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Summary report on the technical analysis of the first biennial update report of South Africa submitted on 17 December 2014

In accordance with decision 2/CP.17, paragraph 41(a), Parties not included in Annex I to the Convention (non-Annex I Parties), consistent with their capabilities and the level of support provided for reporting, should submit their first biennial update report (BUR) by December 2014. The least developed country Parties and small island developing States may submit BURs at their discretion.

Further, in accordance with paragraph 58(a) of the same decision, the first round of international consultation and analysis (ICA) will be conducted for non-Annex I Parties, commencing within six months of the submission of their first BURs. The process of ICA includes two steps: the technical analysis of the submitted BURs, followed by a workshop on the facilitative sharing of views under the Subsidiary Body for Implementation.

This summary report presents the results of the technical analysis of the first BUR of South Africa undertaken by a team of technical experts in accordance with the modalities and procedures contained in the annex to decision 20/CP.19.

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Contents

	<i>Paragraphs</i>	<i>Page</i>
I. Introduction and process overview	1–6	3
A. Introduction	1–2	3
B. Process overview	3–6	3
II. Technical analysis of information reported in the biennial update report	7–91	4
A. Scope of the technical analysis	7–8	4
B. Overview of the elements of information reported	9–17	4
C. Technical analysis of the information reported.....	18–90	11
D. Identification of capacity-building needs.....	91	22
III. Conclusions	92–93	23
Annex		
Documents and information used during the technical analysis		25

I. Introduction and process overview

A. Introduction

1. In accordance with decision 2/CP.17, paragraph 41(a), Parties not included in Annex I to the Convention (non-Annex I Parties), consistent with their capabilities and the level of support provided for reporting, should submit their first biennial update report (BUR) by December 2014. The least developed country Parties and small island developing States may submit BURs at their discretion. Further, in accordance with paragraph 58(a) of the same decision, the first round of international consultation and analysis (ICA) will be conducted for non-Annex I Parties, commencing within six months of the submission of their first BURs. The process of ICA includes two steps: the technical analysis of the submitted BURs, resulting in a summary report for each BUR analysed, followed by a workshop on the facilitative sharing of views under the Subsidiary Body for Implementation.

2. This summary report presents the results of the technical analysis of the first BUR of South Africa undertaken by a team of technical experts (TTE) in accordance with the provisions on the composition, modalities and procedures of the TTE under ICA contained in the annex to decision 20/CP.19.

B. Process overview

3. South Africa submitted its first BUR on 17 December 2014.

4. The technical analysis of the BUR took place from 18 to 22 May 2015 in Bonn, Germany, and was undertaken by the following TTE, drawn from the UNFCCC roster of experts on the basis of the criteria defined in decision 20/CP.19, annex, paragraphs 2–6: Mr. Amnat Chidthaisong (Thailand), Ms. Ana-Maria Danila (Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention member from the European Commission), Ms. Lilian Portillo (Paraguay), Mr. Kiyoto Tanabe (Japan), Mr. Samir Tantawi (Egypt) and Ms. Songli Zhu (China). Ms. Danila and Ms. Zhu were the co-leads. Ms. Ruta Bubniene, Mr. Davor Vesligaj and Ms. Marion Vieweg-Mersmann (secretariat) provided administrative support to the TTE.

5. During the technical analysis, the TTE and South Africa also engaged in discussion via e-mail, primarily to reach a common understanding on the identification of the capacity-building needs. Following the technical analysis of the BUR, the TTE prepared and shared a draft summary report with South Africa on 28 July 2015 for its review and comments. South Africa, in turn, provided its feedback on the draft summary report on 20 September 2015.

6. The TTE responded to and incorporated the comments referred to in paragraph 5 above from South Africa and finalized, in consultation with South Africa, the summary report on 5 November 2015.

II. Technical analysis of information reported in the biennial update report

A. Scope of the technical analysis

7. The scope of the technical analysis is outlined in decision 20/CP.19, annex, paragraph 15, according to which the technical analysis aims to, without engaging in a discussion on the appropriateness of these actions, increase transparency of mitigation actions and their effects, and shall entail the following:

(a) Identification of the extent to which the elements of information listed in the ICA guidelines contained in decision 2/CP.17, annex IV, paragraph 3(a), are included in the BUR of the Party concerned (see chapter II.B);

(b) A technical analysis of the information contained in the BUR, specified in the “UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention” (hereinafter referred to as the UNFCCC reporting guidelines on BURs) contained in annex III to decision 2/CP.17, and any additional technical information provided by the Party concerned (see chapter II.C);

(c) Identification of, in consultation with the Party concerned, capacity-building needs related to the facilitation of reporting in accordance with annex III to decision 2/CP.17 and to the participation in ICA in accordance with annex IV to decision 2/CP.17, taking into account Article 4, paragraph 3, of the Convention (see chapter II.D).

8. The remainder of this chapter presents the results of each of the three parts of the technical analysis of South Africa’s BUR outlined in paragraph 7 above.

B. Overview of the elements of information reported

9. The elements of information referred to in paragraph 7(a) above include: the national greenhouse gas (GHG) inventory report; mitigation actions, including a description of such actions, an analysis of their impacts and the associated methodologies and assumptions, and the progress made in their implementation; information on domestic measurement, reporting and verification (MRV); and support received.

10. Further, in accordance with decision 20/CP.19, annex, paragraph 15(a), in undertaking the technical analysis of the submitted BUR, the TTE shall identify the extent to which the elements of information listed in the guidelines contained in decision 2/CP.17, annex IV, paragraph 3(a), are included in the BUR of the Party concerned. The results of this analysis are presented in tables 1, 2 and 3 below.

1. National greenhouse gas inventory

11. The parts of the UNFCCC reporting guidelines on BURs on reporting information on GHG emissions by sources and removals by sinks in BURs are contained in decision 2/CP.17, paragraph 41(g), and annex III, paragraphs 3–10, of the same decision. Further, as per decision 2/CP.17, annex III, paragraph 3, non-Annex I Parties should submit updates of national GHG inventories according to paragraphs 8–24 of the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention” (hereinafter referred to as the UNFCCC guidelines for the preparation of national communications from non-Annex I Parties) as contained in the annex to decision 17/CP.8. The scope of the updates on national GHG inventories should be consistent with

capacities, time constraints, data availabilities and the level of support provided by developed countries Parties for biennial update reporting.

12. Table 1 below presents results of the identification of the extent to which the elements of information on GHGs are included in the first BUR of South Africa in accordance with the relevant parts of the UNFCCC reporting guidelines on BURs.

Table 1

Identification of the extent to which the elements of information on greenhouse gases are included in the first biennial update report of South Africa

<i>Decision</i>	<i>Reporting requirements</i>	<i>Yes/ Partly/No</i>	<i>Comments on the extent of the information provided</i>
Decision 2/CP.17, paragraph 41(g)	The first BUR shall cover, at a minimum, the inventory for the calendar year no more than four years prior to the date of the submission, or more recent years if information is available	Yes	The date of submission was 17 December 2014 The inventory for 2010 was covered
Decision 2/CP.17, annex III, paragraph 5	The updates of the sections on the national inventories of anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol should contain updated data on activity levels based on the best information available using the Revised 1996 IPCC Guidelines for National GHG Inventories, the IPCC good practice guidance and Uncertainty Management in National GHG Inventories, and the IPCC good practice guidance for LULUCF; any change to the emission factor may be made in the subsequent full national communication	Partly	Updated data on activity levels were explicitly provided in the NIR for some categories (e.g. category 3.B, Land), but not for some other categories. For example, for category 1A1a, total energy consumption in units of terajoules was provided in the NIR, but disaggregated consumptions of sub-bituminous coal, other kerosene and gas/diesel oil were not GHG emissions for 2000 were estimated based on the best information available using the 2006 IPCC Guidelines, complemented by the IPCC good practice guidance
Decision 2/CP.17, annex III, paragraph 9	The inventory section of the BUR should consist of an NIR as a summary or as an update of the information contained in decision 17/CP.8, annex, chapter III (National greenhouse gas inventories), including: <ul style="list-style-type: none"> • Table 1 (National greenhouse gas inventory of anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol and greenhouse gas precursors) • Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF₆) 	Yes NA NA	The NIR was provided Table 1 was not included. However, tables based on the 2006 IPCC Guidelines were provided, which gave an overview of the national GHG inventory Table 2 was not included. However, tables based on the 2006 IPCC Guidelines were provided, which gave an overview of the national GHG inventory
Decision	Non-Annex I Parties are encouraged to include, as		The 2006 IPCC Guidelines

<i>Decision</i>	<i>Reporting requirements</i>	<i>Yes/ Partly/No</i>	<i>Comments on the extent of the information provided</i>
2/CP.17, annex III, paragraph 6	appropriate and to the extent that capacities permit, in the inventory section of the BUR:		were used, complemented by the IPCC good practice guidance Detailed information and data on each sector were provided in the NIR
	<ul style="list-style-type: none"> Tables included in annex 3A.2 to chapter 3 of the IPCC good practice guidance for LULUCF 	NA	The tables in annex 3A.2 to the IPCC good practice guidance for LULUCF were not included because South Africa used the 2006 IPCC Guidelines and did not use the IPCC good practice guidance for LULUCF
	<ul style="list-style-type: none"> The sectoral report tables annexed to the Revised 1996 IPCC Guidelines 	NA	The tables were not included because South Africa used the 2006 IPCC Guidelines
Decision 2/CP.17, annex III, paragraph 7	Each non-Annex I Party is encouraged to provide a consistent time series back to the years reported in the previous national communications	Partly	A time-series inventory for 2000–2010 was provided. The GHG emissions for 2000, reported in the second national communication, were recalculated and included. The inventory for 1994 was reported in the initial national communication, but was not included in the first BUR
Decision 2/CP.17, annex III, paragraph 8	Non-Annex I Parties that have previously reported on their national GHG inventories contained in their national communications are encouraged to submit summary information tables of inventories for previous submission years (e.g. for 1994 and 2000)	No	The inventory for 1994, which is the inventory year in the initial national communication, was not included
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex	Yes	Supporting information, including sector-specific information, was included in the NIR
Decision 17/CP.8, annex, paragraph 13	Non-Annex I Parties are encouraged to describe procedures and arrangements undertaken to collect and archive data for the preparation of national GHG inventories, as well as efforts to make this a continuous process, including information on the role of the institutions involved	Yes	This was explained in sections 1.2.2 and 1.3 of the NIR
Decision 17/CP.8, annex, paragraph 14	Each non-Annex I Party shall, as appropriate and to the extent possible, provide in its national inventory, on a gas-by-gas basis and in units of mass, estimates of anthropogenic emissions of the following gases by sources and removals by sinks:	Partly	CH ₄ and N ₂ O emissions were reported in units of CO ₂ eq, not in units of mass
	<ul style="list-style-type: none"> CO₂ 	Yes	
	<ul style="list-style-type: none"> CH₄ 	No	CH ₄ emissions were reported in units of CO ₂ eq, not in

<i>Decision</i>	<i>Reporting requirements</i>	<i>Yes/ Partly/No</i>	<i>Comments on the extent of the information provided</i>
	<ul style="list-style-type: none"> N₂O 	No	units of mass N ₂ O emissions were reported in units of CO ₂ eq, not in units of mass
Decision 17/CP.8, annex, paragraph 15	Non-Annex I Parties are encouraged, as appropriate, to provide information on anthropogenic emissions by sources of HFCs, PFCs and SF ₆	Partly	SF ₆ emissions were not included. HFC emissions were reported for 2005–2010
Decision 17/CP.8, annex, paragraph 19	Non-Annex I Parties should, to the extent possible, and if disaggregated data are available, report emissions from international aviation and marine bunker fuels separately in their inventories: <ul style="list-style-type: none"> International aviation Marine bunker fuels 	Yes No	Emissions from international aviation were reported separately Emissions from international marine bunker fuels were not reported separately. In response to clarification sought by the TTE during the technical analysis week, South Africa explained that it currently does not have the information required to estimate GHG emissions from marine bunker fuels separately, but that it is considering a solution for this matter
Decision 17/CP.8, annex, paragraph 16	Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emissions by sources of other GHGs such as: <ul style="list-style-type: none"> CO NO_x NMVOCs 	No No No No	South Africa stated that it will consider inclusion of these gases in its next national GHG inventory, which will be produced in 2015–2016
Decision 17/CP.8, annex, paragraph 17	Other gases not controlled by the Montreal Protocol, such as SO _x , included in the Revised 1996 IPCC Guidelines, may be included at the discretion of the Parties	No	South Africa stated that it will consider inclusion of SO _x in its next national GHG inventory, which will be produced in 2015–2016
Decision 17/CP.8, annex, paragraph 21	Non-Annex I Parties are encouraged to provide information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of GHGs not controlled by the Montreal Protocol, including a brief explanation of the sources of emission factors and activity data. If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe the source and/or sink categories, methodologies, emission factors and activity data used	Yes	Explanations of methods used, sources of emission factors and activity data were provided in a systematic and well-organized manner in the NIR

Decision	Reporting requirements	Yes/ Partly/No	Comments on the extent of the information provided
	<p>in their estimation of emissions, as appropriate. Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building:</p> <ul style="list-style-type: none"> • Information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of GHGs not controlled by the Montreal Protocol • Explanation of the sources of emission factors • Explanation of the sources of activity data • If non-Annex I Parties estimate anthropogenic emissions and removals from country-specific sources and/or sinks that are not part of the Revised 1996 IPCC Guidelines, they should explicitly describe: <ul style="list-style-type: none"> ○ Source and/or sink categories ○ Methodologies ○ Emission factors ○ Activity data • Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building 	Yes	<p>Manufacture of solid fuels and other energy industries (synthetic fuels from coal and natural gas) is explained in the NIR as category 1.B.3 under the 2006 IPCC Guidelines</p> <p>Mass balance analysis was used</p> <p>Mass balance analysis was used</p> <p>Not presented because of confidentiality</p> <p>Source-specific planned improvements and recommendations were explained for each category in the NIR</p>
Decision 17/CP.8, annex, paragraph 24	<p>Non-Annex I Parties are encouraged to provide information on the level of uncertainty associated with inventory data and their underlying assumptions, and to describe the methodologies used, if any, for estimating these uncertainties:</p> <ul style="list-style-type: none"> • Level of uncertainty associated with inventory data • Underlying assumptions • Methodologies used, if any, for estimating these uncertainties 	Yes	Yes

Abbreviations: BUR = biennial update report, CO₂ eq = carbon dioxide equivalent, GHG = greenhouse gas, IPCC = Intergovernmental Panel on Climate Change, IPCC good practice guidance = *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, IPCC good practice guidance for LULUCF = *Good Practice Guidance for Land Use, Land-Use Change and Forestry*, NA = not applicable, NIR = national inventory report, NMVOC = non-methane volatile organic compound, Revised 1996 IPCC Guidelines = *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories*, TTE = team of technical experts, 2006 IPCC Guidelines = *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

2. Mitigation actions and their effects

13. The parts of the UNFCCC reporting guidelines on BURs on reporting information on mitigation actions in the BUR are contained in decision 2/CP.19, annex III, paragraphs 11–13.

14. South Africa did report mitigation actions in its first BUR. The mitigation actions reported are provided in tabular format.

15. Table 2 below presents results of the identification of the extent to which the elements of information on mitigation actions are included in the first BUR of South Africa in accordance with the relevant parts of the UNFCCC reporting guidelines on BURs.

Table 2

Identification of the extent to which the elements of information on mitigation actions are included in the first biennial update report of South Africa

<i>Decision</i>	<i>Reporting requirements</i>	<i>Yes/ Partly/No</i>	<i>Comments on the extent of the information provided</i>
Decision 2/CP.17, annex III, paragraph 12	For each mitigation action or groups of mitigation actions including, as appropriate, those listed in document FCCC/AWGLCA/2011/INF.1, developing country Parties shall provide the following information to the extent possible:		
(a)	Name and description of the mitigation action, including information on the nature of the action, coverage (i.e. sectors and gases), quantitative goals and progress indicators	Partly	A description of the actions was included in tabular format with substantive information. The nature of the action, sectors and gases affected were clearly identified for each action Quantified goals were reported for several policies, but it was not specified what actions do not have quantified goals. During the technical analysis, South Africa informed the TTE that most of the mitigation actions do not have a quantitative goal Progress indicators were not specified for each policy, but some can be implied from the description of the actions
(b)	Information on methodologies and assumptions:		
	• Methodologies	No	Information was not included in the BUR, but was provided during the technical analysis
	• Assumptions	No	Information was not included in the BUR, but was provided during the technical analysis
(c)	Objectives of the action and steps taken or envisaged to achieve that action:		
	• Objectives of the action	Yes	
	• Steps taken or envisaged to achieve that action	Partly	These were clarified for the key mitigation activities, but

Decision	Reporting requirements	Yes/ Partly/No	Comments on the extent of the information provided
			were not detailed for each policy included in the tabular format. For some of the actions, information was captured in tabular format under “primary purpose”, together with the policy objectives
(d)	Information on the progress of implementation of the mitigation actions and the underlying steps taken or envisaged, and the results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible: <ul style="list-style-type: none"> • Progress of implementation of the mitigation actions • Underlying steps taken or envisaged • Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible 	Partly Partly Partly	Information was included for key mitigation activities, but not detailed for each mitigation action in tabular format Information was included for key mitigation activities, but not detailed for each mitigation action in tabular format Information was quantified for some mitigation actions and some information was included as “not available but Party mentions that could be quantified”. The time-horizon used for the quantification was not given in the BUR, but was provided during the technical analysis
(e)	Information on international market mechanisms	Yes	
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on the description of domestic measurement, reporting and verification arrangements	Yes	

Abbreviation: BUR = biennial update report.

3. Finance, technology and capacity-building needs and support received

16. The parts of the UNFCCC reporting guidelines on BURs on reporting information on finance, technology and capacity-building needs and support received in the BUR are contained in decision 2/CP.17, annex III, paragraphs 14–16.

17. Table 3 below presents results of the identification of the extent to which the elements of information on finance, technology and capacity-building needs and support received are included in the BUR of South Africa in accordance with the relevant parts of the UNFCCC reporting guidelines on BURs.

Table 3

Identification of the extent to which the elements of information on finance, technology and capacity-building needs and support received are included in the first biennial update report of South Africa

<i>Decision</i>	<i>Reporting requirements</i>	<i>Yes/ Partly/No</i>	<i>Comments on the extent of the information provided</i>
Decision 2/CP.17, annex III, paragraph 14	Non-Annex I Parties should provide updated information on constraints and gaps, and related financial, technical and capacity-building needs:	Yes	
	• Constraints and gaps	Yes	
	• Related financial, technical and capacity-building needs	Yes	
Decision 2/CP.17, annex III, paragraph 15	Non-Annex I Parties should also provide updated information on financial resources, technology transfer, capacity-building and technical support received from the GEF, Annex II Parties and other developed country Parties, the GCF and multilateral institutions for activities relating to climate change, including for the preparation of the current BUR	Yes	
Decision 2/CP.17, annex III, paragraph 16	With regard to the development and transfer of technology, non-Annex I Parties should provide information on technology needs, which must be nationally determined, and technology support received:	Yes	
	• Technology needs, which must be nationally determined	Yes	
	• Technology support received	Yes	

Abbreviations: BUR = biennial update report, GCF = Green Climate Fund, GEF = Global Environment Facility.

C. Technical analysis of the information reported

18. The technical analysis referred to in paragraph 7(b) above aims to, without engaging in discussion on the appropriateness of these actions, increase transparency of mitigation actions and their effects. Accordingly, the technical analysis focused on the transparency of information reported in BURs.

19. In addition to covering the information in the BUR and any additional technical information provided by the Party concerned, the technical analysis also focused, in relation to information reported on national GHG inventories, on the consistency of the methods used for developing those inventories with the appropriate methods developed by the Intergovernmental Panel on Climate Change (IPCC) and referred to in the UNFCCC reporting guidelines on BURs. The results of the technical analysis are presented in the remainder of the chapter.

1. Information on national circumstances and institutional arrangements relevant to the preparation of national communications on a continuous basis

20. As per the scope defined in decision 2/CP.17, annex III, paragraph 2, the BURs should provide an update to information contained in the most recently submitted national communications, including, among other things, information on national circumstances and institutional arrangements relevant to the preparation of national communications on a continuous basis. For national communications, non-Annex I Parties report national

circumstances following reporting guidance contained in decision 17/CP.8, annex, paragraphs 3–5.

21. In accordance with decision 17/CP.8, annex, paragraph 3, South Africa, in its BUR, reported the following information on national circumstances: a description of national and regional development priorities, objectives and circumstances, including information on features of geography, climate and economy that may affect the ability to deal with mitigating and adapting to climate change, as well as information regarding specific needs and concerns arising from the adverse effects of climate change and/or the impact of the implementation of response measures, as contained in Article 4, paragraph 8, and, as appropriate, in Article 4, paragraphs 9 and 10, of the Convention.

22. As encouraged in decision 17/CP.8, annex, paragraph 4, South Africa provided a summary of relevant information regarding its national circumstances in tabular form. This information transparently describes national circumstances, in particular, the geography, climate, population, economy, energy, and national and regional development priorities for climate change in South Africa.

23. South Africa's GHG emissions are mainly from energy production and consumption (78.7 per cent of the total GHG emissions in 2010). South Africa has a high energy consumption, due to the mining and minerals processing industries and coal-based energy generation, which results in a different emission profile compared to other developing countries at a similar stage of development.

24. South Africa has taken steps to mitigate climate change. These include: the presidential announcement (in 2009) on mitigation (mitigation actions to reduce GHG emissions by 34.0 per cent and 42.0 per cent below the 'business as usual' scenario by 2020 and 2025, respectively); the National Development Plan (in 2011); and the National Climate Change Response White Paper (in 2011), which included the country's vision for 2030 and long-term strategies for both adaptation and mitigation. On the regional level, South Africa has prepared climate change response strategies and action plans for five provinces, while those for the other four provinces are under preparation.

25. With regard to mitigation, South Africa has identified national priorities that include the following: a commitment to undertake mitigation actions; expansion of the use of renewable energy; development of the liquid and biofuels sector; improvement of the effectiveness of energy efficiency and demand management incentives; adoption of regulations to promote green building; investment in efficient public transport systems; and design of a robust MRV system.

26. With regard to adaptation, South Africa has identified national priorities that include the following: provision of adequate support for the vulnerable; equitable disbursement of financial assistance; development of early warning systems for adverse weather, pest and disease occurrence; improvement of disaster relief preparedness; and significant investment in conserving and restoring natural ecosystems to improve resilience.

27. South Africa has prioritized research on climate change. A number of institutions are involved in the research, including the Department of Science and Technology, which is working on climate change under its Global Change Research Programme. The South African Environmental Observation Network, the African Observation Network, the Applied Centre for Climate and Earth Science and the South African National Space Agency are also collaborating to tackle challenges related to climate change.

28. South Africa, in its BUR, described institutional arrangements relevant to the preparation of national communications and BURs on a continuous basis. The description covers key aspects of the institutional arrangements such as: legal status, and roles and responsibilities of the overall coordinating entity, roles of other institutions and experts,

mechanisms for information/data exchange, quality assurance/quality control (QA/QC) procedures, and provisions for public consultation and other forms of stakeholder engagement.

29. In response to clarification sought by the TTE during the technical analysis week, the Party provided comprehensive additional information on institutional arrangements. South Africa clarified that only two sections of the BUR (sections 2 and 6) were drafted within the Department of Environmental Affairs (DEA) by the Climate Change Monitoring and Evaluation Chief Directorate, while the remaining sections of the BUR were compiled with the assistance of a service provider due to time constraints and a lack of internal experience and capacity. South Africa plans to prepare the second BUR internally using the Climate Change Monitoring and Evaluation Chief Directorate of DEA.

30. The information reported transparently describes the institutional arrangements of South Africa and also demonstrates that the arrangements are able to meet the requirements of the preparation of national communications and BURs on a continuous basis.

2. National greenhouse gas emissions by sources and removals by sinks

31. South Africa reported, in its BUR, information on national GHG inventories covering GHG emissions and removals for 2000–2010, as an update to section 2 of the second national communication submitted in 2011, in which the reported inventory year was 2000, using the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the 2006 IPCC Guidelines) and complementing it with the use of the *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC good practice guidance). The reported GHG emissions excluding forestry and other land use (FOLU) increased by 21.9 per cent between 2000 (425.219 Gg carbon dioxide equivalent (CO₂ eq)) and 2010 (518.239 Gg CO₂ eq), and cover carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs). Emissions of sulphur hexafluoride and indirect GHGs (carbon monoxide, nitrogen oxides and non-methane volatile organic compounds), as well as sulphur oxides, are not covered.

32. South Africa provided generally transparent and comprehensive explanations on the methods and data used to prepare the national GHG inventory in the national inventory report (NIR)¹ submitted separately from the BUR. Detailed information on each category was provided in the NIR in a systematic and well-organized manner, including: a description of categories, an overview of shares and trends in emissions, a description of methodological issues, sources of data (emission factors, activity data and other parameters), uncertainty analysis, time-series consistency, source-specific QA/QC, source-specific recalculations, and source-specific planned improvements and recommendations. The TTE commends South Africa for the well-organized NIR.

33. The TTE noted that South Africa has not included, in its NIR, tables 1 or 2, as contained in the UNFCCC guidelines for the preparation of national communications from non-Annex I Parties. Instead, South Africa included tables based on the 2006 IPCC Guidelines that sufficiently provide an overview of its national GHG inventory. The TTE considers that the tables based on the 2006 IPCC Guidelines provide the information reported in tables 1 and 2 referred to above. The transparency of reporting would be enhanced if South Africa reported its GHG emissions also in the form of tables 1 and 2 referred to above.

¹ GHG inventory of South Africa, 2000–2010. Available at <http://unfccc.int/resource/docs/natc/zafnir1.pdf>.

34. South Africa did not include the inventory for 1994 in its BUR, although 1994 was the inventory year reported in its initial national communication submitted in 2000. In response to clarification sought by the TTE during the technical analysis week, South Africa explained that 2000 was the base year, hence, only GHG emissions for the years since 2000 have been estimated. The Party noted that it would be difficult to revise the GHG emissions prior to 2000, mainly due to the lack of activity data. The GHG inventory estimation for the year 1994 was outsourced to a service provider, and South Africa did not have the necessary system in place to ensure that the information used for the estimation was properly archived and maintained. However, in response to the clarification sought on capacity-building needs during the technical analysis week, South Africa informed the TTE of its plan to develop national GHG inventories for the period from 1990 to 2015 before the end of 2017 and to include them in its third BUR, to be submitted in December 2018.

35. South Africa used the global warming potentials (GWPs) provided by the IPCC in its Third Assessment Report based on the effects of GHGs over a 100 year time-horizon in order to calculate GHG emissions in units of CO₂ eq. In response to clarification sought by the TTE during the technical analysis week, the Party clarified that these GWPs were chosen because its domestic mitigation goals were set using the GWPs provided in the Third Assessment Report. The TTE considers that it would help to enhance comparability with the inventories of other countries if South Africa calculated GHG emissions in units of CO₂ eq using the GWPs provided by the IPCC in its Second Assessment Report, based on the effects of GHGs over a 100 year time-horizon, as suggested in the UNFCCC guidelines for the preparation of national communications from non-Annex I Parties.

36. South Africa reported GHG emissions in units of CO₂ eq, but not in units of mass. The TTE considers that it would enhance the transparency of its national GHG inventory if South Africa provided estimates of emissions/removals on a gas-by-gas basis and in units of mass, as suggested in the UNFCCC guidelines for the preparation of national communications from non-Annex I Parties. The TTE considers that reporting estimates of emissions/removals on a gas-by-gas basis and in units of mass are important, particularly if South Africa wishes to continue reporting the emissions in units of CO₂ eq using GWPs, which is different to those suggested for use in the UNFCCC guidelines for the preparation of national communications from non-Annex I Parties.

37. The TTE commends South Africa for provision of information on the missing sources in the current inventory (see section 1.6 of the NIR), as well as source-specific planned improvements for each category in the NIR. The TTE also commends South Africa for development of its GHG improvement programme that aims to improve methodologies, emission factors and activity data in key categories identified in the latest GHG inventory in this BUR. These efforts made by South Africa will facilitate continuous and systematic improvement of the national GHG inventory in the future.

38. The GHG emissions from the energy sector in 2010 were 428,368 Gg CO₂ eq, which accounts for 78.7 per cent of the total national GHG emissions excluding emissions from FOLU. The methods and data used to estimate GHG emissions for the energy sector are explained in a generally transparent manner in the NIR, except for some categories such as the manufacture of solid fuels and other energy industries, where country-specific methods were used but details could not be reported because of confidentiality.

39. Several key categories were identified in the energy sector, such as energy industries (solid fuels), road transportation, manufacturing industries and construction (solid fuels), and other sectors (solid fuels). The IPCC tier 2 methodologies were used for some of the key categories, while tier 1 methodologies were used for the others including non-CO₂ emissions from road transportation. The TTE considers that the accuracy of the inventory would be further improved by also using higher tier methodologies for these other key categories.

40. South Africa did not report GHG emissions from international waterborne navigation (marine bunker fuels) separately from those from domestic waterborne navigation, owing to a lack of data. The TTE noted that South Africa intends to address this issue in the future.

41. The GHG emissions from the industrial processes and product use sector in 2010 were 44,351 Gg CO₂ eq, which accounts for 8.1 per cent of the total national emissions excluding GHG emissions from FOLU. The methods and data used to estimate GHG emissions from this sector were explained in a generally transparent manner in the NIR. However, the TTE considers that there is room for improvement in the transparency for some categories. For example, it would be more transparent if it was clarified whether the emissions from limestone and dolomite use are included in the mineral industry category. In addition, it would enhance the transparency if more information was provided on the extent of the emissions from iron and steel production.

42. The GHG emissions from the agriculture, forestry and other land use (AFOLU) sector, excluding GHG emissions from FOLU, in 2010 were 51,789 Gg CO₂ eq, which accounts for 9.5 per cent of the total national GHG emissions. The net GHG emissions from the AFOLU sector including FOLU in 2010 were 25,714 Gg CO₂ eq. The methods and data used to estimate the GHG emissions for this sector are explained in a generally transparent manner in the NIR.

43. Several key categories were identified in the AFOLU sector. Tier 2 methodologies or country-specific emission factors were used for some of the key categories such as CO₂ emissions from forest land remaining forest land and CH₄ emissions from enteric fermentation, and the methods and data used for such categories are explained well. For some other key categories, such as CO₂ emissions from land converted to cropland, direct N₂O emissions from managed soils, and indirect N₂O emissions from managed soils, tier 1 methodologies were used. The TTE considers that the accuracy of the inventory would be further improved by also using higher tier methodologies for these other key categories.

44. In response to clarification sought by the TTE during the technical analysis week, South Africa explained that its priority was to improve the accuracy of a land-use conversion matrix (see para. 45 below), but also that it is trying to develop country-specific carbon stock factors, biomass expansion factors, etc., which may enable use of higher tier methodologies for some key categories. The TTE welcomes such efforts by South Africa.

45. The TTE appreciates the detailed explanation of the methodology for obtaining a land-use conversion matrix based on satellite data, and also the detailed information on the definition of land-use categories used in South Africa's national GHG inventory. The TTE noted that the IPCC approach 3 was used for the first time in this BUR to represent land-use areas, while the IPCC approach 1 was used in the second national communication. The TTE commends South Africa for this improvement. South Africa plans to further improve the accuracy of the land-use conversion matrix by developing higher resolution maps for 1990 and 2010 under a programme implemented by DEA.

46. South Africa estimated and reported CH₄ emissions from flooded lands, but it did not estimate CO₂ emissions from the same source. The TTE noted that South Africa estimated CH₄ emissions using the methods and data provided in the 2006 IPCC Guidelines, volume 4, appendix 3. The TTE appreciates South Africa's efforts to pursue the completeness of its national GHG inventory by including estimates of CH₄ emissions from flooded lands. At the same time, however, the TTE underlines the fact that the methods and data provided in the appendices to the 2006 IPCC Guidelines are based only on the limited scientific information available at the time of writing, and are therefore treated as a basis for future methodological development and not included in the main text of the 2006 IPCC

Guidelines.² The TTE therefore considers it highly desirable that, if possible and resource-permitting, CH₄ emissions from flooded lands be calculated using country-specific data supported by sufficient scientific information in the future. The TTE also considers that it is worth attempting to also estimate CO₂ emissions, as South Africa noted in section 5.4.10.6 of the NIR, if CH₄ emissions are estimated and reported in the national GHG inventory in the future.

47. South Africa estimated and reported emissions from harvested wood products for the first time in the NIR, and the TTE commends South Africa for this. The TTE took note of South Africa's explanation, provided in response to clarification sought by the TTE during the technical analysis week, that the current estimates may include double counting of CO₂ emissions between land categories and harvested wood products, but that it continues efforts to investigate ways and means of improving these estimates.

48. The GHG emissions from the waste sector in 2010 were 19,806 Gg CO₂ eq, which accounts for 3.7 per cent of the total national GHG emissions excluding emissions from FOLU. The methods and data used to estimate the GHG emissions for this sector are explained in a generally transparent manner in the NIR.

3. Mitigation actions and their effects, including associated methodologies and assumptions

49. As indicated in table 2 above, South Africa reported, in its BUR, a detailed summary of mitigation actions implemented or in the planning stage, by sector, and identified the gases affected. Information on: actions, including a brief description; gases affected; type of instrument; status of implementation; implementing agency; time-horizon; estimated reductions; and economic, social and environmental co-benefits are included in tabular format. The TTE commends South Africa for the detailed and transparent reporting of mitigation actions.

50. Mitigation actions reported include government actions, initiatives of the private sector and clean development mechanism (CDM) project activities. Most of the mitigation actions are targeted at the energy sector, including promotion of the use of renewable energy sources and energy efficiency actions.

51. The National Climate Change Response White Paper (October 2011) presents the South African Government's vision for transition to a lower-carbon economy. The core government-led climate change mitigation actions that substantiate the long-term mitigation strategy are the following: flagship programmes, carbon tax, mitigation potential analysis and desired emission reduction outcomes.

52. The flagship programmes include the mitigation responses aimed at scaling up existing climate change initiatives and putting forward new initiatives covering all major emitting sectors and is aimed at stimulating mitigation action, pre-2020. The flagship programmes cover regulatory measures, market-based instruments, tax incentives, fiscal subsidies, and information and awareness initiatives. Regulatory measures include: renewable energy and energy efficiency targets complemented by appropriate standards; market-based instruments, including an electricity generation levy and taxes on motor vehicle emissions and incandescent light bulbs; tax incentives and fiscal subsidies targeted at various programmes that support climate change mitigation and adaptation objectives; and information and awareness initiatives such as the motor vehicle emissions labelling scheme.

² The 2006 IPCC Guidelines, volume 4, appendix 3, state "Current measurements of CH₄ fluxes from Flooded Land are not sufficiently comprehensive to support the development of accurate default emission factors...".

53. South Africa plans to implement, starting in mid-2016, an economy-wide carbon tax policy. The aims of the carbon tax policy are: to encourage a shift in production patterns towards low-carbon and energy-efficient technologies; to reduce GHG emissions associated with the production of carbon-intensive products; and to create incentives for technology research, development and innovation. The Carbon Tax Policy Paper is currently undergoing public consultation before finalization and approval by the Cabinet of South Africa. In parallel with this process, the National Inventory Unit and the South African Revenue Service have initiated discussions on the implementation of modalities for MRV of emissions from companies to be covered by the carbon tax.

54. The mitigation potential analysis, which was completed in 2014, concluded that South Africa has a GHG reduction potential of 100 Mt CO₂eq by 2020, 340 Mt CO₂eq by 2030 and 852 Mt CO₂eq by 2050, compared to a 'with existing measures' scenario.

55. The desired emission reduction outcomes, introduced through the National Climate Change Response Paper of 2011, are envisaged at sectoral, subsectoral and company levels. Such outcomes would be based on in-depth assessment of mitigation potential and assessment of costs and benefits.

56. A summary of the key existing and planned policies as presented in the BUR in the energy supply, energy demand, transportation, industry, agriculture, land use, land-use change and forestry and waste sectors is presented below.

57. Diversification of electricity generation sources and diversification of liquid fuel sources was addressed in the White Paper on Renewable Energy (2003). The paper provided a range of measures designed to integrate renewable energy into the energy economy by setting a target of 10,000 GWh of renewable energy to be added to the total energy generation mix by 2013, with an estimated emission reduction of 0.8 Mt CO₂eq. The Integrated Resources Plan for Electricity 2010–2030 (promulgated in 2011 and currently under revision) makes provisions for an increased contribution from renewable and nuclear energies for electricity generation. A series of mitigation actions are implemented and adopted, including policies addressing renewable energy sources such as the sun, wind and biofuels. Integrated renewable energy plans and integrated resource plans are being developed to increase the contribution of renewable and nuclear energies to the total energy generation and to diversify primary energy sources and reduce coal dependency.

58. For carbon capture and storage (CCS), the South African Centre for Carbon Capture & Storage has developed a road map for evaluating the potential for CCS and for a test and demonstration plant. The implementation of CCS activities from 2025 onwards is expected to create estimated reductions of 249 Mt CO₂eq. The road map stipulates that piloting for storage will start from 2017 onwards.

59. The national energy efficiency strategy outlines a 12 per cent energy intensity reduction target by 2015 through specific sectoral energy efficiency improvement targets. An energy efficiency monitoring system is currently being established in order to track progress with the target. Grants and funding programmes have been established (existing measures) to increase energy efficiency and implement energy-efficient retrofits into the municipal infrastructure. A range of mitigation actions in the private sector for the petroleum, oil refining, oil and natural gas sectors are in place, and are aimed at improving energy efficiency, with estimated effects of 4.9, 1.9 and 1.7 Mt CO₂eq reductions in process-, fuel- and electricity-related emissions, respectively. Labelling regulations and standards are planned measures being developed to manage appliance performance and energy efficiency labelling of domestic appliances.

60. For road transportation, the South African automotive industry implemented, in 2008, a standardized fuel economy and CO₂ emissions testing and labelling system by

improving vehicle efficiency and promoting fuel efficiency awareness. Clean fuel standards are to be established (by 2017), under the Clean Fuels 2 Stipulation, and are to be aligned with fuel emissions standards. This implies that the content of aromatic compounds in fuels must be reduced from 50 per cent to 35 per cent, the content of benzene must be reduced from 5 per cent to 1 per cent and the content of sulphur must be reduced from 500 ppm to 10 ppm. Integrated public transport systems are in place to promote the use of public transport and to reduce road congestion. Under the Integrated Public Transport Network, shifting road freight to rail in the period 2011–2012 generated an estimated emission reduction of 0.22 Mt CO₂ eq.

61. South Africa's GHG mitigation potential analysis identified mitigation actions in the industry sector that could potentially result in emission reductions of 18.6 Mt CO₂ eq, 16.4 Mt CO₂ eq of which originates from the actions taken in energy consumption. A broad range of mitigation actions has been implemented by private companies for feedstock fuel switching, upgrades, use of new technology and capture of PFCs in aluminium plants.

62. For the AFOLU sector, long-term mitigation scenarios are in place for the period up to 2030 for afforestation projects, while long-term mitigation scenarios are planned to be implemented for enteric fermentation and reduced tillage with a 2003–2050 time-horizon, with estimated total emission reduction effects of 313 100 Mt CO₂ eq and 100 Mt CO₂ eq, respectively, over that period.

63. A national organic waste composting strategy is in place to promote composting and divert organic waste away from landfill site disposal. A recycling and economic development initiative is in place to increase recycling, reuse of materials and energy recovery. A municipal solid waste tariff strategy is aimed at providing a framework to municipalities to set solid waste tariffs that align with the national waste management strategy.

64. In its BUR, South Africa reported detailed information on several CDM projects (renewable energy production, fuel switching, energy efficiency and biogas capture, and biogas to energy projects in the waste sector), including information on their estimated quantified emission reductions. Such projects were included in tabular format, together with the mitigation actions, in order to showcase projects that are being undertaken at project level and by sector. Information on the certified emission reductions (CERs) issued to date for such projects is also provided. The TTE noted that to increase the transparency of reporting and avoid potential double counting regarding CERs generated from these projects, the accuracy of estimation of mitigation effects could be further improved by subtracting from the country's totals the CERs that have been sold internationally.

65. South Africa provided, in the BUR, ex post assessment emission reduction effects of private sector mitigation initiatives for the period up to 2010. In response to clarification sought by the TTE during the technical analysis week, South Africa informed the TTE that the MRV initiatives for such projects are led by the National Business Initiative under the leadership of the Department of Energy and that most of the industry-related measures have already been completed and the information included in the GHG inventory. Quantification of future impacts of continuing private sector activities would also be available through the results of existing programmes supported by donors. The TTE noted that the transparency of the information could be further improved by addressing the quantification of future impacts of these activities.

66. In response to clarification sought by the TTE during the technical analysis week, South Africa provided information on the ongoing developments of a monitoring and evaluation (M&E) system to track the progress of mitigation-related projects. The institutional arrangements are already in place (see chapter II.C.5 below). The quantification of effects was provided in the BUR for several policies. The Party indicated

the cases where quantified information was not available but can be calculated. The report did not specify for which period the estimated emission reductions applied; however, during the technical analysis, the Party informed the TTE that the presented quantification of effects covers the entire period 2000–2010 and provided additional quantified effects for several actions. The TTE noted that the transparency of reporting would be enhanced if the Party provided this and further information on the quantified emission reductions in its next BUR. During the technical analysis, South Africa informed the TTE that the absence of detailed information on steps taken to achieve some of the actions reported is due to the extensive reporting of mitigation actions that were not directly driven by government policy (implemented voluntarily for example by non-governmental organizations or industry), for which detailed information on specific steps was not available.

67. With regard to methodologies and assumptions for policy assessment, in response to clarification sought by the TTE during the technical analysis week, South Africa noted that the World Resource Institute's Policy and Action Standard³ and domestic standards, together with country-specific emission factors, were used to estimate the effects of energy efficiency measures, and that the CDM methodologies were applied to assess the impacts of mitigation actions in industry. The TTE noted that the transparency of reporting would be enhanced if the Party provides information on the methodologies and assumptions used in policy assessment in its next BUR.

68. The results of the mitigation potential analysis reported in the BUR provided information on three emission projections scenarios until 2050: a 'with measures' scenario (that takes into account the effects of existing measures), a 'without measures' scenario (which assumes that no policies and measures were implemented after 2000) and a mitigation projection scenario (which assumes full implementation of all identified mitigation options). The information reported by South Africa in the BUR on the assumptions, parameters and indicators used in the projections scenarios is limited.

69. In response to clarification sought by the TTE during the technical analysis week, South Africa specified that the methodologies used in the mitigation potential analysis are the World Resource Institute's Policy and Action Standards and domestic standards, together with the country-specific emission factors used to estimate the effects of energy efficiency measures, and provided further information regarding progress in the preparation of updated emission projections. The TTE took note of this additional information. South Africa also specified its intention to develop projections using defined assumptions and linking projections with the GHG emission trends, and to report these in its next national communication.

4. Constraints and gaps, and related financial, technical and capacity-building needs, including a description of support needed and received

70. With regard to constraints and gaps in the preparation of the BUR, South Africa identified a delay in receipt of funding from the Global Environment Facility (GEF) and the need for institutional arrangements that can facilitate the collection of climate change related data. In response to clarification sought by the TTE during the technical analysis week, South Africa specified further constraints and gaps, mainly related to initiation, implementation and scaling up of the mitigation actions, particularly the lack of MRV methodologies to validate and verify the emission reduction potential of projects (e.g. projects in waste, energy and transport) and institutional arrangements and human capital to effectively implement projects under flagship themes that have been identified by the country.

³ *An Accounting and Reporting Standard for Estimating the Greenhouse Gas Effects of Policies and Actions*. Available at <<http://www.wri.org/publication/policy-and-action-standard>>.

71. In its BUR, South Africa provided clear and well-structured information on matters related to the support received to assist with its climate response and its financial, technical and capacity-building needs. This includes financial resources, technical cooperation and technology transfer at all levels, for adaptation and mitigation activities.

72. During the period 2000–2014, South Africa received USD 1.2 billion of bilateral support and USD 847.3 million of multilateral support. A total of USD 1,847.2 million was received as loans, and USD 98.7 million was received as grants. The biggest bilateral donors were Germany, Denmark, Japan, United States of America, Switzerland, France, Netherlands, United Kingdom of Great Britain and Northern Ireland, Australia and Norway. The largest multilateral support was received through the Clean Technology Fund, the International Finance Corporation and the GEF.

73. The financial support provided focused on mitigation, mostly targeted at the energy sector, such as the promotion of energy efficiency and the use of renewable energy. Examples of the support provided for adaptation include technologies for drinking water systems, water management and the use of horticulture and ecosystems.

74. The technological support provided focused on the use of renewable energy, energy efficiency and clean-technology investments, while the technical support provided was mainly for the development of carbon projects and green infrastructure. The capacity-building support provided mainly focused on the increase of investment in renewable energy and energy efficiency, as well as the development of a climate policy capacity and a national system for sustainable compilation of national GHG emissions inventories.

75. With regard to the quantified support received, South Africa provided a list of non-monetized support, which covered capacity-building and technological development, including, for example, policy development and consensus-building, development of sustainable national inventory management systems and also implementation of adaptation options for climate change.

76. Information on domestic funding for climate change related activities from different sources was reported, mainly to provide financial incentives to encourage the use of green technology and renewable energy, and also financial support for transition to a low-carbon, resource-efficient and climate-resilient economy.

77. A climate finance coordination mechanism was presented in the BUR, the aim of which was to increase integration between sources of climate finance and technical support. It will also bridge the gap between national climate response programmes, and track the country's efforts on reducing GHG emissions and the impacts of the disbursed financial resources.

78. South Africa has identified and quantified needs for financial support, mainly for developing the use of renewable energy, an energy-efficient geographic information system, GHG emission factors, collection of activity data, an M&E system, a GHG reporting system and MRV guidelines for the M&E system, amounting to USD 133,766,229. The largest share of the financial resources needed would be allocated to renewable energy and energy efficiency.

79. South Africa has indicated, in its BUR, that for the identification and assessment of the environmentally sound technologies needed to reduce the impact of climate change, the results of the 2007 technology needs assessment⁴ were used. This report is being updated, and South Africa plans to present it later in 2015.

⁴ Available at

<http://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/TNR_CRE/e9067c6e3b97459989b2196f12155ad5/9ecba2a40fe04948859b9930a40be9f7.pdf>.

5. Domestic measurement, reporting and verification

80. South Africa has been undertaking steps to move from climate change monitoring to the M&E system since 2007.

81. The M&E system aims to track the transition towards a lower-carbon and climate-resilient economy on both national and international levels. The designed framework of the M&E system comprises four main elements: ex ante appraisal of policies, ongoing monitoring of the policies, evaluation of the policies and feeding information back into the policy development cycle.

82. The proposed climate change M&E system will cover elements of both mitigation and adaptation. For mitigation, the system will monitor and report GHG data, quantitatively analyse the impact of mitigation measures, track the indicators defined in the mitigation plans, record the implementation and status of mitigation actions, and record sustainable development benefits of such actions.

83. The specific monitoring of mitigation action activities currently in place includes mitigation response analysis, verification of emissions reduced through mitigation actions and reporting on mitigation actions. The evaluation activities include the provision of continuous assessment and feedback and the promotion of learning, improving and knowledge-sharing.

84. National efforts include the implementation of bilateral projects/programmes aimed at enhancing better understanding of MRV, such as the International Partnership on Mitigation and MRV, which was jointly launched with Germany and the Republic of Korea in 2010.

85. DEA has established a Monitoring and Evaluation Technical Working Group with the mandate to address the national M&E objectives. The group comprises experts from relevant stakeholders, which is reflective of national circumstances. Research on MRV in 2012, contracted by DEA, updated the National Climate Change Response Database in 2013, which supports the formulation of key data reporting structures and allows free user registration, voluntary registration of a project and access to information on its website.

86. In the future, South Africa plans to further strengthen its activities and MRV system, and has identified specific support needs related to such improvements in the system (see para. 78 above). Implementation of the M&E system will be carried out in three phases: phase I (by the end of 2015) will include setting up of the system, phase II (2016–2017) will include pilot projects with more information on co-benefits, and finally phase III (2018–2019) will include a fully functional structure.

87. South Africa listed some activities to be undertaken in order to progress the design of its M&E system, including: the development of a web-based database for GHG emissions and support provided, as well as costs and co-benefits of mitigation actions; the development of indicators and the description of relevant information on such indicators; and the design of institutional arrangements to support analysis of the indicators. In response to clarification sought by the TTE during the technical analysis week, the Party clarified that all of the activities have been initiated and are currently ongoing, with anticipated timelines for completion of a web-based database in 2016 and the remainder in 2017.

6. Any other information

88. South Africa stated, in its BUR, some information on the Renewable Energy Independent Power Producer procurement programme to produce 3,725 MW from renewable energy sources. To date, the programme has three bids that contribute to emission reductions: a first bid for reductions of about 75.3 Mt CO₂ eq, a second bid for

reductions of about 59.1 Mt CO₂ eq and a third bid for reductions of about 93.4 Mt CO₂ eq. Responding to a question from the TTE about the source of financing for the programme, South Africa stated that the programme is a procurement programme that allows local and international bidders to invest; successful bidders will then sell electricity generated to the public power utility.

89. South Africa listed, in its BUR, some information on adaptation actions that may lead to GHG emission reductions without estimation of such reductions. In consultation with the TTE about the possibility of estimating emission reductions resulting from adaptation actions, the Party clarified that no efforts have previously been made into quantifying the mitigation effects of these adaptation measures because these actions were implemented via programmes that were developed with the intention of enhancing adaptive capacity. The Party is setting up a processes to quantify, on an ongoing basis, the CO₂ emission impacts of such measures.

90. The Party provided information on integrating climate change into municipal planning through the 'Let's Respond' toolkit, which is in line with the country's integrated development process. In consultation with the TTE on applying the toolkit for mitigation planning as well as adaptation, South Africa's response was that the 'Let's Respond' toolkit was developed to integrate climate change into municipal planning, and to assist local government with mainstreaming climate change response issues into the planning process. Therefore, the use of the toolkit is linked to both adaptation and mitigation planning.

D. Identification of capacity-building needs

91. In consultation with South Africa, the TTE identified the following capacity-building needs related to the facilitation of the preparation of subsequent BURs and participation in ICA:

- (a) Use the methodologies established by the latest UNFCCC reporting guidelines on BURs, in particular, by using higher tier methodologies for the estimation of key categories (such as manufacturing industries and construction);
- (b) Provide summary sectoral information of the GHG inventory in the form of tables 1 and 2 as in the annex to decision 17/CP.8;
- (c) Improve the QA/QC of GHG emission estimates and the QA of the BUR;
- (d) Develop methodologies for the quantification of effects of individual mitigation actions, and apply these methodologies consistently across the sectors, specifying time-horizons and using consistent and robust indicators and reporting accordingly;
- (e) Define the objectives of actions and steps taken or envisaged to achieve those actions;
- (f) Define the progress of implementation of mitigation actions and the underlying steps taken or envisaged, and the results achieved from key actions;
- (g) Develop projections using the defined assumptions and link the projections with the GHG emission trends;
- (h) Identify constraints and gaps associated with the implementation of activities, measures and programmes envisaged.

III. Conclusions

92. The TTE concludes that:

(a) Most of the elements of information listed in paragraph 3(a) of the ICA guidelines are included in the first BUR of South Africa; some elements in areas of GHG (see table 1 above) mitigation actions and their effects (see table 2 above) have not been provided. During the technical analysis, South Africa provided relevant additional information;

(b) South Africa submitted updates of its national GHG inventory covering emissions and removals of CO₂, CH₄, N₂O, HFCs and PFCs for the years 2000–2010, using the 2006 IPCC Guidelines complemented by the IPCC good practice guidance. The information on the national GHG inventory is provided generally in accordance with decision 2/CP.17, paragraph 41(g), and annex III, paragraphs 3–10, to the same decision, as well as the UNFCCC guidelines for the preparation of national communications from non-Annex I Parties, although some of the elements such as the use of reporting tables (see para. 33 above) and the use of GWP values (see para. 35 above) are not entirely in accordance with the guidelines. South Africa provided generally transparent and comprehensive explanations on the methods and data used to prepare the national GHG inventory in the NIR submitted separately from the BUR in a systematic and well-organized way. The TTE commends South Africa for including source-specific planned improvements in the NIR because it will facilitate continuous and systematic improvement of the national GHG inventory in the future;

(c) South Africa's mitigation actions substantiate the long-term mitigation strategy – the National Climate Change Response White Paper published in October 2011. Four key government-led mitigation initiatives originating from the long-term strategy to enable transition to a lower-carbon economy are the core of the climate change mitigation activities in South Africa: flagship programmes, carbon tax, mitigation potential analysis and desired emission reduction outcomes. In order to achieve the near- and long-term mitigation objectives, South Africa has implemented and planned a series of regulatory measures, market-based instruments, tax incentives, fiscal subsidies, and information and awareness initiatives. These policies address all emission sectors and are directed particularly at the sources of the highest emissions;

(d) Institutional arrangements have been initiated to undertake M&E of mitigation actions, and the M&E system for monitoring policies is under development. DEA plays a critical role in coordinating the actions. Some of the key steps in the development of the M&E system include development of MRV guidelines for key mitigation sectors and actions and development of a system for tracking mitigation actions over time and assessing their impacts and evaluation framework to assess the outcomes of climate change responses broadly in a manner that allows for re-evaluation of climate change policies and measures. Such a system could enable improvements in the reporting of information in BURs and national communications using the Party's own resources and thus not necessary translate into additional capacity-building needs for reporting;

(e) The support received by South Africa from bilateral and multilateral donors was mainly for mitigation initiatives on energy efficiency and promotion of the use of renewable energy; adaptation initiatives were also reported. Germany was one of the main bilateral donors. Additional support for capacity-building, technology development and provision of technical support for mitigation and adaptation programmes that have been prioritized, mainly to the energy sector in the promotion of renewable energy, energy efficiency and installation of technologies to reduce GHG emissions, is required.

93. The TTE, in consultation with South Africa, identified nine capacity-building needs related to the facilitation of reporting in accordance with annex III to decision 2/CP.17, and to the participation in ICA in accordance with annex IV to decision 2/CP.17, taking into account Article 4, paragraph 3, of the Convention. Key capacity-building needs prioritized by South Africa are summarized in chapter II.D above.

Annex

Documents and information used during the technical analysis

A. Reference documents

“Composition, modalities and procedures of the team of technical experts for undertaking the technical analysis of biennial update reports from Parties not included in Annex I to the Convention”. Annex to decision 20/CP.19. Available at <<http://unfccc.int/resource/docs/2013/cop19/eng/10a02.pdf#page=12>>.

“Modalities and guidelines for international consultation and analysis”. Annex IV to decision 2/CP.17. Available at <<http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf>>.

“UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention”. Annex III to decision 2/CP.17. Available at <<http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf>>.

“Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention”. Annex to decision 17/CP.8. Available at <<http://unfccc.int/resource/docs/cop8/07a02.pdf#page=2>>.

First biennial update report of South Africa. Available at <<http://unfccc.int/8722.php>>.

Second national communication of South Africa. Available at <http://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php>.

B. Additional information provided by the Party

The following documents were provided by the Party in response to clarification sought during the technical analysis:

Environmental Affairs Department of Republic of South Africa. 2015. *Greenhouse Gas Improvement Programme*.

Environmental Affairs Department of Republic of South Africa. 2014. *Mitigation Potential Analysis Report*. Available at <<https://www.environment.gov.za/documents/research>>.