.4 and 8/CMP.9), the report is considered received by the secretariat on the same date. This report, FCCC/IDR.6/NLD, contained in the annex to this note, is being forwarded to the Compliance Committee in accordance with section VI, paragraph 3, of the annex to decision 27/CMP.1.

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Report of the technical review of the sixth national communication of the Netherlands

Parties included in Annex I to the Convention are requested, in accordance with decision 9/CP.16, to submit a sixth national communication to the secretariat by 1 January 2014. In accordance with decision 7/CMP.8, Parties included in Annex I to the Convention that are also Parties to the Kyoto Protocol shall include in their sixth national communication supplementary information under Article 7, paragraph 2, of the Kyoto Protocol. In accordance with decision 15/CMP.1, these Parties shall start reporting the information under Article 7, paragraph 1, of the Kyoto Protocol with the inventory submission due under the Convention for the first year of the commitment period. This includes supplementary information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol.

This report presents the results of the technical review of the sixth national communication and supplementary information under the Kyoto Protocol of the Netherlands 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" and the "Guidelines for review under Article 8 of the Kyoto Protocol".

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I. Introduction and summary

A. Introduction

1. For the Netherlands, the Convention entered into force on 21 March 1994 and the Kyoto Protocol on 16 February 2005. Under the Convention, the Netherlands made a commitment to contribute to the joint European Union (EU) economy-wide emission reduction target of 20 per cent of greenhouse gas (GHG) emissions by 2020 below the 1990 level. Within the burden-sharing agreement of the European Union for meeting commitments under the Kyoto Protocol, the Netherlands committed itself to reducing its GHG emissions by 6 per cent compared with the base-year[1] level during the first commitment period, from 2008 to 2012. For the second commitment period of the Kyoto Protocol, from 2013 to 2020, the Netherlands committed to contributing to the joint EU commitment to reduce GHG emissions by 20 per cent below the base-year level.

2. This report covers the in-country technical review of the sixth national communication (NC6) of the Netherlands, coordinated 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" (decision 23/CP.19) and the "Guidelines for review under Article 8 of the Kyoto Protocol" (decision 22/CMP.1).

3. The review took place from 24 February to 1 March 2014 in The Hague, the Netherlands, and was conducted by the following team of nominated experts from the UNFCCC roster of experts: Mr. Roberto Acosta Moreno (Cuba), Mr. Tom Dauwe (Belgium), Mr. Juraj Farkaš (Slovakia) and Mr. Lawrence Kotoe (Ghana). Mr. Acosta Moreno and Mr. Dauwe were the lead reviewers. The review was coordinated by Ms. Xuehong Wang and Mr. Bernd Hackmann (secretariat).

4. During the review, the expert review team (ERT) reviewed each section of the NC6. The ERT also evaluated the supplementary information provided by the Netherlands as a part of the NC6 in accordance with Article 7, paragraph 2, of the Kyoto Protocol. In addition, the ERT reviewed the information on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, which was provided by the Netherlands in its 2013 annual submissions and previous submissions under Article 7, paragraph 1, of the Kyoto Protocol.

5. In accordance with decisions 23/CP.19 and 22/CMP.1, a draft version of this report was communicated to the Government of the Netherlands, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

B. Summary

6. The ERT conducted a technical review of the information reported in the NC6 of the Netherlands in accordance with the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC

[1] "Base year" refers to the base year under the Kyoto Protocol, which is 1990 for carbon dioxide, methane and nitrous oxide, and 1995 for perfluorocarbons, hydrofluorocarbons and sulphur hexafluoride. The base-year emissions include emissions from sectors/source categories listed in Annex A to the Kyoto Protocol.

reporting guidelines on national communications" (hereinafter referred to as the UNFCCC reporting guidelines on NCs). As required by decision 15/CMP.1, supplementary information required under Article 7, paragraph 2, of the Kyoto Protocol[2] is provided in the NC6 (see para. 121 below). The supplementary information on the minimization of adverse impacts referred to in paragraph 4 above included in the annual submissions is partially complete and transparent; however, the Netherlands provided complete and transparent information on this matter during the review.

7. The Netherlands considered most recommendations provided in the report of the in-depth review of the fifth national communication (NC5) of the Netherlands.[3] The ERT commended the Netherlands for its improved, coherent and consistent reporting. During the review, the Netherlands provided further relevant information on, for example:

(a) Recent changes in the Dutch National Inventory Entity (see para. 19 below);

(b) Support for developing countries to establish and maintain observing systems and related data and monitoring systems and on actions taken to support capacity-building activities in developing countries;

(c) Socioeconomic analysis, including both the impacts of climate change and the response options;

(d) How it strives to implement policies and measures (PaMs) under Article 2, paragraph 3, of the Kyoto Protocol, in such a way as to minimize adverse effects, in particular on international trade;

(e) How it gives priority to implement its commitments under Article 3, paragraph 14, on actions mentioned in paragraph 14 of the Kyoto Protocol.

1. Completeness and transparency of reporting

8. Gaps and issues related to the reported information identified by the ERT are presented in table 1 below.

2. Timeliness

9. The NC6 was submitted on 30 December 2013, before the deadline of 1 January 2014 mandated by decision 9/CP.16.

3. Adherence to the reporting guidelines

10. The information reported by the Netherlands in its NC6 is mostly in adherence with the UNFCCC reporting guidelines on NCs as per decision 4/CP.5 (see table 1).

[2] Decision 15/CMP.1, annex, chapter II.
[3] FCCC/IDR.5/NLD.

Table 1

Assessment of completeness and transparency issues of reported information in the sixth national communication of the Netherlands[a]

Sections of national communication	*Completeness*	*Transparency*	*Reference to paragraphs*	*Supplementary information under the Kyoto Protocol*	*Completeness*	*Transparency*	*Reference to paragraphs*
National circumstances	Complete	Mostly transparent	12	National systems	Complete	Transparent	
Greenhouse gas inventory	Complete	Transparent		National registries	Complete	Transparent	
Policies and measures (PaMs)	Mostly complete	Mostly transparent	33	Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Complete	Transparent	
Projections and total effect of PaMs	Mostly complete	Mostly transparent	86	PaMs in accordance with Article 2	Mostly complete	Transparent	68
Vulnerability assessment, climate change impacts and adaptation measures	Complete	Transparent		Domestic and regional programmes and/or arrangements and procedures	Complete	Transparent	
Financial resources and transfer of technology	Complete	Transparent		Information under Article 10	Complete	Transparent	
Research and systematic observation	Mostly complete	Transparent	111	Financial resources	Complete	Transparent	
Education, training and public awareness	Complete	Transparent		Minimization of adverse impacts in accordance with Article 3, paragraph 14	Complete	Transparent	

[a] A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in the Conclusions and recommendations chapter of this report.

II. Technical review of the reported information in the national communication and supplementary information under the Kyoto Protocol

A. Information on greenhouse gas emissions and national circumstances relevant to greenhouse gas emissions and removals, including other elements related to the Kyoto Protocol

1. Information on relevant national circumstances

11. In its NC6, the Netherlands has provided a concise description of the national circumstances and elaborated on the framework legislation and key policy documents on climate change. Further information on the review of the institutional and legislative arrangements for the coordination and implementation of PaMs is provided in chapter II.B below.

12. The NC6 of the Netherlands provided the information required by the UNFCCC reporting guidelines on NCs. The information was complete and mostly transparent with respect to the elements required by the guidelines, except for information on industry and transport. For the latter sectors, the presented information was aggregated, which made it difficult to understand how the Netherlands' circumstances affect GHG emissions. The Netherlands addressed the encouragements of the previous review by providing additional information on building stocks and urban structure in the NC6. However, this was not the case for the information on transportation, which was only partially presented in the NC6.

13. During the review, the Netherlands provided additional information on the national circumstances, elaborating on the transport sector. Compared with the 1980s and 1990s, the Netherlands has experienced a decreasing trend in the number of passenger-kilometres since 2005 due to a flattening of mobility growth, particularly pertaining to car use. Freight transport, including transported weight and freight tonne-kilometres, has also had a decreasing trend since 2007, mainly because of the economic crisis. In addition, the Netherlands provided more disaggregated information on the relative importance of the main industrial sectors (in fuel use and GHG emissions), as requested by the ERT. The ERT recommends that the Netherlands provide additional information in its next national communication (NC), similar to that provided during the review, to improve transparency and facilitate the understanding of the GHG emissions from these sectors.

14. Table 2 illustrates the national circumstances of the Netherlands by providing some indicators relevant to GHG emissions and removals. The ERT noted that during the period 1990–2011 the population and gross domestic product (GDP) of the Netherlands increased by 11.6 and 57.7 per cent, respectively, while GHG emissions per GDP and GHG emissions per capita decreased by 41.8 and 17.8 per cent, respectively. This indicates that the Netherlands made significant progress in decoupling GHG emissions from economic growth. The decrease in GHG emissions is mainly attributed to the decrease in non-carbon dioxide (non-CO_2) emissions and improvements in energy efficiency in industrial processes.

Table 2
Indicators relevant to greenhouse gas emissions and removals for the Netherlands

	1990	*2000*	*2005*	*2010*	*2011*	*Change 1990–2011 (%)*	*Change 2010–2011 (%)*
Population (million)	15.0	15.9	16.3	16.6	16.6	11.6	0.5
GDP (2005 USD billion using PPP)	392.9	536.5	572.9	613.5	619.6	57.7	1.0
TPES (Mtoe)	65.7	73.2	78.8	83.4	77.4	17.8	–7.2
GHG emissions without LULUCF (Mt CO_2 eq)	211.8	213.0	209.5	209.2	194.4	–8.2	-7.1
GHG emissions with LULUCF (Mt CO_2 eq)	214.8	215.9	212.5	212.2	197.6	–8.0	–6.8
GDP per capita (2005 USD thousand using PPP)	26.3	33.7	35.1	36.9	37.1	41.3	0.5
TPES per capita (toe)	4.4	4.6	4.8	5.0	4.6	5.5	–7.7
GHG emissions per capita (t CO_2 eq)	14.2	13.4	12.8	12.6	11.6	–17.8	–7.5
GHG emissions per GDP unit (kg CO_2 eq per 2005 USD using PPP)	0.5	0.4	0.4	0.3	0.3	–41.8	–8.0

Sources: (1) GHG emissions data: the Netherlands' 2013 GHG inventory submission; (2) Population, GDP and TPES data: International Energy Agency.

Note: The ratios per capita and per GDP unit are calculated relative to GHG emissions without LULUCF; the ratios are calculated using the exact (not rounded) values and may therefore differ from a ratio calculated with the rounded numbers provided in the table.

Abbreviations: GDP = gross domestic product, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, PPP = purchasing power parity, TPES = total primary energy supply.

2. Information on the greenhouse gas inventory, emissions and trends

15. The Netherlands has provided a summary of information on GHG emission trends for the period 1990–2011. This information is fully consistent with the 2013 national GHG inventory submission. Summary tables, including trend tables for emissions in CO_2 eq (given in the common reporting format), are provided in an annex to the NC6. During the review, the ERT took note of the draft 2014 annual submission. The relevant information therein is reflected in the relevant section of this report (see para. 76 below)

16. Total GHG emissions excluding emissions[4] and removals from land use, land-use change and forestry (LULUCF) decreased by 8.2 per cent (17.4 Mt CO_2 eq) between the base year and 2011, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 8.0 per cent over the same period. The decrease is mainly the result of the decreases in non-CO_2 emissions. Specifically, emissions from methane (CH_4), nitrous oxide (N_2O) and fluorinated gases (F-gases) (hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6)) decreased by 40.6 per cent, 54.4 per cent and 64.4 per cent, respectively, over the period 1990 -2011, while CO_2 emissions increased by 5.2 per cent during the same period. An analysis of the drivers for

[4] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO2 eq excluding land use, land-use change and forestry, unless otherwise specified.

GHG emissions trends in each sector is provided in chapter II.B below. Table 3 provides an overview of GHG emissions by sector from the base year to 2011.

17. Total GHG emissions peaked in 1996 at 9.2 per cent over the base year, and then gradually decreased. This decrease has two steps: first between 1998 and 2001 due to a decrease in F-gases reflecting the impact from the PaMs of F-gases that were implemented at that time, and second between 2006 and 2008 due to a reduction in N_2O emissions. Emissions of CH_4 steadily decreased between 1991 and 2005 due to measures in waste management. GHG emissions increased in 2010 by 5.7 per cent compared with the previous year, and then decreased by 7.1 per cent in 2011. This variation was explained as the impact of the cold winter in 2010. According to the draft 2014 GHG inventory that was available during the review, total GHG emissions for 2012 are estimated to be at the same level as 2011.

Table 3
Greenhouse gas emissions by sector in the Netherlands, 1990–2011

	GHG emissions (Mt CO_2 eq)				*Change (%)*		*Share[a] by sector (%)*	
Sector	*1990*	*2000*	*2010*	*2011*	*1990–2011*	*2010–2011*	*1990*	*2011*
1. Energy	153.8	164.7	177.9	163.9	6.6	–7.9	72.6	84.3
A1. Energy industries	52.7	63.9	66.6	62.4	18.5	–6.3	24.9	32.1
A2. Manufacturing industries and construction	33.1	27.4	27.3	25.8	–22.0	–5.4	15.6	13.3
A3. Transport	26.3	32.8	35.0	35.2	34.1	0.7	12.4	18.1
A4.–A5. Other	38.87	39.07	46.22	38.09	–2.0	–17.6	18.3	19.6
B. Fugitive emissions	2.9	1.5	2.7	2.3	–19.0	–15.6	1.3	1.2
2. Industrial processes	22.2	20.3	10.4	10.4	–52.9	0.3	10.5	5.4
3. Solvent and other product use	0.5	0.3	0.2	0.2	–71.5	–14.7	0.3	0.1
4. Agriculture	22.6	18.8	16.6	16.0	–28.9	–3.7	10.6	8.2
5. LULUCF	3.0	2.9	3.0	3.3	8.9	9.1	1.4	1.7
6. Waste	12.8	8.9	4.1	3.9	–69.7	–5.2	6.0	2.0
GHG total with LULUCF	**214.8**	**215.9**	**212.2**	**197.6**	**–8.0**	**–6.8**	**NA**	**NA**
GHG total without LULUCF	**211.8**	**213.0**	**209.2**	**194.4**	**–8.2**	**–7.1**	**NA**	**NA**

Note: The changes in emissions and the share by sector are calculated using the exact (not rounded) values and may therefore differ from values calculated with the rounded numbers provided in the table.

Abbreviations: GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NA = not applicable.

[a] The shares of sectors are calculated relative to GHG emissions without LULUCF; for the LULUCF sector, the negative values indicate the share of GHG emissions that was offset by GHG removals through LULUCF.

3. National system

18. The Netherlands provided in its NC6 a description of how its national system is performing the general and specific functions defined in the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol (decision 19/CMP.1). The description includes all the elements mandated by decision 15/CMP.1. The NC6 also contains a reference to the initial review of the national system in 2007, which found that the national system complies with all necessary requirements. The Netherlands explained that since

then, the national system has remained broadly unchanged, with the exception of some organizational changes that do not affect the performance of the required functions established by decision 19/CMP.1. The ERT took note of the review of the changes to the national system as reflected in the report of the individual review of GHG inventory of the Netherlands submitted in 2013.

19. During the review, the Netherlands provided additional information on the changes to its national system that took place after the NC6 was finalized. In the NC6, the NL Agency (Agentschap NL) was the national single entity. From 1 January 2014, the Netherlands Enterprise Agency (RVO.nl) was appointed by the Ministry of Infrastructure and the Environment as the national single entity. RVO.nl resulted from a merger of the NL Agency with another institution (Dienst Regelingen).

4. National registry

20. In its NC6, the Netherlands has provided information on the national registry in accordance with the annex to decision 13/CMP.1 and the annex to decision 5/CMP.1. The ERT took note of the review of the changes to the national registry as reflected in the report of the individual review of the GHG inventory of the Netherlands submitted in 2013.

21. During the review week, the Netherlands provided a description of its national registry, how it performs its functions and how it complies with the requirements of the technical standards for data exchange between registry systems. The ERT noted that the Netherlands maintains its national registry in a consolidated manner in the Consolidated System of European Union Registries (CSEUR) with all other EU member States. CSEUR is hosted and facilitated by the European Commission.

5. Domestic and regional programmes and/or legislative arrangements procedures related to the Kyoto Protocol

22. In its NC6, the Netherlands provided a complete and transparent description of the domestic and regional programmes and legislative arrangement procedures related to the Kyoto Protocol. The Netherlands also included some explanations on the existing long-term voluntary agreements; however, these explanations were not given in detail as recommended by the previous review. During the review, the Netherlands provided detailed information on these agreements, including some relevant reports on this matter.[5] Owing to the importance of these agreements in the policymaking of the Netherlands, the ERT encourages the Netherlands to include this information in its next NC submission.

23. The overall responsibility for climate change policymaking lies within the Ministry of Infrastructure and the Environment of the Netherlands, and a number of national institutions are involved in the implementation of this policy, in particular the Ministry of Economic Affairs and the Ministry of the Interior and Kingdom Relations.

24. As a Party to the Kyoto Protocol, the Netherlands had an emission reduction target for the first commitment period during 2008–2012. At the time of signing of the Kyoto Protocol, the European Union agreed upon a GHG reduction percentage of 8 per cent for the EU as a whole. This common target was subsequently divided among the EU member States and reflected in the burden-sharing agreement (European Council decision 2002/358/EC). For the Netherlands, this resulted in an emission reduction target of 6 per

[5] <http://www.rvo.nl/sites/default/files/bijlagen/2MJAP1171_Long_Term_Agreements.pdf>, <http://www.rvo.nl/sites/default/files/2013/12/Monitor%20energiebesparing%20gebouwde%20omgeving%20(2013).pdf> and <http://www.wageningenur.nl/nl/Publicatie-details.htm?publicationId=publication-way-343435373736>.

cent below the emissions level in the base year for the 2008–2012 period. For the second commitment period from 2013 to 2020, the Netherlands committed to contributing to the joint EU commitment to reduce GHG emissions by 20 per cent compared with the base-year level.

25. As an EU member State, the Netherlands also applies EU climate policy, including EU common and coordinated PaMs that are relevant to climate change. These include, among others, the European Council decision 2002/358/EC on the burden sharing of the European Union's emission reduction target for the Kyoto Protocol, and European Parliament and Council decision 280/2004/EC on the so-called monitoring mechanism, which ensures that EU progress towards meeting the Kyoto Protocol target is monitored and evaluated in a systematic way.

26. The European Union directive 2003/87/EC introduced the European system for CO_2 emissions trading. With the introduction of the European Union Emissions Trading System (EU ETS), a large part of European emissions was restricted under an EU wide maximum cap. As a result, from 2013 onwards, national targets under EU legislation only take into account emissions outside the EU ETS (European Union effort-sharing decision (ESD) 406/2009/EC).

27. Implementation of the Kyoto Protocol in the Netherlands is underpinned by the Environmental Management Act, which provides the legal basis for most environmental regulations that affect emissions of GHGs (e.g. regarding environmental permits and CO_2 emissions trading). The Act provides the framework for enforcing commitments undertaken in the long-term agreements and the benchmarking covenant by companies that do not participate in emissions trading. The Act also regulates the enforcement of legal measures in the event of violations. Authorities that are responsible for enforcement have several means by which to impose sanctions, for example, through imposing pecuniary penalties, withdrawing licences and, when required, criminal sanctions.

28. There are other relevant institutional arrangements and procedures for the implementation of the Kyoto Protocol. The Ministry of Infrastructure and the Environment is the designated national authority for the clean development mechanism (CDM) and the national focal point for joint implementation (JI) in the Netherlands. Various types of instruments are deployed by the Netherlands to acquire certified emission reductions from the CDM projects and emission reduction units from JI projects. For this purpose, voluntary and non-legally binding memorandums of understanding have been signed with several developing country Parties and Parties with economies in transition. The Dutch Government has also signed an agreement to purchase the assigned amount units from Latvia.

29. The Netherlands ensures public access to information. To that end, after adoption, all laws and underlying legislative arrangements in the Netherlands are published in one of several official government bulletins and/or directly on the website.[6] The Freedom of Information Act and the Environmental Management Act also provide public access to information regarding the enforcement of environmental rules and regulations.

30. The Netherlands provided a description of national legislative arrangements and administrative procedures that seek to ensure that the implementation of activities under Article 3, paragraph 3, and elected activities under Article 3, paragraph 4, of the Kyoto Protocol also contribute to the conservation of biodiversity and the sustainable use of natural resources. The Forest Act and the Flora and Fauna Act ensure the sustainable management of forests in implementing these activities. The former contains the obligation

[6] <www.rijksoverheid.nl>.

to report felling activities and to replant within three years of felling, while the latter ensures that the negative consequences of (management) activities on biodiversity are minimized.

B. Policies and measures, including those in accordance with Article 2 of the Kyoto Protocol

31. The Netherlands has provided in its NC6 comprehensive and well-organized information on its package of PaMs implemented, adopted and planned, in order to fulfil its commitments under the Convention and its Kyoto Protocol. Each sector has its own textual description of the principal PaMs, subdivided by the main GHGs targeted. A summary table of the PaMs, divided by sector, with information on the principal GHGs targeted and their expected impact, was also provided.

1. Policies and measures related to implementation of commitments under the Convention

32. The Netherlands reported on its PaMs adopted, implemented and elaborated in achieving its commitments under the Convention. The Netherlands provided information on PaMs by sector and by gas and a description of the principal PaMs. The description of the principal PaMs included the objectives and the type of instrument. The Netherlands has also provided information on how it believes its PaMs are modifying longer-term trends in anthropogenic GHG emissions and removals, in accordance with the objective of the Convention.

33. The NC6 does not include some information required by the guidelines on the status of some of the PaMs and the implementing entities. The ERT recommends that the Netherlands include two additional columns in the table with the main PaMs by sector (table 4.6 of the NC6) to present this information, as was done in the NC5. In several cases, PaMs in the NC6 consisted of both a planned and implemented component. This was, for instance, the case for biofuels and for the scheme to reduce other greenhouse gases (‘reductie overige broeikasgassen’ (ROB) scheme). The ERT recommends that the Netherlands increase transparency, by consistently and uniformly reporting for each PaM what has already been implemented and what was planned, in its next NC.

34. The Netherlands reported, in its NC, on the overall policy context, and the national targets for GHG mitigation in 2020. The PaMs contained in the NC6 do not represent an exhaustive list of all actions taken by the Netherlands, but rather, the NC6 contains all the PaMs with the most significant impact. The progress of PaMs to mitigate GHG emissions is monitored, both ex post and ex ante.

35. In the NC6, the Netherlands identified some important PaMs that are no longer in place since the submission of the NC5. Important PaMs that are no longer in place include the feed in premium to the scheme stimulating sustainable energy production (‘stimulering duurzame energieproductie’ (SDE)) and support for combined heat and power (CHP) under the SDE/SDE+ scheme. The ERT noted, however, that this list was not exhaustive and that an important policy instrument included in the NC5 (the national climate policy implementation plan (NCPIP)) was no longer in place. The Netherlands explained during the review that this overarching policy has expired, but policy instruments contained in it have been continued in most cases. Therefore the NC6 contains, with a few exceptions, a similar set of PaMs to those in the NC5.

36. The Netherlands provided in its NC6 little information on the costs and non-GHG benefits of the PaMs, despite the fact that cost-effectiveness is an important element in the policymaking process of the Netherlands. In the NC6, reference is made to a cost–benefit

analysis study, and the ERT noted that the Netherlands could include specific information contained in this report in its next NC submission. In particular, for the key PaMs, such as the SDE+ scheme, additional information may be included in this regard.

37. With regard to PaMs taken by the regional and local government, the Netherlands referred to the Local Climate Agenda, which is a joint initiative bringing together local authorities (provinces, municipalities and regional water authorities) and central government to address climate change. During the review, the Netherlands provided additional information on this initiative and other local initiatives (the Rotterdam climate initiative and Wij krijgen Kippen). The ERT noted that the Netherlands could emphasize more on the actions taken by regional and local governments in its next NC.

38. In the NC6, quantified impacts of PaMs have been reported in the table with the main PaMs by sector (table 4.6 of the NC6). It has been reported that there was double counting in the quantification of some of the PaMs. During the review, the Netherlands explained that this double counting did not have a significant impact on the overall results (e.g. rebound effects from one sector to another sector). The ERT encourages the Netherlands to increase the transparency of its reporting by including more information on the estimation methodology than currently provided in the NC6, especially for the most important PaMs (e.g. the SDE+ scheme and the long-term agreement on energy efficiency for EU ETS companies). The ERT also encourages the Netherlands to increase the transparency of its reporting by providing quantified emission reductions for a specific year rather than average emission reductions over a time period, as this would improve interpretability and allow for a better assessment of how individual PaMs are contributing to achieving the target. In addition, the ERT encourages the Netherlands to include aggregated emission reductions for each sector.

39. Some of the recommendations from the previous review were taken into consideration to improve reporting in the NC6. According to the in-depth review of the NC5, the Netherlands was encouraged to also include policies and practices that lead to higher levels of anthropogenic GHG emissions. The Netherlands included this information in the NC6 with respect to the increased speed limit on highways, which has already been implemented. Information on an upcoming policy change in milk quota was also included.

2. Policy framework and cross-sectoral measures

40. Since the submission of the NC5, there have been significant institutional changes in the Netherlands with respect to climate change policy framework. The Ministry for Infrastructure and the Environment is now responsible for the overall national climate change policy framework, while other ministries (i.e. Ministry of the Interior and Kingdom Relations and the Ministry of Economic Affairs) are also involved. During the review, the Netherlands provide further explanation on the division of competences and on how coordination of climate actions among the different ministries is achieved.

41. In the NC5, the key policy framework reported to meet the target under the Kyoto Protocol for the 2008–2012 period was NCPIP. NCPIP is no longer included in the NC6 as this plan expired in 2012, although most policy instruments contained in NCPIP did continue. The Environmental Management Act is the main legal instrument of climate change policy, providing the legal basis for some important PaMs, including voluntary agreements between the national government and industries, the EU ETS and the national waste management plan. The Netherlands mentioned in the NC6 the new policy framework of the Climate Agenda, initiated at the end of 2013, which will link actions related to mitigation and adaptation. The Netherlands provided additional information on this new initiative during the review.

42. Few PaMs in the NC6 refer to actions taken at the regional or local levels. The NC6 only refers to the Local Climate Agenda. During the review week, the Netherlands elaborated on this agenda. The ERT requested additional information on PaMs taken by municipalities and provinces in the Netherlands to reduce GHG emissions. In response, the Netherlands elaborated that some regional and local authorities do have an active climate policy, implementing actions that affect GHG emissions in different sectors. As an example, the covenant of mayors was mentioned, in the context of which, 14 Dutch municipalities have submitted an action plan to reduce GHG emissions. The ERT encourages the Netherlands to also include important policy initiatives from authorities at subnational levels.

43. The Netherlands provided comprehensive information on PaMs at the national and EU levels. Table 4 provides a summary of the reported information on the PaMs of the Netherlands.

Table 4
Summary of information on policies and measures reported by the Netherlands

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (Mt CO_2 eq)*
Policy framework and cross-sectoral measures		
	CO_2 Emissions Trading System (EU ETS)	9.4
	Environmental Management Act	NA
Renewable energy	SDE+ (‘stimulering duurzame energieproductie’, stimulating sustainable energy production) and other financial incentives of renewables	64.6
Energy efficiency	CO_2 ETS and long-term agreements on energy efficiency for EU ETS enterprises	7.1
	Long-term agreements on energy efficiency for non-EU ETS enterprises and fiscal measures for energy and other green investments	4.4
Residential and commercial sectors	Energy performance standards (new buildings) and ecodesign directive	0.1
	Energy efficiency in the built environment covenant (more with less; Koepelconvenant)	2.7
	Block-by-block incentive scheme (blok-voor-blok programma) and innovation programme on built environment	>0.05
Transport	Decision on biofuels as renewable energy for transport	2.3
	Efficient driving campaign and trucks for future	0.7
	European Union CO_2 emission standards for cars and fiscal policy on car efficiency	0.9
Industrial sectors	Measures to reduce N_2O emissions from nitric acid production	5.6
Agriculture	Clean and efficient agrosectors covenant	1.9
	EU ETS and sectoral ETS for horticulture	1.2
	Emission regulation of CH_4 emission gas engines	0.9
	Limiting the size of cattle stock and manure management	0.4

Sectors affected	*List of key policies and measures*	*Estimate of mitigation impact (Mt CO_2 eq)*
	Ammonia and manure policy	1.1
Waste management	Landfill policy	2.8

Note: The greenhouse gas reduction estimates are reductions in carbon dioxide or carbon dioxide equivalent for 2020 in Mt.

3. Policies and measures in the energy sector

44. The energy sector is the largest contributor to the Netherlands' total GHG emissions (71 per cent in the base year and 83 per cent in 2011 of total GHG emissions). The emissions level of the energy sector increased by approximately 6.6 per cent in the period 1990–2011 (10.1 Mt CO_2 eq), mainly owing to increased emissions in the energy industries and the transport sector, which offset emission reductions achieved in the manufacturing industries and construction (7.3 Mt CO_2 eq) in 2011 compared with 1990. Total energy consumption in the Netherlands grew in 2011 to 2478.7 PJ that represents a 8.8 per cent growth compared with 1990. In the same period, the number of households increased by 21 per cent and GDP at market prices increased by 160 per cent.

45. ***Energy supply***. Total primary energy consumption by the energy industries grew from 713 TJ in 1990 to 930 TJ in 2011, representing a 30 per cent increase. GHG emissions from the energy industries increased from 52.7 Mt CO_2 eq in 1990 to 62.4 Mt CO_2 eq in 2011 (an 18.5 per cent increase). Thus, energy supply ranked second in terms of emissions growth, surpassed only by the transport sector (see paras. 53–55 below on transport). These emissions are caused primarily by public electricity and heat production, as well as petroleum refining. Electricity and heat production consumed 46 per cent more primary energy (mostly gas and solid fuels) in 2011 than in 1990.

46. The central PaMs to reduce GHG emissions from energy supply are those promoting the use of renewable energy sources. Since the submission of the NC5, the Netherlands has replaced the SDE-scheme with the SDE+-scheme for the production of renewable energy and has abandoned support for combined heat and power (see para. 48). CHP has already contributed significantly to the supply of electricity and heat in the Netherlands, and in 2011, the installed CHP capacity in the Netherlands was 12.3 GW, representing 44 per cent of the total installed electricity capacity. The Netherlands considers CHP a mature technology and additional financial or fiscal support could lead to market distortions.

47. ***Renewable energy sources***. In 2011, renewable energy contributed to over 4 per cent of total energy consumption and 11 per cent of energy consumption for electricity generation. In the period 2009–2011, the growth of renewable energy in the Netherlands had been slowing down by only 0.1 percentage point per year. Based on the EU Climate and Energy Package, the Netherlands has the target of achieving a 14 per cent target for energy production from renewable sources in 2020 and based on the national energy agreement (2013), a target of 16 per cent in 2023.

48. The ERT noted that there is a significant gap between the situation in 2011 and the target in 2020, which would require an annual increase of renewable energy of 1 percentage point by 2020. Since 2011, policy instruments to support renewable energy have been strengthened, especially by the SDE+ feed-in scheme. This scheme supersedes the previous SDE scheme and the Environment Quality of Electricity Production Tax scheme. During the review, the Netherlands explained that the impact of this policy is expected to be visible in the course of the years, due to the start-up time of new installations.

49. The Netherlands has also taken measures to remove non-financial barriers, for example, in the further development of onshore wind energy, the Dutch Government made implementation agreements with the provinces concerning spatial planning. The ERT noted that, according to projections, current and planned PaMs may not be sufficient to reach the 14 per cent renewable energy target. During the review, the Netherlands provided more information on how the Social Economic Council ('Sociaal Economische Raad' (SER)) energy agreement, not included in the projections, will have an additional impact on the further development of renewable energy sources. This impact is expected to result from encouraging biomass co-combustion in coal-fired power plants and the development of offshore wind energy.

50. ***Energy efficiency***. The European Union energy efficiency directive, which sets a target for an annual additional 1.5 per cent reduction of energy sales, is central in promoting energy efficiency in the Netherlands. The Netherlands explained during the review that this would mean a 480 PJ energy saving in 2020 compared with the average annual energy consumption in 2010–2012. Specific PaMs to reach this target are the energy tax, the energy investment allowance (see para. 56 below) and the voluntary long-term agreement with EU ETS and non-EU ETS industries (see para. 56 below). The energy tax is levied on all electricity and natural gas consumption, but the level of tax depends on the consumption (large energy consumers have a lower energy tax) and on specific agreements between different sectors and the Dutch Government.

51. ***Residential and commercial sectors***. The NC6 contains a comprehensive overview of PaMs in the residential and commercial sectors. PaMs planned and implemented in the building sector target both existing (e.g. via long-term agreements with the rent sector) and new buildings (e.g. via the energy performance coefficient), as well as electricity consumption (e.g. via the eco design directive).The most important PaM concerning the emissions from the residential and commercial sector is the long-term agreement Koepelconvenant.

52. During the review week, the Netherlands reported on the progress made in this sector in 2012 compared with 2008. Energy consumption, including natural gas, heat and electricity, decreased by 9 PJ during this period, whereas the target is to reduce by 77 PJ in 2015 and 109 PJ in 2020 compared with 2008. The ERT noted that there is still a significant gap between the achievements so far and the target. Progress is annually assessed and reported, which allows for a good follow-up of the progress.

53. ***Transport sector***. Emissions from the transport sector are relatively high in the Netherlands and increased to 35.2 Mt CO_2 eq in 2011 compared with 26.3 Mt CO_2 eq in 1990 (a 34.1 per cent increase). Thus, the transport sector ranked first in terms of emission growth. This increase in emissions is caused by an increase in both passenger and freight traffic. Emissions are expected to decrease to 34.5 Mt CO_2 eq in 2020 with implemented and planned PaMs. As was requested in the technical review report of the NC5, the Netherlands provided, in its NC6, information on the effects of important transport PaMs such as the promotion of biofuels and the EU CO_2 emission standards for cars (albeit together with the fiscal policy on car efficiency).

54. The most important policies to achieve this are the transposition of EU common and coordinated PaMs by the Netherlands. These include the implementation of European Union directive 2009/28/EG on renewable energy, which states that the Netherlands should ensure that a minimum share of 10 per cent of all energy consumption in transport must come from renewable sources, and the EU CO_2 emission standard for cars. In addition, the Netherlands implemented policies to support demonstration projects (e.g. trucks of the future) and innovation programmes (e.g. for electric- and hydrogen-powered cars).

55. The ERT noted that the PaMs focus primarily on improving energy efficiency and/or reducing the emission factors through modal shift. Policies to stimulate the modal shift to public transport and to reduce the number of vehicle-kilometres are not included in the NC6. During the review, the Netherlands confirmed that this is not considered a priority, but that within the SER agreement, provisions have been made to promote and facilitate the use of public transport.

56. ***Industrial sector***. The emissions from energy use in the manufacturing industries and construction decreased from 33.1 Mt CO_2 eq in 1990 to 25.8 Mt CO_2 eq in 2011. In 2011, this sector was responsible for 16 per cent of the total GHG emissions from energy use. The key PaMs in the industrial sector include the energy investment allowance, providing a direct financial incentive for energy efficiency investments by industry via a tax deduction, and the long-term agreements with EU ETS and non-EU ETS enterprises. Within the long-term agreement on energy efficiency for EU ETS companies, companies have to prepare an energy efficiency plan. This plan contains an overview of profitable measures (i.e. those that have an internal rate of return of 15 per cent or a payback time of five years) and a timeline for the implementation of these measures.

57. The voluntary agreements with industry are supported by financial incentives (energy investment allowance) and are enforced with environmental permits. Companies not participating in the voluntary long-term agreement are required via environmental permits to implement all energy efficiency measures with an internal rate of return of 15 per cent. During the review, additional information was provided to the ERT on the impact of the long-term agreement on energy efficiency, showing its efficacy.

4. Policies and measures in other sectors

58. Between 1990 and 2011, GHG emissions from industrial processes (including solvent and other product use), agriculture and waste decreased from 61.1 Mt CO_2 eq to 33.8 Mt CO_2 eq, which is a reduction of 45 per cent. This decrease was driven by emission reductions in industrial processes (−11.7 Mt CO_2 eq), agriculture (−6.5 Mt CO_2 eq) and waste (−8.9 Mt CO_2 eq).

59. ***Industrial processes***. Between 1990 and 2011, GHG emissions from the industrial processes sector decreased by 56 per cent, mainly owing to a reduction in N_2O emissions from nitric acid production as well as reduction in HFC and PFC emissions.

60. The most important PaM reducing emissions from industrial process is the ROB scheme. ROB is a cross-sectoral PaM that focuses on non-CO_2 GHG mitigation, and includes support for research and development, feasibility studies, demonstration projects and improving market competitiveness of new technologies. ROB promotes cooperation and technological innovation among national and local governments, private companies, research institutions and other stakeholders in different sectors such as agriculture, waste and industry. The Netherlands plans to reduce its emissions by 8–10 Mt CO_2 eq in 2020 with the use of ROB. Large reductions have been achieved in the industry, mostly in nitric acid production (N_2O emissions).

61. ***Agriculture***. The agricultural sector is very important for the Dutch economy, as it contributes a share of 10 per cent in the total GDP. Between 1990 and 2011, GHG emissions from the agricultural sector decreased by 29 per cent, mainly through the reduction in N_2O emissions from agricultural soils and, to a lesser extent, through the reduction in emissions from enteric fermentation and manure management.

62. The Netherlands plans to reduce non-CO_2 GHG emissions from the agricultural sector by 4–6 Mt CO_2 eq in 2020 compared with the 1990 level. This target is included in the clean and efficient agricultural sectors covenant, which stipulates that each sector will draw up an annual work plan to describe specific projects that will contribute to the

realization of the targets. These projects could be the development of best management practices for reducing N_2O emissions and the adjustment of cattle feed to reduce CH_4 emissions. The Netherlands reported that the limitations on dairy herds imposed by the European Union will expire in 2015, which could lead to an increase in the number of dairy herds and the emissions.

63. The key PaM to reduce energy-related GHG emissions in the agricultural sector is the clean and efficient agricultural sectors covenant. This covenant aims to reduce CO_2 emissions by 3.5–4.5 Mt CO_2 eq in 2020 compared with 1990. It also aims to increase energy production by renewable energy in agriculture to 200 PJ in 2020, via biomass, wind, solar and geothermal energy. With respect to the latter, the Netherlands provided an overview of specific policy instruments to promote geothermal energy during the review. The most important agricultural subsector with respect to GHG emissions is the horticultural sector. The Netherlands has an ambition to reduce GHG emissions in the horticultural sector by 48 per cent in 2020 compared with 2005 and improve energy efficiency by 2 per cent per year from 2011 to 2020.

64. ***LULUCF***. The LULUCF sector was a net source of 3.3 Mt CO_2 eq in the Netherlands in 2011 and net GHG emissions increased by 8.9 per cent since 1990. In the Netherlands, 10 per cent of the total surface area is covered by forests, of which almost all is managed in accordance with the principles of sustainable forest management. The Netherlands explained during the review that sustainable forest management is achieved through the Forest Act and the Flora and Fauna Act. Forest policy has been integrated into a nature conservation policy that has the central theme of developing a nature conservation network. The nature network included 560,000 ha of land by 2011, with the aim to convert an additional 80,000 ha into nature reserves by 2027, under the responsibility of the provinces.

65. ***Waste management***. Between 1990 and 2011, GHG emissions from the waste sector decreased by 71 per cent, mainly owing to a significant reduction in the amount of waste disposed on landfill sites as a result of the Government's policy on waste management. This policy focuses first on prevention, second on reuse and third on waste incineration with energy recovery and an introduction of relevant targets. Waste management is regulated by the Environmental Management Act, which stipulates that every six years, a waste management plan has to be issued. Landfilling decreased significantly in the Netherlands, and measures to reduce CH_4 emissions from landfill sites are in place.

5. Policies and measures related to implementation of commitments under the Kyoto Protocol

66. The Netherlands reported on its package of PaMs planned, adopted, and implemented in achieving its commitment under the Kyoto Protocol.

67. The NC6 includes information on how the Netherlands promotes and implements the International Civil Aviation Organization (ICAO)/International Maritime Organization decisions to limit emissions from aviation and marine bunker fuels. This includes initiatives to support innovative technology and the use of sustainable biofuels related to the Netherland's civil aviation policy. In the context of ICAO, the Netherlands is supporting the EU proposal to develop a global system for CO_2 reduction in the international aviation sector and is committed to ICAO environmental and sustainability goals for air traffic management. With regard to emissions from international maritime transport, the Netherlands concluded a voluntary agreement between different actors (e.g. ship owners and shipbuilding industries) to reduce GHG emissions.

68. The Netherlands provided mostly transparent information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize

adverse effects, including the adverse effects of climate change, effects on international trade, and social, environmental and economic impacts on other Parties, especially developing country Parties and, in particular, those identified in Article 4, paragraphs 8 and 9, of the Convention, taking into account Article 3 of the Convention. The information covered all required aspects, except the analysis of any impact on international trade. Information on the latter was provided during the review. The ERT recommends that the Netherlands provide information on any effect on international trade in its next NC. Further information on how the Netherlands gives priority to the actions taken in implementing its commitments under Article 3, paragraph 14, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, as reported in their annual submissions, is presented in chapter III.B below.

C. Projections and the total effect of policies and measures, including information on supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

69. Projections for 2020 and 2030 presented in the NC6 provided a plausible indication of future trends in GHG emissions in the Netherlands, based on current and expected future circumstances, considering current and planned PaMs. In general, the projections of the Netherlands showed a minimal increase in emissions by 2020 and a decrease thereafter by 2030 compared with 1990.

70. The NC5 described the projections made in 2007. These were updated during the NC5 review in 2010. In the NC6, these projections were subsequently updated in 2012 to reflect changes in policies, prices, other relevant developments and assumptions.

1. Projections overview, methodology and key assumptions

71. The GHG emission projections provided by the Netherlands in the NC6 include a 'with measures' and a 'with additional measures' scenario by 2030, presented relative to actual inventory data for the period 1990–2011. Projections are discussed on a sectoral basis, using the same sectoral categories as in the PaMs section and on a gas-by-gas basis for all the following GHGs: CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case). Projections are also provided in an aggregated format for each sector, as well as for a national total, using the global warming potential values from the Second Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and not included in the totals.

72. The following policy scenarios were included in the NC6:

(a) The 'current policies' scenario: This scenario only includes policies that had already been decided upon by February 2012. A major difference when compared with the 2010 projection from the NC5 is the change in the feed-in premium scheme for boosting the use of renewable energy from SDE to SDE+ in 2011. This scenario corresponds to the 'with measures' scenario required by the UNFCCC reporting guidelines on NCs;

(b) The 'current and planned policies' scenario: In addition to the policies included in the 'current policies' scenario, this scenario included policies that were being planned (also up to February 2012). This includes policies such as raising the maximum speed limit on motorways (which was implemented after February 2012), compulsory co-combustion of biomass, more stringent energy performance standards for residential buildings by 2015 and more stringent CO_2 emission standards for new cars and light-duty trucks by 2020. This scenario corresponds with the 'with additional measures' scenario as required by the UNFCCC reporting guidelines on NCs.

73. The methodology used to prepare the emission projections is complex and based on a combination of modelling energy demand and supply, as well as relevant activities. These are then multiplied by emission factors to prepare GHG emission projections. Input parameters include, for example, social developments, macroeconomic projections, economic growth, investments in energy technologies and efficiency improvements, transport and freight requirements, and the impact of adopted PaMs. The Netherlands modified its methodology for assessing macroeconomic and sectoral economic growth in the NC6 by replacing the Athena model, which determined this growth in 20 economic subsectors, with the DIMITRI model, which determines growth in 110 economic subsectors.

74. A detailed list of assumptions is attached to the NC6 report (annex chapter 5 of the NC6), and these assumptions are available for all key variables influencing projected emissions. For the latest projections, a number of changes to these assumptions were made in the NC6 compared with the NC5 to reflect recent developments in the Netherlands. For example, the NC6 projections are based on lower annual economic growth (2.1 per cent versus 2.9 per cent in NC5), lower population growth (0.3 per cent versus 0.6 per cent in NC5), higher coal prices (2.59 EUR per GJ versus 2.06 EUR per GJ in NC5), higher oil prices (12.49 EUR per GJ versus 8.55 EUR per GJ in NC5) and higher gas prices (7.09 EUR per GJ versus 6.44 EUR per GJ in NC5). Emissions projections in the NC6 for the 'with measures' scenario are 17 per cent lower than those in the NC5 by 2020 and for the 'with additional measures' scenario, 11 per cent lower by 2020.

75. The sensitivity of results was estimated using uncertainty propagationanalysis. Methods defined in the IPCC *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* were used to quantify the uncertainties of projections. For the 'with measures' scenario, the range of uncertainty by 2020 is from 191 Mt CO_2 eq to 224 Mt CO_2 eq, and for the 'with additional measures' scenario, the range of uncertainty is from 181 Mt CO_2 eq to 215 Mt CO_2 eq. For both scenarios, the range of uncertainty is the same, from −10 per cent to +6 per cent. However, the ERT noted that projections may also be influenced by the selection of basic assumptions (e.g. GDP growth, population growth, fuel prices, number of heating days). Testing the sensitivity of projected emissions by changing these assumptions could provide a better understanding of projected emissions.

2. Results of projections

76. The Kyoto Protocol target for the first commitment period for the Netherlands is a reduction in emissions of 6 per cent compared with the base-year level. This is translated to 1,001 Mt CO_2 eq emission reductions over the period 2008–2012 that is equivalent to the assigned amount for the Netherlands, or around 200.3 Mt CO_2 eq annually on average. According to the data provided by the Netherlands during the review, the Party is expected to meet this target by a combination of domestic efforts, accounting for activities under Article 3, paragraph 3, of the Kyoto Protocol, and the use of Kyoto Protocol mechanisms. The gap to reach the Kyoto Protocol target for the first commitment period is estimated to be 13.75 Mt CO_2 eq, and this gap will be closed by the use of carbon credits from the Kyoto Protocol market mechanisms. Detailed data are presented in table 5, which were provided during the review.

Table 5
Kyoto Protocol target and greenhouse gas emissions by the Netherlands in the first commitment period in million tonnes

Sector	*2008*	*2009*	*2010*	*2011*	*2012*	***Total***
Total emissions	205	199	211	198	202	**1015**
Emissions from the EU ETS sector	84	81	85	80	83	**413**
Emissions from the non-EU ETS sector	121	118	126	118	119	**602**
Gap to target	4.75	−1.25	10.75	−2.25	1.75	**13.75**

Note: The gap to the target is calculated as the difference between the annual emissions and the annual average target value.

Source: *Referentieraming energie en emissies: actualisatie 2012*, table B4.1.

Abbreviation: EU ETS = European Union Emissions Trading System.

77. For the second commitment period of the Kyoto Protocol, the Netherlands is committed to achieving a 20 per cent emission reduction target compared with the base year level jointly with the other EU member States. The European Union will achieve this target through two main overarching policies: the EU ETS and the ESD. At the time of the review, there was no national target for the Netherlands for the second commitment period under the Kyoto Protocol.

78. In meeting its Kyoto Protocol second commitment period target and the quantified economy-wide emission reduction target by 2020, the Netherlands aims to achieve emission reductions in both the EU ETS and non-EU ETS sectors. Because emissions from the EU ETS sector are regulated by EU legislation, there is no requirement to define a national target for EU ETS emissions. Within the context of the implementation of the ESD, each EU member State has an emission reduction target for emissions from the non-EU ETS sector (excluding emissions and removals from LULUCF). The Netherlands has a 2020 target of 16 per cent reduction in emissions from the non-EU ETS sectors compared with 2005.

79. On the gas-by-gas level, CO_2 emissions in 2010 (base year for projections) were 181 Mt CO_2 eq. According to projections by gas for the 'with measures' scenario, CO_2 emissions will increase to 186 Mt CO_2 eq in 2020 and decrease thereafter to 174 Mt CO_2 eq in 2030. According to the 'with additional measures' scenario, CO_2 emissions will decrease to 177 Mt CO_2 eq in 2020 and continue to decrease thereafter to 161 Mt CO_2 eq in 2030.

80. Projected non-CO_2 emissions show a small decrease in the future. While in 2010, the base year of the projection, the non-CO_2 emissions were 27.8 Mt CO_2 eq, these will decrease to 25.8 Mt CO_2 eq in 2020 and continue to decrease thereafter to 24.0 Mt CO_2 eq in 2030. This trend is similar for both the 'with measures' and 'with additional measures' scenarios. CH_4 emissions will decrease from 16.8 Mt CO_2 eq in 2010 to 14.0 Mt CO_2 eq in 2020 and continue to decrease thereafter to 12.3 Mt CO_2 eq in 2030. N_2O emissions will decrease from 9.4 Mt CO_2 eq in 2010 to 9.3 Mt CO_2 eq in 2020 and will remain at the same level in 2030. Emissions from F-gases will decrease from 2.7 Mt CO_2 eq in 2010 to 2.6 Mt CO_2 eq in 2020 and then to 2.5 Mt CO_2 eq in 2030.

81. On the sectoral level, according to the 'with measures' scenario, the energy sector emissions will increase from the current 100 Mt CO_2 eq in 2010 to 118 Mt CO_2 eq in 2020, and decrease thereafter to 109 Mt CO_2 eq in 2030. The 'with additional measures' scenario expects an increase in emissions from this sector to 111 Mt CO_2 eq by 2020, followed by a decrease to 101 Mt CO_2 eq by 2030. The projected trend between 2010 and 2020 is mainly

influenced by increased power production due to the commissioning of new coal and gas power plants. Between 2020 and 2030, the trend is influenced by an increased share of renewable energy in industries and a phasing out of older coal-fired power plants.

82. Projections for the building sector are based on expected savings in energy consumption. According to the 'with measures' scenario, emissions will decrease from 28.4 Mt CO_2 eq in 2010 to 25.9 Mt CO_2 eq in 2020, and will decrease even further after 2020. There is only a small difference between the 'with measures' and 'with additional measures' scenarios for the building sector implying that the effects from these additional measures are insignificant. By 2030, the difference is more significant, with a reduction of around 2 Mt CO_2 eq as a result of the implementation of additional measures. Projections for the transport sector under the 'with measures' scenario indicate that emissions will decrease from the current level of 37.5 Mt CO_2 eq in 2010 to 34.5 Mt CO_2 eq in 2020, and further to 30.8 Mt CO_2 eq in 2030. This decrease is mainly due to the effects of the EU CO_2 emission standards for new passenger cars and light-duty trucks and the increasing use of biofuel in the transport sector.

83. Projections for the agricultural sector were prepared separately for CO_2 and non-CO_2 gases. In total, emissions from this sector are expected to decrease to 22.9 Mt CO_2 eq in 2020 and then to 21.5 Mt CO_2 eq in 2030 under the 'with measures' scenario, mainly due to the increasing use of renewable energy and the improvement in energy efficiency.

84. The projected emission levels under different scenarios and information on the Kyoto Protocol targets and quantified economy-wide emission reduction target are presented in table 6 and the figure below. The Netherlands does not foresee a significant decrease of GHG emissions in the second commitment period, 2013–2020, with existing and planned PaMs. The projections show that the existing and additional PaMs will have more pronounced impact on GHG emissions between 2020 and 2030.

Table 6
Summary of greenhouse gas emission projections for the Netherlands

	Greenhouse gas emissions (Mt CO_2 eq per year)	*Changes in relation to the base-year level[a] (%)*	*Changes in relation to the 1990 level (%)*
Kyoto Protocol base year[b]	213.2	0.0	0.6
Kyoto Protocol target for the first commitment period (2008–2012)	200.3	−6.0	–5.5
Kyoto Protocol target for the second commitment period (2013–2020)[c]	Not available yet		
Quantified economy-wide emission reduction target[d]	Not available yet		
Inventory data 1990[e]	211.8	−0.6	0.0
Inventory data 2011[e]	194.4	−8.8	–8.2
Average annual emissions for 2008–2011[e]	201.2	−5.6	–5.0
'With measures' projections for 2020[f]	211.8	−0.6	0.1
'With additional measures' projections for 2020[f]	202.7	−4.9	–4.3
'With measures' projections for 2030[f]	197.7	–7.2	–6.6
'With additional measures' projections for 2030[f]	184.5	–13.4	–12.8

Note: Quantified economy-wide emission reduction target under the Convention is a joint target for the European Union and its 28 member States. Similarly, the Kyoto Protocol second commitment period target is also a joint target for the European Union.

[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] Based on the initial review report contained in document FCCC/IRR/2007/NLD.

[c] The Kyoto Protocol target for the second commitment period (2013–2020) is a joint target for the European Union and its 28 member States and Iceland. The target is to reduce emissions by 20 per cent by 2020 compared with the base year (1990) level. The target for sectors not covered by the European Union Emissions Trading System is 16 per cent for the Netherlands under the European Union effort-sharing decision.

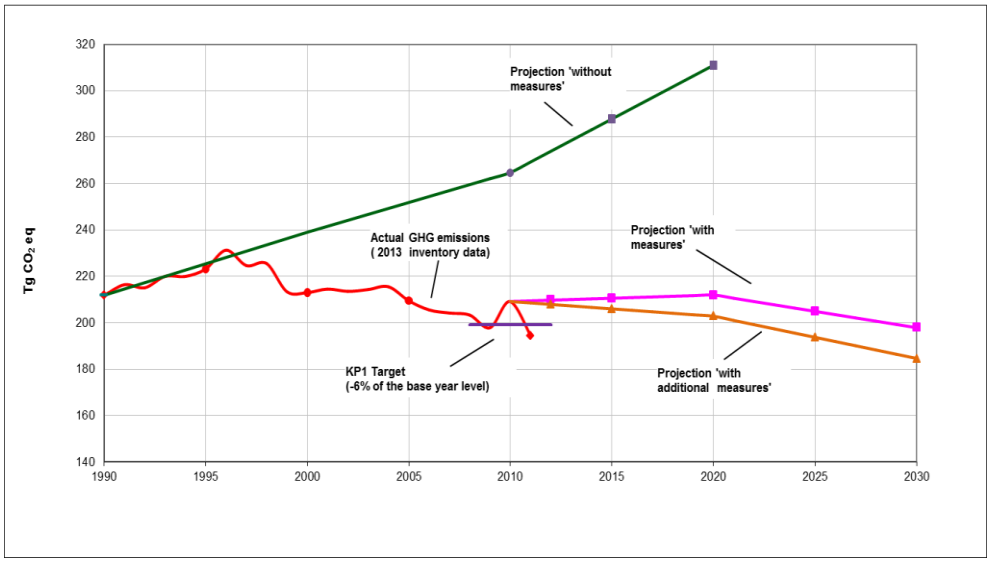
[d] Quantified economy-wide emission reduction target under the Convention is a joint target for the European Union and its 28 member States. The target is to reduce emissions by 20 per cent by 2020 compared with the base year (1990) level.

[e] The Netherlands' 2013 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry.

[f] The Netherlands' sixth national communication and/or first biennial report.

85. In the NC6, the Netherlands did not provide information on emission projections divided into EU ETS and non-EU ETS sectors. Upon the request of the ERT, the Netherlands provided this information during the review. The 16 per cent emission reduction target for the non-EU ETS sector translates into an emissions level of 104 Mt CO_2 eq by 2020. Projections for the non-EU ETS sector indicate that emissions from the non-EU ETS sector are expected to decrease to 99.4 Mt CO_2 eq by 2020. This indicates that the Netherlands is on track to meet its economy-wide emission reduction target by 2020. The ERT encourages the Netherlands to provide emissions projections in accordance with the division of the EU ETS and non-EU ETS sectors in its next NC submission, in order to facilitate the assessment of the progress of the Netherlands towards its target for the non-EU ETS sectors by 2020.

Greenhouse gas emission projections



Sources: (1) Data for the years 1990–2011: the Netherlands' 2013 greenhouse gas inventory submission; the emissions are without land use, land-use change and forestry; (2) Data for the years 2020 and 2030: the Netherlands' sixth national communication and/or first biennial report; the emissions are without land use, land-use change and forestry.

Abbreviations: GHG = greenhouse gas. KP1 = first commitment period of the Kyoto Protocol.

3. Total effect of policies and measures

86. In the NC6, the Netherlands presents the estimated and expected effects of implemented and adopted PaMs individually for each PaM or aggregated for a group of PaMs. However, the NC6 does not include information required by the UNFCCC reporting guidelines on NCs on the total effect of PaMs, presented in terms of GHG emissions avoided or sequestered, and the total effect of PaMs by gas. Upon the request of the ERT, the Netherlands provided additional information on the total effect of PaMs during the review. However, the information on the total effect of PaMs by gas was not provided. The ERT recommends that the Netherlands provide this information in the next NC submission.

87. The total effect of PaMs was estimated using information on the 'without measures' projection presented in its fourth national communication (NC4), as well as information provided in the NC6. In the NC4, 'without measures' projections on GHG emissions were made for the years 2000, 2010 and 2020, using 1990 as a base year. The ERT noted that by taking the difference between the 'without measures' scenario in the NC4 and the 'with measures' scenario in the NC6, the total effects thus derived are likely to include other effects than those just from PaMs, as the key assumptions may not be consistent between these scenarios.

88. As the above projection figure shows, the total effect of PaMs for 2000 was estimated by the Netherlands to be 26 Mt CO_2 eq. The total effect of PaMs for 2010 was estimated to be 52–59 Mt CO_2 eq, and the total effect of PaMs for 2020 was estimated to be 99 Mt CO_2 eq. The magnitude of the total effect of PaMs by 2020 represents a 47 per cent reduction in GHG emissions compared with the 1990 level. Based on the information provided in the PaMs section of the NC6 on the projected effects of planned and adopted measures by sectors, most reductions will occur in the energy and agriculture sectors by 2020.

4. Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17 of the Kyoto Protocol

89. The Netherlands in its NC6 provided information on how its use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action, although it did not elaborate on supplementarity as such. The ERT noted that the Netherlands plans to use the market-based mechanisms for emissions from both the EU ETS and the non-EU ETS sectors to meet its Kyoto Protocol target.

90. According to the NC6, the Kyoto Protocol target for 2008–2012 was translated into an assigned amount of 1,001 Mt CO_2 eq over these five years, or an average annual emissions target of 200.2 Mt CO_2 eq during this period of time. As shown in the projections figure above, the difference between projected emissions 'without PaMs' and the Kyoto Protocol target (average annual emissions for the period 2008–2012) is 64.3 Mt CO_2 eq for the year 2010. Based on preliminary emission statistics up to 2012, only 30 million credits were actually required for the entire period of 2008–2012 in the Netherlands. This implies that the majority of efforts in reducing emissions and meeting targets come from domestic actions. Therefore, the ERT noted that the use of market mechanisms under the Kyoto Protocol is supplemental to the domestic actions of the Netherlands in meeting its Kyoto Protocol target.

D. Provision of financial resources and technology transfer to developing country Parties, including information under Articles 10 and 11 of the Kyoto Protocol

1. Finance, including "new and additional" resources and resources under Article 11 of the Kyoto Protocol

91. In the NC6, the Netherlands provided information on the provision of support required under the Convention and its Kyoto Protocol. The Netherlands provided details on measures taken to give effect to its commitments under Article 4, paragraphs 3, 4 and 5, of the Convention as required by the UNFCCC reporting guidelines on NCs and under Article 11 of the Kyoto Protocol, as required by the "Guidelines for the preparation of information required under Article 7 of the Kyoto Protocol". The Netherlands has indicated what "new and additional" financial resources it has provided pursuant to Article 4, paragraph 3, and clarified how it has determined such resources as being "new and additional".

92. The Netherlands reported "new and additional" resources as all financial resources beyond its official development assistance (ODA) of 0.7 per cent of gross national income (GNI). The Netherlands determined these financial resources as "new and additional".

93. In 2010, ODA support for climate change and other environmental activities in developing countries was funded on top of the 0.7 per cent GNI commitment, raising the Netherland's ODA level to 0.8 per cent of GNI. In addition, in the context of the Copenhagen accord, the Netherlands provided EUR 300 million (an average of 0.7 per cent of its ODA) for fast-start finance in support of climate adaptation and mitigation in developing countries during the period 2010–2012. This was in addition to the 0.8 per cent budget for 2010. The overall ODA budget decreased to 0.75 per cent of GNI in 2011 and 0.7 per cent of GNI in 2012, including climate financing.

94. The Netherlands has also provided in its NC6 detailed information on the assistance it has made available 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. Furthermore, the Netherlands has provided information on other financial resources related to the implementation of the Convention provided through bilateral, regional and other multilateral channels. In particular, it provided financial resources related to the implementation of the Convention through bilateral, regional, multilateral other civil society channels, including the Global Environment Facility, the Least Developed Countries Fund, the World Bank, the REDD-plus mechanism,[7] etc., to support scientific, technological, training, mitigation and adaptation programmes.

95. With regard to the most recent financial contributions to enhance the implementation of the Convention by developing countries, the Netherlands has committed EUR 300 million as its contribution towards fast-start finance in 2010–2012 to support climate adaptation and mitigation in developing countries. This pledge was fulfilled at the end of 2012 and consists exclusively of mitigation and adaptation projects that have been allocated the Organisation for Economic Co-operation and Development Rio marker. Table 7 summarizes information on financial resources provided during the period 2009–2012.

[7] Policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries.

Table 7
Summary of information on financial resources for 2009–2012
(Thousands of United States dollars)

Allocation channel of public financial support	*Years of disbursement*			
	2009	*2010*	*2011*	*2012*
Official development assistance as a percentage of gross national income (%)	0.81	0.81	0.75	0.70
Contributions through multilateral channels, including:			1 551 256	1 519 909
Multilateral climate change funds			71 854	155 230
Multilateral financial institutions, including regional development banks			1 226 327	1 097 439
Specialized United Nations bodies			253 075	266 421
Contributions through bilateral and regional channels			212 605	246 737

96. To improve transparency, the ERT requested the Netherlands to provide information on the main criteria for choosing the country for development cooperation. The Netherlands, during the review week, provided information on an ongoing bilateral cooperation with 33 developing countries. The Netherlands also provided information in a tabular format (see table 8 below) indicating the main criteria used for establishing cooperation arrangements with developing countries. The ERT encourages the Netherlands to include such information in its next submission to improve transparency.

Table 8
Information for criteria used to establish cooperation arrangements with developing countries

Aid relations		
Accelerated achievement of millennium development goals	*Transitional relations/aid and trade*	*Trade relations*
Main criteria: Low-income countries Government structures offer enough potential to work with them Aid for poverty reduction and conflict resolution	Main criteria: Low- and middle-income countries Combine aid and trade Poverty reduction Increasing market access and improve business climate	Main criteria: Middle-income countries Promote trade and investment
Countries chosen: Afghanistan Burundi Mali State of Palestine Rwanda South Sudan Yemen	Countries chosen: Bangladesh Benin Ethiopia Ghana Indonesia Kenya Mozambique Uganda	Countries chosen: Brazil China Colombia India Iraq Mexico Nigeria South Africa Viet Nam

97. The Netherlands is guided by the provisions of the Cancun Agreements, which stated that adaptation should be addressed at the same level as mitigation, including the provision of financial support to developing countries. The Netherlands has a relatively high share of financial resources for adaptation compared with other Parties included in Annex I to the Convention (Annex I Parties). Nevertheless, the proportions of the financial resources provided to adaptation and mitigation (40 per cent versus 60 per cent) remains in favour of mitigation.

98. During the review week, the Netherlands explained to the ERT that its approach is to integrate adaptation as much as possible in the thematic programmes of international cooperation for water and food security. This is being monitored. The Netherlands has an internal working group on adaptation, in order to further promote adaptation in policies and programmes. This may lead to improving the balance in the allocation of funding for adaptation and mitigation. In addition, disaster risk reduction is an important part of the Netherlands' climate policy and attracts much attention in policies and programmes. The ERT encourages the Netherlands to include in its next submission more information on these plans that aim for a more balanced assignation of funding between adaptation and mitigation in the future.

2. Technology transfer, including information under Article 10 of the Kyoto Protocol

99. The Netherlands has provided in its NC6 comprehensive and well-organized information on activities related to the transfer of technology and notable activities by the public and private sectors. A detailed review of reported information is provided in chapter II.D.3 of the report of the technical review of the first biennial report.

100. The Netherlands has reported on the transfer of technology in the form of support programmes through the Netherlands' private sector to developing countries. The Netherlands' Private Sector Investment Programme is administered by RVO.nl and supports innovative investment projects in emerging markets in Africa, Asia, central and eastern Europe, and Latin America. The Netherlands' private sector is also involved in several public–private partnerships in the field of renewable energy, water, sustainable production and food security through a variety of instruments that promote investments in developing countries.

3. Information under Article 10 of the Kyoto Protocol

101. In its NC6, the Netherlands has provided information on the fulfilment of its commitments under Article 10 of the Kyoto Protocol. The Netherlands has supported capacity-building in the areas of mitigation, adaptation and technology. The Climate and Development Knowledge Network provides capacity-building support through research and technical assistance to 60 developing countries. In 2011, the Netherlands provided support to the Disaster Risk Reduction and Climate Change Adaptation Alliance, as well as support to five countries with similar deltas to those of the Netherlands in the Water Programme.

E. Vulnerability assessment, climate change impacts and adaptation measures

102. In its NC6, the Netherlands reported the required information on the expected impacts of climate change in the country and on adaptation plans and activities, including on actions taken to implement Article 4, paragraph 1(b) and (e), of the Convention with regard to adaptation. This comprehensive information reflects the continued, diverse and extensive work carried out in the Netherlands on these matters, reflecting the importance

that the Netherlands has given to vulnerability and adaptation (V&A) under its national circumstances.

103. The Netherlands addressed most of the encouragements of the previous ERT: methodologies and techniques to be applied to analyse V&A, the establishment of priorities and the mainstreaming of adaptation in national development. However, encouragement to report the progress of support programmes for developing countries was not addressed. The ERT found that multiple V&A support activities for developing countries, including those in Africa, were mentioned in the section on financial resources and technology transfer. In addition, during the review, the ERT was informed of other activities not reflected in the NC6.

104. The ERT encourages the Netherlands to include in its next NC more detailed information on the support that is provided to developing countries in their V&A activities. This information would be useful for many Parties and their V&A practitioners, taking into account the experience and extensive work of the Netherlands on these matters.

105. Table 9 summarizes the information on V&A to climate change presented in the NC6.

Table 9
Summary of information on vulnerability and adaptation to climate change

Vulnerable area	*Examples/comments/adaptation measures reported*
Agriculture and food security	*Vulnerability*: increasing risks for diseases and pests and an increase in weather extremes. In the coastal zones, the sector is vulnerable to salinization. The Netherlands is vulnerable to animal diseases because of high animal density, multiple transportations and existing multiple international contacts with other countries *Adaptation*: research still plays an important part in identifying opportunities and threats and in developing innovative strategies. Insurance schemes are offered, which are also new business opportunities for the insurance sector
Biodiversity and natural ecosystems	*Vulnerability*: changes already occur in nature, and some ecosystems, show irreversible effects as a result of the rise in temperature. The Netherlands' aquatic and wet terrestrial ecosystems are particularly sensitive to extremes in the weather *Adaptation*: creating larger connected areas, corridors and a sufficient variety of favourable environmental conditions. Increasing the adaptive capacity of nature calls for a transition from a focus on conservation to a more development-oriented policy and/or more dynamic target species policies. Climate buffers will contribute to the climate-proofing nature to a considerable extent, as they are able to grow with the pace of climate change
Coastal zones	*Vulnerability*: safety against flooding from the sea can be ensured with current, available methods, even in the worst-case scenario of a 1.5 m sea level rise per century. Flood defences that no longer comply with the current standards are in the process of being restored or reinforced *Adaptation*: the Netherlands continues the strategy of sand replenishment as a way of enabling the coastal foundation zone to grow concurrently with the rise in sea levels. In addition, innovative solutions are piloted to increase coastal safety by 'building with nature' or developing new multifunctional dyke concepts
Fisheries	*Vulnerability*: the temperature of North Sea water has risen by 0.5°C and the Wadden Sea by a whole degree, with cod and catfish moving away. In the absence of natural enemies, exotic species can be invasive

Vulnerable area	*Examples/comments/adaptation measures reported*
	and thus cause ecological and economic damage. Dutch coastal waters may temporarily become less saline when more freshwater is pushed out due to higher river discharges. Few marine organisms can withstand these sudden fluctuations in salinity *Adaptation*: innovation in the fisheries sector (sustainable fishing). Actions are aligned with European policy development, including the implementation of the water framework directive, the marine strategy framework directive and the common fisheries policy
Human health	*Vulnerability*: the Netherlands is vulnerable to flooding, with the probability of large numbers of affected people in a single flood episode. Owing to large population densities and mobility, the population in urban areas, in particular, is vulnerable to allergies, summer smog, transmittance of infectious diseases, heat stresses, and water- and food-borne diseases. Health effects still seem to be limited, but it is uncertain how this could develop in a worst-case scenario *Adaptation*: developing schemes for contingency and evacuation plans. National heat plan. Climate proofing of the urban areas. Building codes and urban adaptation
Infrastructure and economy	*Vulnerability*: the economic costs of storms and flood damage can be very high in the Netherlands. Low river discharges are projected to become a limiting factor in water transport and electricity production. Urban areas (flooding, heat stress) and transport and energy networks are vulnerable to the disruptive effects of weather extremes *Adaptation*: the focus is primarily on prevention: water safety, climate-proof designing, building and maintenance. Since 2012, insurance against calamities is being offered for homeowners. This is not widely used because of high premiums in flood-prone areas. Flood damage on a larger scale can partly be compensated for by the Injury Allowance Act
Water resources	*Vulnerability*: water intake, and with it, the country's freshwater supply, come under pressure with the rising sea level and saltwater penetration further inland via rivers and groundwater. The adaptive capacity of the freshwater supply is limited in its current setting. Precipitation deficits can cause considerable problems as early as 2050. Dry summers, like that of 2003, will occur more frequently, leading to damage to agriculture and shipping *Adaptation*: building retention areas; services; adapting to salinization, self-sufficiency in water supply and water regulation. A comprehensive set of strategic adaptation decisions is being prepared in the Delta Programme

106. The NC6 focuses on both vulnerability and adaptation. The climate in the Netherlands is expected to undergo significant changes over the coming decades. The most pressing consequences are warmer and wetter winters, drier and hotter summers, more extreme river discharges, changes in biodiversity and a rising sea level. At the same time, the Netherlands is located on a subsiding terrain. These conditions in a country such as the Netherlands – dominated by the sea and situated in a low-lying delta area with four large rivers and with a high population density – give rise to concerns over climate change impacts that require risk assessments and decisions on timely and smart adaptation.

107. In 2010, the Government reformulated priorities for climate change adaptation in the Netherlands. Water management was the first priority to be reassessed in the light of long-term sustainable development and climate change. An integral policy programme (Delta Programme) was initiated with an objective to protect the Netherlands from (coastal and

river) flooding, to establish climate-resilient urban areas and to ensure adequate supplies of freshwater for present and future generations.

108. In 2012, a report by the Dutch Court of Audit concluded that not all possible climate risks were covered. Around the same time, the European Commission developed its climate adaptation strategy, which advocated the drafting of national adaptation strategies by all European Union member States, among other things. These notions, combined with the urge to reformulate climate mitigation policy, resulted in the decision to draw up a comprehensive integral climate change policy agenda. The debate on this agenda by the Parliament in 2013 led to the launch of a plan to formulate a comprehensive national adaptation strategy, to be presented in Parliament by 2016 at the latest. It will go beyond the water-related approach of the Delta Programme.

109. Vulnerability assessments are generally realized through multiple European research projects and national studies. The most important and recent national efforts include the Delta Programme 2014 and the Netherlands Environmental Assessment Agency advice on vulnerability. So far, the assessments have largely focused on water, agriculture and – to a lesser extent – urban planning and nature conservation. However, recent studies called for a more comprehensive vulnerability assessment of energy, infrastructure and transport, information and communications technology, health, and nature. These studies have been commissioned; the results will feed into the update of the national adaptation strategy to be issued in 2016 at the latest.

110. In addition to the cooperative actions on national and regional levels, the Netherlands actively cooperates with developing countries in low-lying delta areas that also face a challenging climate adaptation so that they can learn from each other, protect themselves against floods and ensure sufficient amounts of clean water. In doing so, the Netherlands will be entering into long-term cooperation agreements. Examples of this cooperation that are included in the V&A section of the NC6 are the Jakarta coastal development strategy and Mekong Delta plan. In the section on financial resources and technology transfer of the NC6, it is also mentioned that the Netherlands supports 76 adaptation projects in developing countries of Africa, Asia, Latin America and the Caribbean. This cooperation is focused on water, agriculture, forestry and the environment.

F. Research and systematic observation

111. The Netherlands has provided information on its actions relating to research and systematic observation, and addressed both domestic and international activities, including the World Climate Programme, the International Geosphere–Biosphere Programme, the Global Climate Observing System (GCOS) and the IPCC. Furthermore, the Netherlands provided a summary of information on GCOS activities.

112. However, the Netherlands did not provide, in its NC6, the following reporting elements required by the UNFCCC reporting guidelines on NCs: action taken to support related capacity-building and the establishment and maintenance of observing systems, and related data and monitoring systems in developing countries, although the Netherlands did provide detailed information on this support during the review. The Netherlands also omitted reporting information on socioeconomic analysis, including analysis of both the impacts of climate change and response options, but it did provide relevant information during the review.

113. The ERT recommends that the Netherlands, in its next NC submission, report information provided to the ERT during the review on support for developing countries to establish and maintain observing systems and related data and monitoring systems and on actions taken to support capacity-building activities in developing countries. The ERT also

encourages the Netherlands, in its next NC submission, to report the information provided to the ERT during the review on socioeconomic analysis, including both the impacts of the climate change and of the response options.

114. The Netherlands actively participates in the various fields of climate-related monitoring, both nationally and within European and global programmes, including, for example, atmospheric climate observation systems, ocean climate observation systems and terrestrial climate observation systems. Systematic observations of many climate parameters are carried out in a network of over 40 observation stations spread out over the Netherlands and its continental shelf. These observations are enhanced by special observational programmes carried out at the Cabauw Experimental Site for Atmospheric Research (CESAR) Observatory, which is one of the selected stations for the GCOS Reference Upper-Air Network (GRUAN). Three universities and five major research institutes collaborate with CESAR.

115. Monitoring activities on systematic observation and GCOS in the Netherlands are firmly embedded at the European level and in international programmes such as the Global Earth Observation System of Systems, at the global level. An integrated national programme for implementing the contribution of the Netherlands to GCOS has not yet been established. However, steps are being taken to develop and implement such a strategy. During the review, the ERT was informed that due to budget constraints, some research and systematic observation activities will be limited. The ERT notes that the possible closure of CESAR could affect important activities of the global climate observing activities at the international and European levels, as this centre provides information to GRUAN and GCOS at the international level and to ACTRIS (aerosols, clouds, and trace gases research infrastructure network) and IS (CO_2) (integrated carbon observation system) at the European level.

116. The national research activities in the Netherlands are clustered into research programmes through the Netherlands Organisation for Scientific Research (NWO), research programmes for national adaptation/mitigation and programmes supported by various ministries. These include the national research programmes on water and climate, and the sustainable earth themes of NWO, national research programmes on climate issues, such as ‘knowledge for climate’ and the Delta Programme. There are more specific research and development programmes of various ministries. An example is Energy Transition, an interdepartmental programme of four ministries (Economic Affairs, Infrastructure and the Environment, Foreign Affairs, and Finance), which aims at achieving a sustainable energy economy.

G. Education, training and public awareness

117. In the NC6, the Netherlands has provided information on its actions relating to education, training and public awareness. The Ministry of Infrastructure and the Environment and the other ministries involved in climate policy regularly organize public information campaigns on climate change. The Local Climate Agenda is a joint initiative bringing together representatives of local authorities and central government. Over 135 local and regional governments have signed up to the agenda. Local authorities that join the Local Climate Agenda obtain access to the network and its knowledge infrastructure while committing to promoting sustainable initiatives as well as to inspiring and connecting societal actors.

118. Within the Netherlands, surveys are frequently carried out by the Ministry of Infrastructure and the Environment and many other bodies on the awareness, knowledge, attitude and behaviour (practice) of the general public. Most of these surveys show a

significant awareness on climate change by the Dutch population, as presented to the ERT during the review. In this regard, the ERT encouraged the Netherlands to include the results of relevant surveys in its next NC. The ERT also encourages the Netherlands to provide specific information on the support provided for the implementation of Article 6 of the Convention in its next NC.

119. Non-governmental organizations (NGOs) also play an important role in education, training and public awareness. An example is HIER, an initiative of 30 organizations (mostly NGOs such as the Red Cross, the United Nations Children's Fund, Milieu Centraal). In different campaigns, HIER organizations work together to counter the negative effects of climate change through activities such as coordinated consumer campaigns, raising awareness, joint communication efforts and political lobbying. Other organizations focused communications towards the general public on various water projects in relation to climate change, and the Netherlands' population has become more aware of the risks of coastal and river flooding.

120. Education and training are aspects of the work carried out by the organizations NL Agency and Milieu Centraal. Sustainable development and sustainable energy are leading topics. The target group includes both youth and adults. Various universities and institutes in the Netherlands offer training and other professional education programmes to domestic and foreign students, as well as professionals, in the areas of climate change, mitigation and adaptation.

III. Summary of reviewed supplementary information under the Kyoto Protocol

A. Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

121. The Netherlands has provided the supplementary information under Article 7, paragraph 2, of the Kyoto Protocol in its NC6. The supplementary information is located in different sections of the NC6. Table 10 provides an overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol, as well as references to the NC6 sections in which this information is provided.

Table 10
Overview of supplementary information under Article 7, paragraph 2, of the Kyoto Protocol

Supplementary information	*Reference to the sixth national communication*
National registry	Section 3.4
National system	Section 3.3
Supplementarity relating to the mechanisms pursuant to Articles 6, 12 and 17	Section 5.4
Policies and measures in accordance with Article 2	Section 4.5
Domestic and regional programmes and/or legislative arrangements and enforcement and administrative procedures	Section 4.3
Information under Article 10	Section 7.5
Financial resources	Section 7

B. Minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol

122. The Netherlands reported the information requested in section H, "Minimization of adverse impacts in accordance with Article 3, paragraph 14", of the annex to decision 15/CMP.1 as a part of its 2013 annual submission. Information provided in the annual submissions, in particular in 2010 and 2011, has addressed how priority is given to the actions taken to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol in such a way as to minimize adverse social, environmental and economic impacts on developing country Parties, particularly those identified in Article 4, paragraphs 8 and 9, of the Convention. The Netherlands has not reported any changes that might have occurred since then. During the in-country review, the Netherlands provided the ERT with the additional information on how it strives to implement its commitments under Article 3, paragraph 14, of the Kyoto Protocol, in particular on the actions identified in decision 15/CMP.1, paragraph 24. The ERT commends the Netherlands for the additional information provided and encourages the Netherlands include this information in its next submission to improve transparency.

123. The 2013 and previous national inventory reports and the additional information provided during the review presented several initiatives of the Netherlands aimed at minimizing adverse impacts, including: use of biofuels to increase the production of raw materials in developing countries, while the introduction of sustainability criteria should minimize negative impacts on the local environment, food supply and forest management; giving priority to the cooperation with developing countries on climate change mitigation to a large extent on alternative energy technologies (e.g. cookstoves, biogas, etc.) and renewable energy sources (e.g. solar energy, wind energy, geothermic energy); and cooperation with developing countries on improving energy efficiency in downstream activities related to fossil fuels and in improving the environmental efficiency of these activities, in particular, in gas production.

IV. Conclusions and recommendations

124. The ERT having conducted a technical review of the information reported in the NC6 of the Netherlands noted that this information was provided according to the UNFCCC reporting guidelines on NCs. The ERT concludes that the NC6 provides a good

overview of the national climate policy of the Netherlands. The information provided in the NC6 includes all elements of the supplementary information under Article 7 of the Kyoto Protocol. During the review, the Netherlands provided additional information on: the total effect of PaMs, how the Netherlands determined "new and additional" resources, support for developing countries to establish and maintain observing systems and related data and monitoring system, and actions taken to support capacity-building activities in developing countries.

125. The Netherlands' emissions for 2011 were estimated to be 8.2 per cent below its 1990 level excluding LULUCF and 8.0 per cent below including LULUCF. Emission decreases were driven by implemented PaMs targeting non-CO_2 GHG gases. These factors outweighed the increase in CO_2 emissions from the energy sector driven by economic and population growth.

126. In the NC6, the Netherlands presents GHG projections for the years 2020 and 2030. Two scenarios are included: 'with measures' and 'with additional measures'. Based on a comparison of the target and the average annual emissions for the first commitment period (2008–2012), the Netherlands is on track to meet its Kyoto Protocol target for the first commitment period (which is a 6 per cent emission reduction compared with the base-year level).

127. The Netherlands participates in and contributes to the European Union target of 20 per cent emissions reduction in 2020 under the Convention and the Kyoto Protocol second commitment period. The EU ETS sector has a European Union wide emission cap and can purchase emission credits to offset the GHG emissions. For the non-EU ETS sector (excluding LULUCF), projections indicate that the Netherlands will most likely be able to achieve its 2020 target for this sector of 16 per cent emission reductions by 2020 compared with the 2005 level.

128. The NC6 contains information on how the Netherlands' use of the mechanisms under Articles 6, 12 and 17 of the Kyoto Protocol is supplemental to domestic action for the first commitment period. The Netherlands plans to make use of the Kyoto Protocol mechanisms to meet its Kyoto Protocol target for the first commitment period and has already engaged in a number of CDM and JI projects. Because the domestic policy effects led to an annual average emission reduction of 64.3 Mt CO_2 eq during the first commitment period, only 30 million credits were actually required in the Netherlands to comply with its target for this period. This implies that the majority of efforts to reduce emissions and meeting targets come from domestic actions.

129. The Netherlands has implemented PaMs that address all relevant sectors and GHGs. The PaMs with the most significant mitigation impact are the EU ETS (industry and energy supply), the long-term voluntary agreements on energy efficiency with EU ETS and non-EU ETS industries (industry), N_2O emission reductions by nitric acid producers (industry), SDE+ for promotion of renewable energy (energy supply), landfill policy (waste management), promotion of biofuels (transport) and the Koepelconvenant (residential and commercial buildings). The key policy framework of the NC5 has been discontinued, but most of the policy instruments are still in place. Voluntary agreements or covenants are important policy instruments that have been used in, for example, the industry sector (both EU ETS and non-EU ETS industries), the residential and commercial sectors and the agriculture sector.

130. The information reported in the NC6 covers all issues on financial resources and technology transfer that are required under the Convention and its Kyoto Protocol. The Netherlands reported "new and additional" financial resources as all those beyond its ODA of 0.7 per cent of GNI. It has provided a relatively high share of financial resources for adaptation (versus mitigation) compared with other Annex I Parties. The Netherlands also

reported on the transfer of technology in the form of support programmes to the private sector.

131. The Netherlands has provided comprehensive information on the continuous, diverse and extensive work on both vulnerability and adaptation, in particular, on water-related issues and coastal zone management, which are given a high priority. The Netherlands is in the process of formulating a new national adaptation strategy for 2016 that will go beyond the focus of water-related issues.

132. The Netherlands has reported complete, transparent and detailed information on its multiple activities on education, training and public awareness, with a focus on efficient energy use and water management. With participation of a broad range of governmental institutions and NGOs, this work has led to a high level of public awareness on climate change matters. The Netherlands has also carried out several national plans and programmes to support climate observing systems, including ocean and terrestrial observing systems at the national, regional and global levels. These plans and programmes also support extensive research activities on climate process and climate system studies, modelling and prediction, and impacts of climate change adaptation and mitigation.

133. Supplementary information under Article 7, paragraph 1, of the Kyoto Protocol on the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol provided by the Netherlands in its annual submissions from 2010 to 2013 is broadly transparent. The ERT received more complete and transparent information during the review on how the Netherlands gives priority to implement commitments under Article 3, paragraph 14 of the Kyoto Protocol.

134. In the course of the review, the ERT formulated several recommendations relating to the completeness and transparency of the Netherlands' reporting under the Convention and its Kyoto Protocol. The key recommendations[8] are that the Netherlands:

(a) Improve the completeness of reporting by including in the next NC the following information:

(i) How the Netherlands strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse impacts, in particular on any effect on international trade;

(ii) Estimation of the total effect of its PaMs, in accordance with the 'with measures' definition, compared with a situation without such PaMs;

(iii) Actions taken to support capacity-building activities in developing countries on research and systematic observation;

(b) Improve the transparency of reporting by including in the next NC the following information:

(i) The national circumstances of the sectors for transportation and industry;

(ii) The implementation status and implementing entities of each PaM in a consistent manner, including in table 4.6 of the NC6.

V. Questions of implementation

135. During the review, the ERT assessed the NC6, including supplementary information provided under Article 7, paragraph 2, of the Kyoto Protocol and reviewed information on

[8] The recommendations are given in full in the relevant sections of this report.

the minimization of adverse impacts in accordance with Article 3, paragraph 14, of the Kyoto Protocol, with regard to timeliness, completeness, transparency and adherence to the UNFCCC reporting guidelines on NCs. No question of implementation was raised by the ERT during the review.

Annex

Documents and information used during the review

A. Reference documents

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

"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol". Decision 15/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>.

"Guidelines for review under Article 8 of the Kyoto Protocol". Decision 22/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=51>.

"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 23/CP.19. Available at <http://unfccc.int/files/meetings/warsaw_nov_2013/decisions/application/pdf/cop19_review_crf.pdf>.

FCCC/SBI/2011/INF.1. Compilation and synthesis of fifth national communications. Executive summary. Note by the secretariat. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01.pdf>.

FCCC/SBI/2011/INF.1/Add.1. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Policies, measures, and past and projected future greenhouse gas emission trends of Parties included in Annex I to the Convention. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01a01.pdf>.

FCCC/SBI/2011/INF.1/Add.2. Compilation and synthesis of fifth national communications. Note by the secretariat. Addendum. Financial resources, technology transfer, vulnerability, adaptation and other issues relating to the implementation of the Convention by Parties included in Annex I to the Convention. Available at <http://unfccc.int/resource/docs/2011/sbi/eng/inf01a02.pdf>.

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FCCC/ARR/2013/NLD. Report of the individual review of the annual submission of the Netherlands submitted in 2013. Available at <http://unfccc.int/resource/docs/2014/arr/nld.pdf>.

FCCC/IRR/2007/NLD. Report of the review of the initial report of the Netherlands Available at <http://unfccc.int/resource/docs/2007/irr/nld.pdf>.

FCCC/IDR.5/NLD. Report of the in-depth review of the fifth national communication of the Netherlands. Available at <http://unfccc.int/resource/docs/2011/idr/nld05.pdf>.

Sixth national communication of the Netherlands. Available at <http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/the_netherlands_nc6[1].pdf>.

2013 GHG inventory submission of the Netherlands. Available at <http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/7383.php>.

B. Additional information provided by the Party

Responses to questions during the review were received from Mr. Harry Vreuls (RVO.nl), including additional material on updated policies and measures, greenhouse gas projections, the national registry and recent climate policy developments in the Netherlands. The following documents[1] were also provided by the Netherlands:

Annual reports on Convenant with social housing organisations and the Convenant More with Less for existing buildings. Available at: <http://www.rvo.nl/sites/default/files/2013/12/Monitor%20energiebesparing%20gebouwde%20omgeving%20(2013).pdf>.

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