United Nations

FCCC/SBI/2019/3

Framework Convention on Climate Change

Distr.: General
8 April 2019

Original: English

Subsidiary Body for Implementation
Fiftieth session
Bonn, 17–27 June 2019

Item 13(a) and (b) of the provisional agenda
Matters relating to capacity-building for developing countries
Matters relating to capacity-building under the Convention, including enhancing institutional arrangements and the review of the Paris Committee on Capacity-building
Matters relating to capacity-building under the Kyoto Protocol

Implementation of the framework for capacity-building in developing countries

Synthesis report by the secretariat

Summary

This synthesis report has been prepared to support the SBI in its monitoring and evaluation, in accordance with decisions 2/CP.7 and 29/CMP.1, of the implementation of the framework for capacity-building in developing countries established under decision 2/CP.7. It draws on information from NCs, BURs, BRs, NAPs and the 2018 annual report of the CDM Executive Board. The information contained in this report, presented consistently with the 15 priority areas for capacity-building in developing countries as outlined in decision 2/CP.7, may assist Parties in reviewing progress in the implementation of the capacity-building framework and identifying areas that require additional capacity-building support. As this report also serves as input to the work of the PCCB, it contains information relevant to the capacity-building activities in its 2016–2020 workplan. Further, the report contains information on emerging or new areas for capacity-building identified in the national reports that are in line with the outcomes of the third comprehensive review of the capacity-building framework.

GE.19-05855(E)

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Contents

Abbreviations and acronyms

Annex II Parties	Parties included in Annex II to the Convention
BR	biennial report
BUR	biennial update report
CDM	clean development mechanism
COP	Conference of the Parties
FAO	Food and Agriculture Organization of the United Nations
GCF	Green Climate Fund
GEF	Global Environment Facility
GHG	greenhouse gas
GIS	geographic information systems
IPCC	Intergovernmental Panel on Climate Change
LDC	least developed country
MRV	measurement, reporting and verification
NAMA	nationally appropriate mitigation action
NAP	national adaptation plan
NC	national communication
NDC	nationally determined contribution
NGO	non-governmental organization
PCCB	Paris Committee on Capacity-building
QA/QC	quality assurance and quality control
RCC	regional collaboration centre
REDD-plus	reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks (decision 1/CP.16, para. 70)
SBI	Subsidiary Body for Implementation
UN-REDD Programme	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
2006 IPCC Guidelines	*2006 IPCC Guidelines for National Greenhouse Gas Inventories*

I. Introduction

A. Mandate

1. The 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 SBI at its sessions coinciding with the annual Durban Forum on capacity-building to facilitate the discussions.[2] In addition, it decided that the report will serve as input to the PCCB.[3]

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

B. Scope of the report

4. This report summarizes the available information on the implementation of the capacity-building framework, thus enabling annual monitoring of progress and the identification of areas that require additional capacity-building support.

5. In line with the provisions in paragraph 2 above, this synthesis report contains information that can serve as input to the PCCB in managing its 2017–2019 rolling workplan,[4] which was developed on the basis of the content of the 2016–2020 workplan.[5] The 2019 focus area or theme of the PCCB is capacity-building activities for the implementation of NDCs in the context of the Paris Agreement.[6]

6. The information contained in this report refers to activities reported between March 2018 and February 2019 in 30 NCs, 20 BURs, 3 NAPs and 5 BRs. The information herein that is relevant to the Kyoto Protocol comes from the CDM-related sections of the above-mentioned national reports and the 2018 annual report of the Executive Board of the CDM.[7]

7. A summary of the main findings of the synthesis is followed by chapters on the following topics:

(a) Capacity-building action undertaken and further capacity-building gaps and needs indicated by developing country Parties within the scope of the capacity-building framework and in the context of its 15 priority areas;

(b) Emerging or new areas for capacity-building and associated gaps and needs indicated by developing country Parties;

(c) Capacity-building support provided by Annex II Parties and other Parties to address the gaps and needs identified within the scope of the capacity-building framework;

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

8. This synthesis report presents a comprehensive overview of the topics identified in paragraph 7 above. However, the report may not convey a complete overview of capacity-building undertaken in developing countries, as the information included in national reports is complex and context-dependent, as further work may have been undertaken by developing

[1] Decisions 2/CP.7, paragraph 9, and 4/CP.12, paragraph 1(c).
[2] Decision 1/CP.18, paragraph 78.
[3] Decision 1/CP.21, paragraph 79.
[4] Contained in document FCCC/SBI/2017/11, annex IV.
[5] Decision 1/CP.21, paragraph 73.
[6] FCCC/SBI/2017/11, paragraph 5(e), and FCCC/SBI/2018/15, paragraph 8(a).
[7] FCCC/KP/CMP/2018/3.

country Parties and their support institutions after the submission of the national reports, and as information on certain areas may not have been available in those documents.

C. Possible action by the Subsidiary Body for Implementation

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

(a) To monitor and review the implementation of the capacity-building framework;

(b) To support Parties in their consideration of how to enhance the current practice of reporting on the impacts of capacity-building activities, best practices and lessons learned and how these should inform relevant processes under the Convention to enhance the implementation of capacity-building activities;[8]

(c) As input to discussions at the 8th Durban Forum on capacity-building, to be held in conjunction with SBI 50;

(d) As input to the 3rd meeting of the PCCB, to be held in conjunction with SBI 50.

D. Possible action by the Paris Committee on Capacity-building

10. The PCCB may wish to use the information contained in this report, where applicable, for the purposes of:

(a) Identifying capacity gaps and needs and recommending ways to address them, pursuant to decision 1/CP.21, paragraph 73(b);

(b) Promoting the development and dissemination of tools and methodologies for the implementation of capacity-building, pursuant to decision 1/CP.21, paragraph 73(c);

(c) Exploring how developing country Parties can take ownership of building and maintaining capacity over time and space, pursuant to decision 1/CP.21, paragraph 73(f);

(d) Identifying opportunities to strengthen capacity at the national, regional and subnational level, pursuant to decision 1/CP.21, paragraph 73(g);

(e) Considering cross-cutting issues such as gender responsiveness, human rights and indigenous peoples' knowledge, pursuant to decision 16/CP.22, paragraph 4(a);

(f) Taking into consideration, in its work, ways of enhancing reporting on capacity-building activities, considering all initiatives, actions and measures on capacity-building under the Convention and the Paris Agreement as well as existing reporting mandates, to achieve coherence and coordination, pursuant to decision 16/CP.22, paragraph 4(f).

II. Summary of findings

11. In the documents referred to in paragraph 6 above, Parties emphasized that capacity-building is integral to implementing the Convention, the Kyoto Protocol and the Paris Agreement. It was described as a strategic priority and as integral to efforts in all sectors. Parties also emphasized the importance of the 15 priority areas for capacity-building in developing countries.

12. In terms of the broad categories of information, countries described their efforts to enhance capacity, as well as capacity-building needs and capacity-building support received or provided. While Parties were not requested to report on specific sectors, the information was often structured by sector, and this reports attempts to capture that aspect within each of the 15 priority areas.

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

13. In terms of modalities for capacity-building, countries highlighted direct capacity-building efforts, provided in the form of training, workshops, programmes and education initiatives. But they also described how capacity can be built indirectly through the implementation of UNFCCC activities.

14. While countries did not structure the information on capacity-building around the 15 areas, the reports indicate that those areas continue to be relevant to climate efforts. The areas that received the most attention were GHG inventories, reporting, implementation of adaptation measures, research and systematic observation, development and transfer of technology, and education, training and public awareness. The analysis also indicates that a number of the 15 areas are complementary and cross-cutting. For example, institutional capacity-building is relevant to many other areas, such as GHG inventories, adaptation, and research and systematic observation.

15. As indicated in previous synthesis reports, the adoption of new UNFCCC instruments in recent years has led to the emergence of new areas of capacity-building and to countries adapting their efforts to those new realities. Chapter IV below describes emerging or new areas for capacity-building indicated by developing countries, in particular:

(a) The importance of capacity-building for the implementation of the Paris Agreement and NDCs, with focus on measures already in place, regional and cooperative activities, and capacity-building needs for strengthening NDCs;

(b) Linkages with sustainable development, including how capacity-building can be integrated into, for example, Sustainable Development Goals, development plans, sectoral plans, and efforts to reduce poverty;

(c) Involvement of stakeholders in capacity-building efforts, with a focus on the role of different stakeholder groups such as subnational governments, civil society, youth, private sector, and labour movements.

(d) South–South and regional cooperation, including a focus on regional networks and cooperative projects on risk management and MRV;

(e) MRV of action and support, in particular the development of domestic MRV systems for various sectors;

(f) REDD-plus, in particular in terms of creating capacity for monitoring and reporting, as well as for strengthening institutions;

(g) Access to and availability of finance, with a focus on ways to build capacity and readiness to access international finance as well as barriers thereto.

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

16. Chapter III.A–O below provides an overview of the capacity-building actions undertaken and capacity-building gaps and needs identified by developing country Parties. Although the information in the source documents was not systematically structured around the 15 priority areas of the capacity-building framework, the information below is organized around those areas to provide a substantive structure and to facilitate access to the information. The organization of the information is not intended to prejudge the scope and content of any of the 15 areas.

A. Institutional capacity-building, including the strengthening or establishment, as appropriate, of national climate change secretariats or national focal points

17. In terms of progress in institutional capacity-building, efforts to enhance capacity reported by Parties included:

(a) Setting up new institutions, such as a national designated entity for the Climate Technology Centre and Network, a national designated authority for the GCF or a disaster management department;

(b) Strengthening existing institutions by training, knowledge transfer, cooperation, transformation programmes or development policies;

(c) Helping to enhance the capacity-building activities of institutions.

18. Parties also described how the implementation of climate change activities, projects and policies can enhance institutional capacity, how efforts can be directed towards preparing institutions for further actions in development sectors, and how sectoral policies can be formulated to ensure sectoral institutions have mechanisms for capacity-building.

19. Parties also described needs for institutional capacity-building, in particular, on:

(a) Capacity of the government, ministries, directorates, divisions, agencies, subnational structures, civil society and the private sector, including:

(i) Involving all ministries and levels of government in climate policy, promoting interministerial partnerships and facilitating institutional networks;

(ii) Staffing and human resources, including enhanced recruitment, facilities and technology;

(iii) Reducing inefficiencies through coordination, merging or restructuring;

(iv) Capacity of sectoral ministries and agencies to articulate and enforce policies;

(b) Continuity of teams to maintain expertise, ensure focus and limit workload;

(c) Expertise on policy development, implementation, finance, development of sectoral plans, evaluation of impacts or insurance;

(d) Strengthening subnational management and administrative capacity;

(e) Training for national focal points;

(f) Capacity to identify sources of support or to establish funds.

B. Enhancement and/or creation of an enabling environment

20. Parties reported on various legal and political arrangements that contribute to an enabling environment for climate change activities, which included creating an enabling environment for adaptation by developing sector- and location-specific adaptation plans, establishing a green skills system programme to enhance planning capacity, and making laws on territorial organization and/or the orientation of public and private investments.

21. In terms of the capacity-building gaps in enabling environments, Parties highlighted the lack of support for integrated implementation of legislation, and policy and legislative distortions.

C. National communications

22. Parties described the capacity-building benefits of preparing NCs, emphasizing that the preparation helped to build capacity for the production of reports, permanent teams, knowledge and institutional memory, awareness, and research capacity and information, and enabled them to design a framework for future policy development.

23. Parties also described the type and sources of support received for the preparation of NCs, which included institutional and technical capacity-building, including through workshops, for technical working groups, and noted that support was provided for, among other areas, addressing data gaps, knowledge management, resolving inconsistencies, increasing stakeholder knowledge, collaboration, communications and incorporating climate change into development policies.

24. Parties highlighted the general capacity-building needs for the preparation of NCs, in particular for:

(a) Enhancing the expertise of institutions and individuals, including scientific institutions, and the research capacities relevant to NCs;

(b) Reporting in NCs, for example, through training of national focal points;

(c) Improving technical capacity for reporting at the local and regional level, as well as on specific sectors.

25. Some Parties highlighted the various co-benefits of the process of preparing a BUR, including the enhanced capacity of institutions, the opportunity to reform arrangements, improved human resources and closer integration of national and global policies. Parties also mentioned that the international consultation and analysis process helped to identify further capacity-building needs for the preparation of BURs. Steps taken towards developing a BUR included establishing a database, coordination mechanisms, a registry of initiatives and a mitigation plan.

26. Parties described the capacity-building support received for the preparation of BURs, which was provided through technical workshops and training programmes and supported by Parties, international organizations and initiatives.

27. In terms of capacity-building needs for developing BURs, some Parties indicated that the capacity to prepare BURs is low, as BURs are a new instrument, the guidelines are not explicit, progress indicators for mitigation and support are not sufficient, there are methodological and technical gaps in information collection, institutions are not ready for BUR preparation and support is inadequate. One Party highlighted the importance of continuity in the preparation process. In addition, the following specific needs were highlighted:

(a) Enhancement of an MRV system and related institutions;

(b) Development of capacity to evaluate technology needs;

(c) Evaluation of investment needs, costs of mitigation and financial flows.

D. National climate change programmes

28. Parties also drew attention to their climate change programmes that included capacity-building components. Examples included a climate change policy to enhance capacity for low-emission development, an action plan on climate change, and a government programme that aims to decentralize capacity-building.

29. Parties indicated that such plans often require capacity-building to be implemented and awareness to be raised. Capacity is needed, in particular, for implementing climate change programmes in sectors, for integrating climate change into sectors and for building the capacity of institutions and people. Specific sectors highlighted included the agriculture, forestry and other land use sector and REDD-plus/forestry.

E. Greenhouse gas inventories, emission database management and systems for collecting, managing and utilizing activity data and emission factors

30. Parties highlighted how the preparation of GHG inventories helped to develop capacity, including by applying the 2006 IPCC Guidelines voluntarily to improve inventory quality and to build capacity. More specifically, Parties built capacity by:

(a) Quantifying GHG emission reductions to develop expertise for emission estimation;

(b) Compiling inventories using IPCC software to enhance capacity for data collection and analysis;

(c) Conducting training for managers on inventories.

31. Parties also identified capacity-building measures implemented, including:

(a) A knowledge transfer programme for participants in inventory preparation;

(b) Inventory improvement plans;

(c) A centralized data collection and compilation mechanism;

(d) Measures to integrate private sector data providers and other stakeholders, including through capacity-building for institutions and industries that contribute to emissions to provide data for inventories and to guarantee the quality of those data;

(e) Workshops and training for technical and sectoral teams and industry participants, including on GHG inventory management and the 2006 IPCC Guidelines, QA/QC plans and GHG data management in the waste sector;

(f) Regional and South–South cooperation, partnerships and networks.

32. Capacity-building needs for preparing inventories relate to institutions, personnel, tools and methods, data and sector-specific needs. Some Parties indicated that they continue to analyse their needs. More specifically, Parties highlighted the following needs:

(a) Institutional capacity-building, in particular by:

(i) Enhancing the technical capacity of ministries and agencies to prepare GHG inventories continuously and, for sectors and facilities with proper baselines, to maintain an inventory management system and apply the principles of transparency, accuracy, consistency, comparability and completeness;

(ii) Strengthening coordination and management, for example by revising institutional frameworks or establishing a third-party verification system;

(iii) Establishing a dedicated institution for GHG data management;

(b) Technical capacity-building of experts through training and strengthening human resources, to enable proper focus by experts on inventories, knowledge exchange and more public and private sector experts;

(c) Capacity-building on various tools and methods, for instance:

(i) The 2006 IPCC Guidelines, including software, IPCC subcategories, country- and source-specific emission factors, key category analysis, uncertainty assessment of emissions and removals, guidelines for QA/QC and capacity of QA/QC units;

(ii) Higher-tier methodologies;

(iii) Sector-specific data generation;

(iv) Mitigation assessments, including for non-energy sector development efforts;

(v) Indicators for reporting progress on mitigation;

(vi) Estimation of abatement costs;

(d) Capacity-building on data management to develop inventories and baselines on:

(i) Arrangements to collect data, including historical data, that include observation networks and institutions that generate data;

(ii) Quality, accuracy and validation of data, including through data verification systems, standardization and/or regular upgrades of methods, to generate data at a level of detail where aggregate emission factors can be applied;

(iii) Availability of data, databases, institutions for database management and/or an archiving system;

(iv) Capacity of information technology staff;

F. Vulnerability and adaptation assessment

33. Many Parties described measures undertaken to build capacity for vulnerability and adaptation assessments. Such assessments helped to build capacity for future adaptation and disaster risk management and to raise awareness. Measures undertaken included:

(a) Plans (e.g. process to formulate and implement NAPs), contributions (e.g. adaptation targets in an NDC) and strategies;

(b) Enhancing capacity of existing institutions, or establishing new institutions, such as an institute or agency for disaster management;

(c) Sectoral efforts, including plans for green urban growth or for health risks, strategies in the construction sector for natural disasters, monitoring sea level rise and prioritizing vulnerable sectors;

(d) Capacity-building programmes by universities.

34. In terms of capacity-building needs for vulnerability and adaptation assessments, Parties highlighted the following areas:

(a) Weak capacity of institutions as well as legal and regulatory frameworks for vulnerability and climate change adaptation assessments;

(b) Data-related challenges, including insufficiency and unreliability, collection, acquisition, databases and assessments;

(c) Human resources, expertise and training;

(d) Tools and methods, including technical capacity and equipment (e.g. for climate models, scenarios and projections; mapping impacts; and monitoring, remote sensing and GIS), as well as research capacity;

(e) Capacity to assess social impacts and develop socioeconomic scenarios;

(f) International cooperation;

35. In terms of capacity-building needs in key sectors, Parties highlighted needs in the following areas:

(a) Agriculture, including sectoral scenarios and hydrological and crop models;

(b) Health, including the capacity to identify and manage risks, and to evaluate the effectiveness of programmes;

(c) Coastal protection, including for coastal zone management and erosion control, climate-proofing the design of coastal infrastructure and investments in infrastructure;

(d) Disaster risk management, including for multi-hazard early warning systems.

G. Capacity-building for implementation of adaptation measures

36. Parties described their plans, programmes, projects and other activities to build capacity for the implementation of adaptation, which included:

(a) Formulating a NAP by attending capacity-building workshops and participating in a regional NAP Expo;

(b) Completing institutional and/or individual training for planning, mainstreaming and implementing adaptation;

(c) Implementing adaptation projects, research projects, training workshops and/or community-based adaptation;

(d) Creating an index to quantify and measure the response capacity of institutions;

(e) Providing knowledge resources, such as a national risk atlas.

37. Parties also identified the capacity-building efforts for implementing adaptation in specific sectors, including:

(a) Water: training on conservation and efficiency, participatory irrigation and implementation of projects;

(b) Agriculture: risk management plans, rural resilience programme, capacity-building for agricultural enterprises, technicians, farmers and NGOs, insurance, income stabilization fund, rewards for environmental services, infrastructure development and settlement of nomads;

(c) Health: health adaptation plan, and monitoring and evaluation mechanisms; rules, standards and regulations; and training for health personnel for crisis and disaster management;

(d) Fisheries: adoption of a fishing site identification system, insurance, income stabilization fund, sustainable aquacultures and rewards for environmental services;

(e) Forestry: adaptation plans, strategies, programme to prevent fires and capacity-building on value chains of non-timber forest products;

(f) Coastal zones: protecting mangroves, raising awareness and providing education on coastal development; modernizing infrastructure and preparing contingency plans; and conservation projects to strengthen capacity for managing coastal and marine areas and biodiversity;

(g) Disaster risk management: disaster management plans with capacity-building components, and projects to build regional capacity;

(h) Urban areas: capacity-building for ministries, policy for integrating adaptation into livelihoods and habitat, and a network of resilient cities to build local government capacity.

38. Parties described capacity-building needs for implementing adaptation efforts. These included institutional, economic and financial capacity, capacity to formulate NAPs and/or regional pilot projects in NAP sectors, tools for monitoring and evaluation, assessment of impacts and actions, adaptation strategies for vulnerable groups, weather and climate institutions, forecasting, risk mappings and ‘climate proofing’.

39. Parties also described their needs for different sectors, for example:

(a) Water: awareness, early warning systems, local management capacity, flood control and risk reduction, coordination of stakeholders, and service capacity of subnational water commissions;

(b) Agriculture: training farmers in operations, management, retail, transportation, technology and data; strengthening agricultural training centres, regulations for soil protection, weather-indexed crop and livestock insurance, loan stimuli and tax incentives, enabling poor households to switch to better adapted species, and agroforestry;

(c) Fisheries: strengthening knowledge, education, awareness, logistics, monitoring capacity, institutional capacity and climate advisory expertise;

(d) Forestry: capacity to fight fires, finance for capacity-building of firefighters, reforestation;

(e) Health: training, facilities and human resources; information systems and communication, databases and registries, capacity of ministry of health, and regular capacity-building consultations;

(f) Biodiversity: financial support for eradicating invasive species;

(g) Disaster risk management: assessments, early warning systems, community structures for emergency response and developing disaster risk management strategies;

(h) Combating coastal erosion through adaptation.

H. Assessment for the implementation of mitigation options

40. Parties identified the following capacity-building activities on mitigation options implemented or under implementation in specific sectors:

(a) Forestry, including projects to increase carbon dioxide removals, biodiversity management, training of auditors, workshops on forest monitoring, inventory and carbon accounting, and increasing the capacity for indicators;

(b) Energy, including:

(i) Training on energy audits for institutions and industry, and on the Long-range Energy Alternatives Planning system and green building index courses;

(ii) Projects on energy efficiency in public facilities, community renewable energy, green urban lighting and geothermal heat and solar thermal power;

(c) Waste, including projects on integrated waste management and biogas, and an international forum for energy from urban waste;

(d) Agriculture, by building the capacity of the population on improved techniques and the development of domestic technologies;

(e) Industry, including training to technicians on efficient plant operation.

41. Parties identified capacity-building needs for the implementation of mitigation options, including:

(a) Legal and regulatory frameworks, institutional capacity, coordination between ministers and stakeholders, reduction of administrative complexity and improved communications;

(b) Technical capacity, including for implementation of a NAMA and for modelling to project GHG emissions and analyse mitigation potential;

(c) Quantification of emissions; improving estimates for emissions, removals and accounting; and developing a mitigation baseline;

(d) Long-range Energy Alternatives Planning system for energy planning and mitigation assessment;

(e) Guidelines to develop sectoral mitigation options;

(f) Training on access to technology;

(g) Technical awareness of the private sector, and an environment that facilitates investments in mitigation;

(h) On infrastructure, parameters to estimate carbon dioxide capture in sectors, social assessment of public investment, coordination between the public and private sectors, and information to undertake feasibility studies for emission reductions;

(i) On agriculture, sustainable soil management, water management, seedling management, integrated management of biotic stresses, selection of appropriate crops, sustainable production systems and private sector capacity to produce income-generating plantations such as shea in agroforestry systems;

(j) On energy, collection, compilation, reporting and analysis of energy information, as well as for waste-to-energy, ethanol and utility-scale solar photovoltaics.

I. Research and systematic observation, including meteorological, hydrological and climatological services

42. On research and systematic observation, Parties have built capacity through the following:

(a) Policy frameworks, such as an environmental policy, a research policy or an action plan;

(b) Mandating ministries to strengthen research capacity;

(c) Research frameworks and institutions, such as an environmental observatory or centre for oceanographic research;

(d) Improving instruments for data collection, local observation networks and information management systems;

(e) Regional climate models and scenarios that can enhance technical capacity and provide opportunities to connect with the international scientific community;

(f) Research and science centres and networks, and training technical experts on scientific instrumentation, data analysis and quality control, and atmospheric chemistry;

(g) Financing options (e.g. funds for young researchers or for environmental and health research, scholarships for studying abroad and support for international publishing);

(h) National and international workshops and training;

(i) Undertaking a national adaptation programme of action project involving meteorological products.

43. Capacity-building needs in research and systematic observation focus on domestic research, technical equipment and human resources. Specifically, Parties highlighted needs for:

(a) Integrative and systematic approaches for studying climate change;

(b) Strengthening research institutions; establishing research centres, strengthening meteorological agencies, environmental protection services and research institutions/universities; and institutional cooperation;

(c) Strengthening the capacity of researchers through training; engaging with universities and research centres, centres of excellence and research networks; accessing information; and postgraduate programmes on climate change;

(d) Ensuring sustained funding for research and systematic observation;

(e) Strengthening availability and quality of data, in particular by:

(i) Enhancing data production through stronger hydrological, meteorological, maritime, coastal and ecosystems monitoring, and by improving high altitude observations, remote sensing and GIS;

(ii) Enhancing the density and sustainability of observation sites, including Global Climate Observation System sites;

(iii) Establishing an integrated environmental monitoring network or an oceanographic data programme;

(iv) Building the capacity of meteorological services in terms of observation networks, communication systems, data acquisition and dissemination, and human resources, including in cooperation with the private sector;

(v) Improving databases, processing and storage; establishing a clearing house for climate data; and strengthening information technology skills;

(f) Increased research capacity for data interpretation, trend analysis, scenario development and forecasting, including for various sectors;

(g) Access to models and technologies; capacity for regional, national and local modelling, biophysical models; and modelling ecological impacts;

(h) Strengthening relevant social sciences to model socioeconomic implications of climate change and impacts of response measures.

J. Development and transfer of technology

44. Many Parties highlighted how capacities related to technology have improved and identified specific measures that contributed to that, including:

(a) A green technology policy that increases innovative capacity;

(b) Research and development to accelerate innovative capacity for clean energy, carbon dioxide capture and storage, and/or technologies to facilitate adaptation;

(c) Programmes to increase the mobility of researchers between government, education and the private sector;

(d) Pool of experts on renewable energy integration;

(e) Training on energy audits and management;

(f) Innovation hubs for clean technology entrepreneurs and green economy experts.

45. Parties described the various capacity needs for technology transfer. In general, countries would need capacity to develop:

(a) Standards and policy frameworks, for example an energy policy to build capacity on energy management systems;

(b) Expertise and human resources to receive and apply low carbon technologies;

(c) Institutional arrangements for the energy sector and/or private sector;

(d) Tools for market-led dissemination of technology;

(e) Funding arrangements for innovation and technology development;

(f) Research on new technologies, including through research centres.

46. In terms of renewable energy, Parties expressed the need for:

(a) Training for the workforce, and human resources for the public and private sectors, to install and operate renewable energy and/or to disseminate solar photovoltaic technology;

(b) Renewable fuel standards;

(c) Mandates for solar heating and cooling systems in public buildings and hotels;

(d) Capacity to keep pace with the global renewable energy industry;

(e) Capacity-building for economic diversification;

(f) Master's and doctoral level courses on renewable energy.

47. In terms of demand-side management, Parties highlighted the need for:

(a) Research capacity and expertise on efficient household appliances;

(b) Standards for the public sector, appliances, equipment and buildings;

(c) Awareness and educational programmes;

(d) Capacity to enhance efficiency in sectors.

48. Parties also highlighted capacity-building needs for other specific technology-related measures, such as improving the electricity grid, multi-cycle power stations, benchmarking industrial energy use against international best practices, use of natural gas, flaring restrictions and use of biofuels.

49. Some highlighted measures taken assist other countries in building capacity for technology, for example as part of the Southern Climate Partnership Incubator and the Climate Change International Technical and Training Center, or bilateral cooperation.

K. Improved decision-making, including assistance for participation in international negotiations

50. Parties highlighted that measures to implement the Convention enhance the decision-making capacity of institutions. Parties also highlighted projects towards this end, for example, a project to build decision-making capacity for sustainable land management, or to make decisions on the global environment, including in relation to the Rio Conventions. Parties highlighted the need for capacity for improving local and/or sectoral decision-making, and for integrating climate knowledge and expertise into decision-making.

51. In terms of international negotiations, one Party highlighted how the preparation of NCs built relevant capacity. Other Parties highlighted the need for capacity-building and training for participation in international negotiations, for bringing international decisions to the domestic level and for negotiating domestically with stakeholders.

L. Clean development mechanism

52. One Party highlighted their capacity-building programme for the CDM, while another described how projects can be an opportunity to build technical expertise. Others indicated that they need capacity to benefit from the CDM, including by training on CDM methodologies.

53. Parties also highlighted other capacity-building efforts related to carbon markets, including a project to train businesses to build capacity for a future carbon market and for regional carbon pricing. One Party highlighted its need for capacity-building to participate in carbon markets consistently with development priorities and economic diversification, and to assess impacts of carbon prices on prices of raw materials and goods.

M. Needs arising out of the implementation of Article 4, paragraphs 8 and 9, of the Convention

54. A number of LDCs reflected on their specific needs and concerns and how they relate to capacity-building, and emphasized the need for special consideration of LDCs in terms of capacity-building.

55. Capacity-building related gaps included data gaps and weak climate modelling capacities, the absence of networks for systematic observation and relevant expertise, including for considering the poverty–environment nexus in development planning and budgeting.

56. Priority capacity-building needs noted by Parties as linked to their status as LDCs include finance mobilization; data collection and monitoring, including institutional capacity for data collection within government departments and universities; human resources development and training of officials; scientific research, including permanent structures for systematic observation; awareness-raising on and sensitization to climate issues; gender mainstreaming; implementation strategies; monitoring; and mainstreaming activities throughout the governance structure.

57. In some LDCs, ongoing or recent conflicts or disease outbreaks have further exacerbated existing capacity constraints.

N. Education, training and public awareness

58. Parties emphasized education, training and public awareness as drivers of capacity-building, support and public engagement. Low levels of education and awareness were identified as key obstacles to efforts, including mainstreaming of climate change.

59. Many Parties drew attention to progress made, and highlighted specific efforts that contributed to capacity-building, including:

(a) Integration of awareness programmes into climate change plans or sectoral policies;

(b) Awareness efforts by governments, ministries, climate agencies, focal points, or disaster management or planning institutions;

(c) Preparation of national reports, which helped create awareness;

(d) Education and training (e.g. postgraduate courses and fellowships), environmental education, awareness training for children and youth and energy research centres;

(e) Regional work to enhance knowledge and skills related to awareness;

(f) Building awareness about advantages of alternatives to wood fuel and links between consumption and climate, or informing stakeholders about waste sorting.

60. In terms of capacity-building needs, Parties emphasized the overall need for human and institutional resources, knowledge transfer, facilities and training. More specifically, capacity is needed for:

(a) Integrating climate change into education (e.g. strengthening the capacity of teachers, sharing data and providing laboratories at schools), training programmes and quality management systems;

(b) Providing financial support;

(c) Strengthening the capacity of higher education and research institutions to consider climate change in an interdisciplinary fashion, including in humanities, social sciences and arts-based disciplines, and building capacity for gender analysis;

(d) Establishing institutions, such as a centre for education for sustainable development or a national focal point for climate change education, and an environmental communications unit;

(e) Methods to produce, access and disseminate climate information;

(f) Skills and knowledge of the labour force through education and training, providing opportunities for the unemployed and promoting green jobs;

(g) Enhancing the awareness of society, citizens, decision makers, civil servants, NGOs, private sector and media, on climate change, including impacts, commitments, adaptation, behavioural change, energy conservation and sustainable energy, and the importance of natural resources, science, technology and ancient and indigenous knowledge;

(h) Developing a strategic plan, a sectoral strategy and/or a communications strategy to enhance awareness, and/or aligning public awareness activities with the policy direction;

(i) Assessing state of awareness, information-sharing and education, and undertaking surveys with the aim of enhancing awareness;

(j) Involving stakeholders, including churches, NGOs, the private sector, the media and sectoral stakeholders, in awareness-raising efforts.

O. Information and networking, including the establishment of databases

61. Parties described various networks they are participating in to build capacity, which included international networks, such as the Asia Pacific Adaptation Network, a network of Ibero-American climate agencies and the networking platform of the Singapore Sustainability Academy. Parties also described national networks that provide capacity-building, disseminate climate information and build academic and/or technical expertise (e.g. the Thailand Climate Change Network; the Southeast Asia Global Change System for Analysis, Research and Training; and the Africa Climate and Development Initiative).

P. Additional information

1. Sources of support received

62. In the context of describing their capacity-building efforts and needs, Parties also identified sources of support received. Support was received, in particular, from:

(a) Parties, including Australia, the European Union, France, Germany, Italy, Japan, the Netherlands, Norway, the Republic of Korea, Singapore, Sweden, the United Kingdom of Great Britain and Northern Ireland and the United States of America;

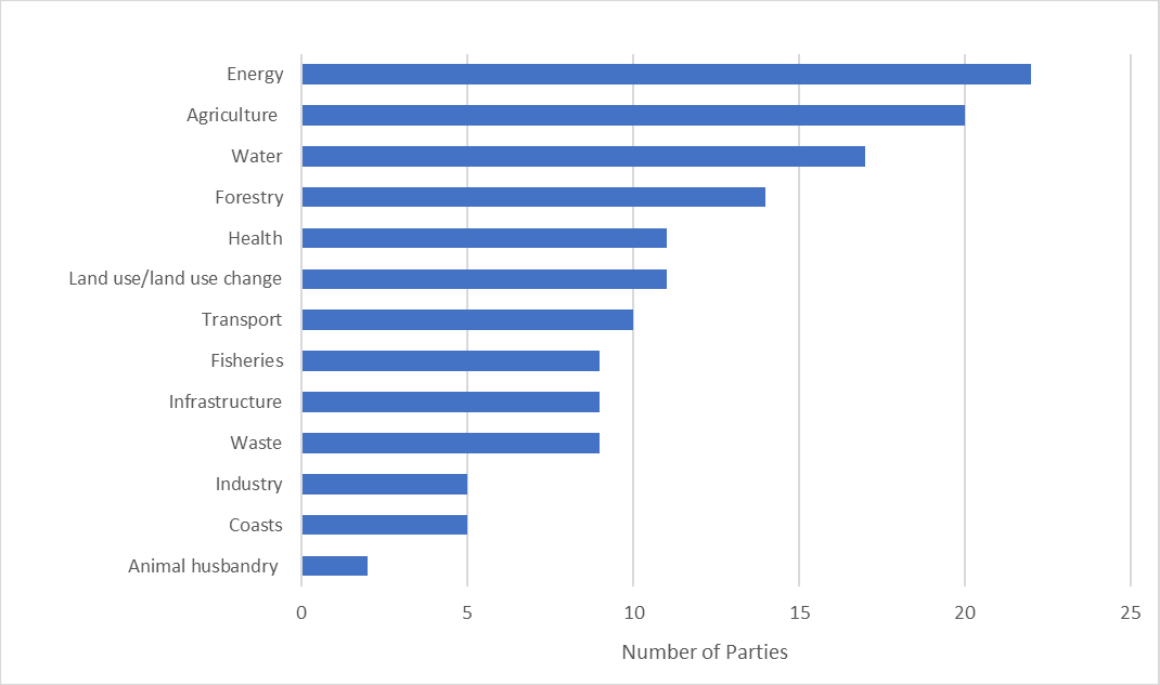
(b) From multilateral institutions and bodies and/or international organizations such as the Climate Technology Center and Network, the Coalition for Rainforest Nations, the Consultative Group of Experts, European Bank for Reconstruction and Development, FAO, the GEF, the Global Forest Observations Initiative, the Global Support Programme for Preparation of National Communications and Biennial Update Reports by non-Annex I Parties, the IPCC, the UNFCCC secretariat, the United Nations Development Programme, the United Nations Environment Programme, the United Nations Human Settlements Programme and the World Bank;

(c) Other entities such as the Forest Carbon Partnership Facility, the Frankfurt School of Management, the Heinrich Böll Foundation, the Low Emission Development Strategies Global Partnership, the NDC Partnership, the Stockholm Environment Institute, the Scaling Up Renewable Energy Program in Low Income Countries, the World Resources Institute and the World Wide Fund for Nature.

2. Priority sectors for capacity-building

63. Countries often identified their capacity-building efforts or needs from a sectoral perspective. They figure below illustrates the key sectors identified by Parties in relation to capacity-building efforts and needs.

Key sectors for capacity-building identified by Parties



IV. Emerging or new areas for capacity-building and associated gaps and needs indicated by developing country Parties

64. This chapter contains information about capacity-building areas mentioned in the reports that appear to be emerging or new areas for capacity-building. These 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. The evolving nature of climate science and policy has led to the emergence of new needs. Some of these areas have already been identified, notably in the technical paper prepared by the secretariat on the third comprehensive review of the implementation of the capacity-building framework[9] and in the 2018 report;[10] these previously identified areas include MRV of mitigation actions, REDD-plus, readiness for and access to finance, NAMAs, NDCs and transparency.

A. Paris Agreement and nationally determined contributions

65. In their reports, Parties described the role of capacity-building in the context of the Paris Agreement and NDCs. Some emphasized that capacity-building is key for implementing the Paris Agreement and NDCs, and for formulating long-term low GHG emission development strategies under Article 4, paragraph 19, of the Paris Agreement.

66. In terms of steps taken, Parties highlighted a road map for capacity-building for institutional coordination to implement NDCs, efforts by institutions to build capacity for the implementation of the Paris Agreement, and the steps taken to apply for GEF funding for a project to strengthen capacity for NDC follow-up in terms of data, reporting, provision of information, consistency of GHG emissions, monitoring and evaluation, and metrics and indicators for adaptation.

67. Parties also highlighted cooperative and regional activities on NDCs, including projects to build capacity for implementation, workshops related to transparency under the Paris Agreement and collaboration to provide coaching and training.

68. Some Parties indicated that, with adequate international capacity-building, they can increase the GHG emission targets of their NDCs. Other needs included increasing capacity for preparing NDCs and mitigation scenarios, coordinating technical design and policy priorities, developing and integrating ministries to systematically develop NDCs, creating NDC follow-up systems and gaining political approval. Some drew attention to capacity-building commitments included in their NDC, efforts to evaluate institutional capacity requirements for NDC implementation and ways in which the preparation of the NDC helped increase capacity for mitigation analysis.

B. Links with sustainable development/national development plans

69. Parties highlighted links between capacity-building and development efforts. For example, capacity to undertake climate efforts was described as vital for development plans and visions, Sustainable Development Goals and poverty reduction. Also, investments in development were seen as central to climate-related capacity-building. Parties described how they had integrated capacity-building into sustainable development efforts, how enhanced institutional capacity helps reap sustainable development benefits, and how implementation of development plans increased institutional capacity for inventories, mitigation, adaptation and reporting. Some countries aim to build capacity by implementing solutions to climate change that yield sustainable development benefits.

C. Involvement of stakeholders

70. Parties described the role of stakeholder groups in capacity-building. Some highlighted the importance of providing capacity-building for stakeholders (e.g. communities/subnational institutions, indigenous peoples, youth, NGOs, private sector) to enable meaningful participation in the climate effort.

71. Many described measures taken to build the capacity of subnational actors, such as municipalities, regional/local governments and community organizations, for example on

[9] FCCC/TP/2016/1.
[10] FCCC/SBI/2018/5.

sectors, research, understanding of impacts and integrating adaptation into development. The measures included establishing capacity-building institutions, guidelines and training, involving local government associations and community groups, supporting civil society and education institutions, local technology assessments and district vulnerability assessments, municipal adaptation programmes and internationally supported projects. Community capacity-building can prevent conflicts arising from adaptation measures.

72. Parties highlighted the importance of urban areas and the need for capacity-building on making cities sustainable. Actions include courses on urban governance and air and water quality management, as well as projects to build capacity for low carbon development in pilot cities.

73. Parties also highlighted the importance of the private sector for developing capacity, and identified efforts to build capacity through public–private initiatives with multinational companies, the integration of the private sector into NAPs and strengthening the role of the private sector in forestry policy.

74. Parties described how they had involved other stakeholders, including by providing training to NGOs, training for youth in green projects, capacity-building for labour movements and training to mining communities to protect their environmental rights.

D. South–South, regional and triangular cooperation

75. Parties described their cooperation with others. A number of developing country Parties highlighted their contributions to South–South cooperation, and identified capacity-building projects undertaken with others (e.g. capacity-building for risk management in Latin America and the Caribbean, improving capacity for MRV through the Alliance of the Pacific or a climate action package launched by Singapore). Many highlighted regional workshops and programmes and cooperation with developed country Parties. Other regional cooperation structures with capacity-building components identified included ClimaSouth, Euroclima+, the UN-REDD Programme, the Caribbean Regional Strategic Programme for Resilience, the Caribbean Climate Online Risk and Adaptation Tool, a project on accelerating low carbon and resilient society realization in the Southeast Asia region, the World Health Organization's Global Salm-Surv network and the Africa Climate Change Adaptation Initiative.

E. Measurement, reporting and verification

76. Parties highlighted efforts to improve MRV capacity, including by establishing an integrated MRV system for GHG emissions and work by institutions.

77. To enhance mitigation MRV, Parties highlighted the need to establish integrated MRV systems for sectors, local energy systems and installations. To establish such systems, Parties emphasized the need for:

(a) Institutional, legal and policy arrangements;

(b) Resources for implementation, including technical and financial assistance;

(c) Information, and national and international expertise;

(d) Technical capacities, including capacity to track efforts, quantify GHG reductions, prioritize activities, estimate resources required and use indicators;

(e) Experience with the CDM, NAMAs and NDCs.

78. One Party noted the progress made towards an integrated MRV system for support received. Others drew attention to capacity-building needs, for example the lack of oversight for ensuring monitoring and accountability.

79. Some indicated that they hope to receive support from the Capacity-building Initiative for Transparency and the GEF.

F. REDD-plus

80. Capacity-building for REDD-plus was identified as a priority by several Parties. Parties described efforts undertaken to build such capacity, for example, by preparing forest reference levels, reporting on REDD-plus in BURs, establishing a forest certification scheme, and a REDD-plus programme.

81. MRV was identified as a central need. Parties highlighted how they had enhanced related capacity through a REDD-plus programme, a readiness programme for forest monitoring, projects to improve monitoring and inventory systems and a project under the Southern Africa Development Cooperation to develop a standardized and IPCC-compliant MRV system for the region.

82. Capacity-building is specifically needed for strengthening institutions, forest monitoring, forest carbon inventories, satellite imagery and land use, land-use change and forestry inventories.

83. Parties noted that support for capacity-building on REDD-plus specifically had been received from the Coalition for Rainforest Nations, FAO, the Forest Carbon Partnership Facility, the GEF and the Low Emission Capacity Building Programme.

G. Access and availability of finance

84. Parties described their efforts in and needs for capacity-building for accessing finance. Lack of access was identified as a constraint on climate efforts. In terms of progress, Parties highlighted how they had received support and built capacity to access finance, for example through the GCF Readiness and Preparatory Support Programme. Parties also highlighted that access is constrained by low capacity for preparing project proposals, political unrest, lack of institutions and low finance readiness (e.g. low capacity for climate finance assessments, managing international finance and mobilizing investments).

V. Capacity-building support provided by Annex II Parties and other Parties to address the gaps and needs identified within the scope of the capacity-building framework

85. Parties continued to recognize the importance of capacity-building support to developing countries. The information on provided capacity-building support presented in this document is limited because the majority of BRs for the reporting cycle were included in the 2018 report.[11] Thus, this section should be viewed as a complement to the 2018 report, rather than as a stand-alone reflection of the status of capacity-building support provided or as a downward trend in capacity-building support provided.

86. Notwithstanding these limits, the table below provides a summary of the capacity-building projects that Annex II Parties and other Parties supported in this reporting cycle. The information comes from table 9 of the countries' BRs. Capacity-support from Parties included in Annex I to the Convention that are not obliged to provide capacity-building support but nevertheless reported having provided such support is also shown in the table below.

87. Notably, the projects in the table do not represent the entirety of capacity-building support provided by the Parties listed. Monaco, for example, stated that it channels part of its official development assistance through multilateral channels that align with its international priorities, including capacity-building support. While Ireland identified recent projects that feature capacity-building support, it highlighted that most of its overseas support programmes are administered under Irish Aid and include some form of capacity-building. For reporting, Ireland focused on projects that build institutional capacity and train individuals and groups to engage with climate change activities.

[11] FCCC/SBI/2018/5.

88. Despite drawing from a limited sample of BRs, the projects demonstrate a wide range of target actors, objectives and partner countries. For example, Ireland's capacity-building support included a project to build capacity of cocoa farmers in the United Republic of Tanzania on sustainable production and market access, a project in Uganda to develop capacity of civil society and local governments to track adaptation finance and its use, and a project in Viet Nam to train 200 students at 10 universities to build the capacity of a new generation of sustainable development professionals. Monaco described its support for Tunisia to strengthen capacity to promote the CDM in the energy and industry, and support, through official development assistance grants, to Institut de la Francophonie pour le développement durable to fund regional capacity-building workshops.

89. While none of the projects in the table were listed as primarily supporting technology transfer, Ireland listed five projects that include capacity-building. This included a project in Malawi to build the capacity of local authorities and communities in disaster risk reduction, a project in Ethiopia, with government institutions and farmers, to build capacity in climate-smart agriculture and a project in Viet Nam to improve the capacity of poor and ethnic minority communities to identify local adaptation needs.

90. Some Parties chose to refrain from including detailed information on capacity-building support in their BRs, referring instead to the relevant section of their most recent NC. One Party illustrated broad trends in its provision of climate finance, including for strengthening the administrative capacity of developing countries by outlining its total annual climate finance provided in recent years and the general mechanisms through which it channels this finance.

Overview of capacity-building support provided by Annex II Parties and other Parties

Country	*Annex II Party?*	*No. capacity-building projects supporting mitigation*	*No. capacity-building projects supporting adaptation*	*No. capacity-building projects supporting multiple areas*	*No. capacity-building projects supporting technology transfer*	*Total no. capacity-building projects*
Cyprus	No	_	_	_	–	0
Ireland	Yes	0	5	7	0	12
Luxembourg	Yes	_	_	_	–	0
Monaco	No	1	_	1	–	2
Slovenia	No	_	_	_	_	0
Total		1	5	8	0	14

VI. Capacity-building activities under the Kyoto Protocol

91. The 2018 annual report of the CDM Executive Board describes efforts of the RCCs, which support national climate action through capacity-building, technical assistance and strategic networking and are now operating in Lomé, Togo; Kampala, Uganda; Bogota, Colombia; St. George's, Grenada; and Bangkok, Thailand. The RCCs prioritize work in the LDCs and in those underrepresented within the CDM. In the reporting period, RCCs supported capacity-building through regional and subregional events in Abidjan, Côte d'Ivoire; Bangkok; Harare, Zimbabwe; Lomé; Mexico City, Mexico; Nairobi, Kenya; Panama City, Panama; Rio de Janeiro, Brazil; San José de David, Panama; and Singapore. Further, RCCs provided capacity-building and training through direct technical support to Chad, Djibouti, Panama, the Philippines and Saint Lucia.

92. Additionally, a workshop was held to strengthen the capacity of designated operational entities. It enabled sharing validation and verification experiences among designated operational entities and the secretariat in the light of the new CDM regulations. It was attended by 17 participants representing 10 entities from Asia, Europe and Latin America.