



United Nations

ADVANCE VERSION

FCCC/SBI/2023/3



Framework Convention on
Climate Change

Distr.: General
23 March 2023

Original: English

Subsidiary Body for Implementation

Fifty-eighth session

Bonn, 5–15 June 2023

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 Subsidiary Body for Implementation in its annual monitoring and evaluating, 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 synthesized from biennial reports, biennial update reports and national communications, including information on emerging or new areas for capacity-building identified in national reports. The information contained in this report, presented consistently with the 15 priority areas for capacity-building in developing countries set out in the annex to decision 2/CP.7, may assist in reviewing progress in the implementation of the capacity-building framework and identifying areas where additional capacity-building support is required. Further, the report contains information on emerging areas for capacity-building identified in the national reports.

* This document was scheduled for publication after the standard publication date owing to circumstances beyond the submitter's control.

Abbreviations and acronyms

Annex II Party	Party included in Annex II to the Convention
ASEAN	Association of Southeast Asian Nations
BR	biennial report
BUR	biennial update report
CDM	clean development mechanism
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
GHG	greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
MRV	measurement, reporting and verification
NAP	national adaptation plan
NC	national communication
NDC	nationally determined contribution
PCCB	Paris Committee on Capacity-building
RCC	regional collaboration centre
REDD+	reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; unsustainable management of forests; and enhancement of forest carbon stocks (decision 1/CP.16, para. 70)

I. Introduction

A. Mandate

1. The Conference of the Parties 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.7.¹
2. The Conference of the Parties also requested the secretariat to make the report available to the Subsidiary Body for Implementation at its sessions coinciding with the annual Durban Forum on capacity-building to facilitate discussions at the Forum.² In addition, it decided that the report will serve as input for the work of the PCCB.³
3. The CMP requested the secretariat to consider in the annual synthesis report capacity-building activities related to the implementation of the Kyoto Protocol in developing countries.⁴

B. Scope of the report

4. This report summarizes information on the extent of the implementation of the capacity-building framework, thus enabling annual monitoring of progress and identification of areas where additional capacity-building support is required.
5. The report contains information that can be used by the PCCB in managing its 2021–2024 workplan⁵ (see para. 2 above). The 2023 focus area of the PCCB is building capacity support for adaptation, with a focus on addressing gaps and needs related to the formulation and implementation of NAPs.
6. The information contained in this report relates to activities reported between March 2022 and mid-February 2023 in 32 BRs,⁶ 19 BURs⁷ and 32 NCs⁸ and 8 NAPs.⁹ The information relevant to the Kyoto Protocol comes from the CDM-related sections of the above-mentioned national reports and the 2022 report of the CDM Executive Board to the CMP.¹⁰
7. This report is limited in scope to reporting under the Convention in the context of the 15 priority areas of the capacity-building framework.¹¹ Therefore, information on capacity-building reported in NDCs and adaptation communications under the Paris Agreement, while noted, is considered beyond the scope of the report. The evolving transparency arrangements under the UNFCCC, particularly the adoption of new reporting instruments under the Paris Agreement, including the biennial transparency report, may entail adjustments to the scope of future synthesis reports.
8. A summary highlighting the main findings from the synthesized information is followed by chapters on:
 - (a) Capacity-building undertaken and gaps and needs identified by developing country Parties within the scope of the 15 priority areas of the capacity-building framework (see chap. III below);

¹ Decisions 2/CP.7, para. 9(c), and 4/CP.12, para. 1(c).

² Decision 1/CP.18, para. 78.

³ Decision 1/CP.21, para. 79.

⁴ Decisions 29/CMP.1, para. 4, and 6/CMP.2, para. 1(c).

⁵ FCCC/SBI/2020/13, annex I.

⁶ Available at <https://unfccc.int/BR5>.

⁷ Available at <https://unfccc.int/BURs>.

⁸ Available at <https://unfccc.int/NC8>.

⁹ Available at <https://www4.unfccc.int/sites/NAPC/Pages/national-adaptation-plans.aspx>.

¹⁰ FCCC/KP/CMP/2022/7.

¹¹ As per decision 2/CP.7, annex, para. 15.

- (b) Emerging or new areas for capacity-building and associated gaps and needs identified by developing country Parties (see chap. IV below);
- (c) Capacity-building support provided by Annex II and other Parties to address the gaps and needs identified within the scope of the capacity-building framework (see chap. V below);
- (d) Capacity-building activities under the Kyoto Protocol (see chap. VI below).

C. Possible action by the Subsidiary Body for Implementation

9. The Subsidiary Body for Implementation may wish to use the information in this report:

- (a) In monitoring and reviewing the implementation of the capacity-building framework;
- (b) In consideration of how to enhance reporting on the impacts of capacity-building activities, as well as of best practices and lessons learned and how these could inform processes under the Convention in order to enhance the implementation of capacity-building activities;¹²
- (c) As input to discussions at the 12th Durban Forum on capacity-building and the 7th meeting of the PCCB.

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

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

- (a) Enhancing coherence and coordination of capacity-building under the Convention with a focus on avoiding duplication of efforts, including through collaboration with bodies under and outside the Convention that engage in activities related to capacity-building, as appropriate and in accordance with their respective mandates;
- (b) Identifying capacity gaps and needs, both current and emerging, and recommending ways to address them;
- (c) Promoting awareness-raising, knowledge- and information-sharing and stakeholder engagement with bodies and relevant actors under and outside the Convention, as appropriate and in accordance with their respective mandates.

II. Summary of main findings

11. Capacity-building remains integral to implementing the Convention, the Kyoto Protocol and the Paris Agreement, with capacity-building efforts described by Parties as strategic priorities and essential in all sectors. Although Parties did not always refer directly to the capacity-building framework when providing information on capacity-building, this report is structured according to its 15 priority areas, many of which are complementary and cross-cutting.

12. Capacity-building is progressing at the institutional, systemic and individual level: national policies and government entities dedicated to addressing climate change are increasingly being established; climate change expertise in developing countries is growing through training of local staff by international governmental bodies and non-governmental organizations; a growing number of Parties have conducted vulnerability and technology needs assessments and implemented adaptation and mitigation options; increasingly, awareness-raising and educational activities in relation to climate change, the environment and the Sustainable Development Goals are being undertaken, including to enhance resilience; the private sector and non-governmental organizations are increasingly being included in climate-related decision-making processes; and gender is increasingly being

¹² As per decision 16/CP.22, para. 3.

mainstreamed in climate and development policies. Parties highlighted the importance of regional and international cooperation for building capacity.

13. In terms of modalities for capacity-building, Parties highlights efforts such as training, workshops, joint research projects by higher education institutions, scholarships, sharing of best practices on adaptation and mitigation, collaborative platforms for sharing climate data, establishment of networks, and awareness-raising campaigns. In addition, they highlighted the ongoing importance of bilateral and multilateral support through United Nations agencies, other international organizations and financial institutions.

14. With regard to capacity-building needs, Parties reported requiring support for compiling GHG inventories and reporting thereon; improving regulatory frameworks; technology development and transfer; assessing and implementing mitigation and adaptation actions; enhancing institutional capacity to prepare and submit national reports; building technical inventories and vulnerability and adaptation assessments, managing carbon sinks and using IPCC 2006 inventory software; accessing climate data; training on climate modelling; and data management. They also highlighted the need for sector-specific support, mentioning agriculture, water, forest and land use, disaster risk management, energy, transport, and tourism.

15. Parties provided details of support received or provided in the following areas: implementing activities under the Convention; preparing BURs, national climate change reports and other communications; using IPCC GHG inventory software; participating in international climate negotiations; accessing programme and project financing; applying scenario tools for mitigation actions; and collecting data and information. They highlighted support received or provided by sector, including waste management, energy, transport, agriculture and forestry.

16. Parties highlighted the importance of gender mainstreaming in work undertaken in the following areas: development and climate change, health, food security, disaster risk reduction and management, access to climate finance, MRV of mitigation actions, the importance of transparency, and implementation of nationally appropriate adaptation actions.

17. Many Parties have observed that the evolving nature of climate change, science and policy is leading to emerging or new areas for capacity-building not provided for under the capacity-building framework. Emerging or new areas include improving documentation and compilation systems for compliance with the enhanced transparency framework, developing educational and professional development programmes on climate change, strengthening climate resilience in health systems to climate-sensitive diseases, strengthening small and medium-sized enterprises to mainstream climate change in their business plans, supporting non-profit organizations in their climate change efforts, facilitating access to climate finance, developing systems to track the implementation of NDCs and cooperative approaches under Article 6 of the Paris Agreement, and promoting a just transition.

18. With regard to capacity-building support provided by Annex II and other Parties, the analysis of the data provided by the Parties revealed that most of the reported capacity-building projects targeted adaptation, followed by mitigation. Capacity-building support for adaptation included assisting developing countries in integrating climate resilience activities into new and existing infrastructure, ‘greening’ agriculture and forestry practices and promoting the sustainable development and use of water resources. Capacity-building projects supporting mitigation focused on increasing access to renewable energy and promoting energy efficiency to drive low-carbon energy and transportation and climate-resilient development solutions. Further, capacity-building support for technology development and transfer was primarily delivered as a component of projects targeting multiple areas.

III. Implementation of the capacity-building framework

19. This chapter provides an overview of capacity-building undertaken and gaps and needs identified by developing country Parties. It is organized according to the 15 priority areas of the capacity-building framework.

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

20. Parties reported measures undertaken for enhancing institutional capacity, such as:

(a) Building partnerships across local, regional and international institutions to facilitate adaptation and mitigation action plans, climate-related research and development, the sharing of climate data and the monitoring and reporting of current and projected climate impacts;

(b) Establishing new institutions, such as national designated entities, a national climate change secretariat or office within their ministries or sector-specific agencies, to oversee national climate-related efforts and strengthen coordination, monitoring and communication in relation to climate action and support;

(c) Strengthening climate-related institutions through, inter alia, training, knowledge transfer, cooperation and transformation programmes supporting policy development;

(d) Integrating gender considerations into policymaking and promoting equity and equality in formulating and implementing climate plans, policies and actions;

(e) Developing institutional arrangements among government agencies involved in the preparation of BURs.

21. Parties described needs for institutional capacity-building, in particular resources for:

(a) Collecting activity data, designing surveys or instruments for data analysis and reporting, and implementing mechanisms and organizational structures aimed at enhancing staff retention;

(b) Enhancing institutional capacity for gender mainstreaming in climate policies;

(c) Reinforcing institutional arrangements for climate reporting;

(d) Strengthening departmental cooperation among government departments and including members of civil society in policymaking.

B. Enhancement and/or creation of an enabling environment

22. Parties reported various legal and political arrangements that contribute to an enabling environment for climate action; for example, updating legal frameworks to enhance transparency across different sectors, collaborating with other developing countries to reinforce administrative capacities of local staff and support the development of legal and regulatory frameworks; developing gender mainstreaming strategies; improving the environment for investing in the protection of private property and intellectual property rights; and introducing laws to regulate sectors such as waste management and transport as well as the use of renewable energy and technology development and transfer.

23. Parties reported that mainstreaming climate change in their NAPs helped to advance low-carbon development agendas and enhance the adaptive capacity of communities. One Party described establishing a sustainable national MRV system in line with international agreements, while another reported incorporating its 2050 net zero commitment into a national strategy, putting emphasis on green technology, education and research activities.

24. Parties highlighted specific technical knowledge gaps in relation to adaptation and mitigation and related policies, as well as in relation to incorporating climate considerations into governmental and institutional policymaking. They expressed the need to systematize the development and implementation of environmental frameworks and legislation; cross-sectoral climate communication; and the coordination of awareness-raising activities.

25. Parties also highlighted the need to consolidate governance networks at the local level, organize cross-sectoral round tables, build capacity to develop climate finance and

participatory strategies, and create economic support schemes for the implementation of projects.

C. National communications

26. Parties described how preparing NCs and BURs helps to build capacity for, inter alia, establishing institutional arrangements, establishing permanent teams for reporting, accumulating knowledge and institutional memory and enhancing stakeholder engagement in and knowledge of climate-related processes.

27. In terms of types of support received for building capacity to prepare NCs and BURs, Parties reported receiving institutional and technical support through, for example, workshops and training for national focal points. With regard to gaps, they reported weak institutional arrangements, lack of personnel training on collecting national statistics by sector, reporting on NCs through the training of focal points, and lack of technical capacity for preparing NCs and BURs in governmental institutions.

28. Parties highlighted capacity-building needs for preparing NCs and BURs, including the need to:

- (a) Improve support for collecting the data and information needed to compile NCs and BURs and improve the quality of reporting in terms of transparency, accuracy, completeness, consistency and comparability;
- (b) Enhance the capacity to understand and appropriately interpret internationally agreed climate change terminology, methodologies and common tools;
- (c) Train sectoral focal points to collect, process and report data and information in a complete and reliable manner;
- (d) Maintain a permanent technical team to prepare NCs and BURs in a timely manner and with the required level of quality and create formal inter-institutional agreements to ensure that the required information is supplied and up to date.

D. National climate change programmes

29. Parties highlighted national climate change programmes with capacity-building components. Parties developed country priorities to facilitate the implementation of actions to combat climate change. Parties also integrated gender considerations into climate change policies. Examples are including climate change in school curricula, enhancing public awareness of climate change issues through educational programmes with climate-related contents, incorporating climate considerations into policymaking, building sectoral capacity in relation to resource management and adaptation actions, and providing training to their staff on financial reporting.

30. Parties noted that, in addition to financial support, capacity-building, awareness-raising, inter-institutional cooperation, engagement from the public and private sectors, strengthened technical capacity of relevant stakeholders (e.g. ministries, the private sector and non-governmental organizations) to implement programmes and a national climate reporting system that assigns clear responsibilities are required for such programmes to be implemented.

31. Parties also highlighted the importance of developing a communication strategy between governments and stakeholders (private, community and non-governmental organizations) to encourage collaboration on implementing climate change programmes between the public and private sectors, building expertise in different sectors and developing and strengthening the skills and abilities of stakeholders and the processes and resources of organizations to enable them to implement national climate change programmes.

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

32. Parties provided examples of implemented capacity-building for preparing GHG inventories and establishing sustainable inventory management systems:

(a) Global, regional or country-specific training on topics such as using the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*,¹³ GHG inventory preparation and management, and methodologies for data collection;

(b) Institutional and technical capacity-building for compiling and updating inventories using IPCC software and improving quality assurance and quality control systems, including archiving and communication systems;

(c) Establishing partnerships to establish GHG policies and data management systems, including to achieve emission reduction targets, ensure transparency of reporting and improve the accuracy of GHG inventories;

(d) Enhancing methods for monitoring and conducting assessments of mitigation policies and actions;

(e) Financial assistance for participating in online training and certification programmes on the *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

33. Parties reported the following capacity-building needs for preparing their GHG inventories:

(a) Capacity-building for engaging with climate research institutions and experts, including for estimating emissions for key categories and developing country-specific emission factors;

(b) Capacity-building for improving data management, accessibility to country's time-series data and developing protocols and data acquisition systems that facilitate consistency between mitigation actions and national GHG inventories for reporting and to enable updatable, coherent quantification of the reduction of emissions generated;

(c) Capacity-building for establishing institutional mechanisms for conducting regular GHG inventory and maintenance;

(d) Training on GHG emission methodologies and calculations, including on incorporating existing data into the IPCC calculation template, on compilation, updating and quality assurance and control processes and on key sector and uncertainty analyses;

(e) Capacity-building for developing models that systematically estimate emissions under different scenarios;

(f) Capacity-building for enhancing collaboration between key stakeholders in government, industrial partners and communities, including those responsible for GHG inventory preparation, as well as for sharing data and methodologies and protocols on data collection, reporting and verification, with a view to enhancing consistency across GHG inventories;

(g) Subregional, regional and international training on GHG inventories, integrated assessment modelling and mitigation action analysis.

¹³ IPCC. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. S Eggleston, L Buendia, K Miwa, et al. (eds.). Hayama, Japan: Institute for Global Environmental Strategies. Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl>.

F. Vulnerability and adaptation assessment

34. Many Parties described measures undertaken to build capacity for vulnerability and adaptation assessment, including:

- (a) Institutional capacity-building for such assessment, including improving legal and institutional frameworks, establishing new disaster risk reduction institutions and upgrading climate risk and early warning systems;
- (b) Capacity-building for supporting coordinated planned actions and strategies stipulated in NAPs for reducing climate threats.

35. Parties highlighted capacity-building needs in this area, including:

- (a) Adequate technical resources for such assessment across all sectors;
- (b) Developing systems for regular communication, for example establishing sector-specific research centres dedicated to providing climate-related information, and improving early warning communication and dissemination through the promotion of research and development activities;
- (c) Higher education programmes on climate change and vulnerability assessment, strengthening the expertise of staff and training national experts on new techniques for assessing vulnerability and adaptation to climate change;
- (d) Providing technical assistance in assessing climate change vulnerability and risk and building the capacity of local communities for interpreting climate information and for participatory monitoring;
- (e) Developing comprehensive knowledge of hazards and risks and establishing systematic national-level hazard and risk assessments.

G. Capacity-building for implementation of adaptation measures

36. Parties described a wide range of measures for building capacity for adaptation, including:

- (a) Training institutions and individuals at the national level in developing and managing projects;
- (b) Strengthening the institutional capacity of research organizations to undertake relevant research;
- (c) Raising awareness among public and private sector organizations of the importance of adaptation action;
- (d) Developing sector-specific policies to help promote the adoption of adaptation technologies at the national level;
- (e) Providing subsidies, loans, financial assistance and market access to developers and consumers of green infrastructure;
- (f) Strengthening the resilience and reducing the vulnerability of communities living near river basins through preventive cross-border flood control mechanisms and education and awareness-raising in relation to flood monitoring and early warning systems;
- (g) Strengthening household and community resilience to climate change to ensure food security by developing adaptive, absorptive and transformative capabilities;
- (h) Developing a national adaptation strategy plan aimed at enhancing climate resilience, identifying key priorities for increased collaboration, integrating climate change programmes and projects into national policies, developing mechanisms to promote climate change initiatives, establishing a framework for measuring progress at the national level and developing sector-specific and cross-sectoral climate strategies and action plans;

(i) Establishing open data-sharing policies accessible to general public, collecting and disseminating information on climate change, providing such information to stakeholders and the public and sharing best practices of successful adaptation measures;

(j) Enhancing collaboration between the private and public sectors on designing and developing cost-effective climate technologies;

(k) Strengthening regional cooperation through the sharing of best practices, expertise and knowledge on adaptation and enhancement of local administrative capacities to plan and implement adaptation measures.

37. Parties also reported capacity-building for implementing adaptation action in the following sectors:

(a) Agriculture, including enhancing research and development, developing and implementing a legal framework for property and water rights, promoting water management techniques and undertaking national awareness-raising campaigns on the advantages of cooperative societies;

(b) Water, including restructuring water management organizations, formulating legal frameworks and standardizing procedures for the development and management of rainwater harvesting and groundwater recharge systems, conducting training and research activities on water, developing and implementing a legal framework for groundwater rights, allocating an adequate budget to the improvement of drainage systems and enhancing data collection techniques;

(c) Forestry and other land use, including providing incentives for sustainable forest management, enforcing laws and regulations on forest management, restructuring forest management organizations and updating the national forest inventory to better understand the socioeconomic data on forests as a livelihood for communities;

(d) Disaster risk management, including implementing a resilience framework that encompasses disaster risk in order to identify and categorize climate change risks in accordance with advances in climate science;

(e) Tourism, including ensuring the responsible management of tourist destinations in accordance with sustainable tourism principles, encouraging environmentally innovative tourism activities, developing ecotourism activities, developing geotourism activities with a view to preserving natural, cultural and historical values, and securing and safeguarding historical infrastructure.

38. Many Parties identified the needs for public awareness of and action on adaptation to climate change, for building institutional, technical and financial capacity, for training on land identification and classification using remote-sensing techniques, for developing data maps to identify the risks of climate change, for accessing viable adaptive technology and for developing and strengthening relevant mechanisms, instruments and policies.

H. Assessment for the implementation of mitigation options

39. With regard to capacity-building for the assessment, formulation and implementation of mitigation options, Parties mentioned, inter alia, preparing nationally appropriate mitigation actions, MRV of mitigation policies and actions, training and awareness-raising, and developing a national learning strategy to foster low-emission and climate-resilient development.

40. Parties reported capacity-building for implementing mitigation options in the following sectors:

(a) Carbon, including developing a mechanism for carbon pricing, engaging in carbon trading and reducing GHG emissions through carbon offsetting measures;

(b) Transport, including establishing passenger bus only lanes and constructing inclusive stations offering diverse services;

(c) Forestry and other land use, including promoting community-based forest management, agroforestry, afforestation of range and degraded land, reforestation of degraded land and preservation of forest land and riverine plantations; enhancing the provision of alternative fuels to reduce dependency on fuelwood; financing and implementing REDD+ activities; increasing forested areas and plantations; promoting the sustainable management of native forests; and preventing forest fires;

(d) Agriculture, including improving the management of water systems, reducing sectoral methane emissions and production, enhancing manure storage and management, implementing agroforestry practices, limiting crop burning practices, and using biogas and organic fertilizers from animal waste;

(e) Waste, including building national and local institutional capacity, enforcing waste management laws and regulations, converting waste to energy, promoting the adoption of international standards at the national level and upgrading and digitalizing power management systems;

(f) Energy, including introducing labelling schemes for appliances and efficient lighting policies, conducting training and awareness-raising on efficient energy use, introducing bill financing schemes for subsidizing energy-efficient home appliances, increasing the share of non-conventional renewable sources in electricity generation, harnessing the benefits of renewable sources of energy, introducing legislation to regulate energy use, reducing quantities of fossil fuels sold by replacing them with plant-based fuels such as biodiesel and bioethanol, and incorporating energy-efficient lighting into public lighting systems and the residential sector;

(g) Cross-cutting, including facilitating access to modern energy infrastructure, promoting the use of renewable energy, promoting rural electrification, enhancing energy efficiency in industry and the construction sector, implementing cleaner industrial production techniques, ensuring the sustainable use of forest and grasslands, developing and using innovative financing and market mechanisms in relation to climate protection, such as emissions trading schemes or carbon taxes, and designing and implementing ambitious policies to mitigate climate change, such as clean air and black carbon emission policies.

41. Parties also identified capacity-building needs in this area, including:

(a) Training technicians in developing and managing climate finance projects;

(b) Developing data infrastructure to support mitigation activities;

(c) Establishing a research and development centre on mitigation of GHG emissions from industries like cement and steel and providing researchers with related training;

(d) Translating legal texts concerning GHG emissions into local languages to enhance understanding by the general public and technical staff;

(e) Enhancing coordination and collaboration among government departments;

(f) Developing a plan to enhance capacity in relation to GHG emission modelling and socioeconomic scenarios, the construction of mitigation scenarios and the elaboration of financing requests;

(g) Enhancing human and financial resources to exploit the potential of the biomass sector, obtain specific data on amounts of fuel consumed, prepare portfolios of mitigation projects at the regional level and communicate the success of mitigation actions undertaken;

(h) Designing specific approaches to estimating GHG emissions from different sectors;

(i) Developing and evaluating mitigation actions in the non-energy sector, improving data and project management in the waste sector, improving the safety of power plants, ensuring the sustainable production and development of modern fuels for domestic energy supply, expanding the carbon accounting programme at all levels and compiling energy statistics;

- (j) Capacity-building for characterizing, quantifying and storing data on waste generated in order to determine national emission factors.

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

42. Many Parties highlighted limited institutional, technical, technological and financial resources for research and systematic observation, identifying capacity-building needs for reporting on climate change, improving GHG inventories, enhancing modelling capabilities, facilitating the development and transfer of climate-compatible technologies, and identifying and assessing mitigation and adaptation options.

43. Some Parties reported capacity-building undertaken for strengthening research and systematic observation, such as:

- (a) Developing strategic and institutional frameworks for climate change research to inform national programmes and policies;
- (b) Using modern infrastructure and technology to strengthen and develop operational forecasting and climate services, implementing integrated forecasting tools and using climate information in creating modern climate products and services;
- (c) Digitalizing climate data, ensuring quality control thereof and establishing a climate database to inform the generation of climate products and national climate reports;
- (d) Establishing hydrometeorological institutions to carry out scientific and research activities in the field of climate change, monitoring scientific progress in relevant fields, improving climate prediction systems, methods and applications used for daily activities like agriculture and farming and supporting the publication of results from research and scientific activities;
- (e) Translating weather hazard alerts into all national languages and English;
- (f) Creating research networks to study the impacts of climate change, including through climate modelling and prediction, and generating global scientific knowledge through international cooperation, research and education;
- (g) Engaging in international research activities to understand human-induced and natural climate change, its variability and its impacts on natural ecosystems and on various socioeconomic sectors;
- (h) Allocating funding to climate change related research and innovation.

44. Some Parties reported capacity-building undertaken to strengthen research and systematic observation, such as:

- (a) Training and increasing the number of staff responsible for the maintenance of equipment for monitoring hydrometeorological parameters;
- (b) Enhancing the systematic observation of climate change parameters, improving modelling capabilities, obtaining climate data for monitoring purposes and strengthening data collection processes and the way they are communicated back and managed communication capacities in data collection and management;
- (c) Training staff on climate modelling, hydrological models, interpretation and analysis of satellite imagery, numerical weather prediction, and flood forecasting.

J. Development and transfer of technology

45. Parties described a wide range of capacity-building efforts for technology development and transfer, including:

- (a) Developing and enacting national strategies, policy frameworks and institutional arrangements for facilitating the preparation of national reports and communications;

(b) Transferring technology and knowledge to higher education institutions and stakeholders involved in the provision of technologies, financing climate action and development projects with a technology dimension, facilitating collaboration on technology research and providing financial support for implementing alternative technologies;

(c) Training on sector-specific technology needs assessments;

(d) Providing technological and capacity-building support for carbon emission reduction initiatives and enhancing the capacity to adapt to the negative effects of climate change;

(e) Supporting the development of green technology through accelerator programmes dedicated to the circular economy and facilitating the dissemination of environmental protection technologies through collaborative networks.

46. Parties reported various capacity-building needs for technology transfer, including:

(a) Strengthening institutional capacity and expertise for coordinating, adopting and disseminating mitigation and adaptation technologies in priority sectors;

(b) Increasing awareness of low-carbon technology and renewable energy options in the public and private sectors, including through training, educational programmes, awareness-raising and sustainable procurement;

(c) Providing technology for specific sectors, such as water management, agriculture, infrastructure and housing (efficient building design);

(d) Enhancing human and financial capacity to assess technology needs.

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

47. Parties noted that activities under the Convention, such as the establishment of MRV systems, international cooperation and the establishment of partnerships, helped to enhance the decision-making capacity of institutions and improve access to climate-related data, information and knowledge. Some Parties highlighted the need for gender mainstreaming and gender equity to ensure representation and enhanced participation and leadership of women in climate change related institutions and policymaking.

48. Some Parties highlighted that participation in international climate change negotiations helped to build their capacity to prepare NCs and BURs, with one mentioning that workshop opportunities enhanced understanding of the processes and actors involved in negotiations and improved negotiation skills. Other Parties highlighted the need for training on participating in negotiations on climate change.

L. Clean development mechanism

49. One Party reported on its CDM projects, highlighting the need for cross-sectoral support to undertake nationally appropriate mitigation actions and increase participation in the CDM and other market mechanisms established under the Convention, and the need to develop and maintain institutional arrangements relating to GHG inventories, MRV of mitigation actions and of support needed, and to link these arrangements to national budget processes in order to facilitate sustainable, long-term MRV operations.

M. Needs arising from the implementation of Article 4, paragraphs 8–9, of the Convention

50. A number of least developing country Parties reported on capacity-building efforts, including financial and technical support received for preparing NAPs and NDCs, training on monitoring the implementation of NCs, capacity-building for preparing financial reports,

establishing a sustainable national MRV system, conducting technology needs assessments and implementing sectoral adaptation and risk reduction measures.

51. The reported capacity gaps are related to capacity-building support for and expertise on climate action; training for national experts; institutional frameworks for coordinating activities and implementing the GHG inventory cycle; climate-related regulatory frameworks and legislative texts; equipment for collecting and processing climate data; capacity for conducting research and development in relation to the climate system and updating GHG databases; and expertise on the tools and software needed for preparing GHG inventories, and on assessing mitigation actions.

52. Reported priority capacity-building needs according to Parties are related to financial resource mobilization, data acquisition systems, human resource development, inclusion of climate change issues in school curricula, awareness-raising of climate change related research and the provision of climate change information by the media. Other priority needs reported include setting up a system for disseminating climate information, acquiring new climate technologies, training on climate modelling, accessing climate data for monitoring purposes, enhancing expertise on the use of hydrological models, strengthening stakeholder capacity to adapt to climate change through awareness-raising, making existing texts related to climate change more accessible to the general public, building capacity to learn about and transfer clean technologies, and implementing adaptation actions.

N. Education, training and public awareness

53. Parties emphasized the importance of education, training and public awareness in driving capacity-building, support for action and public engagement. Many highlighted progress in this area, describing efforts that have contributed to capacity-building:

(a) Raising awareness of climate change risks, increasing public acceptance of loss and of compromises resulting from climate impacts and encouraging public contributions to resilience-building solutions through awareness-raising;

(b) Collaborating with regional and international partners on training and educational courses that address the cross-cutting impacts and risks of climate change and the coronavirus disease 2019;

(c) Raising public awareness of climate change through nationwide media campaigns and awareness-raising sessions in order to enhance understanding of climate action;

(d) Engaging in public relations activities on climate change and disseminating information on climate-related issues to raise public awareness and encourage the public to take action;

(e) Teaching schoolchildren about environmental matters under the Education for Sustainable Development programme of the United Nations Educational, Scientific and Cultural Organization;

(f) Promoting integrated measures to encourage public and private organizations to undertake their own climate initiatives;

(g) Developing educational webinars, materials and short films on climate change for local communities, providing open access resources on climate change and strengthening global cooperation with international organizations to encourage student mobility by ratifying the Global Convention on the Recognition of Qualifications concerning Higher Education;

(h) Promoting knowledge exchange and communication in relation to gender and equity issues and mainstreaming gender considerations in climate change related activities;

(i) Scaling up research in higher education, offering technical programmes on climate change, vulnerability assessments and environmental and climate protection, and establishing academic research platforms for these key areas;

(j) Supporting non-profit organizations in preparing publications on climate change.

54. Parties highlighted the need for human and institutional resources, knowledge transfer, facilities and training in this area. More specifically, capacity is needed for, inter alia:

(a) Enhancing technical capacity within ministries to raise public awareness of climate change issues, enhancing collaboration among climate change experts, improving and enhancing access to research opportunities, consolidating inter-institutional cooperation on climate change, enhancing stakeholder engagement on adaptation measures, making collaborative climate projects more sustainable and considering climate research findings in policymaking and decision-making;

(b) Conducting assessments of needs and priorities for climate change education, training and public awareness;

(c) Improving the capacity of social enterprises and private business stakeholders to use information contained in UNFCCC technical reports by providing training and awareness-raising.

O. Information and networking, including the establishment of databases

55. Parties described capacity-building efforts within various networks:

(a) International networks, including the Climate Ambition Support Alliance, the Alliance of Small Island States and the High Ambition Coalition, which aim to increase the capacity of negotiators in climate-vulnerable countries to engage in international climate negotiations;

(b) Regional networks, such as ASEAN and the ASEAN Specialised Meteorological Centre, which help to build weather and climate forecasting abilities;

(c) National networks, such as the Academic Research Organisation for Policy Support, ClimateWest and national networks of indigenous organizations, which provide policy support for development cooperation activities, for academic research and community, and for business, and empower government officials from different departments in relation to work on climate change.

IV. Emerging or new areas for capacity-building and associated gaps and needs

56. The evolving nature of climate science and policy has led to emerging or new capacity-building needs. The emerging or new areas for capacity-building mentioned in Parties' reports, although linked to the overarching themes considered in the capacity-building framework, are not included within the scope of its 15 priority areas.

57. Parties highlighted emerging capacity-building needs in the following areas:

(a) Enhancing national transparency arrangements and MRV systems, including for tracking NDC implementation, climate-related public expenditure and climate support needed and received;

(b) Developing regulatory frameworks for technology development and transfer, information flow, carbon markets, the transport and waste sectors and circular economies;

(c) Accelerating the green and digital transition, providing incentives to the private sector to make green investments and improving the performance of the green energy sector;

(d) Developing procedural manuals for institutional stakeholders on using national support tracking systems to ensure the full implementation of the institutional framework developed for the reporting and monitoring of NDCs.

58. With regard to emerging and new areas for capacity-building, the following trends were identified:

(a) Documentation and compilation systems are improving in line with the enhanced transparency framework, including through the institutionalization of reporting processes under the Convention, training of national staff, establishment of mechanisms or systems for reporting and provision of technical skills and tools;

(b) There is an increase in climate resilience in national health systems, enabling them to better prepare for, cope with and manage health risks associated with climate variability and change, with Parties reporting an improvement in governance and institutional and human capacity, strengthened climate-sensitive-disease surveillance systems, the development of research on the health impacts of climate change and the incorporation of climate resilience strategies into health policies, programmes and plans;

(c) There has been a growing tendency to improve the inclusion of climate change issues in school curricula and educational courses, with an emphasis on education for sustainable development, to develop online professional development courses on climate change and to provide open access resources on climate change;

(d) Small and medium-sized enterprises have increasing capacity to improve quality assessment, coordinate common standardization processes, exchange experience, ensure monitoring of and access to climate change information, and develop climate change knowledge;

(e) Non-profit organizations are increasingly empowering people, communities, businesses and governments to address the risks and opportunities of climate change, organizing climate-related events, contributing to the development of climate-related legislation and preparing publications on climate change;

(f) Partnership plans and policy documents that include measures for supporting the implementation of NDCs are increasingly being prepared;

(g) There is an increase in the development of systems for tracking the implementation of NDCs and cooperative approaches under Article 6 of the Paris Agreement;

(h) Parties are taking steps towards a just transition by engaging with the public on climate change issues and introducing relevant legislation;

(i) Access to climate finance is being enhanced and capacity to design and implement strategies for accessing additional sources of funding is increasing.

V. Capacity-building support to address gaps and needs within the scope of the capacity-building framework

59. Most Annex II and other Parties acknowledged capacity-building as an essential element of mitigation and adaptation projects that helps to ensure their successful and effective implementation and sustainability. Some Annex II Parties indicated that the cross-cutting and integrated nature of capacity-building makes tracking capacity-building support on a disaggregated basis challenging.

60. Notwithstanding the challenges indicated in reporting on capacity-building support provided, the table below presents the capacity-building projects undertaken by Annex II and other Parties. The information comes directly from table 9 of the countries' BRs. The same BR tables are used for target area classifications. For some of the projects categorized by Annex II and other Parties as targeting a specific sector, it was necessary to conduct further research in order to include the project in one of the capacity-building support areas. Projects marked as covering multiple areas are the ones listed by the countries as supporting "multiple target areas", as "cross-cutting" or as "multiple". Additionally, when a project targeted at least two areas among mitigation, adaptation and technology transfer, it was placed in the multiple areas category. If table 9 of a country's BR was left blank, projects included in its NCs and BRs that had an explicit capacity-building component were included in the table, as was the case for France. Parties included in Annex I to the Convention that are not included

in Annex II are not obliged to provide capacity-building support, but such support was still reported by some countries and is shown in the table.

61. A caveat to the table is that reporting varies considerably by country. Some countries provided a few representative projects in table 9 of their BRs, whereas others listed all projects that include a capacity-building component. In addition, the classification of projects differed considerably by country. For instance, some countries included ongoing activities that were included in previous BRs, while others could not single out the capacity-building components of their development cooperation projects and programmes given their integrated nature. For most countries, technology transfer was an integrated part of projects, which meant the projects were classified as supporting multiple areas. This is notably the case for Austria, where half of the projects included a technology development and transfer dimension.

Overview of the number of capacity-building projects undertaken by Annex II and other Parties, as reported in their fifth biennial reports, by area

<i>Party</i>	<i>Annex II Party</i>	<i>Mitigation</i>	<i>Adaptation</i>	<i>Technology development and transfer</i>	<i>Multiple areas or cross-cutting</i>	<i>Total</i>
Australia	Yes	4	11	3	15	33
Austria	Yes	1	4	–	7	12
Belarus	No	–	–	–	–	–
Belgium	Yes	8	6	–	3	17
Bulgaria	No	–	–	–	–	–
Canada	Yes	9	–	–	3	12
Cyprus	No	–	–	–	–	–
Czechia	No	–	3	–	3	6
Estonia	No	–	–	–	–	–
European Union	Yes	5	–	–	3	8
Finland	Yes	–	7	–	1	8
France	Yes	8	3	–	5	16
Germany	Yes	13	10	–	2	25
Greece	Yes	–	3	–	2	5
Italy	Yes	4	3	1	50	58
Japan	Yes	37	40	–	12	89
Latvia	No	–	–	–	4	4
Liechtenstein	No	–	–	–	–	–
Lithuania	No	–	–	–	–	–
Malta	No	–	1	1	7	9
Monaco	No	–	–	–	–	–
Netherlands	Yes	12	63	–	19	94
New Zealand	Yes	47	22	–	–	69
Norway	Yes	6	6	–	4	16
Poland	No	1	17	–	3	21
Portugal	Yes	–	2	–	–	2
Romania	No	–	–	–	–	–
Russian Federation	No	–	–	–	–	–
Slovakia	No	3	19	–	–	22
Spain	Yes	10	15	1	31	57
Switzerland	Yes	6	2	–	1	9

<i>Party</i>	<i>Annex II Party</i>	<i>Mitigation</i>	<i>Adaptation</i>	<i>Technology development and transfer</i>	<i>Multiple areas or cross-cutting</i>	<i>Total</i>
United Kingdom	Yes	18	37	–	15	70
United States	Yes	3	2	–	–	5
Total	–	195	276	6	190	667

Note: Projects not or not exclusively related to adaptation, mitigation or technology development and transfer and/or projects covering multiple areas.

62. A total of 667 projects were reported by Annex II and other Parties in their BR5s. The types of capacity-building support provided depended primarily on the needs and priorities of the developing countries and the strengths and expertise of the countries providing the support. For example, New Zealand supported projects on weather and climate data analysis and forecasting in small island developing States, which are among the countries most vulnerable to climate change. Through the New Zealand–Pacific Partnership on Ocean Acidification, it supported communities in Fiji, Kiribati and Tokelau in better adapting to the impacts of ocean acidification by providing support for community-based adaptation, awareness-raising and research activities. The European Union mainstreamed capacity-building activities in all development assistance provided through its EUROCLIMA+ programme for combating climate change in Latin America with a view to contributing to the achievement of the Paris Agreement goals.

63. Some projects supported by developed country Parties aimed to build the institutional capacity of developing countries. Similarly, several developed country Parties highlighted the importance of youth empowerment and participation in the response to climate change. Austria, for example, undertook a project in Armenia to empower adolescents to play active roles in climate action and solutions and contribute to creating socially and environmentally sustainable communities in their country.

64. A total of 195 projects relating exclusively to mitigation were reported on strengthening measures to reduce emissions from land use, deforestation and forest degradation; enhancing readiness for a domestic carbon market; and encouraging low-carbon development. For example, Norway promoted the BioCarbon Fund Initiative for Sustainable Forest Landscapes, aimed at reducing GHG emissions from the land sector, implementing REDD+ activities and increasing sustainable agriculture, as well as introducing smarter land-use planning, policies and practices. It also supports economic development by protecting forests, restoring degraded lands, enhancing agricultural productivity, and improving livelihoods and local environments. In another example, the United States of America supported a project in the Amazon rainforest to reduce habitat loss and commodity-driven deforestation and promote the application of low-carbon agricultural and deforestation-free production practices by training producers and other stakeholders on monitoring supply chains, accessing green investments and using research and information to reduce habitat loss and deforestation.

65. In addition, some mitigation projects focused on increasing access to renewable energy and promoting energy efficiency to drive low-carbon energy and transportation and climate-resilient development solutions. For example, Germany supported a project in the Marshall Islands aimed at reducing GHG emissions from and the costs of domestic maritime transport, as well as providing policy guidance to the Government of the Marshall Islands and other Pacific States with a view to helping them represent their own national and regional interests at United Nations climate negotiations and within the International Maritime Organization.

66. A total of 276 projects relating exclusively to adaptation were reported, including assisting developing countries in integrating climate resilience activities into new and existing infrastructure, ‘greening’ agriculture and forestry practices and promoting the sustainable development and use of water resources, particularly for agricultural irrigation, and waste management. For example, Czechia undertook a project in Ethiopia focused on improving water resource sustainability by providing training to technicians from secondary vocational schools and water suppliers.

67. Six projects relating exclusively to technology transfer were reported, though technology development and transfer was embedded in many of the climate projects supported by Annex II and other Parties. For example, Australia supported a coral reef innovation project in the Pacific region aimed at enhancing the capacity to gather and assess information on coral reef resilience and thus inform appropriate management actions based on these assessments. The capacity-building component of the project included, inter alia, training on the operation and application of the Reef-Cloud platform and assisting policymakers and decision makers in analysing and monitoring information on coral reef resilience. Another project in Italy promoted institutional cooperation between the Ministry of Environment, Land and Sea Protection of Italy and the Ministry of Environment and Energy of Costa Rica through a memorandum of understanding on coordinated efforts to contrast climate change, encouraging the realization of systems for risk assessment and promoting the use of clean energy to drive economic and technological transformation towards low-carbon systems. The cooperation activities aimed at addressing the drivers of and reducing deforestation and land degradation, conserving forest carbon stocks, sustainably managing forests and enhancing forest carbon stocks.

VI. Capacity-building activities under the Kyoto Protocol

68. The 2022 annual report of the CDM Executive Board to the CMP describes the role of RCCs in capacity-building. During the reporting period, RCCs organized online training events, provided technical assistance to designated national authorities, mobilized climate finance for mitigation and adaptation actions outlined in NAPs and other policies or strategies and collaborated with local and regional agencies, multilateral development banks and partners to improve the regional distribution of CDM projects. They also provided technical support to developing countries for developing CDM methodologies and standardizing baselines; incentivized Parties to undertake CDM projects by promoting the use of certified emission reductions under the Climate Neutral Now initiative; promoted the use of the CDM in development and climate strategies; promoted the benefits and broader applications of the CDM for climate financing; and promoted the use of the CDM sustainable development tool. RCCs prioritized work in the least developed and underrepresented countries.

69. The RCC Global Forum 2022 was held during the reporting period. During the event, RCCs presented overviews of and updates to their workplans for 2022–2023, and the importance of regional partnerships through market mechanisms such as the CDM for achieving the goals of the Paris Agreement and the Sustainable Development Goals was highlighted.

70. In the context of the Nairobi Framework Partnership, activities, mostly within the scope of UNFCCC climate weeks, were organized in collaboration with regional partners and supporting organizations. Africa Climate Week was held in Uganda in 2021, while regional climate weeks in 2022 were held in the Dominican Republic, Gabon and the United Arab Emirates. The climate weeks focused on accelerating collaboration between stakeholders, enhancing integration of climate action into pandemic recovery efforts, boosting resilience to climate risks, transitioning to low-emission economies, establishing partnerships to address pressing global challenges, exploring challenges and showcasing ambitious solutions ahead of COP 27.