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Matters relating to capacity-building
Capacity-building under the Convention
Capacity-building under the Kyoto Protocol

Implementation of the framework for capacity-building in developing countries

Synthesis report by the secretariat

Summary

This report has been prepared to support the Subsidiary Body for Implementation in its annual monitoring and evaluation of the implementation of the framework for capacity-building in developing countries established under decision 2/CP.7 in accordance with decisions 2/CP.7 and 29/CMP.1. It draws on information synthesized from national communications, biennial update reports, biennial reports and the 2016 annual report of the Executive Board of the clean development mechanism to the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol. The information contained in this report, presented according to the scope of needs and priority areas for capacity-building in developing countries as outlined in decision 2/CP.7, may assist Parties in reviewing the progress made in the implementation of the capacity-building framework and identifying ways to further enhance the delivery of capacity-building support to developing countries. As this report will serve also as input to the work of the Paris Committee on Capacity-building, information is contained herein on capacity-building activities listed in the 2016–2020 capacity-building workplan and on areas for capacity-building emerging from the outcomes of the third comprehensive review of the capacity-building framework.

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I. Introduction

A. Mandate

1. The Conference of the Parties (COP) requested the secretariat to produce annually a synthesis report on activities undertaken to implement the framework for capacity-building in developing countries established under decision 2/CP.7 (hereinafter referred to as the capacity-building framework).[1]

2. The COP also requested the secretariat to make the report available to the Subsidiary Body for Implementation (SBI) at its sessions coinciding with the meetings of the Durban Forum to facilitate discussions at the forum, and decided that the report will serve as input to the Paris Committee on Capacity-building.[2]

3. The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), by decisions 29/CMP.1 and 6/CMP.2, requested the secretariat to take into account, in its annual synthesis report, capacity-building activities relating to the implementation of the Kyoto Protocol in developing countries.

B. Scope of the report

4. This synthesis report summarizes the available information on the extent of the implementation of the capacity-building framework in developing countries, thus enabling annual monitoring of the progress made and the identification of ways to further enhance the delivery of capacity-building support. To this end, information on: capacity-building activities undertaken by developing country Parties; needs, gaps and constraints that such Parties have indicated; and support provided by developed country Parties has been synthesized, taking into account the scope of needs and priority areas for capacity-building in developing countries as outlined in the capacity-building framework.

5. In line with the provisions indicated in paragraph 2 above, this synthesis report also contains information that can serve as input to the Paris Committee on Capacity-building on the capacity-building activities listed in the 2016–2020 capacity-building workplan[3] and on the areas for capacity-building that emerged from the outcomes of the third comprehensive review of the implementation of the capacity-building framework.[4]

6. The information contained herein refers to activities reported in 29 national communications (NCs) and 15 biennial update reports (BURs) submitted by Parties not included in Annex I to the Convention and 12 biennial reports (BRs) submitted by Parties included in Annex II to the Convention (Annex II Parties) and other Parties between January and December 2016. Owing to the cycle of the submission of the second biennial reports (BR2s), the vast majority of the BR2s were submitted in 2015 and considered in the preparation of the relevant synthesis report published last year.[5] As a consequence, this synthesis report does not provide a complete picture of the support provided by Annex II Parties and other Parties. The 2016 annual report of the Executive Board of the clean development mechanism (CDM) to CMP 12 was considered for the summary of capacity-building activities undertaken under the Kyoto Protocol.

[1] Decisions 2/CP.7, paragraph 9, and 4/CP.12, paragraph 1(c).
[2] Decisions 1/CP.18, paragraph 78, and 1/CP.21, paragraph 79, respectively.
[3] Decision 1/CP.21, paragraph 73.
[4] Decision 16/CP.22.
[5] FCCC/SBI/2016/4.

7. In consideration of the above, this synthesis report features an executive summary highlighting the main findings from the synthesized information, which is followed by chapters presenting information on the following topics:

(a) Capacity-building action undertaken by developing country Parties;

(b) Needs, gaps and constraints indicated by developing country Parties;

(c) Support provided by Annex II Parties and other Parties;

(d) Emerging areas for capacity-building, associated gaps and needs, and support provided to address such areas;

(e) Capacity-building activities under the Kyoto Protocol.

8. Examples of activities have been drawn from the national reports for illustrative purposes, but they do not represent an exhaustive list of Parties' capacity-building efforts.

9. As further work may have been undertaken after the submission of the source documents and information on certain areas may not have been available in those documents, this report may not convey a complete overview of capacity-building activities carried out in developing countries.

C. Possible action by the Subsidiary Body for Implementation

10. The SBI may wish to use the information contained in this report:

(a) To regularly monitor and review the implementation of the capacity-building framework pursuant to decisions 2/CP.7 and 4/CP.12;

(b) To support Parties in their consideration of how to enhance existing reporting on the impacts of capacity-building activities, good practices and lessons learned and on how these are fed back into relevant processes to enhance the implementation of capacity-building activities;[6]

(c) To provide inputs to discussions at the 6th meeting of the Durban Forum on capacity-building, to be held at SBI 46.

II. Executive summary

11. **Strengthening institutional, systemic and individual capacities**. The information on capacity-building activities contained in submitted national reports confirms that efforts are being made to strengthen the institutional, systemic and individual capacities of developing countries to implement adaptation- and mitigation-related actions. Notwithstanding such efforts, national reports submitted by developing country Parties still highlight a wide array of specific gaps, needs and constraints in planning, implementing, monitoring and reviewing capacity-building actions linked to the 15 priority areas for capacity-building outlined in the capacity-building framework as well as to other capacity-building areas emerging as a result of the evolving nature of climate science and policy.

12. **Climate action is widely seen as part of sustainable development** and mitigation and adaptation activities are being increasingly integrated into national development strategies. Reflective of the growing importance that developing countries place on climate change issues, central government institutions responsible for policy formulation and guidance, as well as the coordination and implementation of climate change action, have

[6] Decision 16/CP.22, paragraph 3.

been created and strengthened. In addition to the establishment and strengthening of central government institutions, the decentralization of adaptation and mitigation policies and programmes is gaining traction. This results in an increasing tendency to empower local governments to take action on adaptation and mitigation. However, local authorities in several developing countries still need increased support to undergo specialized training in order to enhance their knowledge of climate change related issues, such as energy efficiency, impacts of climate change, vulnerability assessments, and how to better communicate climate change issues and concepts to key stakeholders and the general public.

13. **Institutional arrangements for NCs and BURs**. Permanent institutional arrangements and securing human capital for the preparation of NCs and BURs still constitute central issues demanding due attention in several developing countries. These issues impinge on country ownership with regard to the preparation of national reports and greenhouse gas (GHG) inventories. In the light of this, the reports point to the need for actions to allow for national expertise to be generated and retained at the national level and to reduce dependence on external support.

14. **Capacity-building at the systemic level**. Developing countries are employing major efforts in the development and enactment of national climate change policies, action plans, laws and regulations in order to enable a more systematic integration of climate actions into national policy and regulatory frameworks. In general, the laws and regulations reported focus on the mitigation of carbon emissions and the sustainable use of energy and resources. However, some developing countries acknowledged that they have only a loose legislative framework covering all environmental issues and that they lack one that specifically focuses on climate change issues.

15. **Significant progress has been noted in actions related to education, training and public awareness**. An increasing number of developing countries have integrated climate change issues into formal education curricula and have launched new undergraduate and graduate degree programmes in environmental management and science. Specialized training programmes and workshops tailored to the local environment and conditions, coupled with a stronger engagement of affected key stakeholders, have contributed to empowering local communities to enhance their resilience.

16. **Training on various aspects of the Convention and in negotiation skills** is required to boost the participation and meaningful engagement of representatives of developing country Parties in international climate change negotiations, which currently remains inadequate due to financial and capacity constraints. There is also an urgent need for enhanced staff capacity to conduct technical research on climate change issues that can better inform the decision-making and planning processes at the local, regional and national levels. Insufficient funds and research facilities also limit countries' capacity for scientific research and systematic observation.

17. **The integration of climate risks and modelling into vulnerability assessments** has been found to be limited in some developing countries. Training is required to equip them with the capacities to conduct assessments of the wider impacts of potential extreme weather events on macroeconomic or socioeconomic conditions and to develop effective adaptation measures. Efforts have been made to enhance the resilience of communities to climate change risks through awareness workshops and the establishment of early warning systems.

18. **Capacity-building for technology transfer**. For the purpose of identifying policy and legislative barriers to the development and deployment of technologies and environmentally sound technologies (ESTs), technology needs assessments (TNAs) are recognized as being extremely useful in identifying capacity-building needs with regard to

the development and transfer of technology. In many developing countries, there is limited capacity for potential beneficiaries to submit feasible EST projects for implementation and limited financial resources to implement the proposed projects on their own. Moreover, there is often a lack of legal and market mechanisms that encourage and incentivize the implementation of ESTs in different sectors.

19. Another key concern highlighted is the need for more robust international cooperation and networking to facilitate the transfer of knowledge and information-sharing on climate change mitigation and adaptation, including the dissemination of success stories, good practices and lessons learned.

20. **Information on capacity-building support provided** by Annex II Parties and other Parties was scarce, owing to the cycle of the submission of NCs and BRs by this group of Parties. As a consequence, this synthesis report does not provide a complete picture of the assistance provided to developing countries. Those reports considered, however, highlight capacity-building support provided through bilateral and multilateral channels in a number of areas, including clean technologies, forestry, land-use management, adaptation and other cross-cutting sectors. A cross-cutting issue that is increasingly being supported by Annex II Parties and other Parties is gender responsiveness, including in the form of targeted training to enable the participation of women from developing countries in international negotiations on climate change.

21. **The identification of emerging areas for capacity-building in the context of the Convention** was considered part of the outcomes of the third comprehensive review of the capacity-building framework. Such areas, reflective of the evolving nature of climate science and policy, are featured in the majority of the national reports submitted during the reporting period. One of those areas relates to the measurement, reporting and verification (MRV) of the implementation of mitigation and adaptation activities. Challenges were noted in identifying the appropriate legal and formal arrangements needed and in integrating climate change MRV into the existing national monitoring and evaluation systems.

22. For countries whose mitigation strategy integrates REDD-plus[7] and land use, land-use change and forestry (LULUCF) activities, MRV of mitigation activities undertaken within the framework of REDD-plus and LULUCF was cited as an emerging priority.

23. Annex II Parties and other Parties have provided support in some of the above-mentioned emerging areas for capacity-building, including enhancing the capacities of developing countries for REDD-plus activities and forest management. Specifically, technical expertise was provided to facilitate the estimation of forest-related emissions and removals from LULUCF and the development of an MRV system for related REDD-plus activities. Support was also provided in the context of global and regional networks that promote the sustainable management of transboundary natural resources and adaptation and to encourage the participation of women in climate action.

24. **Transparency of climate finance**. Another emerging area of concern is how to foster transparency and enhance the accountability of institutions dealing with climate finance. There is a need for mechanisms that can track and monitor the use of climate funds and strengthen the ability of policymakers to manage and allocate domestic financial resources. Sufficient channelling of funds, especially for adaptation activities, was also identified as a need. The low level of design and deployment of financial mechanisms

[7] In decision 1/CP.16, paragraph 70, the COP encouraged developing country Parties to contribute to mitigation actions in the forest sector by undertaking the following activities: reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks.

aimed at incentivizing the development and implementation of mitigation and adaptation projects is another concern. Information is required on the types of financial and legal mechanisms and platforms that can address the challenges of development in the context of adapting to climate variability.

25. **Data and information regarding the inclusion of gender perspectives** in climate action were found to be limited. To mainstream the inclusion of gender perspectives, the need for gender-disaggregated data and the development of gender-related indicators, such as the percentage shares of men and women engaged in sectors concerned with climate change, was noted.

26. **Capacity-building related developments and activities undertaken in the context of the Kyoto Protocol**. The CDM Executive Board has continued to provide support to designated national authorities (DNAs), including support for monitoring sustainable development benefits and the development of guidelines for local stakeholder consultations. Support was also provided to DNAs through the CDM regional collaboration centres, whose scope and scale of capacity-building support was expanded to CDM methodologies, using the CDM as part of development and climate finance, and areas under the Convention and specifically the Paris Agreement that have a bearing on the CDM, such as enhancing the CDM-related skills and expertise of DNAs to support mitigation action using market-based approaches.

III. Overview of information reported on the implementation of the capacity-building framework under the Convention

A. Capacity-building action undertaken by developing countries

27. The overall trend identified in the national reports submitted in 2016 is that climate action is widely recognized as part of sustainable development and that mitigation and adaptation activities are being increasingly integrated into national development strategies. Governmental institutions responsible either for providing policy guidance on climate change issues or for coordinating and implementing their national climate change programmes and projects are being created or strengthened. The understanding that climate change is a cross-cutting issue that requires action and support at the local and municipal levels was reflected in the growing importance that countries place on empowering communities and enhancing their capacities to better cope with extreme weather events and to participate in national efforts to reduce carbon emissions. For instance, efforts were made to institutionalize climate change adaptation and mitigation in the regions of Georgia by building the capacities of local authorities with the aim of supporting their strategic planning activities and collaboration with national policymakers for adaptation and mitigation. In Belize, a symposium titled "Building climate-resilient municipalities" was held in June 2014 with a focus on how to integrate climate change risks and opportunities into municipal planning, among others. The Municipal Environmental Certification System of Chile is another example of climate action at the local level (see box 1).

Box 1
Municipal Environmental Certification System of Chile

In 2009, the Chilean Ministry of the Environment developed the Municipal Environmental Certification System. Its objective is to empower municipalities with environmental management models, with the participation of authorities and residents. Relevant features include the mainstreaming of environmental priorities into the municipal regulations and the development of concrete actions to protect the environment and reduce greenhouse gas emissions. By 2016, the system was operating in all regions of the country with municipalities certified at three levels – basic, intermediate and excellent – and with progressive growth occurring each year since 2009. In 2016, 50 per cent of the country's municipalities were part of the system. In addition, 20 municipalities with environmental certifications were participating in the carbon footprint tracking programme "HuellaChile" and have begun the process of quantifying their greenhouse gas emissions. The participation of municipalities is expected to increase year by year.

28. The development and enactment of laws and regulations addressing climate change concerns was identified in several national reports. For instance, the Maldivian Environment Protection and Preservation Act requires mandatory environmental impact assessments prior to the commencement of any development initiative that could have a significant impact on the environment. In the case of Armenia, a revision of the law on 'atmospheric air protection' has been developed and is currently under discussion. This new law will provide a set of provisions for preparing GHG emissions inventories. In general, the laws and regulations mentioned focus on carbon emission mitigation and the sustainable use of energy and natural resources such as in forestry and coastal areas. However, some developing countries acknowledged that they have only a broad legislative framework covering all environmental issues and that they lack one that directly addresses climate change issues and commitments under the Convention.

29. To enhance or create an enabling environment for more systematic and integrated climate action, national climate change policies and action plans have been adopted in some developing country Parties. For instance, the National Policy on Climate Change was adopted in Brazil, which promotes social and economic development, while protecting the climate system; the reduction of anthropogenic GHG emissions; and the implementation of adaptive measures by the local, state and federal governments. The national climate change policies are often complemented by a series of road maps or action plans with detailed steps to achieve several objectives, including low-carbon development, the sustainable management of natural resources and energy efficiency. For example, the Electricity and Cogeneration Regulatory Authority of Saudi Arabia developed a road map aimed at facilitating the integration of renewable energy sources into the national electricity system. Despite the progress made, the absence of an integrated climate change policy was noted by a few developing countries.

30. To strengthen capacities for adaptation, training has been provided on the effects of climate change, vulnerability assessments in the context of climate adaptation, and the importance of communicating on adaptation to key stakeholders. Using simulation models, vulnerability assessments were conducted in some developing countries, focusing on their priority sectors such as coastal zones, water resources, agriculture and fisheries. For instance, the Brazilian Earth System Model is a tool that can generate detailed assessments of climate change and the vulnerability and adaptation implications for the country (see box 2). Meanwhile, the Mainstreaming Adaptation to Climate Change project was aimed at building capacity in the small island developing States and low-lying coastal states of the Caribbean, such as Saint Vincent and the Grenadines, and enhancing their resilience to

climate change risks through the identification and implementation of feasible adaptation measures.

Box 2
Brazilian Earth System Model

The Brazilian Earth System Model (BESM), developed by the National Institute for Space Research (INPE), in collaboration with universities in Brazil and research centres in South Africa, Europe, India and the United States of America, aims to establish a model of the Earth system suitable for long-term climate change projections and to foster a new generation of researchers capable of understanding the limitations and capacities of the products derived from weather forecasting mathematical models.

BESM is based on the main structure of the Center for Weather Forecasts and Climate Studies ocean-atmosphere model (used for seasonal weather forecasting), but includes more realistic representations of phenomena that act over a longer timescale such as sea-ice transitions, dynamic vegetation, and variability of marine and land carbon dioxide. The advance of BESM enabled INPE to participate in the Intergovernmental Panel on Climate Change Fifth Assessment Report with global climate change scenarios from 2005 to 2100.

The work around BESM began using financial resources from the Brazilian Government. This model has great potential to generate detailed assessments of climate change, vulnerability and adaptation effects for Brazil. The global climate change scenarios generated by BESM are used as outline conditions for regional models, such as the Eta (Regionalized Climate-Economy Model)/INPE, aimed at studies on climate change impacts in Brazil at the watershed scale, with a watershed being a topographically defined area such that all the precipitation falling into the area leaves in a single stream. Because it incorporates aspects of the Brazilian biomes and the effects of river discharges from the Amazon watershed into the Atlantic Ocean, among others, the global scenarios generated by BESM will enable a thorough analysis of the uncertainties within land-use scenarios, such as the impacts on global climate not only by reducing deforestation, but also by means of the reforestation of Brazilian biomes.

31. With regard to disaster risk and management, community-level action was highly emphasized. The Climate Change Clubs of Belize are an example of individual- and community-level capacity-building for adaptation. The Climate Change Clubs are environmental clubs within secondary schools, aimed at increasing students' awareness of climate change impacts and building the capacity to conduct vulnerability assessments and identify practical adaptation measures for communities. The establishment of an early warning system in Suriname and its objective of enhancing the capacities of local communities is another example of community-level climate action (see box 3).

Box 3
Establishment of an early warning system in Suriname

Following the flooding in 2006 and 2008, the National Coordination Center for Disaster Relief (NCCR) of Suriname installed five water level measurement devices in the Tapanahony River basin as part of the establishment of an early warning system. One of the objectives of this project was to enhance the capacity of the communities to understand and respond appropriately to climate warnings. As a result, all of the water level reading devices are installed in the Upper Suriname and Tapanahony area. Daily reading of the water levels of these areas and related data are collected and presented to the public on the website of the Meteorological Service of Suriname. Staff of NCCR,

Anton de Kom University of Suriname and other relevant institutions are trained in the use of this system and in the interpretation of the data.

32. For the purpose of identifying the capacity-building needs of developing countries with regard to the development and transfer of ESTs, the usefulness of TNAs was recognized, noting that TNAs were conducted in some developing countries over the reporting period. For instance, Saint Kitts and Nevis noted that the TNA shed light on the costs and policy and legislative issues hampering the successful deployment of identified options such as water conservation and irrigation technologies and drought-resistant crops. The need for the establishment of institutional frameworks that can help to create an enabling environment for the preparation of TNAs and facilitate information dissemination and cooperation with the Climate Technology Centre and Network was also highlighted by Armenia. An example of institutional arrangements identified as crucial for technology transfer is the need to have in place a reliable legal framework of intellectual property protection. For instance, the State Intellectual Property Service was established in Turkmenistan to enhance the import of modern technology and attract the foreign investments necessary for the development of relevant technology in that country.

33. With regard to formal education, positive developments were noted such as the inclusion of climate change issues in official education programmes and curricula from primary to tertiary level and the launch of undergraduate and graduate degree programmes in subjects such as environmental management and science. Education and the training of school teachers were also taken up in some developing countries to better disseminate climate change information to students. The focus of these teacher training programmes was on how to make complex climate change concepts and terminologies understandable and relevant to their students. Aside from the developments in formal education, a number of awareness campaigns and workshops were held at the local level to enhance capacities in relation to adaptation to and management of potential extreme weather events in some developing countries. These workshops were tailored to the cultural understanding and needs of the participating communities, and one such workshop, held in Belize, included a visit to La Milpa, an archaeological site in Belize, and a discussion on the methods used by the Mayans to adapt to the changing climate factors that affected their civilization.

B. Needs, gaps and constraints indicated by developing countries

34. The reports highlighted that developing countries are growing more informed about what data and information need to be included in their NCs and BURs and how the reports need to be structured. However, the preparation of NCs and BURs still remains a highly demanding exercise on the part of some developing country Parties and these countries had to rely on external consultants to prepare their reports owing to capacity constraints. A lack of permanent institutional arrangements for the process of drafting the NCs and BURs was also noted. In addition, staffing issues were found to be common in relevant ministries across the developing countries; the ministries are often understaffed and there is a general lack of the technical expertise and skills necessary to prepare GHG inventories, collect statistical data and compile national reports.

35. For the preparation of national GHG inventories, there is a common need to increase the capacity to develop sectoral baselines as the basis for measuring the achievement of mitigation actions. The capacity constraints reported at the municipal level are more pronounced; provinces and districts were found to have reported difficulties in calculating the emissions linked to their developmental activities as well as defining their baseline emissions. At the technical level, the lack of sustainable and comprehensive data collection systems and the required information technologies was highlighted. Owing to missing and uncollected data, many developing countries reported incomplete figures for GHG

emissions, compromising the accuracy and reliability of activity data. To fill the gaps, it was highlighted that a reliable archiving system that collects data at the local, regional and national levels is needed. There is also a strong need to establish networks and develop forms of collaboration with regional and international data exchange hubs. Developing countries ask for increased financial support and the provision of targeted training on data collection and analysis in line with the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. As such, the reports stress that the above-mentioned training needs to be made available to staff from the municipal, regional and national structures.

36. The integration of climate risks and modelling into national and sectoral plans in order to support vulnerability assessments was found to be limited in some developing countries. Moreover, there is limited research on sectoral impacts on climate change and limited analysis of the wider impacts of potential extreme weather events on macroeconomic or socioeconomic conditions. Alongside insufficient information, the shortage of technical experts and financial resources is recognized as a common problem in conducting impact assessments and developing adaptation measures. It was also highlighted in some reports that there is a need for closer coordination between different levels of government and between sectoral and national policies for adaptation. Gaps were found to exist in the capacities of decision makers at different levels of government in some developing countries, and training and guidelines are especially needed for regional actors on the topic of incorporating climate change adaptation into public planning and financial instruments for adaptation.

37. Across developing countries, the need to strengthen the capacities of national focal points for climate change negotiations was highlighted. For some developing countries, participation in international climate change negotiations or related workshops remains inadequate due to financial and capacity constraints. To facilitate the active engagement of developing countries in formal negotiations, capacity-building is required for the preparation and strategic monitoring of the negotiations as well as for enhancing negotiation skills. For instance, the report of Chile mentions that its main capacity-building need is to expand the current negotiating delegation of the country, set up permanent teams in the relevant sectoral ministries and coordinate the activities of the teams that make up the Chilean delegation. Ethiopia prioritizes its active engagement in international climate change negotiations, which is integrated into its growth and transformation plan.

38. There is an urgent need for enhanced staff capacity in many developing countries to monitor weather and climate and to conduct technical research that can better inform the decision-making and planning processes at the local, regional and national levels. It was indicated by several developing country Parties, including Maldives and the State of Palestine, that a lack of funds and research facilities also limits the countries' capacity for scientific research and systematic observation. The need for a long-term investment strategy for research was highlighted, as research activities are often carried out in an uncoordinated manner by external agencies with a low level of local engagement. In Maldives, some research activities are being carried out, but institutional weaknesses limit the coordination of research activities and the dissemination of research findings and information. According to the reports, multidisciplinary research is particularly needed on the issue of vulnerability and adaptation for various sectors such as agriculture, water resources and forestry. Further research is also required on the linkages and synergies between efforts in mitigation, adaptation and climate risk management, and how to analyse and quantify loss and damage resulting from the impacts of climate change. To enhance capacities with regard to the development of science-based policy interventions, the transfer of skills and knowledge from international institutions was identified as a way forward.

39. In many developing countries, there is limited capacity on the part of project proponents to submit feasible EST projects for implementation and limited financial

resources to implement the proposed projects on their own. Local knowledge on ESTs is limited and there is often a lack of legal and market mechanisms that encourage and incentivize the implementation of ESTs in different sectors. Existing policies in some developing countries are not sufficiently informed by scientific and technological considerations and this translates into a need for a stronger linkage between science, technology and policymaking so as to facilitate the implementation of ESTs across sectors. These constraints make it an arduous task for some developing countries to even initiate the process of developing TNAs. In this context, it was suggested that, in order to address the gaps in the area of technology transfer, extensive information-sharing and capacity-building for TNAs and the implementation of ESTs and the promotion of technical consultations on how to create a market for ESTs, including renewable energy technologies, are required.

40. Raising public awareness on the impacts of climate change and generating detailed examples of success stories continue to be a challenge, especially at the local and community levels. Limited access to climate change information, including success stories from relevant projects and lessons learned, makes communication on climate change to the public difficult. Support is needed to develop information materials for local communities, particularly in their native languages, as appropriate, and to organize awareness campaigns and workshops tailored to the local population. Limited knowledge on climate change at the policy level was also highlighted as a major constraint, as it hampers the mainstreaming of climate change concerns into national development priorities. The knowledge transfer process could be facilitated by enhanced international cooperation and networking via bilateral or multilateral channels.

C. Support provided by Annex II Parties and other Parties

41. Details of capacity-building support provided by Annex II Parties and other Parties were not readily available in the BRs reviewed. Four out of the twelve BRs reviewed for this reporting cycle used table 9, titled “Provision of capacity-building support”, that identifies the recipient and targeted area of support as well as the title and description of the relevant programmes or projects. The Annex II Parties and other Parties that did not use table 9 reported that the methodologies they did use to collect supporting data do not allow for the separate tracking of support solely for capacity-building within the broader scheme of their international development assistance.

42. Support was provided to help developing countries with the transition to clean energy economies. For instance, Canada has made available a tool called the RETScreen Clean Energy Management Software, which has helped to significantly reduce the costs associated with identifying and assessing the technical and financial viability of potential clean energy projects. The software is provided to users free of charge and in multiple languages and includes comprehensive training materials. For adaptation support, training on how to integrate climate change modelling into vulnerability assessments and related adaptive policy planning was offered by Canada to developing countries in Africa, Asia-Pacific, and Latin America and the Caribbean. Luxembourg helped to facilitate the transfer of the knowledge and technology necessary for the design of energy-efficient public buildings, solar panels and solar container systems in developing countries, such as Cabo Verde.

IV. Overview of emerging areas for capacity-building under the Convention

43. The third comprehensive review of the capacity-building framework in developing countries, concluded at COP 22, confirmed the importance of the objective and scope of the capacity-building framework; however, it noted the need to take into account in the further implementation of the framework relevant emerging areas in the context of the Convention. Such areas, although linked to the overarching themes considered in the capacity-building framework, are not included in the list of 15 priority areas and needs formulated and agreed in 2001 and are reflective of the evolving nature of climate science and policy. This chapter describes the emerging areas in the context of the Convention presented in the reports by developing country Parties where further capacity-building efforts are required, as well as support provided by Annex II Parties and other Parties to address the emerging capacity-building needs.

A. Emerging areas for capacity-building and associated gaps and needs

44. The establishment of a permanent unit responsible for MRV of overall mitigation and adaptation activities was highlighted as an emerging area for capacity-building. Capacity-building is required for the task of setting up a domestic MRV framework, including assistance with the identification of needs for establishing appropriate legal and formal arrangements. Most developing countries currently do not have an overall MRV system in place or are undergoing an initial phase of designing one. Challenges were also reported in integrating climate change MRV into the existing national monitoring and evaluation systems. In some cases, countries aspire for their MRV system to be able to monitor the impact of their key mitigation actions on selected sustainable development indicators or mitigation co-benefits, but their capacity is limited in this regard.

45. The capacity-building necessary for REDD-plus activities and MRV of changes in forest cover and related carbon emissions as a result of REDD-plus is another emerging area. The MRV system for REDD-plus requires the capacity to measure changes in forest areas, increases in biomass stocks from growth, and loss of carbon stocks resulting from deforestation and forest degradation. Separately, MRV of LULUCF activities was also identified as an emerging area for capacity-building. The role of forests and the LULUCF sector in mitigation and adaptation is being taken very seriously in some developing countries and it constitutes an integral part of their national strategy for the implementation of (intended) nationally determined contributions.

46. To enhance MRV of mitigation actions undertaken in the LULUCF sector and under REDD-plus, the collection and compilation of data covering all relevant industrial sectors is crucial. In this area, many developing countries still require significant funding and institutional and technical support. For instance, getting the buy-in of all sectors and stakeholders and having them provide the data needed in a coordinated manner are important requirements. Once relevant data are collected and compiled, quality control and quality assurance checks are needed in order to verify the computation of GHG emissions and it is important to follow the relevant Intergovernmental Panel on Climate Change guidelines. In this context, targeted capacity-building is needed to enhance the capacities of institutions and staff in all aspects of the MRV process, including data collection and compilation as well as the verification of computed data, in line with the relevant international guidelines.

47. An emerging area of concern is how to foster transparency and enhance the accountability of institutions dealing with climate finance. For instance, Cambodia

specifically mentioned that it needs support in setting up a mechanism that can manage, track and monitor the use of climate funds. In Indonesia, the Ministry of Finance began the work of developing a system that can 'tag' climate finance within the state budget so as to improve reporting and tracking, which contributes to strengthening the ability of policymakers to manage and target domestic financial resources for climate action more effectively. The channelling and allocation of resources was also recognized as an area where capacity-building is required, especially with regard to allocating sufficient financial resources to adaptation activities.

48. To ensure transparency in institutions that manage climate funds, research and the dissemination of good practices were recognized as a way forward. For instance, Guatemala prepared a research agenda for climate change, focusing on institutional issues, which considers possible mechanisms to counteract corruption and the misuse of resources in the area of the environment and development. For the better channelling of financial resources, particularly those for adaptation, the knowledge gap needs to be addressed through education and training so that policymakers become more aware of the importance of adaptation and reflect that in their national priorities and budget allocation. Moreover, developing countries need information on different financial mechanisms for adaptation activities, on methodologies for adaptation and how to integrate them into national and regional planning and on development instruments. However, it was noted that capacity-building on this topic is scarce, and that there is a lack of strategic alliances that would allow for capacity development in relation to overall climate change issues.

49. Another emerging area for capacity-building relates to the design and introduction of financial mechanisms aimed at incentivizing the adoption and implementation of mitigation and adaptation projects. Information is required on the types of financial and legal mechanisms and platforms that can address the challenges of development in the context of adapting to climate variability. For instance, Guatemala seeks information on national mechanisms and programmes that favour benefit sharing, compensation for climate-related losses, and compliance with social and environmental safeguards. Another topic of interest specified by Armenia is how to finance mitigation and adaptation projects using instruments such as carbon taxing.

50. Data and information on the inclusion of gender perspectives in climate action is limited; it was discussed in few national reports. It is recognized that capacity-building in this area is required, as understanding the different needs, attitudes and priorities of men and women in relation to climate change issues, such as energy consumption, can help countries to design more effective mitigation and adaptation measures. The need to include gender perspectives in disaster risk reduction efforts at the local, regional and national levels was highlighted. Moreover, empowering women to be visible agents of change in all areas, including health, education, infrastructure development and economic policies, was noted. The BUR of Montenegro notes that relevant capacities for gender analysis include the collection of gender-disaggregated data on climate change and the development of gender-related indicators, such as percentage shares of men and women in sectors concerned with climate change, the number of female farmers and the beneficiaries of fuel subsidies.

B. Support provided by Annex II Parties and other Parties in emerging capacity-building areas

51. Support was provided to help equip developing countries with the capacity for REDD-plus activities and forest management. Specifically, technical expertise was provided to facilitate the estimation of LULUCF GHG emissions and removals and the development of an MRV system for related REDD-plus activities. A good example of this

is the training of scientists, students and GHG reporting experts from developing countries in the use of the Carbon Budget Model of the Canadian Forest Sector, which is a software modelling framework for forest ecosystem carbon accounting. The tool, distributed free of charge online by the Canadian Forest Service, is used to calculate forest carbon stocks, monitor past stock changes and project future stock changes. Extensive training was offered on the use of the software through international workshops and follow-up support was also made available, if needed.

52. The reports referred to the support provided to global and regional networks that bring countries together for the sustainable management of transboundary natural resources and adaptation. An example of such a partnership is the Global Water Partnership-Mediterranean, which promotes action, demo application and knowledge exchange on: integrated water resources management; financing for water resources management, including private sector participation; adaptation to climate change; and transboundary water management. The Global Water Partnership-Mediterranean brings together 10 major regional networks of different water disciplines and works at the local, national, regional and transboundary levels. Another example of a global network is the International Model Forest Network (IMFN), which is an umbrella network of six regional model forest networks – African, Baltic, Canadian, Ibero-American, Mediterranean and Asian – covering 84 million ha in 31 countries for the sustainable management of forested landscapes. IMFN focuses on capacity-building through research extension and communications activities aimed at increasing awareness of the need to adapt to the impacts of climate change. An IMFN-sponsored regional workshop helped to advance the understanding of REDD-plus activities and processes within the Latin American and Caribbean region and among model forests.

53. The need to address gender considerations was also mentioned in the reports, albeit briefly. For instance, gender equality and environmental sustainability were cross-cutting themes of Iceland's Strategy for International Development Cooperation 2013–2016. Iceland's recent development support interventions have been designed to increase the participation of women in the international negotiations on climate change. Regarding the participation of various groups, IMFN promotes capacity-building for adaptation activities, targeting small-scale farmers, including ethnic and marginalized groups living within forested landscapes.

V. Capacity-building activities under the Kyoto Protocol

54. The CDM Executive Board has continued to provide support to DNAs, including for monitoring sustainable development benefits and the development of guidelines for local stakeholder consultations. In particular, CDM regional collaboration centres organized regional training events in Cameroon, Colombia, Ethiopia, Gabon, Honduras, Rwanda, Senegal, Sri Lanka, Thailand and Togo, and provided assistance for the establishment of a DNA office in South Sudan and one in Seychelles.

55. In response to the adoption of the Paris Agreement, the Nairobi Framework Partnership updated its terms of reference in early 2016 to reflect its experience with the CDM in order to support market-based approaches to addressing climate change at the national and regional levels next to its objective of promoting regional uptake of the CDM. Joint efforts of partners and cooperating organizations in the reporting period include organizing three regional working sessions, together with DNAs and regional experts, to consider how best to deploy and enhance the CDM-related skills and expertise of DNAs to support mitigation action using market-based approaches.