



United Nations

FCCC/SBI/ICA/2017/TASR.1/JAM



Framework Convention on  
Climate Change

Distr.: General  
7 September 2017

English only

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## **Technical analysis of the first biennial update report of Jamaica submitted on 18 November 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. Further, paragraph 41(f) of that decision states that non-Annex I Parties shall submit a BUR every two years, either as a summary of parts of their national communication in the year in which the national communication is submitted or as a stand-alone update report. As mandated, the least developed country Parties and small island developing States may submit BURs at their discretion. This summary report presents the results of the technical analysis of the first BUR of Jamaica conducted by a team of technical experts in accordance with the modalities and procedures contained in the annex to decision 20/CP.19.

GE.17-15603(E)



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## **I. Introduction and process overview**

### **A. Introduction**

1. The process of international consultation and analysis (ICA) consists of two steps: the technical analysis of the submitted biennial update report (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. 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 BUR by December 2014. Paragraph 41(f) of that decision states that non-Annex I Parties shall submit a BUR every two years, either as a summary of parts of their national communication in the year in which the national communication is submitted or as a stand-alone update report.
3. Further, according to paragraph 58(a) of the same decision, the first round of ICA is to be conducted for non-Annex I Parties commencing within six months of the submission of the Parties' first BURs. The frequency of developing country Parties' participation in subsequent rounds of ICA, depending on their respective capabilities and national circumstances, and the special flexibility for small island developing States and the least developed country Parties, will be determined by the frequency of the submission of BURs.
4. This summary report presents the results of the technical analysis of the first BUR of Jamaica 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**

5. Jamaica submitted its first BUR on 18 November 2016. During the technical analysis, Jamaica attributed the submission of its BUR after the due date of December 2014 to: a delay in accessing the funds for the preparation of the BUR; the establishment of the Climate Change Division in the Ministry of Economic Growth and Job Creation; the need for sufficient time to become familiar with the procedures and modalities for the development of the BUR and the need for time to complete procedures to facilitate the preparation of the BUR, such as selecting experts.
6. The technical analysis of the BUR took place from 22 to 26 May 2017 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: Ms. Helen Plume (New Zealand), Mr. Ioannis Sempos (Greece), Ms. Anna Sikharulidze (Georgia), Mr. Ching Tiong Tan (Malaysia), Ms. Ruleta Camacho Thomas (former member of the Consultative Group of Experts on National Communications from Parties not included in Annex I to the Convention (CGE) from Antigua and Barbuda) and Mr. Jongikhaya Witi (South Africa). Ms. Plume and Mr. Witi were the co-leads. The technical analysis was coordinated by Ms. Alma Jean and Mr. Soheli Pasha (secretariat).
7. During the technical analysis, in addition to the written exchange, through the secretariat, to provide technical clarifications on the information reported in the BUR, the TTE and Jamaica engaged in consultation<sup>1</sup> on the identification of capacity-building needs for the preparation of BURs and participation in the ICA process. Following the technical analysis of Jamaica's first BUR, the TTE prepared and shared a draft summary report with Jamaica on 10 August 2017 for its review and comment. Jamaica, in turn, provided its feedback on the draft summary report on 25 August 2017.

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<sup>1</sup> This consultation was conducted through teleconferencing.

8. The TTE responded to and incorporated the Party's comments referred to in paragraph 7 above and finalized the summary report in consultation with Jamaica on 25 August 2017.

## **II. Technical analysis of the biennial update report**

### **A. Scope of the technical analysis**

9. 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) (decision 2/CP.17, annex III), 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).

10. The remainder of this chapter presents the results of each of the three parts of the technical analysis of Jamaica's BUR outlined in paragraph 9 above.

### **B. Extent of information reported**

11. The elements of information referred to in paragraph 9(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 needed and received.

12. 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 11 above have been included in the BUR of the Party concerned. The TTE considers that the reported information is partially consistent with the UNFCCC reporting guidelines on BURs. Specific details on the reporting on each of the required elements are provided in annex I.

### **C. Technical analysis of the information reported**

13. The technical analysis referred to in paragraph 9(b) above aims to increase the transparency of mitigation actions and their effects, without engaging in a discussion on the appropriateness of those actions. Accordingly, the technical analysis focused on the transparency of the information reported in the BUR.

14. 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.

15. 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**

16. As per the scope defined in paragraph 2 of the UNFCCC reporting guidelines on BURs, the BUR 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. In 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.

17. In accordance with decision 17/CP.8, annex, paragraph 3, Jamaica reported in its first BUR the following information on its national circumstances. Jamaica is a small island developing State in the Caribbean Sea with a total land area of 10,990 km<sup>2</sup> and a population of approximately 2.7 million, with a tropical climate. Jamaica reported a warming trend in surface air temperature and a predicted increase in the intensity of hurricanes. Jamaica also reported that it is located in the hurricane belt of the Atlantic Ocean and consequently is adversely affected by tropical storms and hurricanes. Several such recent weather-related events as well as periods of drought have severely affected its economic growth. Jamaica further reported that the agriculture sector is considered to be one of its main drivers of economic growth, contributing approximately 6.8 per cent of the island's gross domestic product in 2012.

18. Information on Jamaica's first long-term National Development Plan states that its vision is to achieve developed country status by 2030. This envisages a major transformation from a middle-income developing country to one that affords its citizens a high quality of life and world-class standards in critical areas including education, health care, nutrition, basic amenities, access to environmental goods and services, civility and social order. In the Jamaican context, these elements are fundamental to the achievement of progress towards a more sustainable society that integrates and balances the economic, social, environmental and governance components of national development. Jamaica has recognized that climate change is now a major development problem. Jamaica's priorities related to mitigation of climate change are reflected in its intended nationally determined contribution (INDC), which was submitted to the UNFCCC in November 2015. According to the INDC, the equivalent of 1.1 million metric tonnes of carbon dioxide (CO<sub>2</sub>) will be mitigated per year by 2030 compared to the 'business as usual' (BAU) scenario. Concerning its priorities related to adaptation, Jamaica has identified five sectors as the most vulnerable to the negative impacts of climate change: water resources, agriculture, human health, coastal resources including human settlements, and tourism.

19. Jamaica described in its BUR both existing and planned 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 legal status and roles and responsibilities of the overall coordinating entity, the Climate Change Division of the Ministry of Economic Growth and Job Creation; the involvement of other institutions and experts; quality assurance/quality control procedures for the preparation of the GHG inventory and future improvement plans. However, the individual roles and responsibilities of the agencies were not reported. The TTE noted that including this information in the BUR would further enhance the transparency of the reported information. Concerning mechanisms for information and data exchange, Jamaica reported that agreements to facilitate data sharing have not been established and consequently the emissions inventory team are required to work with the data that are voluntarily shared by data providers (both within and external to the Government). Jamaica also indicated that significant improvements need to be made to its institutional arrangements, and reported that it has recognized several gaps in the current institutional arrangements for the preparation of national communications, BURs and GHG inventories. In an effort to address these issues, a review of these arrangements is being conducted, which Jamaica anticipates concluding in 2018.

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

20. As indicated in table 1 in annex I, Jamaica reported information on its GHG inventory in its BUR, partially 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.

21. Jamaica submitted its first BUR in 2016 and the GHG inventory reported is for the year 2012, which is consistent with the reporting time frame.

22. GHG emissions and removals for the 2012 inventory were estimated using mainly a tier 1 methodology from the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* (hereinafter referred to as the 2006 IPCC Guidelines), in particular for estimating emissions from the energy sector. Tier 2 methodologies were used where input data allowed, for some of the sub-sectors of the industrial processes and product use, agriculture and waste sectors.

23. With regard to the methodologies used, information was reported transparently, including the specific methodology and the tier levels and sources of activity data used for each category and subcategory. However, the information reported on methodologies did not include the agriculture and land use, land-use change and forestry (LULUCF) sectors. During the technical analysis, Jamaica clarified why this information was not reported and also provided additional information, including the methodologies, activity data, emission factors and assumptions applied in the estimation of emissions and removals from the latter two sectors. The TTE noted that including this information on the agriculture and LULUCF sectors in future GHG inventory reporting could further enhance the transparency of the Party’s BURs.

24. The total GHG emissions for 2012 reported in the BUR,<sup>2</sup> including and excluding LULUCF, amounted to 13,296 and 14,922 kt CO<sub>2</sub> eq, respectively. This compares with 14,296 kt CO<sub>2</sub> eq and 15,918 kt CO<sub>2</sub> eq, respectively, in 2006. The GHG emissions excluding LULUCF reported for 2012 include 7,387 kt CO<sub>2</sub>, 852 kt CO<sub>2</sub> eq methane (CH<sub>4</sub>) and 6,594 kt CO<sub>2</sub> eq nitrous oxide (N<sub>2</sub>O). Jamaica reported 89 kt CO<sub>2</sub> eq emissions of hydrofluorocarbons (HFCs) for 2012, but did not report emissions of perfluorocarbons (PFCs) or sulphur hexafluoride (SF<sub>6</sub>) as there were no quantifiable sources of those emissions. In all the summary tables of emissions reported in the BUR, SF<sub>6</sub> was not included. The TTE noted that the inclusion of SF<sub>6</sub> in the summary tables, along with relevant notation keys consistent with the IPCC guidelines (for example, “NO” (not occurring)), would further enhance the transparency of the GHG inventory reporting.

25. Other emissions reported include 43.98 kt nitrogen oxides (NO<sub>x</sub>), 82.45 kt carbon monoxide, 16 kt sulphur oxides (SO<sub>x</sub>) and 29.65 kt non-methane volatile organic compounds (NMVOC). Jamaica applied notation keys in the summary table of emissions in 2012 (table 0.1) where numerical data were not provided. In some cases, the use of notation keys was not consistent with the IPCC guidelines, such as the use of the notation key “NO” for PFCs, where it was applied at the category level but not the sectoral and national levels, and a notation key not being reported for SF<sub>6</sub> even though Jamaica reported that there were no quantifiable sources of such emissions. In addition, the notation keys “NA” (not applicable), “IE” (included elsewhere) and “NE” (not estimated) were reported for some categories without providing explanation in the BUR. The TTE noted that using notation keys consistent with the IPCC guidelines could further enhance the transparency of the GHG inventory reporting.

26. Jamaica did not include information addressing the tables included in annex 3A.2 to the *Good Practice Guidance for Land Use, Land-Use Change and Forestry* and the sectoral reporting tables annexed to the *Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories* because the Party was using the 2006 IPCC Guidelines.

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<sup>2</sup> Following the submission of its BUR, Jamaica submitted an erratum with corrected GHG emission tables and figures.

27. GHG emissions in 2012 from the energy sector comprised 6,909.33 kt CO<sub>2</sub>, 1.41 kt CH<sub>4</sub> and 0.24 kt N<sub>2</sub>O. The main sources of emissions were CO<sub>2</sub> from fuel combustion in energy industries, manufacturing industries and transport.

28. Industrial process emissions in 2012 comprised 436.56 kt CO<sub>2</sub>, 52.39 kt CO<sub>2</sub> eq HFC-134 and 39.43 kt CO<sub>2</sub> eq other HFCs,<sup>3</sup> with CO<sub>2</sub> from mineral products being the main source of emissions. Jamaica reported emissions of CH<sub>4</sub>, N<sub>2</sub>O and precursor gases from mineral products using the notation key “NA” without clarifying the reason for this. The TTE noted that the transparency of the GHG inventory reporting could be further enhanced by reporting in the BUR information on the notation keys applied consistent with the IPCC guidelines.

29. For the agriculture sector, Jamaica reported GHG emissions of 12.87 kt CH<sub>4</sub> and 20.88 kt N<sub>2</sub>O for 2012. N<sub>2</sub>O emissions from manure management and agricultural soils were the key categories and the most relevant emission sources in the sector. Jamaica used notation keys to report emissions of the precursor gases without explaining the reasons, including “IE” for NO<sub>x</sub> emissions from manure management; and “NE” for NMVOC and SO<sub>x</sub> emissions from field burning of agricultural residues. While the sources of emissions from the sector were explained, the information reported did not include the methodology, activity data, emission factors and assumptions applied in estimating emissions from the sector. During the technical analysis, Jamaica clarified why this information was not reported and also provided additional information on the agriculture sector, which described the data sources, emission factors and methodology used. However, the additional information did not include clarification on the use of notation keys. The TTE noted that the transparency of the GHG inventory reporting could be further enhanced by reporting in the BUR information on the methodology, activity data, emission factors and assumptions applied in estimating emissions of the sector, and on notation keys used consistent with the IPCC guidelines.

30. For the LULUCF sector, Jamaica reported GHG emissions and removals for 2006–2012. Overall, the net removals from the LULUCF sector fluctuated between a minimum of –1,616 kt CO<sub>2</sub> in 2011 and a maximum of –1,685 kt CO<sub>2</sub> in 2006. Net removals reported for 2012 amounted to –1,626 kt CO<sub>2</sub>. The BUR includes estimates for the categories changes in forest and other woody biomass stocks, forest and grassland conversion, and other, excluding the categories abandonment of managed lands and CO<sub>2</sub> emissions and removals from soils. For the three categories reported in the BUR, Jamaica also used the notation key “NA” to report the precursor gases (table 0.1) without explaining why. Information reported did not include the methodology, activity data, emission factors and assumptions applied in estimating emissions from the sector. During the technical analysis, Jamaica clarified why this information was not reported and also provided additional information on the LULUCF sector, which described the data sources, emission factors and methodology used. However, the additional information did not include clarification on the use of notation keys. The TTE noted that the transparency of the GHG inventory reporting could be further enhanced by reporting in the BUR information on the methodology, activity data, emission factors and assumptions applied in estimating emissions of the sector, and on notation keys used consistent with the IPCC guidelines.

31. For the waste sector, Jamaica reported GHG emissions of 38.62 kt CO<sub>2</sub>, 26.30 kt CH<sub>4</sub> and 0.15 kt N<sub>2</sub>O for 2012, with CH<sub>4</sub> from solid waste disposal sites being a key category. The information reported in the BUR also includes emissions from wastewater handling, waste incineration and open burning of waste. The estimations were calculated using the 2006 IPCC Guidelines, including the use of default values. In addition to CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O, the information reported includes emissions of precursor gases for all categories covered.

32. Jamaica did not include in its BUR an update of the GHG inventory data included in its second national communication, which addressed anthropogenic emissions and removals for 2000–2005. The information reported in the BUR indicates that attempts were

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<sup>3</sup> The TTE noted that the total emissions of HFC-134 and other HFCs is slightly higher than the value given for HFCs in paragraph 24 above.

made to obtain these data, but the Party did not consider the data to be complete. As such, the BUR only covered emission estimation for 2006–2012. During the technical analysis, Jamaica indicated that a proper data management system needs to be established along with training for national experts on relevant methodologies for enhancing the completeness of data. The TTE noted that the transparency of the GHG inventory reporting could be further enhanced by reporting in the BUR a time series encompassing all previously reported years.

33. Jamaica described in its BUR the institutional framework for the preparation of its 2006–2012 GHG inventories. The Climate Change Division of the Ministry of Economic Growth and Job Creation is the governmental body responsible for Jamaica’s GHG inventory, which was prepared with the support of the United Nations Development Programme (UNDP), which assisted Jamaica in implementing its GHG inventory system. Jamaica reported that there is currently no provision for continuous input from national experts once the contract for BUR preparation has ended. During the technical analysis, Jamaica clarified that the inventory preparation for the BUR was supported by international experts. As such, it is critical to internalize the capacity to the sectoral experts and the Climate Change Division to facilitate a continuous process for the preparation of the GHG inventory.

34. Jamaica reported a key category analysis that was performed for the level of emissions. The analysis identified 26 key categories, comprising mostly CO<sub>2</sub> from the energy sector and N<sub>2</sub>O from the agriculture sector. The BUR includes information on quality assurance/quality control measures on a sectoral basis for the energy, industrial processes and product use and waste sectors, but not for the agriculture and LULUCF sectors. During the technical analysis, Jamaica clarified why this information was not reported and also provided additional information for the agriculture and LULUCF sectors. The TTE noted that including the information on the agriculture and LULUCF sectors in the BUR could further enhance the transparency of the information reported.

35. Jamaica reported information on CO<sub>2</sub> fuel combustion using both the sectoral and reference approaches. Emissions calculated using both approaches showed similar results because the same data from the national energy balance were used. The information reported in the BUR indicates that a better understanding of the approach used to compile the data for the national energy balance is needed in order to support activities to compile two independent datasets using the reference and sectoral approaches. The TTE noted that the transparency of the GHG inventory reporting could be further enhanced by using independent datasets for the sectoral and reference approaches. During the technical analysis, the Party indicated that capacity-building is needed for national experts in compiling the independent datasets.

36. Information was reported on international aviation and marine bunker fuels. The BUR includes an estimation of the direct and precursor GHG emissions. The TTE commends Jamaica for reporting this information in the BUR.

37. Jamaica reported information on its use of global warming potential values provided by the IPCC in its Second Assessment Report

38. Jamaica reported information on the uncertainty assessment (annual estimates and trend) of its national GHG inventory. The uncertainty analysis is based on the propagation of errors approach and covers all source categories and all direct GHG emissions. The results obtained, as reported in the BUR, revealed that the level uncertainty for emissions is 10.18 per cent (2.79 per cent excluding LULUCF) and the trend uncertainty is 3.52 per cent (0.91 per cent excluding LULUCF). The TTE commends Jamaica for providing in its BUR detailed information on the selected uncertainty values for activity data and emission factors and the reasons for their selection.

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

39. As indicated in table 2 in annex I, Jamaica reported in its BUR, partially in accordance with paragraphs 11–13 of the UNFCCC reporting guidelines on BURs, information on mitigation actions and their effects, to the extent possible.



40. In its BUR, Jamaica frames its national mitigation planning and actions in the context of its INDC, which covers the energy sector. Jamaica reported that, under the INDC, the anticipated minimum annual reduction of GHG emissions is expected to be 7.8 per cent below BAU level by 2030. Conditional to obtaining international support, the annual reduction could reach 10 per cent below BAU level by 2030.

41. Jamaica reported a summary of its mitigation actions in tabular format in the BUR. Table ES6, entitled “Approved mitigation projects” lists mitigation projects, including projects on demand-side management, energy efficiency and renewable energy as well as the projects for the preparation of the first, second and third national communications. The tables entitled “Locally implemented mitigation projects” and “Current renewable energy research projects in Jamaica” include projects in the areas of research and demonstration on renewable energy sources, including biomass/biofuels, solar, wind and hydroenergy. The table entitled “Measures to mitigate climate change” includes only one entry, which is Jamaica’s INDC. Jamaica also mentions its first nationally appropriate mitigation action (NAMA), developed by the Ministry of Science, Energy and Technology (MSET) in collaboration with the Organización Latinoamericana de Energía (OLADE) and the Climate Change Division, which focuses on scaling up renewable electricity deployment. All mitigation actions reported by Jamaica are for the energy sector. Consistent with decision 2/CP.17, annex III, paragraph 12(a), Jamaica reported the names and descriptions of mitigation actions. Descriptions of the actions were not provided for the actions listed in table ES6. Information on coverage (gases) and quantitative goals was not reported in the BUR for mitigation actions other than the INDC. The TTE noted that the transparency of the information reported could be enhanced if this information were included in the BUR for all individual mitigation actions.

42. Information on methodology, objectives and steps taken or envisaged to achieve the action was reported for the INDC, but not for the other mitigation actions reported. Progress in the implementation of the mitigation actions, in terms of status of measures or achieved outcomes, was reported for the actions listed in the mitigation actions section, but not for actions listed in table ES6. The underlying steps, as well as results achieved were reported for the INDC only, not for individual mitigation actions. Results achieved, in terms of estimated GHG emission reductions, were not reported. The TTE noted that transparency could be further enhanced by including information on methodologies, objectives, steps taken or envisaged, as well as expected results, including estimated emission reductions for all mitigation actions.

43. Jamaica provided information on its involvement in international market mechanisms as a Party to the Kyoto Protocol and reported that it has established a national designated authority and has a registered clean development mechanism (CDM) project activity. During the technical analysis, Jamaica clarified that the registered CDM project activity is entitled “Project 0239: Wigton Wind Farm Project (WWF).” The TTE noted that the transparency of the information reported could be enhanced if this information were included in the BUR.

44. Jamaica reported that it is in the process of exploring the establishment of a domestic MRV system for mitigation actions. In addition, the Party reported that it is currently working to build the MRV framework for its NAMA on scaling up renewable electricity deployment, with the main focus on institutional capacity-building.

#### **4. Cross-cutting domestic measurement, reporting and verification**

45. As indicated in table 2 in annex I, Jamaica reported in its BUR, in accordance with paragraph 13 of the UNFCCC reporting guidelines on BURs, a description of its domestic MRV arrangements.

46. Jamaica reported that its domestic MRV system is in its embryonic stage and is currently being designed to focus on exploring how the establishment of the domestic MRV system can be best achieved within the Climate Change Division of the Ministry of Economic Growth and Job Creation. It will include the BUR and national communication preparation process, the GHG inventory system, the preparation of NAMAs, and MRV of support.

47. Furthermore, the Climate Change Division is working with MSET and OLADE to build the MRV framework for the NAMA, focusing on institutional capacity-building. Other NAMAs are to be developed, including through the project supported by the United States Agency for International Development (USAID), entitled “Climate Economic Analysis for Development, Investment and Resilience”, which will output a proposed NAMA based on identified prioritized actions for the energy, transportation, waste and finance sectors.

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

48. As indicated in table 3 in annex I, Jamaica reported in its BUR, partially in accordance with paragraphs 14–16 of the UNFCCC reporting guidelines on BURs, information on finance, technology and capacity-building needs and support received.

49. Jamaica identified its small size, stage of economic development, social challenges and vulnerability to climate change as well as recent impacts of severe weather-related events as constraints. In its BUR, Jamaica also identified the lack of staff and financial resources of the Climate Change Division as the main constraints and gaps that inhibit its capacity to execute its responsibilities in terms of mitigation actions, such as NAMAs, participating in the CDM or any new market mechanisms that are established under the UNFCCC and meeting its reporting obligations, such as its BUR. Regarding its capacity to report, Jamaica reported that the main constraint is the lack of the appropriate established institutional arrangements and it described the measures being taken to address this constraint.

50. Jamaica reported on support needed, indicating that it requires support to meet needs regarding capacity-building, technology transfer and finance. In particular, it reported that it requires support to enable it to: develop human resource capacity, in terms of the knowledge and capability to fulfil the requirements for preparing its BUR and participating in the ICA process, consistent with the UNFCCC reporting guidelines on BURs and the ICA modalities and guidelines; participate effectively in the CDM; and fulfil its responsibilities with respect to managing all aspects of mitigation including processes related to MRV and NAMAs. Further, Jamaica reported that it needs support to develop and operationalize a continuous MRV system for the GHG inventory, mitigation actions and support, in particular to link MRV of support to its national budgetary process. However, information on financial, technical and capacity-building needs are not sufficiently detailed. The TTE noted that by including more detailed information in its BUR Jamaica could enhance the transparency of the information reported.

51. Regarding technology transfer and capacity-building received, Jamaica reported that outside the projects listed in the BUR and funded by the Global Environment Facility (GEF) or other donors, it did not receive any technology transfer or capacity-building support. Jamaica also reported that it has technology needs and that support for technology and capacity-building is an area of concern that it recognizes must be addressed in the coming months. However, specific details with respect to these needs and concerns were not reported in the BUR. The TTE noted that the inclusion of specific and detailed information thereon in the next BUR could enhance the transparency of the reporting.

52. Jamaica reported information on the financial support received from the GEF and UNDP, and the technical support provided by the UNDP/United Nations Environment Programme Global Support Programme and the CGE. Jamaica also provided information, including in tabular format, on national and regional climate change related projects, for which it has or is currently receiving financial support from the GEF and the Adaptation Fund, such as the project title, implementing institution, funds provided and national contributions. Jamaica further reported that bilateral support was provided by donor agencies such as USAID and the Japan International Cooperation Agency, developed country Parties such as the European Union, Japan and the United Kingdom of Great Britain and Northern Ireland as well as several developing countries such as China and Kuwait; however, it is unclear if this support was of a technical or financial nature. Details on the activities and the extent of the support provided were not reported. The TTE noted

that including more specific and detailed information in the BUR could enhance the transparency of the information reported.

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

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

(a) Enhancing national capacity to participate in the ICA process, consistent with the UNFCCC reporting guidelines on BURs and the ICA modalities and guidelines;

(b) Enhancing national capacity to establish a comprehensive, fully developed and continuous MRV system, covering all aspects of the BUR reporting requirements, including domestic MRV of mitigation actions, including of NAMAs, the GHG inventory system, technology and financial support, and linking MRV of support to the national budgetary process;

(c) With respect to the institutional capacity for preparing BURs on an on-going basis, there is need for support to facilitate access to online tools, materials, manuals and experts for reporting with respect to all aspects of the BUR, including mitigation actions and their effects, the GHG inventory and cross-cutting areas such as MRV;

(d) Further enhancing the capacity of national sectoral experts from relevant institutions through refresher training prior to the preparation of the BUR, in the use of the UNFCCC reporting guidelines on BURs to facilitate transparent reporting of information without the need to outsource the BUR preparation work internationally;

(e) Enhancing national capacity to report on individual mitigation actions, consistent with the relevant reporting provisions outlined in the UNFCCC reporting guidelines on BURs, in particular paragraph 12(a–d);

(f) Enhancing the capacity of national sectoral experts from relevant institutions and the Climate Change Division, to prepare the GHG inventory on a continuous basis;

(g) Intense training on the use of the IPCC guidelines for calculating estimates of GHG emissions and removals on a sector-by-sector basis;

(h) Enhancing the capacity of national experts to compile the independent datasets to improve emission calculation, using both the reference and sectoral approaches;

(i) Training on data compilation, management and maintenance of databases with good practices in knowledge management on GHG data;

(j) Enhancing national capacity to participate effectively in the CDM;

(k) Enhancing national capacity to review and update the existing technology needs assessment (TNA).

54. The TTE noted that, in addition to those identified during the technical analysis, Jamaica reported in its BUR that the institutional arrangements are undergoing substantial review, which requires financial assistance and capacity-building. The Party mentioned the following capacity-building needs for institutional arrangements in all areas of BUR preparation, but in particular for the:

(a) GHG inventory system for mitigation actions including NAMAs;

(b) CDM;

(c) MRV of mitigation actions and support.

### **III. Conclusions**

55. The TTE conducted a technical analysis of the information reported in the first BUR of Jamaica in accordance with the UNFCCC reporting guidelines on BURs. The TTE concludes that the reported information is partially consistent with the UNFCCC reporting

guidelines on BURs and provides an overview of: national circumstances and institutional arrangements relevant to the preparation of BURs on a continuous basis; the national inventory of anthropogenic emissions by sources and removal by sinks of all GHGs not controlled by the Montreal Protocol; mitigation actions and their effects, including associated methodologies and assumptions; constraints and gaps, and related financial, technical and capacity-building needs, including a description of support needed and received; the level of support received to enable the preparation and submission of BURs; and domestic MRV. During the technical analysis, additional information was provided by Jamaica on capacity-building needs and GHG inventory information for the agriculture and LULUCF sectors. The TTE concluded that the information analysed is mostly transparent.

56. Jamaica reported information on both existing and planned institutional arrangements relevant to the preparation of its national communications and BURs on a continuous basis. To address several gaps in the current institutional arrangements for the preparation of national communications, BURs and GHG inventories, it has taken steps to review these arrangements and expects to conclude the review in 2018. The TTE commends Jamaica for the progress made and noted the Party's plans to increase its efforts to develop the overall institutional arrangements to support the establishment of the MRV system for GHG emissions and reductions, as outlined in its BUR, which would contribute to making the reporting to the secretariat sustainable. During the technical analysis, the Party clarified that capacity-building is needed to meet the requirements for the preparation of BURs on a continuous basis by the national experts.

57. In its first BUR, submitted in 2016, Jamaica reported information on its national GHG inventory for the years 2006–2012. This includes GHG emissions and removals of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O for all relevant sources and sinks, as well as the precursor gases. Estimates of fluorinated gases were provided for HFCs but not for PFCs or SF<sub>6</sub> as there were no quantifiable sources of those emissions. The inventory was developed using the 2006 IPCC Guidelines. The total GHG emissions for 2012 were reported as 14,922 kt CO<sub>2</sub> eq (excluding LULUCF) and 13,296 kt CO<sub>2</sub> eq (including LULUCF). A total of 26 key categories were identified, with CO<sub>2</sub> from the energy sector and N<sub>2</sub>O from the agriculture sector identified as the main gases and key categories, respectively.

58. Jamaica reported information on mitigation actions and their effects, including the unconditional mitigation goal of 7.8 per cent annual emission reduction below BAU level by 2030 under its INDC. Conditional to obtaining international support, the annual emission reduction could reach 10 per cent below BAU by 2030. The GHG emission reductions achieved were not reported for all mitigation actions, including the INDC, but the qualitative description of progress included the approval of the National Energy Policy, the undertaking of a programme of modernization of the energy infrastructure, the diversification of energy sources towards cleaner and renewable fuels, and incentivizing energy efficiency. Jamaica reported estimated emission reductions specifically for the INDC only for future years. In the case of the unconditional contribution, the estimated emission levels are 12,370 kt CO<sub>2</sub> eq by 2025 and 13,368 kt CO<sub>2</sub> eq by 2030; and in the case of the conditional contribution contingent upon international support, the figures are 12,099 kt CO<sub>2</sub> eq by 2025 and 13,043 kt CO<sub>2</sub> eq by 2030.

59. Jamaica reported information on key constraints, gaps and related needs in respect of the administrative, technical and institutional aspects of the BUR preparation. The information on gaps and constraints related to the GHG inventory process was clear and the TTE was able to identify specific gaps that were confirmed during the technical analysis. Further, Jamaica reported that it needs support to develop and operationalize a continuous MRV system for the GHG inventory, mitigation actions and support, in particular to link MRV of support to its national budgetary process. During the technical analysis, Jamaica provided additional information on the nature of the capacity-building required to address the key challenges and needs, namely: facilitated access to guidance tools on the implementation of the UNFCCC reporting guidelines on BURs; designing and implementing data collection and knowledge management systems; institutionalization of the GHG inventory process within national and local tertiary institutions; the review and update of the existing TNA; and reporting on domestic mitigation actions. Information on support received specific to mitigation as well as other climate change related actions was

reported. Information on technology and capacity-building received was also reported in the BUR; however, this information was not detailed.

60. The TTE, in consultation with Jamaica, identified 11<sup>4</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. Jamaica prioritized these as the capacity-building needs.

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<sup>4</sup> This refers to the number of capacity-building needs listed in chapter II.D above.

## Annex I

### Extent of the information reported by Jamaica in its first biennial update report

Table 1  
**Identification of the extent to which the elements of information on greenhouse gases are included in the first biennial update report of Jamaica**

<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, and subsequent BURs shall cover a calendar year that does not precede the submission date by more than four years	Yes	Jamaica submitted its first BUR in November 2016; the GHG inventory years reported were for years 2006–2012
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 COP or those determined by any future decision of the COP on this matter	Yes	Jamaica used 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	Partly	The BUR contains information for the energy, IPPU and waste sectors, but not for the agriculture and LULUCF sectors
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 the IPCC good practice guidance for LULUCF	No	
	(b) The sectoral report tables annexed to the Revised 1996 IPCC Guidelines	No	
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	The time series reported in the BUR covers 2006–2012
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	This information was not reported for 1994 (first national communication) or 2000–2005 (second national communication)

<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, 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)	Partly	Information was reported in table 0.1 in chapter 31 of the BUR, excluding the categories abandonment of managed lands and CO <sub>2</sub> emissions from removals from soils
	Table 2 (National greenhouse gas inventory of anthropogenic emissions of HFCs, PFCs and SF <sub>6</sub> )	Partly	Information was reported in table 0.1 in chapter 31 of the BUR, excluding SF <sub>6</sub>
Decision 2/CP.17, annex III, paragraph 10	Additional or supporting information, including sector-specific information, may be supplied in a technical annex	Yes	The appendices included estimates of emissions provided in the CRF for 2006–2012 and details on emissions of indirect GHGs
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	
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:		
	(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:		
	(a) HFCs	Yes	
	(b) PFCs	Yes	
	(c) SF <sub>6</sub>	No	
Decision 17/CP.8, annex, paragraph 16	Non-Annex I Parties are encouraged, as appropriate, to report on anthropogenic emission by sources of other GHGs, such as:		
	(a) CO	Yes	
	(b) NO <sub>x</sub>	Yes	
	(c) NMVOCs	Yes	
Decision 17/CP.8,	Other gases not controlled by the Montreal Protocol, such as SO <sub>x</sub> , included in the	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>
annex, paragraph 17	Revised 1996 IPCC Guidelines may be included at the discretion of the Parties		
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	The CO <sub>2</sub> fuel combustion emissions were calculated using both approaches, which showed similar results
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	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> eq should use the GWP provided by the IPCC in its Second Assessment Report based on the effects of GHGs over a 100-year time-horizon	Yes	
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 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:		
	(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	Partly	Information on the agriculture and LULUCF sectors was not reported
	(b) Explanation of the sources of emission factors	Partly	Information on the agriculture and LULUCF sectors was not reported
	(c) Explanation of the sources of activity data	Partly	Information on the agriculture and LULUCF sectors was not reported
	(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:	NA	Jamaica used the 2006 IPCC Guidelines



<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>
	(i) Source and/or sink categories		
	(ii) Methodologies		
	(iii) Emission factors		
	(iv) Activity data		
	(e) Parties are encouraged to identify areas where data may be further improved in future communications through capacity-building	Yes	
Decision 17/CP.8, annex, paragraph 22	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 14–17. 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	Partly	The summary table excluded SF <sub>6</sub> and the categories abandonment of managed lands and CO <sub>2</sub> emissions from removals from soils
Decision 17/CP.8, annex, paragraph 24	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:		
	(a) Level of uncertainty associated with inventory data	Yes	
	(b) Underlying assumptions	Yes	
	(c) Methodologies used, if any, for estimating these uncertainties	Yes	

*Note:* The parts of the “UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention” 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. Further, as per paragraph 3 of those guidelines, Parties not included in Annex I to the Convention (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.

*Abbreviations:* BUR = biennial update report, COP = Conference of the Parties, CRF = common reporting format, GHG = greenhouse gas, IPCC = Intergovernmental Panel on Climate Change, IPCC good practice guidance = *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, GWP = global warming potential, IPCC good practice guidance for LULUCF = *Good Practice Guidance for Land Use, Land-Use Change and Forestry*, IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not applicable, 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*.

Table 2  
**Identification of the extent to which the elements of information on mitigation actions are included in the first biennial update report of Jamaica**

<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 group 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	Descriptions, coverage, quantitative goals and progress indicators were not reported for most of the mitigation actions
	(b) Information on:		
	(i) Methodologies	Partly	Methodologies and assumptions were given only for the INDC, not for the actions listed in tables entitled “Locally implemented mitigation projects” and “Current renewable energy research projects in Jamaica”
	(ii) Assumptions	Partly	Information on methodologies and assumptions was not reported for most mitigation actions
	(c) Information on:		
	(i) Objectives of the action	Partly	Information on objectives of the action and steps taken or envisaged were not reported for most mitigation actions
	(ii) Steps taken or envisaged to achieve that action	Partly	Steps were described only for the INDC, not for the actions listed in tables entitled “Locally implemented mitigation projects” and “Current renewable energy research projects in Jamaica”
	(d) Information on the:		
	(i) Progress of implementation of the mitigation actions	Partly	Information on the progress of implementation was not reported for some mitigation actions
	(ii) Progress of implementation of the underlying steps taken or envisaged	Partly	Progress was reported for the INDC under outcome achieved, not for other mitigation actions listed in tables entitled “Locally implemented mitigation projects” and “Current renewable energy research projects in Jamaica”
	(iii) Results achieved, such as estimated outcomes (metrics depending on type of action) and estimated emission reductions, to the extent possible	Partly	Results achieved in terms of emission reductions was not reported for any of the mitigation actions reported

<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>
	(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	

*Note:* The part of the “UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention” on the reporting of information on mitigation actions in biennial update reports is contained in decision 2/CP.17, annex III, paragraphs 11–13.

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 Jamaica**

<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: (a) Constraints and gaps (b) Related financial, technical and capacity-building needs	Yes Yes	Although Jamaica reported on its needs, the information reported is in some cases general; further detail could have been provided to enable the team of technical experts to understand specific needs
Decision 2/CP.17, annex III, paragraph 15	Non-Annex I Parties should provide (a) Information on financial resources received, information on technology transfer and information on capacity-building received (b) Information on technical support received from the Global Environment Facility, Parties included in Annex II to the Convention 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 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: (a) Technology needs, which are nationally determined (b) Technology support received	No Yes	Specific information on technology needs was not reported Jamaica reported that it has not received any technology support outside of projects; however, in its project listings it did not provide details on what technology support has been received

*Note:* The part of the “UNFCCC biennial update reporting guidelines for Parties not included in Annex I to the Convention” on the reporting of information on finance, technology and capacity-building needs and support received in biennial update reports is contained in decision 2/CP.17, annex III, paragraphs 14–16.

## Annex II

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

First biennial update report of Jamaica – erratum. Available at [http://unfccc.int/files/national\\_reports/non-annex\\_i\\_parties/biennial\\_update\\_reports/submitted\\_burs/application/pdf/bur\\_1\\_erratum\\_jamaica.pdf](http://unfccc.int/files/national_reports/non-annex_i_parties/biennial_update_reports/submitted_burs/application/pdf/bur_1_erratum_jamaica.pdf).

First and second national communications of Jamaica. Available at [http://unfccc.int/national\\_reports/non-annex\\_i\\_natcom/items/10124.php](http://unfccc.int/national_reports/non-annex_i_natcom/items/10124.php).

#### B. Additional information provided by the Party

The following documents<sup>1</sup> were provided by the Party in response to requests for technical clarification during the technical analysis:

Jamaica’s National Greenhouse Gas Inventory for Land Use, Land Use Change and Forestry Sector 2006–2012, Final Report.

Greenhouse Gas Emissions Inventory Report for Biennial Update Report of Jamaica’s Agricultural Sector.

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<sup>1</sup> Reproduced as received from the Party.