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## **Technical analysis of the first biennial update report of Armenia submitted on 29 April 2016**

**Summary report by the team of technical experts**

### *Summary*

According to 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, were to 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, according to 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 the Party's first BUR. The process of ICA consists of two steps: the technical analysis of the submitted BUR, followed by a workshop for 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 Armenia conducted 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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## **I. Introduction and process overview**

### **A. Introduction**

1. According to 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, were to 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, according to 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 the Party's first BUR. The process of ICA consists of two steps: the technical analysis of the submitted BUR, resulting in a summary report for each BUR analysed, followed by a workshop for 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 Armenia 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. Armenia submitted its first BUR on 29 April 2016, in conjunction with the national inventory report (NIR). In its BUR, Armenia mentioned that it received support from the Global Environment Facility for the preparation of its first BUR in 2014, for work scheduled to be completed in 2016, which explains why the BUR was submitted after the due date of December 2014.

4. The technical analysis of the BUR took place from 19 to 23 September 2016 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. Pierre Brender (France), Ms. Madeleine Rose Diouf Sarr (former member of the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention (CGE) from Senegal), Ms. Patricia Grobбен (member of the CGE from Belgium), Mr. Agustín José Inthamoussu (Uruguay), Mr. Kakhaveri Mdivani (Georgia), Ms. Emily Ojoo-Massawa (former member of the CGE from Kenya) and Ms. Jeonghyun Emily Park (Republic of Korea). Ms. Grobбен and Ms. Ojoo-Massawa were the co-leads. The technical analysis was coordinated by Ms. Verónica Colerio, Ms. Karen Ortega and Ms. Xuehong Wang (UNFCCC secretariat).

5. During the technical analysis, the TTE and Armenia engaged in consultation via e-mail on the identification of capacity-building needs for the preparation of BURs and participation in the ICA process. Following the technical analysis of the BUR, the TTE prepared and shared a draft summary report with Armenia on 19 December 2016 for its review and comment. Armenia, in turn, provided its feedback on the draft summary report on 27 February 2017.

6. The TTE responded to and incorporated the Party's comments referred to in paragraph 5 above and finalized the summary report in consultation with Armenia on 21 April 2017.

## **II. Technical analysis of the 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 the actions, increase the transparency of mitigation actions and their effects, and shall entail the following:

(a) The identification of the extent to which the elements of information listed in paragraph 3(a) of the ICA modalities and guidelines (decision 2/CP.17, annex IV) have been included in the BUR of the Party concerned (see chapter II.B below);

(b) A technical analysis of the information reported 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 below);

(c) The identification, in consultation with the Party concerned, of capacity-building needs related to the facilitation of reporting in accordance with the UNFCCC reporting guidelines on BURs and to participation in ICA in accordance with the ICA modalities and guidelines, taking into account Article 4, paragraph 3, of the Convention (see chapter II.D below).

8. The remainder of this chapter presents the results of each of the three parts of the technical analysis of Armenia’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; information on 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 information on support received.

10. Further, according to decision 20/CP.19, annex, paragraph 15(a), in undertaking the technical analysis of the submitted BUR, the TTE is to identify the extent to which the elements of information listed in paragraph 9 above have been included in the BUR of the Party concerned. The results of that 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 paragraphs 3–10 of the UNFCCC reporting guidelines on BURs. Further, as per paragraph 3 of those guidelines, non-Annex I Parties are to submit updates of their national GHG inventories in accordance with paragraphs 8–24 of the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention” contained in the annex to decision 17/CP.8. The scope of such updates should be consistent with the non-Annex I Party’s capacity and time constraints

and the availability of its data, as well as the level of support provided by developed country Parties for biennial update reporting.

12. Table 1 presents the results of the identification of the extent to which the elements of information on GHGs are included in the first BUR of Armenia 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 Armenia**

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/ Partly/No/NA</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	
Decision 2/CP.17, annex III, paragraph 4	Non-Annex I Parties should use the methodologies established by the latest UNFCCC guidelines for the preparation of national communications from non-Annex I Parties approved by the Conference of the Parties (COP) or those determined by any future decision of the COP on this matter	Yes	The inventory has been calculated using the 2006 IPCC Guidelines
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, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF; any change to the emission factor may be made in the subsequent full national communication	Yes	The NIR submitted in conjunction with the BUR contains updated data on activity levels for 2011 and 2012
Decision 2/CP.17, annex III, paragraph 9	The inventory section of the BUR should consist of a national inventory report as a summary or as an update of the information contained in decision 17/CP.8, annex, chapter III (National greenhouse gas inventories), including:  (a) 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)	Yes	As the inventory was calculated based on the 2006 IPCC Guidelines, comparable information based on those guidelines was included, as well as the results within the reporting format of table 1 (based on the sectoral composition of the Revised 1996 IPCC Guidelines) in annex 4 to the NIR

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/ Partly/No/NA</i>	<i>Comments on the extent of the information provided</i>
	(b) Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF <sub>6</sub> )	Partly	The summary table of the NIR includes aggregated information on HFCs (and PFCs); however, disaggregated information by gas is only provided in some tables
Decision 2/CP.17, annex III, paragraph 6	Non-Annex I Parties are encouraged to include, as appropriate and to the extent that capacities permit, in the inventory section of the BUR:		
	(a) Tables included in annex 3A.2 to chapter 3 of the IPCC good practice guidance for LULUCF	Yes	
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines	NA	Armenia used the 2006 IPCC Guidelines. Comparable information to the Revised 1996 IPCC Guidelines was provided
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	Armenia reported a consistent time series back to 2000, in accordance with its third national communication. However, the years 1990 and 1994–1996 were not reported, although they were included in Armenia’s first and second national communications. Further information on the reasons why those years were not included was provided during the technical analysis
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	
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex	Yes	
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	Yes	

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/ Partly/No/NA</i>	<i>Comments on the extent of the information provided</i>
	process, including information on the role of the institutions involved		
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:		
	(a) CO <sub>2</sub>	Yes	
	(b) CH <sub>4</sub>	Yes	
	(c) N <sub>2</sub> O	Yes	
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 <sub>6</sub>	Yes	
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:		
	(a) International aviation	Yes	
	(b) Marine bunker fuels	NA	Armenia is a landlocked country
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:		
	(a) CO	Yes	
	(b) NO <sub>x</sub>	Yes	
	(c) NMVOCs	Yes	
Decision 17/CP.8, annex, paragraph 17	Other gases not controlled by the Montreal Protocol, such as SO <sub>x</sub> , included in the Revised 1996 IPCC Guidelines may be included at the discretion of the Parties	Yes	
Decision 17/CP.8, annex, paragraph 18	Non-Annex I Parties are encouraged, to the extent possible, and if disaggregated data are available, to estimate and report CO <sub>2</sub> fuel combustion emissions using both the sectoral and the reference approach, and to explain any large differences between the two approaches	Yes	
Decision 17/CP.8, annex, paragraph 20	Non-Annex I Parties wishing to report on aggregated GHG emissions and removals expressed in CO <sub>2</sub> equivalents should use the GWP values provided by the IPCC in its Second Assessment Report based on the effects of GHGs over a 100-year time horizon	Yes	

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/ Partly/No/NA</i>	<i>Comments on the extent of the information provided</i>
Decision 17/CP.8, annex, paragraph 21	<p>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 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> <p>(a) Information on methodologies used in the estimation of anthropogenic emissions by sources and removals by sinks of GHGs not controlled by the Montreal Protocol</p> <p>(b) Explanation of the sources of emission factors</p> <p>(c) Explanation of the sources of activity data</p> <p>(d) 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:</p> <p>(i) Source and/or sink categories</p> <p>(ii) Methodologies</p> <p>(iii) Emission factors</p> <p>(iv) Activity data</p> <p>(e) Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building</p>	<p>Yes</p> <p>Yes</p> <p>Yes</p> <p>NA</p> <p>Yes</p>	<p>Armenia used the 2006 IPCC Guidelines</p>
Decision 17/CP.8, annex, paragraph 22	<p>Each non-Annex I Party is encouraged to use tables 1 and 2 of the guidelines annexed to decision 17/CP.8 in reporting its national GHG inventory, taking into account the provisions established in paragraphs 14 to 17 of the same decision. In preparing those tables, Parties should strive to present information which is as complete as possible. Where numerical data are not provided, Parties should use the notation keys as indicated</p>	<p>Yes</p>	
Decision	<p>Non-Annex I Parties are encouraged to</p>		



<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/ Partly/No/NA</i>	<i>Comments on the extent of the information provided</i>
17/CP.8, annex, paragraph 24	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:		
	(a) Level of uncertainty associated with inventory data	Partly	Armenia provided information on uncertainty estimates for activity data in the energy sector, fugitive emissions from HFCs, and livestock population, but information on emission factors was not provided for most sources (except for CH <sub>4</sub> emissions in the waste sector). During the technical analysis, Armenia explained that the uncertainty assessment will be improved in the next BUR
	(b) Underlying assumptions	Partly	For the energy sector, Armenia has not explained whether the total weighted average includes the uncertainty of emission factors
	(c) Methodologies used, if any, for estimating these uncertainties	Partly	The source of the uncertainty estimate of HFC emissions for refrigeration and air conditioning was not provided in the BUR/NIR

*Abbreviations:* BUR = biennial update report, GHG = greenhouse gas, GWP = global warming potential, 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*, 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 the reporting of information on mitigation actions in BURs are contained in decision 2/CP.17, annex III, paragraphs 11–13.

14. Armenia reported on mitigation actions in its first BUR. The information on mitigation actions reported is provided in tabular format. Armenia makes a distinction between mitigation actions which are highly likely to be implemented, as financing has been secured for them or they constitute a priority in the sectoral strategic and planning documents, and those actions for which implementation entails a relatively high degree of

uncertainty as financing has not yet been secured. The former mitigation actions are included in a ‘with measures’ (WEM) scenario, while the latter are included in a ‘with additional measures’ (WAM) scenario. The TTE commends Armenia for its approach.

15. Table 2 presents the results of the identification of the extent to which the elements of information on mitigation actions are included in the first BUR of Armenia 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 Armenia**

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/ Partly/No</i>	<i>Comments on the extent of the information provided</i>
Decision 2/CP.17, annex III, paragraph 11	Non-Annex I Parties should provide information, in a tabular format, on actions to mitigate climate change, by addressing anthropogenic emissions by sources and removals by sinks of all greenhouse gases not controlled by the Montreal Protocol	Yes	
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	Yes	Progress indicators are reported for the mitigation actions included in the ‘with measures’ scenario, but not for those included in the ‘with additional measures’ scenario
	(b) Information on:		
	(i) Methodologies	Partly	The BUR reports on the methodologies used for the calculation of GHG emission reductions for the mitigation actions in the energy generation, transmission and distribution sector. For mitigation actions in other sectors, the BUR provides only little information (e.g. in relation to the baseline, or, in the case of the waste projects, reference is made to the EBRD methodology or to a CDM methodology, without further explanation), or no information at all

<i>Decision</i>	<i>Provision of the reporting guidelines</i>	<i>Yes/ Partly/No</i>	<i>Comments on the extent of the information provided</i>
	(ii) Assumptions	Partly	The BUR provides information on assumptions for the mitigation actions in the energy sector and to some extent for the mitigation actions in the industrial processes sector; however, no information has been provided for the mitigation actions in the waste sector
	(c) Information on:		
	(i) Objectives of the action	Yes	
	(ii) Steps taken or envisaged to achieve that action	Yes	
	(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:		
	(i) Progress of implementation of the mitigation actions	Yes	The BUR clearly distinguishes between completed, ongoing and planned measures
	(ii) Progress of implementation of the underlying steps taken or envisaged	Yes	
	(iii) Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible	Yes	
	(e) Information on international market mechanisms	Yes	Armenia reported that it has six registered CDM projects, but a detailed description has been provided for one project only
Decision 2/CP.17, annex III, paragraph 13	Parties should provide information on the description of domestic measurement, reporting and verification arrangements	Yes	The BUR describes the different MRV systems used to assess the impact of the mitigation actions and explains the steps taken to establish a domestic MRV system

*Abbreviations:* BUR = biennial update report, CDM = clean development mechanism, EBRD = European Bank for Reconstruction and Development, GHG = greenhouse gas, MRV = measurement, reporting and verification.

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

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

17. Table 3 presents the 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 Armenia 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 Armenia**

<i>Decision</i>	<i>Provision of the 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:		This information is presented in tabular format in section 4.2 of the BUR
	(a) Constraints and gaps	Yes	
	(b) Related financial, technical and capacity-building needs	Yes	
Decision 2/CP.17, annex III, paragraph 15	Non-Annex I Parties should provide updated information on financial resources, technology transfer, capacity-building and technical support received from the Global Environment Facility, Annex II Parties and other developed country Parties, the Green Climate Fund and multilateral institutions for activities relating to climate change, including for the preparation of the current biennial update report	Yes	Information is provided in tabular format in table 4.1 of the BUR
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:		
	(a) Technology needs, which must be nationally determined	Yes	The BUR mentions that the technology needs assessment has been conducted during the period 2014–2016; therefore, information on technology needs is not provided in the BUR
	(b) Technology support received	Yes	

*Abbreviation:* BUR = biennial update report.

## C. Technical analysis of the information reported

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

19. For information reported on national GHG inventories, the technical analysis also focused on the consistency of the methods used for preparing 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.

20. The results of the technical analysis are presented in the remainder of this chapter.

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

21. As per the scope defined in paragraph 2 of the UNFCCC reporting guidelines on BURs, the BURs should provide an update to the 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 their national communications, non-Annex I Parties report on their national circumstances following the reporting guidance contained in decision 17/CP.8, annex, paragraphs 3–5.

22. Armenia reported in its BUR on its national circumstances, in accordance with decision 2/CP.17, annex III, paragraph 2(a). Armenia is in the Southern Caucasus and its territory covers 29,743 km<sup>2</sup>. It is a mountainous landlocked country with 90 per cent of its land area situated over 1,000 m above sea level and has rich biodiversity with more than 100 species per km<sup>2</sup>, the majority of which are endemic or rare. The country is also endowed with natural resources such as copper molybdenum, polymetallics, construction stone, mineral water, precious metals and semi-precious stones that form the basis of its industrial manufacturing base. Armenia's climate is highly variable and ranges from arid subtropical to cold, and its average annual precipitation is 592 mm. Climate observations in the last few decades show a significant increase in temperature by 1.10 °C for the period 1935–2014, while rainfall decreased by 10 per cent during the period 1935–2012.

23. As encouraged in decision 17/CP.8, annex, paragraph 4, Armenia provided a summary of relevant information regarding its national circumstances in tabular format in chapter S-1, titled "National circumstances", in particular on the government structure, geography, population and economy. Armenia has a population of 3,027,000 (in 2012), and compared to 1990, the population in 2012 decreased by 14 per cent. In total, 63.4 per cent of the population lives in urban areas and 36.6 per cent in rural locations. This distribution is extremely disproportionate owing to the country's mountainous relief and the varying levels of economic development. The country's land use and land cover in 2012 was formed of agricultural production (69 per cent); forestry (11.2 per cent); protected natural areas (11.2 per cent); settlements, and land containing industrial, communication, transport and utility infrastructure (6.6 per cent); other lands (1.1 per cent); and wetlands (0.9 per cent).

24. During the period 1995–2000, Armenia's gross domestic product (GDP) increased annually by 5.4 per cent; during the period 2001–2006, the average annual GDP growth amounted to 12.4 per cent. This annual growth slowed to 2.2 per cent, on average, during the period 2007–2010 owing to the worldwide financial crisis. The average annual growth for the period 2010–2013 was 4.4 per cent. In 2012, the structure of Armenia's industrial production, by type of economic activity, was made up of: processing industries (62.3 per

cent); electricity, gas, and steam supply (18.9 per cent); mining industries (17.2 per cent); and water supply, sewerage and waste management (1.6 per cent). In 2012, the processing industries included the following sectors: food (54 per cent); metallurgy (23.5 per cent); construction materials (6.9 per cent); other (4.5 per cent); machine building (4.4 per cent); chemical (4.1 per cent); jewellery (1.5 per cent); and light industry (1.1 per cent). The country has no fossil fuel resources and depends heavily on imported fuel resources to meet its energy demand, as the domestic primary energy resources (hydro, nuclear, wind and biomass) meet only 35 per cent of the country's energy demand. There have been structural changes in the economy resulting in changes in the GDP structure, which has led to a large increase in the services sector and a reduction in the share of manufacturing.

25. Armenia transparently described in its BUR the institutional arrangements relevant to the preparation of its national communications and BURs on a continuous basis. The description covers key aspects of the institutional arrangements, such as: the roles and responsibilities of coordinating institutions and the legal framework. The Inter-Agency Coordinating Council for Implementation of Requirements and Provision of the UN Framework Convention on Climate Change was established in Armenia in 2012 by the Prime Minister. The council is mandated to coordinate activities aimed at fulfilling the country's obligations under the Convention and evaluate implementation thereof. In 2015, the Division of Climate Change and Atmospheric Air Protection Policy was established under the Environment Protection Policy Department of the Ministry of Nature Protection, with the objective of fulfilling the Party's commitments under the Convention and the provisions on the legal framework for climate change (normative and regulatory legal acts). The division has assumed the role of coordinating the processes associated with the preparation of national communications and biennial update reports. Some legal arrangements related to the coordination of the above-mentioned process have yet to be enacted.

26. Armenia has prepared a law on atmospheric air protection that is currently under discussion. The new law, if enacted, will contain provisions for GHG emissions inventory reporting and for the national climate change mitigation policy.

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

27. As indicated in table 1 above, Armenia reported information on its GHG inventory in its BUR, mostly in accordance with paragraphs 3–10 of the UNFCCC reporting guidelines on BURs and paragraphs 8–24 of the "Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention" contained in the annex to decision 17/CP.8. Armenia submitted its NIR in conjunction with the BUR.

28. In its BUR and NIR, Armenia provided information on its national GHG inventories covering GHG emissions and removals for the period 2000–2012 using the IPCC 2006 IPCC Guidelines for National Greenhouse Gas Inventories (hereinafter referred to as the 2006 IPCC Guidelines), the *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories* (hereinafter referred to as the IPCC good practice guidance), and the *Good Practice Guidance for Land Use, Land-Use Change and Forestry* (hereinafter referred to as the IPCC good practice guidance for LULUCF). The TTE commends the Party for using more recent IPCC guidelines.

29. The BUR provided comprehensive information on the methodologies and data used to prepare the national GHG inventory. Detailed information on each category was provided in the NIR, including: a description of categories; an overview of shares and trends in emissions; a description of methodological issues; sources of data used (emission factors, activity data and other parameters); the uncertainty analysis; time-series consistency; source-specific quality assurance/quality control; source-specific recalculations; and source-specific planned improvements and recommendations. The

development of national GHG inventories was coordinated by the Ministry of Nature Protection in cooperation with the other ministries and agencies. The TTE commends Armenia for its efforts to report GHG emissions in a transparent manner.

30. The total GHG emissions for 2012 reported in the BUR, excluding forestry and other land use, amount to 9,829.1 kt of carbon dioxide equivalent (kt CO<sub>2</sub> eq), an increase of 57 per cent since 2000 (6,241.2 kt CO<sub>2</sub> eq). The GHG emissions reported for 2012 include 5,582.2 kt of carbon dioxide (CO<sub>2</sub>), which represents 56.8 per cent of total emissions, 156.82 kt of methane (CH<sub>4</sub>) or 1.6 per cent of total emissions, 1,837 kt of nitrous oxide (N<sub>2</sub>O), or 0.02 per cent of total emissions; and 384.58 kt of hydrofluorocarbons (HFCs), representing 3.9 per cent of total emissions. The gases reported also include 19.737 kt of nitrogen oxides, 46.154 kt of carbon monoxide, 17.106 kt of non-methane volatile organic compounds and 36.632 kt of sulphur oxides. Emissions of perfluorocarbons (PFCs) were not estimated, and Armenia explained in its NIR that PFCs are not used in the country. During the technical clarification, the Party clarified that sulphur hexafluoride was also not used in the country in 2011 and 2012 and disaggregated data on HFCs will be provided in the second BUR using the industrial processes and product use (IPPU) background table annexed to the 2006 IPCC Guidelines. The TTE acknowledges that Armenia has used the 2006 IPCC Guidelines and commends it for this effort; however, the TTE noted that the transparency and completeness of the Party's reporting would be further enhanced by providing equivalent and disaggregated data on fluorinated gases, in accordance with the reporting format of table 2 contained in the annex to decision 17/CP.8.

31. The Party reported that the energy sector is the biggest source of its national GHG emissions, accounting for 70.3 per cent of total emissions (6,913 kt CO<sub>2</sub> eq) in 2012. In order to improve the accuracy of its inventory, the Party applied a tier 2 approach to calculate the natural gas emissions using country-specific emission factors, considering that it is the main fuel consumed in the country. The second largest sector is agriculture, which accounted for 16.5 per cent of total GHG emissions (1,621.50 kt CO<sub>2</sub> eq) in 2012. Emissions from the IPPU sector amounted to 662.5 kt CO<sub>2</sub> eq, which accounted for 6.7 per cent of total GHG emissions in 2012. The waste sector accounted for 632.40 kt CO<sub>2</sub> eq (6.4 per cent of total GHG emissions). Forest and other land use was a net sink, with removals of 522.10 kt CO<sub>2</sub> eq in 2012.

32. According to 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. Although the Party provided an estimation of emissions and removals back to 2000, it did not include the values for 1990, 1994, 1995 and 1996, which were included in the first and second national communications. In response to technical clarification sought by the TTE, Armenia explained that there is not sufficient detailed data for recalculations for the years before 2000; further, it also clarified that 1994 was not representative for Armenia, as the economy in that period was in transition from a planned to a market economy. The TTE noted that the transparency of the Party's reporting would be further improved by including the reasons why a consistent time series back to all the years reported in the previous national communications cannot be included in the BUR.

33. In accordance with decision 17/CP.8, non-Annex I Parties are also encouraged to use their country-specific and regional emission factors and activity data for key sources, or, where these do not exist, to propose plans to develop them in a scientifically sound and consistent manner. Armenia has developed and used country-specific emission factors to estimate the combustion of gas, and has identified this issue as an area for further improvement. The Party indicated its interest in applying higher-tier methodologies for other key sources by developing country-specific emission factors.

34. In accordance with decision 17/CP.8, annex, paragraph 18, Armenia included an analysis of the difference between the CO<sub>2</sub> emissions in the energy sector estimated using the reference approach and the sectoral approach. Armenia mentioned that the difference (approximately 4 per cent) can be explained, among other things, by the fact that the natural gas leakage from pipelines is included in apparent consumption in the reference approach estimate.

35. Armenia has provided limited information on the uncertainty analysis in its NIR. This includes an estimate of the total weighted average uncertainty for the energy sector and for some other subsectors, such as aerosol use in foam and fire production, and some activity data for the waste sector and for the agriculture, forestry and other land use (AFOLU) sector (livestock). However, an overall analysis of the uncertainty from key sources of GHGs was not included in the BUR and/or the NIR. As stated by Armenia during the technical analysis, the uncertainty assessment will be improved in the next BUR. The TTE noted that the provision of a more detailed description of the uncertainty assessment would further enhance transparency, in accordance with decision 17/CP.8, annex, paragraph 24.

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

36. As indicated in table 2 above, Armenia reported in its BUR, mostly in accordance with paragraphs 11–13 of the UNFCCC reporting guidelines on BURs, information on mitigation actions and their effects, to the extent possible.

37. In its first BUR, Armenia considers two different mitigation scenarios. The WEM scenario considers mitigation actions “envisaged by sectoral programmes in line with sectoral development objectives” (see para. 14 above). It includes those mitigation actions which have been started or are highly likely to be implemented because financing has been secured. The overall estimated emission reductions according to this scenario are 767.70 kt CO<sub>2</sub> eq by 2020, 1,778.70 kt CO<sub>2</sub> eq by 2025 and 5,901.50 kt CO<sub>2</sub> eq by 2030. The WAM scenario accounts for “mitigation actions with a relatively high degree of uncertainty for implementation” as financing has not yet been secured. The overall estimated emission reductions according to this scenario are 1,168.70 kt CO<sub>2</sub> eq by 2020, 2,428.70 kt CO<sub>2</sub> eq by 2025 and 6,647.50 kt CO<sub>2</sub> eq by 2030.

38. The energy sector represents approximately 70 per cent of the total national emissions of Armenia based on the 2012 national inventory data. Accordingly, most mitigation actions are related to either energy production or consumption, and the energy sector contributes most to the total projected emission reductions. According to the WAM scenario, the GHG emission reduction contribution from the energy sector amounts to around 89 per cent for 2020, 87 per cent for 2025 and 95 per cent for 2030. The BUR also includes mitigation actions related to the industrial processes, AFOLU and waste sectors.

39. Armenia has reported in the BUR its Long-term Development Strategy Program for 2014–2025 as the overarching framework for strategic coordination of the development of government policy in the long term, describing the national circumstances and overall development challenges. The programme considers all key economic sectors. Other national strategy and programme papers concentrate on the energy sector. The strategy document titled “Republic of Armenia energy system long-term (up to 2036) development ways” presents a long-term vision for the development of the national energy system. The main driver of this strategy is the energy security of the country. The strategy also supports the “development and expansion of economically viable and technically available renewable energy sources”. Other strategy papers that facilitate mitigation actions in the energy sector are: the Energy Security Action Plan for 2014–2020, the Second National Energy Efficiency Action Plan (as at 2015 the action plan was under discussion) and the



Scaling Up Renewable Energy Programme. For the agriculture sector, the respective climate change mitigation actions are consistent with the 2015–2025 Agriculture Development Strategy, which provides an overall profile of national agricultural development. Furthermore, Armenia has provided information on the Eastern Europe Energy Efficiency and Environment Partnership, an international agreement that enhances mitigation actions.

40. In the energy sector, three major groups of mitigation actions are reported: the new nuclear power plant, new renewable energy sources, and demand-side mitigation measures, including energy efficiency measures in all end-use sectors. According to the information reported in the BUR, the construction of the new nuclear power plant (1,028 MW) can reduce emissions by 3,959 kt CO<sub>2</sub> eq in 2030. The development of new renewable energy sources, such as small hydropower plants, wind farms, geothermal power plants and solar photovoltaic systems, has the capacity to reduce emissions by 177 kt CO<sub>2</sub> eq in 2020, 961 kt CO<sub>2</sub> eq in 2025 and 1,065 kt CO<sub>2</sub> eq in 2030 compared with the level of emissions in the scenario without measures. The implementation of additional mitigation actions will increase the estimated emission reductions by an additional 81 kt CO<sub>2</sub> eq, 269 kt CO<sub>2</sub> eq and 269 kt CO<sub>2</sub> eq in 2020, 2025 and 2030, respectively. During the technical analysis, Armenia informed the TTE that progress is being made with the realization of the additional measures related to wind and solar energy production.

41. The demand-side mitigation actions are estimated to reduce emissions by 523 kt CO<sub>2</sub> eq in 2020, 561 kt CO<sub>2</sub> eq in 2025 and 558 kt CO<sub>2</sub> eq in 2030. The BUR states that if Armenia is able to implement additional demand-side mitigation actions, the estimated emission reductions will increase by an additional 257 kt CO<sub>2</sub> eq, 323 kt CO<sub>2</sub> eq and 475 kt CO<sub>2</sub> eq in 2020, 2025 and 2030, respectively. The mitigation activities cover CO<sub>2</sub> and CH<sub>4</sub> emissions. The assessment of the emission reductions was undertaken using the Long-range Energy Alternatives Planning (LEAP)-Armenia model, which calculated the emission reductions from fuel combustion and the associated reductions of fugitive emissions from reduced generation of thermal power plants. The BUR does not specify any time frames for the ongoing and planned demand-side measures included in table 3.3; therefore, the TTE noted that the transparency of the Party's reporting would be enhanced by providing this information. The TTE also noted that no progress indicators have been reported for the additional measures. During the technical analysis, Armenia explained that the provision of progress indicators is not relevant for these measures at this stage.

42. With respect to the IPPU sector, Armenia plans to implement clinker production technology upgrades in cement factories, which will involve the implementation of three technological improvements. During the technical analysis, Armenia clarified that two of those measures have an impact on both the process emissions and the emissions related to fuel use. Since the major part of the GHG emission reduction comes from industrial processes, Armenia considered these mitigation measures as industry-related measures.

43. Armenia reported two mitigation actions for the AFOLU sector. The first considers activities related to the use of part of the manure and bird droppings from poultry farms for biogas production and power generation in biogas power plants. The emission reduction involves CH<sub>4</sub> and N<sub>2</sub>O emissions and is accounted for under the energy generation sector. The second mitigation action relates to afforestation and reforestation measures planned by the Party. The anticipated emission reductions from the AFOLU sector amount to about 90 kt CO<sub>2</sub> eq for 2020, 121 kt CO<sub>2</sub> eq for 2025 and 121 kt CO<sub>2</sub> eq for 2030. This mitigation potential includes forest protection measures, which are not reported in table 3.3 of the BUR. Further, the BUR does not provide information on the assumptions used, or on the methodology used for the assessment of this mitigation potential. The TTE noted that the transparency of the Party's reporting on measures in the AFOLU sector could be enhanced by providing this information.

44. Armenia reported three mitigation actions for the waste sector: the Nubarashen Landfill Gas Capture and Power Generation CDM Project, which is ongoing, the Kotayk Solid Waste Management Project, and Solid Waste Management in Yerevan, which are planned actions. Implementation of the above-mentioned mitigation activities would result in emission reductions in the waste sector of approximately 40 kt CO<sub>2</sub> eq in 2020, 185 kt CO<sub>2</sub> eq in 2025 and 190 kt CO<sub>2</sub> eq in 2030. The BUR does not provide information on the specific methodologies or assumptions used for the estimation of this GHG emission reduction potential. The TTE noted that the transparency of the Party's reporting on measures in the waste sector could be enhanced by providing this information.

45. Armenia reported information on clean development mechanism (CDM) projects in its first BUR. According to the BUR, the Party has registered six CDM projects. One CDM project is briefly described in the BUR, but the Party does not provide further information on the other five projects. During the technical analysis, Armenia provided further details and explained that this information was not included in the BUR since these projects have not yet issued certified emission reductions. Armenia also explained that it has no experience with other market instruments. The grid emission factor is registered as a standardized baseline and is used in the assessment of the GHG impact of relevant mitigation actions. The TTE noted that the transparency of the Party's reporting on international market mechanisms could be enhanced by providing more details on CDM projects in the country.

46. Armenia plans to develop its domestic MRV system before 2020, prior to the start of the implementation of the Paris Agreement. At the national scale, the domestic inventory system is considered as a key measurement component by the Party. In order to measure specific effects of national mitigation actions as well as the support needed and received, the Party plans to enhance coordination and define the responsibilities of the authorized body for the development of national GHG inventories and for measurement and reporting on mitigation policies, activities and projects. In its BUR, Armenia explained that the MRV process is an instrument for multi-stakeholder engagement. Moreover, the national MRV system is considered by the Party as a lesson learned for the municipalities that aim to develop an MRV system at the local level, starting in 2020, as members of the "Covenant of Mayors".

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

47. As indicated in table 3 above, Armenia reported in its BUR, mostly in accordance with paragraphs 14–16 of the UNFCCC reporting guidelines on BURs, information on finance, technology and capacity-building needs and support received.

48. In order to fulfil the obligations arising from the decisions of the Conference of the Parties taken at its sixteenth and seventeenth sessions in relation to the submission of national communications and BURs, Armenia indicated that it requires further support to continue the development and consolidation of existing technical and institutional capacities and to continue the efforts of integrating climate change into national policies, plans and programmes.

49. In its BUR, Armenia identified the type of support it requires to address constraints and gaps in tabular format, as outlined below, including support to:

- (a) Ensure the sustainability and quality control of the national GHG inventory process, which includes capacity-building of national experts on the requirements of the 2006 IPCC Guidelines, training of experts, and the inclusion of GHG emissions/removals from forest land and wetlands;

(b) Conduct a GHG mitigation analysis for the various sectoral development plans and programmes;

(c) Set up the domestic MRV system for identification of needs for establishing national legal/formal arrangements and the system for the collection and management of data;

(d) Fulfil the obligations related to the reporting on national communications and BURs, in terms of financial support required; and for the creation of financial mechanisms to implement climate change mitigation and adaptation projects financed from a civil revolving investment fund which has yet to be established. This fund should be regularly replenished through environmental fees, and ecosystem services, including fees for using climatic resources (carbon taxes).

50. The Party also indicated that it is currently facing difficulties in coordinating and determining how the various international donor organizations provide support for the implementation of climate change activities.

51. In the BUR, Armenia also reported that support in establishing an institutional framework has been requested, which will contribute to the creation of an enabling environment for the preparation of the technology needs assessment, the dissemination of information and cooperation with the Climate Technology Centre and Network, and the identification of barriers for technology transfer.

52. Financial resources, technology transfer, capacity-building and technical support received was reported in table 4.1 of the BUR. The table captures information on the support received from bilateral and multilateral sources, including support provided through the Global Environment Facility towards the preparation of the Party's first BUR and its national communications since 2011. The information is disaggregated by type of support (financial resources, technical support, capacity-building and technology transfer). A brief description of the objective of the project/support, as well as the donor/implementing agency, is also provided.

## **5. Domestic measurement, reporting and verification**

53. As indicated in table 2 above, Armenia reported in its BUR, in accordance with paragraph 13 of the UNFCCC reporting guidelines on BURs, information on the description of domestic MRV arrangements. The domestic MRV system covers mitigation actions only; therefore, the analysis of this information is provided in chapter II.C.3 of this report.

## **D. Identification of capacity-building needs**

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

(a) Developing additional country-specific emission factors and applying higher-tier methodologies, especially for the key category analysis;

(b) Developing procedures and institutional arrangements for data management to collect, compile and validate activity data in accordance with the 2006 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF, including for the LULUCF sector, for which the sharing of experiences with other more experienced countries could help to improve the coordination of data collection on land use, which involves several institutions;

(c) Further enhancing the accuracy and completeness of the GHG inventory by analysing data for subcategories, in accordance with the sectoral report tables annexed to the 2006 IPCC Guidelines;

(d) Further enhancing the uncertainty assessment of emissions, especially the estimation of the emission factors for the different activity data;

(e) Further strengthening the technical capacity of institutions and experts at the domestic level for the preparation of national GHG inventories on a continuous basis, targeting both experts already involved in the inventory process and other experts within the institutions in charge of the inventory;

(f) Defining and reporting the methodologies and assumptions used for estimating the GHG impact of mitigation actions in the non-energy related sectors.

55. The TTE notes that, in addition to those identified during the technical analysis, Armenia reported the following capacity-building needs in its BUR:

(a) Capacity-building of national experts in relation to the requirements of the 2006 IPCC Guidelines and related software;

(b) Training of experts on the application of international experience and use of satellite data (global information system) for reducing uncertainties in assessing emissions/removals from forestry and other land use;

(c) The inclusion of GHG emission/removal assessment provisions for forest accounting (inventory) related training programmes for local specialists;

(d) Training on the development of a GHG inventory for wetlands according to the requirements of the 2006 IPCC Guidelines;

(e) Ensuring that the development plans and programmes of various sectors are assessed in terms of their contribution to climate change mitigation; currently, this assessment is not conducted, which hampers the identification and analysis of mitigation impacts;

(f) Continuing the training of local experts on the use of LEAP software for conducting analyses of the energy system;

(g) Undertaking targeted studies on the integrated social cost–benefit analysis of mitigation measures;

(h) Capacity-building on learning the requirements of new carbon financing mechanisms and understanding the different reporting requirements of donors for the development of project proposals and financial reporting;

(i) The creation of financial mechanisms to implement climate change mitigation and adaptation projects to be financed from a civil revolving investment fund, which should be regularly replenished through environmental fees, and ecosystem services, including fees for using climatic resources (carbon taxes).

### III. Conclusions

56. The TTE concludes that most of the elements of information listed in paragraph 3(a) of the ICA modalities and guidelines have been included in the first BUR of Armenia, as follows:

(a) Armenia reported in its BUR on its national circumstances, in accordance with decision 17/CP.8, annex, paragraph 3. Armenia provided a description of its national

circumstances, including information on the features of its geography, climate and economy that may affect its ability to deal with climate change mitigation. It also described in its BUR the existing institutional arrangements relevant to the preparation of its national communications and BURs. Legal arrangements are ongoing that will clarify the roles and responsibilities of the overall coordinating entity, including with regard to the preparation of BURs and national communications on a continuous basis;

(b) Armenia reported information on its GHG inventory in its BUR, mostly in accordance with paragraphs 3–10 of the UNFCCC reporting guidelines on BURs and paragraphs 8–24 of the “Guidelines for the preparation of national communications from Parties not included in Annex I to the Convention” contained in the annex to decision 17/CP.8. Overall, the Party provided comprehensive information on its national GHG inventory in accordance with relevant decisions, using the 2006 IPCC Guidelines, the IPCC good practice guidance and the IPCC good practice guidance for LULUCF. The TTE commends the Party for using more recent IPCC guidelines, and welcomes the efforts made by the Party to provide additional information in the NIR submitted in conjunction with the BUR. The TTE considers that the completeness and transparency of the Party’s reporting would be further enhanced by providing additional information on the uncertainty assessment for key sources;

(c) Armenia reported in its BUR, mostly in accordance with paragraphs 11–13 of the UNFCCC reporting guidelines on BURs, information on mitigation actions and their effects, to the extent possible. The Party’s reporting on mitigation actions is comprehensive and the TTE commends the Party for its transparent reporting on the distinction between the WEM and WAM scenarios. The transparency of the reporting could be further enhanced by providing information on the methodologies and assumptions used in the non-energy sectors, and time frames for ongoing and planned actions;

(d) Armenia reported in its BUR, mostly in accordance with paragraphs 14–16 of the UNFCCC reporting guidelines on BURs, information on finance, technology and capacity-building needs and support received. Armenia transparently reported on the gaps and constraints as well as support needed and received to cover the technology needs assessment; the sustainability of the GHG inventory process; the GHG mitigation analysis; and the setting up of the domestic MRV system on a continuous basis. The Party’s funding needs include support for the preparation of BURs and national communications.

57. The TTE, in consultation with Armenia, identified six<sup>1</sup> capacity-building needs related to the facilitation of reporting in accordance with the UNFCCC reporting guidelines on BURs and to participation in ICA in accordance with the ICA modalities and guidelines, taking into account Article 4, paragraph 3, of the Convention. Armenia considers all capacity-building needs listed in chapter II.D as the priority.

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<sup>1</sup> This refers to the number of capacity-building needs listed in chapter II.D.

## Annex

### **Documents and information used during the technical analysis**

#### **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 Armenia. Available at <<http://unfccc.int/8722.php>>.

National greenhouse gas inventory report of Armenia for 2012. Available at <<http://unfccc.int/8722.php>>.

First national communication of Armenia. Available at <[http://unfccc.int/national\\_reports/non-annex\\_i\\_natcom/items/2979.php](http://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php)>.

Second national communication of Armenia. Available at <[http://unfccc.int/national\\_reports/non-annex\\_i\\_natcom/items/2979.php](http://unfccc.int/national_reports/non-annex_i_natcom/items/2979.php)>.