Recognizing the adaptation efforts of developing country Parties: draft synthesis report on institutional arrangements and stakeholder engagement

Synthesis report

In connection with the recognition of the adaptation efforts of developing country Parties in the context of the global stocktake (Article 7, para. 14, of the Paris Agreement and decision 11/CMA.1, para. 13)

Draft v.2

Abbreviations and acronyms

AC	Adaptation Committee
ACCCRN	Asian Cities Climate Change Resilience Network
ARClim	Climate Risk Atlas for Chile
BTR	biennial transparency report
C40 Cities	Climate Leadership Group of 40 Cities
CREAD	Climate Resilience Execution Agency for Dominica
GCA	Global Commission on Adaptation
IIED	International Institute for Environment and Development
IPCC	Intergovernmental Panel on Climate Change
KJIP	Kiribati Joint Implementation Plan for Climate Change and Disaster Risk Management 2014–2023
MEL	monitoring, evaluation and learning
MRV	measurement, reporting and verification
NAP	national adaptation plan
NAP-NSC	National Steering Committee for the National Adaptation Plan of the Philippines
NC	national communication
NDC	nationally determined contribution
NGO	non-governmental organization
OECD	Organisation for Economic Co-operation and Development
SEI	Stockholm Environment Institute
SIDS	small island developing States
SPRACC	Climate Risk Assessment and Planning Tool of Ecuador
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

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1. INTRODUCTION

1.1. Mandate

1. As part of the modalities for recognizing the adaptation efforts of developing country Parties (Article 7, para. 14(a), of the Paris Agreement), the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement requested the secretariat, under the guidance of the AC and the Least Developed Countries Expert Group and in collaboration with other stakeholders, to prepare a synthesis report every two years starting in 2020 on specific adaptation themes, with a focus on relevant lessons learned and good practices in developing country Parties.[1]

2. The Conference of the Parties, serving as the meeting of the Parties to the Paris Agreement, recalled that the global stocktake will review the overall progress made in achieving the global goal on adaptation, and acknowledged that adaptation efforts contribute to that objective.[2]

1.2. Scope

3. This series of biennial synthesis reports focuses on specific adaptation themes, emphasizing relevant lessons learned and good practices from developing country Parties. The mandate was established within the broader context of recognizing the adaptation efforts of developing countries.

4. The first synthesis report (Adaptation Committee 2020) explores how developing countries are addressing hazards. It provides a comprehensive overview of the strategies and approaches used by developing countries to mitigate the impacts of climate-related hazards.

5. The second report (Adaptation Committee 2022) focuses on the efforts of developing countries in assessing and meeting the costs of adaptation by highlighting the approaches employed by developing country Parties in assessing adaptation costs and their efforts to meet increasing financial needs.

6. This synthesis report, the third in the series, focuses on aspects regarding institutional arrangements and stakeholder engagement in relation to adaptation in developing countries. The objective is to synthesize relevant lessons, insights and good practices of developing country Parties with respect to the four elements of the iterative adaptation cycle (risk and vulnerability assessments; planning; implementation; and monitoring, evaluation and learning) and other cross-cutting enabling factors and actions. The report explores these concepts, highlighting their interconnections and the progress by developing countries in advancing their adaptation efforts.

1.3. Sources of information

7. The report is based on information from multiple sources, including reports from the AC, a review of national reports submitted to the UNFCCC, including NDCs, NAPs, adaptation communications, technology needs assessments and technology action plans; other relevant reports under the UNFCCC; reports from the operating entities of the UNFCCC; Financial

[1] Decision 11/CMA.1, paras. 13–14.
[2] Decision 11/CMA.1, para. 14.

Mechanism and other relevant literature. The case studies were selected based on interactive country profiles[3] developed by the AC, among other sources.

8. The report also incorporates information from independent evaluation reports from the Green Climate Fund, the Global Environment Facility and the Adaptation Fund; needs determination reports prepared by the Standing Committee on Finance; biennial update reports and other relevant sources.

2. BACKGROUND

2.1. Importance of institutional arrangements and stakeholder engagement for adaptation

9. Climate change presents a global challenge that requires robust, coordinated efforts, particularly in the developing countries disproportionately affected by its impacts (Burton et al. 2004). Institutional arrangements and stakeholder engagement are critical for effective adaptation planning and implementation.

10. The 2014 thematic report by the AC on institutional arrangements for national adaptation planning and implementation laid the foundation for understanding the critical role of institutional arrangements (Adaptation Committee 2014). Since then, developing countries have made progress in refining their institutional structures to address evolving adaptation needs.

11. Institutional arrangements refer to the structures, rules and practices established to guide adaptation action, including assessing impacts, planning, implementation, and monitoring and evaluation. Stakeholder engagement refers to active participation from governments, civil society organizations, the private sector and Indigenous communities that helps to ensure inclusive and context-specific approaches[4].

12. Institutional arrangements provide the frameworks necessary for coordinating efforts in the developing countries while stakeholder engagement ensures inclusivity and responsiveness to local needs (Global Commission on Adaptation 2019; IPCC 2022a).

2.2. Evolution of adaptation frameworks under the Convention and the Paris Agreement

13. The Convention and the Paris Agreement underscore the importance of institutional arrangements and stakeholder engagement. At the sixteenth session of the Conference of the Parties, Parties highlighted the need for strong institutional frameworks to support climate-resilient development. Article 7 of the Paris Agreement reinforces this need by emphasizing the importance of cooperative approaches and inclusive institutional mechanisms (UNFCCC 2023).

14. The Glasgow Climate Pact, adopted at the twenty-sixth session of the Conference of the Parties, stresses integrating local knowledge into adaptation planning and recognizes stakeholder engagement as critical for equitable outcomes. Several IPCC reports (Carter et al. 2021) further emphasize that robust governance systems are essential for overcoming barriers to adaptation.

[3] See https://unfccc.int/adaptation_country_portal.

[4] See https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/how-are-stakeholders-engaged-on-adaptation-under-the-un-climate-process.

2.3. Enhancing adaptation through multilevel governance and inclusive stakeholder engagement

15. Institutional arrangements and stakeholder engagement are essential throughout the adaptation cycle, including for assessing risks, planning, implementing measures and monitoring progress (Adaptation Committee 2019). Effective governance ensures alignment across governance levels (local, national and international), while stakeholder engagement fosters public support and legitimacy (Overseas Development Institute et al. 2018).

16. Countries such as Kenya and Peru have demonstrated the successful integration of local and Indigenous perspectives into adaptation planning. Bangladesh has invested USD 5 billion in climate-resilient infrastructure, showcasing the alignment of adaptation and development goals (Noble et al. 2014; Global Center on Adaptation 2022).

2.4. Key components of institutional arrangements and stakeholder engagement

2.4.1. Institutional arrangements for adaptation

17. Institutional frameworks such as climate-resilient policy instruments and sectoral strategies enable national and local authorities, including interministerial bodies, to coordinate adaptation actions effectively (Beauchamp et al. 2024).

18. Internationally, efforts under the Convention and the Paris Agreement provide support to developing countries through technical assistance, knowledge-sharing platforms and financial mechanisms. Risk management frameworks and cross-border coordination are examples of how to address shared vulnerabilities regionally (Carter et al. 2021).

19. Challenges to coordinating adaptation actions effectively include fragmented knowledge, limited capacities and resource disparities, particularly in developing countries.[5]

2.4.2. Stakeholder engagement in adaptation

20. Stakeholder engagement involves diverse actors, including governments, NGOs, businesses and local communities. Methods for increasing stakeholder engagement include public consultations, advisory committees and participatory planning (OECD 2023).

21. Engaging marginalized groups, such as Indigenous Peoples, women, and youth, is essential for ensuring equitable adaptation measures (Niemann et al. 2024; UNDP 2015). For example, community organizations in SIDS often integrate traditional knowledge into adaptation planning, and municipalities in Latin American countries often incorporate Indigenous perspectives into policy (SEI et al. 2020).

2.5. Snapshot of regional progress and gaps

22. Progress has also varied significantly by region: in Asia, countries such as Bangladesh and Viet Nam have developed sophisticated institutional arrangements that link national adaptation planning with implementation undertaken at the lower level. However, stakeholder engagement often remains centralized, with limited inclusion of grass-roots voices. Africa has seen the establishment of regional climate centres, such as the African Climate Policy Centre, which provide support for institutional capacity-building and stakeholder engagement (UNDP

[5] See https://council.science/publications/the-international-council-for-science-and-climate-change/.

Africa 2023). However, resource constraints and political instability still hinder sustained progress in some areas. Several SIDS have pioneered efforts in community-driven adaptation planning, but their institutional frameworks are often constrained by limited human and financial resources. In Latin America, countries such as Brazil and Colombia have made progress in decentralizing adaptation planning and incorporating stakeholder inputs, yet gaps in monitoring and evaluation systems persist.[6]

23. The progress and gaps in institutional arrangements or stakeholder engagement per region are summarized in Table 1 below.

Table 1. Progress and gaps in institutional arrangements or stakeholder engagement per region

Region	Progress	Gaps
Asia	Integration of adaptation efforts national–local coordination mechanisms	Limited grass-roots involvement; challenges in maintaining sustained stakeholder partnerships
Africa	Establishment of regional adaptation centres; multi-stakeholder forums for adaptation planning	Weak implementation capacity; fragmented stakeholder engagement in rural areas
Interregional	Community-driven adaptation planning; incorporation of traditional knowledge systems	Institutional capacity constraints; limited access to adaptation finance for sustained actions
Latin America	Decentralized adaptation planning; increased recognition of Indigenous Peoples in adaptation planning	Weak monitoring systems; gaps in engaging vulnerable and marginalized populations effectively

24. Recommendations to address these challenges include building institutional capacities through targeted training and funding, enhancing regional cooperation and creating mechanisms for inclusive stakeholder engagement. These actions, combined with robust monitoring and evaluation systems, are critical for bridging the gaps while ensuring resilient and inclusive adaptation efforts (IPCC 2022a; Tye and Suarez 2021).

25. According to the interactive portal on the state of adaptation action by Parties (Adaptation Committee 2024), which showcases adaptation action as described by Parties in their submitted national reports and communications, the majority of developing country Parties have institutional arrangements in place that address adaptation and have established means to engage a range of stakeholders.[7]

26. Institutional arrangements may include legal and policy frameworks and regulations and/or coordination mechanisms. For the purpose of this analysis, legal and policy frameworks and regulations are considered to address adaptation both in cases where they are stand-alone adaptation policies and in cases where they are included in overarching climate change frameworks and regulations. Such frameworks and regulations may include laws, policies, strategies or plans. Similarly, overall coordination mechanisms are considered to address

[6] See https://www.cepal.org/en/topics/climate-change.

[7] The interactive portal showcases information extracted from NCs, NDCs, adaptation communications, NAPs and BTRs. Access the portal here.

adaptation, both in cases where they have responsibilities specifically for adaptation, and in cases where they are responsible for addressing overall climate change. Some countries have established additional lead institutions for specific elements of the adaptation cycle, such as for risk and impact assessments or for monitoring, evaluation and reporting. Coordination mechanisms may include ministries, departments, committees, commissions or working groups.

27. Table 2 provides an overview of the number of developing countries that have established specific forms of institutional arrangements or stakeholder engagement, per region.

Table 2. Number and percentage of developing countries that have established specific forms of institutional arrangements or stakeholder engagement, per region, extracted from national reports and communications submitted to the UNFCCC until November 2024

Region (number of developing countries on the AC portal)	Number of developing countries with legal or policy frameworks or regu-lations on adaptation	Number of developing countries that have a lead institution or coordi-nation mechanism for adaptation	Number of developing countries that have established additional lead institutions for adaptation or its sub-elements	Number of developing countries with an ad hoc form of stakeholder engagement	Number of developing countries with an institutionalized form of stakeholder engagement
Africa (54.0)	44	53	33	27	25
Asia (44.0)	29	43	27	24	14
Latin America and the Caribbean (33.0)	30	32	25	22	11
Oceania (14.0)	13	14	8	8	6

3. CASE STUDIES AND BEST PRACTICES

3.1. Assessing impacts, vulnerability and risks

28. Institutional arrangements play a crucial role in ensuring that risk and vulnerability assessments are conducted systematically and efficiently. They involve establishing frameworks and bodies responsible for overseeing and coordinating assessments, integrating scientific research and disseminating findings. Proper institutional frameworks facilitate the coherent documentation of climate risks and vulnerabilities, optimize the use of resources and ensure the assessments align with national and international standards (Friedlingstein et al.

2020). Stakeholder engagement complements these arrangements by involving various actors who provide local expertise, practical insights and support for implementing adaptation measures (Tye and Suarez 2021). Decision Making in a changing climate is a major resource to help developing country national-level officials make decisions that support communities and economic sectors to become more climate resilient (World Resource Institute 2011).

29. In **Brazil**, the Brazilian Panel on Climate Change exemplifies effective institutional arrangements for conducting risk and vulnerability assessments (European Commission 2023). Established to consolidate scientific information on climate change, the Brazilian Panel on Climate Change produces national assessment reports, technical reports and summaries for policymakers. The Panel collaborates closely with the National Institute of Science and Technology for Climate Change and other research entities. The comprehensive reporting and stakeholder engagement of the Panel through various governmental agencies and research networks underscore the importance of collaborative efforts in producing actionable climate data and have led to informed policymaking and heightened awareness among policymakers and the public regarding climate risks.

Case study: Brazil's institutional arrangements for implementing climate action

Regarding the efforts to implement climate action in the country, the Government of Brazil put together a cross-cutting institutional arrangement through coordinated activities at different levels (national and subnational). The Interministerial Committee on Climate Change was established for developing guidelines and arranging and coordinating the implementation of the country's climate-related public action and policies. In addition, the Government instituted, via decrees, the National Committee for Reducing Emissions from Deforestation and Forest Degradation, Conservation of Forest Carbon Stocks, Sustainable Forest Management and Enhancement of Forest Carbon Stocks, and the Executive Committee for the Control of Illegal Deforestation and Recovery of Native Vegetation, coordinated by the Ministry of the Environment.

As part of the Ministry of Science, Technology and Innovation's organizational framework, the General Coordination of Climate Science and Sustainability is responsible for elaborating NCs and biennial update reports, and for the National Emissions Registry System, which is the Government's instrument for MRV of anthropogenic greenhouse gas emissions. Additionally, the General Coordination of Climate Science and Sustainability coordinates the implementation of several climate projects and is the country's national designated entity for the UNFCCC Technology Mechanism and the clean development mechanism. The Brazilian Research Network on Global Climate Change was created in 2007 to support the Ministry of Science, Technology and Innovation at the national level to track the contributions of dozens of research groups in universities and science and technology institutes.

The Ministry of Agriculture, Livestock and Supply (MAPA) of Brazil established the General Coordination of Climate Change, Planted Forests, and Conservation Agriculture to promote the sustainability of agricultural production systems. Its mandate includes fostering technological innovation and encouraging the adoption of sustainable, low-carbon, and climate-resilient production systems. This initiative is part of Brazil's broader efforts under its Low-Carbon Agriculture Plan (ABC Plan), aimed at reducing greenhouse gas emissions and enhancing resilience in the agricultural sector (Ministry of Agriculture, Livestock and Supply 2021).

Among the regulatory frameworks and management tools supporting the implementation of the UNFCCC and the Paris Agreement in Brazil, the National Policy on Climate Change (Política Nacional sobre Mudança do Clima – PNMC), established by Law No. 12.187/2009,

stands out. The PNMC provided the initial legal framework for addressing climate change in Brazil through nationally appropriate mitigation actions (NAMAs) and adaptation measures (Inter-American Development Bank, 2020). Since 2020, Brazil has further strengthened its climate governance with the enactment of the National Adaptation Plan (NAP) and updates to its Nationally Determined Contribution (NDC). In 2021, Brazil also passed Decree No. 10.845/2021, which reorganized the Interministerial Committee on Climate Change (CIM) and created the National System for Reducing Greenhouse Gas Emissions from Deforestation and Forest Degradation (REDD+), reinforcing the institutional framework for climate action.

30. **Chile**'s **ARClim** represents an innovative approach to integrating climate risk information[8] into decision-making processes. Developed and managed by the Chilean Ministry of the Environment (Ministerio del Medio Ambiente, MMA), ARClim is an online platform that consolidates data from multiple sources, allowing users to access detailed climate risk information across different subnational regions and sectors. The tool enhances decision-making processes by providing comprehensive, accessible data. The development of ARClim highlights the significance of leveraging technology to facilitate the dissemination and use of climate risk information, ensuring that stakeholders can make well-informed decisions using up-to-date data.

Case study: Chile's innovative approach to integrating climate risk information

The initiative ARClim, managed by the Chilean Ministry of the Environment, has developed a governance structure and stakeholder engagement strategy for addressing climate change impacts comprehensively. Its governance framework involves multiple institutional arrangements designed to integrate efforts across various levels of government and across different sectors. A hallmark of ARClim is its participatory governance model, which actively engages a wide range of stakeholders, including government agencies, private sector actors, NGOs, academia, and local communities. Regular stakeholder consultations, workshops, and public forums are held to gather feedback, share progress, and refine strategies based on collective input. This inclusive approach not only enhances the relevance and effectiveness of adaptation actions but also fosters a sense of ownership and long-term commitment among participants.

Further, ARClim has established a Technical Committee composed of experts and representatives of key institutions. The committee plays a central role in guiding the technical aspects of the initiative and ensuring that implemented measures are based on scientific evidence and best practices. By involving technical experts and stakeholders in decision-making processes, ARClim ensures that its strategies are both scientifically sound and practically feasible.

The initiative also emphasizes transparency and communication, regularly updating stakeholders on progress and achievements through reports and public consultations. Such openness helps build trust and facilitates collaborative problem-solving.

[8] See https://arclim.mma.gob.cl/about/ and https://cambioclimatico.mma.gob.cl/wp-content/uploads/2024/02/2023-06-29-ARClim.pdf.

31. **Kyrgyzstan** has adopted a sectoral approach to climate risk assessments, with each ministry responsible for conducting assessments relevant to its domain (Government of Kyrgyzstan 2017). For example, the Ministry of Agriculture evaluates climate risks to crop production, while the Ministry of Water Resources assesses impacts on water security. These sector-specific evaluations ensure that detailed climate risks are integrated into the broader national adaptation strategy, addressing challenges across various sectors. Coordination mechanisms between ministries, along with capacity-building initiatives for staff and stakeholders, enhance the effectiveness of these assessments. Kyrgyzstan's experience demonstrates that close collaboration across sectors and ongoing training are essential for improving the quality and impact of risk assessments.

Case study: Governance and stakeholder engagement in Kyrgyzstan

Kyrgyzstan's NC4[9] outlines a comprehensive approach to climate change governance and stakeholder engagement. The governance structure is anchored in the State Agency for Environmental Protection and Forestry, which coordinates national climate policy and implements adaptation and mitigation strategies. The Agency collaborates closely with ministries such as Agriculture, Health, and Finance to align climate policies across sectors. Local authorities play a key role in adapting national policies to regional contexts.

Kyrgyzstan has adopted a multi-stakeholder approach to engage a wide range of actors. This includes consultations with civil society organizations, private sector representatives, and local communities through public forums, surveys, and focus group discussions. In 2018, a national workshop on climate resilience in agriculture led to the incorporation of farmers' insights into the agricultural adaptation strategy. Feedback is systematically tracked by the National Climate Change Committee and integrated into climate policy adjustments. For example, consultations in 2019 highlighted water access issues in vulnerable communities, resulting in new measures in the national water management strategy.

Indonesia's has developed a comprehensive approach to climate risk and vulnerability assessments through strong institutional coordination and stakeholder engagement. The Ministry of Environment and Forestry (MoEF) leads national efforts to conduct risk and vulnerability assessments across different governance levels, including at the village level. A key tool in this process is the Sistem Informasi Indeks Kerentanan[10] (Vulnerability Index Data Information System – SIDIK), which standardizes assessments and provides a framework for evaluating climate vulnerability consistently across subnational regions (Government of Indonesia 2018). This approach ensures that localized insights are systematically incorporated into broader national adaptation strategies while maintaining comparability and consistency across regions. Indonesia's experience underscores the importance of standardized tools like SIDIK to strengthen the quality of vulnerability assessments and facilitate the integration of local-level data into national planning processes.

[9] See https://unfccc.int/sites/default/files/resource/9754031_Kyrgyzstan-NC4-1-NC4_final%20_Eng.pdf.
[10] See: http://sidik.menlhk.go.id/.

Case study: Structures and stakeholder engagement in Indonesia

In terms of governance, Indonesia's climate policy coordination has evolved beyond the earlier structure led by the National Council on Climate Change (DNPI), which was dissolved in 2015. Since then, the MoEF has assumed a central role in coordinating climate change mitigation and adaptation policies. The MoEF works closely with the National Development Planning Agency (BAPPENAS) to mainstream climate action into national development strategies, including the Nationally Determined Contributions (NDCs) and the National Action Plan on Climate Change Adaptation (RAN-API).

Indonesia employs a participatory governance approach that actively engages a broad range of stakeholders, including national and local government entities, NGOs, academia, the private sector, and community organizations. Multi-stakeholder platforms, public consultations, and working groups are regularly convened to facilitate dialogue, share knowledge, and incorporate diverse perspectives into climate planning. This inclusive process enhances the relevance, ownership, and effectiveness of climate policies, ensuring they are responsive to the needs and priorities of all societal groups (Government of Indonesia, 2018). (Government of Indonesia 2018; MoEF, 2021).

32. **Ecuador** has exemplified an innovative approach to climate risk assessments by developing comprehensive climate risk models that incorporate biophysical variables across various sectors, including agriculture, natural heritage, health and water security. According to the IPCC Sixth Assessment Report (AR6), Ecuador's web-based tool, SPRACC[11] (*Sistema de Predicción de Riesgos Climáticos en el Contexto del Cambio Climático*), facilitates subnational planning and justifies a project-level climate rationale. SPRACC represents a significant advancement in integrating climate risk data into decision-making processes, thereby enhancing the ability of subnational entities to plan and respond to climate-related challenges effectively (IPCC 2022a; Ministerio del Ambiente 2023).

Case study: Ecuador's SPRACC tool helps transform climate risk assessment into actionable outcomes

*Ecuador has exemplified an innovative approach to climate risk assessments through the development of comprehensive models that integrate biophysical variables across key sectors such as agriculture, biodiversity, health, and water security. According to the IPCC Sixth Assessment Report (AR6), Ecuador's web-based tool, SPRACC (Sistema de Predicción de Riesgos Climáticos en el Contexto del Cambio Climático), facilitates subnational planning and supports the development of project-level climate rationales. SPRACC represents a significant advancement in integrating climate risk data into decision-making processes, thereby enhancing the ability of local and regional authorities to plan for and respond effectively to climate-related challenges (*IPCC 2022a; Ministerio del Ambiente, Agua y Transición Ecológica 2023).

The SPRACC platform allows users to visualize and analyze climate risk data by combining current climate observations with projections based on various scenarios. It enhances decision-making processes by translating complex climate data into accessible, actionable insights, particularly for municipal and sectoral planning.

In agriculture, SPRACC has been utilized to assess the impacts of changing temperature and precipitation patterns on crop yields. This enables farmers and agricultural planners to

[11] See https://adaptacioncc.com/noticias-eventos-multimedia/elementos-multimedia/spracc.

develop climate-resilient farming practices and select crop varieties better suited to future conditions, thereby contributing to food security and sustainable rural development.

In the water sector, the tool has been instrumental in evaluating the potential impacts of altered rainfall patterns and drought risks. By providing data for infrastructure planning and water resource management, SPRACC supports strategies that enhance water security and resilience to extreme weather events.

Regarding health, SPRACC incorporates climate and epidemiological data to help identify vulnerable populations at risk from climate-sensitive diseases, such as those related to heatwaves and vector-borne illnesses. This allows public health authorities to plan targeted interventions and preventive measures.

The implementation of SPRACC marks a significant step forward in Ecuador's climate adaptation efforts. It illustrates how integrating comprehensive, science-based risk assessments into planning processes can strengthen resilience at multiple governance levels. Ecuador's experience highlights the crucial role that technological tools play in supporting informed, adaptive decision-making (IPCC, 2022a; Ministerio del Ambiente, Agua y Transición Ecológica, 2023).

33. These examples and cases of good practices in institutional arrangements and stakeholder engagement demonstrate the relevance of ensuring that risk and vulnerability assessments are conducted effectively and that the results are communicated clearly. Such arrangements help maximize the use of existing resources, including human and technical expertise, and integrate local knowledge into the assessment process. Additionally, they ensure that assessments are carried out in a manner that is coherent and consistent with international standards.

34. The table 3 below summarizes key case studies highlighting effective institutional arrangements and stakeholder engagement in climate risk assessments, along with the lessons learned from each example.

Table 3. Summary of case studies of effective institutional arrangements and stakeholder engagement in climate and vulnerability risk assessments

Case Study	Highlights	Lessons learned
Brazil	National climate panel consolidates science and informs policy through extensive stakeholder networks.	Strong national coordination enhances adaptation planning.
Chile	ARClim platform democratizes access to climate risk data; strong participatory governance.	Open data and stakeholder engagement drive effective local adaptation.
Kyrgyzstan	Sector-specific assessments integrated into national planning.	Sectoral ownership improves assessment quality and relevance.
Indonesia	Localized vulnerability assessments through standardized tool (Vulnerability Index Information System).	Standardization enables consistency across diverse regions.
Ecuador	SPRACC tool integrates biophysical variables for sector-wide risk analysis.	Digital tools support evidence-based subnational planning.

35. One key trend observed in the formulation of NAPs throughout these case studies above is the strengthening of early warning systems and climate information services. Developing countries are increasingly focusing on improving these systems to enhance institutional mechanisms for disseminating climate information and engaging stakeholders. This approach ensures that timely and accurate information is available for responding to climate hazards, thereby improving the effectiveness of adaptation measures (World Meteorological Organization 2024).

36. The development and maintenance of centralized climate information systems and databases are other notable advancements. Centralized platforms for managing climate data improve data accessibility and support informed decision-making. These systems facilitate stakeholder engagement by providing valuable information for planning and adaptation efforts, thus enhancing the overall effectiveness of climate risk assessments.[12]

37. **Bangladesh**, **Bhutan**, **Serbia**, **Thailand** and the **Philippines** serve as practical examples of these evolving impact and vulnerability assessment efforts. Bangladesh is focusing on integrating climate risk assessments into project evaluations, while Bhutan is emphasizing the use of real-time meteorological data and health sector vulnerability assessments. Serbia is developing methodologies and platforms for climate data management, Thailand is tracking agricultural water management and the Philippines is centralizing climate information. These examples highlight how institutional arrangements and stakeholder engagement are integral to effective climate adaptation strategies (Government of Bangladesh 2023b; Government of Bhutan 2023; Government of Serbia 2024; Government of Thailand 2024; Government of the Philippines 2024).

3.2. Planning

38. Adaptation planning is a complex process that requires both technical expertise and inclusive participatory mechanisms. Institutional arrangements and stakeholder engagement for effective adaptation planning ensure that diverse data, information and expertise are used and that the needs and perspectives of various stakeholders are incorporated into the planning process. During the planning phase, institutional frameworks support the creation of comprehensive NAPs and other strategic documents through multi-stakeholder processes (UNEP 2023; UNFCCC 2020).

39. Institutional arrangements and stakeholder engagement are fundamental to successful adaptation planning (UNEP 2023). Many countries are revising and harmonizing their policies and legislation to better support adaptation efforts. This process involves clearly defining roles and responsibilities for institutions, establishing coordinating mechanisms and embedding adaptation aspects into national frameworks. Such comprehensive arrangements are essential for ensuring that adaptation measures are well-coordinated and supported by relevant institutions and stakeholders.

40. NAPs frequently emphasize the importance of comprehensive adaptation strategies and the development of various planning tools in integrating climate change adaptation into broader governance aspects such as sectoral and local development planning. This integration includes stakeholder consultations with key groups such as local communities, government agencies, private sector entities, and non-governmental organizations, (UNDP 2021).

41. Challenges in adaptation planning can be better understood by examining success stories and contrasting different approaches, whether national, subnational or sectoral. For instance, **Uruguay**'s sectoral approach to adaptation has yielded positive lessons learned and

[12] See https://www.unepfi.org/themes/climate-change/the-sustainability-risk-tool-dashboard/.

demonstrated the effectiveness of targeted strategies within specific sectors.[13] Urban adaptation initiatives, such as those from City Adapt and C40 Cities,[14] also provide valuable insights into how cities can address resilience challenges through localized and collaborative strategies (CITY ADAPT 2023). Highlighting the differences in and lessons learned from success stories and different approaches used can show a comprehensive perspective on effective adaptation planning.

42. Many countries are revising and harmonizing policies and legislation to support adaptation efforts. This includes defining clear roles and responsibilities for institutions, creating coordinating mechanisms and integrating adaptation aspects into national frameworks. For example, in **Kenya**, local water management committees have successfully managed water resources in drought-prone areas, ensuring sustainable access for communities. In addition, national Governments have provided overarching frameworks, as seen in **Mexico**'s robust national climate change law that integrates adaptation into broader development policies.

43. The following paragraphs elaborate on the role of institutional arrangements and stakeholder engagement in adaptation planning, supported by case studies from **Ghana**, **Costa Rica**, **the ACCCRN initiative**, the **Democratic Republic of the Congo**, the **Philippines**, **South Africa**, **Brazil**, **Viet Nam**, **Bangladesh**, **Bhutan** and **Serbia**.

44. **Ghana**'s NAP incorporates input from various sectors and communities to ensure relevance to local realities. With regard to implementation, effective frameworks help to coordinate actions across sectors and different levels of government, including by integrating local knowledge. In the monitoring and evaluation phase, institutional mechanisms track progress, while obtaining stakeholder feedback is vital for ensuring continuous improvement and for ensuring adaptation efforts are responsive and adaptive to changing conditions.

45. **Costa Rica**'s NAP showcases a commitment to inclusive and comprehensive adaptation planning (UNFCCC 2022). The country employed thematic and subnational participatory processes to ensure that its NAP addresses the country's diverse ecological and social landscapes. Thematic workshops were organized to focus on specific areas such as water resources, agriculture and health. These workshops aimed to gather expert input and stakeholder feedback, which was essential for formulating adaptation strategies that are both relevant and practical. Consultations were also conducted to engage stakeholders from various subnational regions, which helped to understand local vulnerabilities and adaptation needs. The process included stakeholder mapping to identify and involve relevant actors from government, academia, civil society organizations and the private sector. The outcomes of these efforts include an inclusive planning approach that addresses unique subnational and sectoral needs and enhanced collaboration among stakeholders. This participatory process helped to create a more coordinated and effective adaptation plan, while demonstrating that diverse participation and local insights are crucial for comprehensive planning.

Case study: Governance structures and stakeholder engagement in Costa Rica's NAP

Costa Rica's NAP for 2022–2026 outlines a robust governance structure for managing adaptation and resilience efforts. The coordination of climate actions was led by the Ministry of Environment and Energy, which works closely with the National Meteorological Institute and other government entities to ensure integration across sectors. The Inter-Institutional Technical Committee on Climate Change is responsible for overseeing the implementation of the NAP and ensuring that policies are coherent and aligned with national development

[13] See https://www.gub.uy/ministerio-ambiente/inicio.
[14] See https://www.c40.org/.

strategies. This multi-agency collaboration strengthens institutional arrangements and promotes coordinated action.

Stakeholder engagement is a critical aspect of Costa Rica's approach. The NAP emphasizes participatory planning processes involving local communities, civil society organizations, the private sector and Indigenous groups in decision-making. Consultations and workshops have been organized regularly to ensure that diverse voices are considered in adaptation strategies. This inclusive approach ensures that adaptation measures are contextually relevant and responsive to the needs of vulnerable populations, thus enhancing resilience to climate change across different regions of the country.

46. **ACCCRN**[15] is a regional initiative aimed at enhancing urban resilience across 10 pilot cities in Asia. ACCCRN focuses on building flexible and dynamic systems to address climate challenges through robust stakeholder engagement. City-level assessments were conducted to identify climate risks and vulnerabilities that subsequently formed the basis for developing resilience strategies tailored for each city. Multi-stakeholder workshops facilitated the creation of these city-specific strategies and helped to ensure that they were informed by a broad range of perspectives. Capacity-building efforts were also a key component that provided training and resources to local governments and communities to strengthen their capabilities in resilience planning. Outcomes include the development of customized resilience strategies and increased community awareness and participation in resilience planning.

Case study: ACCCRN support to its member cities on governance and stakeholder engagement for climate resilience

ACCCRN has played an important role in strengthening the governance structures and institutional arrangements of its member countries to support adaptation and resilience planning. ACCCRN fosters a multi-stakeholder approach that includes governments, civil society organizations, local communities and the private sector. It promotes urban climate resilience by enhancing the capacity of local governments and institutions through technical assistance, funding and knowledge-sharing platforms.

ACCCRN built its strategy on establishing city-based resilience strategies in its member cities that integrate climate risks into urban development plans. These strategies are developed with a focus on inclusive governance, where local authorities work alongside vulnerable communities to identify climate risks and prioritize adaptation measures. ACCCRN has also facilitated the creation of urban climate resilience networks at the national and regional level that provide a platform for cross-sectoral collaboration and knowledge exchange.

Additionally, ACCCRN strengthens local governance by supporting the creation of resilience units within municipal governments. These units are tasked with coordinating climate adaptation efforts and ensuring that resilience planning is embedded within broader urban planning processes. The participatory approach of ACCCRN also encourages active stakeholder engagement through workshops, capacity-building programmes and policy dialogues, to ensure that adaptation and resilience plans are reflective of local contexts and needs while fostering long-term sustainability.

47. In the **Democratic Republic of the Congo,** adaptation planning has emphasized cooperation and consultation to address the country's diverse climate challenges (Government

[15]See https://www.i-s-e-t.org/resource-acccrn.

of the Democratic Republic of Congo 2023). Developing the NAP involved extensive stakeholder consultations with actors from various sectors and subnational regions. The approach involved gathering comprehensive input on adaptation needs and priorities. Interministerial coordination was facilitated to ensure that the NAP reflected a cohesive and integrated approach across government ministries. Capacity-building efforts were also undertaken to enhance the abilities of local authorities and communities to engage in the adaptation planning process. The outcomes of these activities include an integrated adaptation plan that addressed identified needs and improved the capacity of local stakeholders to participate effectively in planning and implementation. The lessons learned underscore the value of inclusive processes and the necessity of effective interministerial coordination for developing coherent adaptation strategies.

Case study: The Democratic Republic of the Congo's approach to governance and stakeholder engagement for adaptation action

The Democratic Republic of the Congo has made progress in developing governance structures and institutional arrangements for climate adaptation and resilience, as outlined in its NAP. The Ministry of Environment and Sustainable Development leads the overall coordination of adaptation efforts, working closely with relevant national and provincial bodies. To ensure cross-sectoral integration, the country has established an Inter-Ministerial Committee on Climate Change that facilitates collaboration among key ministries, including agriculture, health and infrastructure, to incorporate climate risks into their respective planning processes.

The Democratic Republic of the Congo's NAP emphasizes stakeholder engagement as a crucial element in developing adaptation strategies. It incorporates a multi-stakeholder approach by involving local communities, Indigenous groups, civil society organizations and the private sector in consultations and decision-making processes. Dialogues, workshops and participatory assessments have been conducted regularly to ensure that local vulnerabilities and priorities are reflected in national adaptation policies. This inclusive framework enables the integration of traditional knowledge with scientific data, ensuring that adaptation measures are contextually appropriate and effective. By engaging stakeholders at multiple levels, the Democratic Republic of the Congo enhances both local ownership and the sustainability of its adaptation and resilience efforts while aiming to build long-term climate resilience across the country.

Case study: Institutional arrangements and stakeholder engagement in adaptation planning in the Philippines

The Philippines exemplified a collaborative and whole-of-society approach in the development of its NAP (Philippines Government 2023).

The NAP-NSC was created to start developing the Philippines' NAP. It is composed of various national government agencies, clustered into four groups, that provided guidance and strategic directions for the NAP, as aligned with the adaptation planning cycle, namely the Risk Assessment Group, Planning Group, Implementation Group, and Monitoring and Evaluation Group. This interministerial coordination helped to ensure that the NAP includes relevant information from different government agencies.

The NAP-NSC collaborates closely with the Nationally Determined Contribution (NDC) Technical Working Group, composed of sectoral agencies responsible for implementing climate policies and actions under both the NAP and the NDC. In addition, local government units

(LGUs) play a crucial role by contributing localized knowledge and experience to inform the design and implementation of adaptation actions.

The Philippines also created the NAP Consultative Group of Experts, comprised of scientists and climate change experts from various academic fields, including Filipino authors who have contributed to the IPCC assessment reports, to provide guidance to the NAP-NSC and to ensure that the NAP is data-driven, risk-informed and anchored to the best available science, technology and climate analytics.

Recognizing the role of other stakeholders in the adaptation planning process, particularly in providing inputs at the activity planning and national decision-making levels, the process also involved consulting leagues of local government units, academia, the scientific community, civil society organizations, NGOs, the private sector, professional associations, gender groups, Indigenous Peoples groups, youth groups, trade unions and labour groups and faith-based organizations.

The Climate Change Commission (CCC), as the lead agency for the NAP-NSC, coordinates, monitors, and evaluates the adaptation planning process and submits the final NAP document to the Office of the President for approval.

The interplay within and across government levels ensures horizontal and vertical coordination and necessitates that robust coordination mechanisms be put in place to operationalize the NAP, which fosters cross-disciplinary learning and helps to realize synergies. The presence of strong institutional arrangements for NAP development, along with clear distinction of each agency's roles and responsibilities, helps to ensure that cooperation and consultation with key stakeholders at various levels of government will result in developing a comprehensive and coherent adaptation plan.

48. The table below summarizes key case studies that highlight effective institutional arrangements and stakeholder engagement in adaptation planning, along with the valuable lessons learned from each example.

Table 4. Summary of case studies of effective institutional arrangements and stakeholder engagement in planning.

Case Study	Highlights	Lessons Learned
Ghana	NAP incorporates input from various sectors and communities.	Effective frameworks help coordinate actions across sectors and integrate local knowledge.
Costa Rica	Inclusive and participatory planning process with thematic and subnational workshops.	Stakeholder mapping and diverse participation improve the relevance and practicality of adaptation strategies.
ACCCRN	Regional initiative focusing on urban resilience with multi-stakeholder workshops.	Capacity-building and stakeholder engagement at the local level enhance community awareness and resilience strategies.
Democratic Republic of the Congo	Extensive stakeholder consultations and interministerial coordination.	Inclusive processes and interministerial coordination are key to developing coherent adaptation strategies.

Philippines	Whole-of-society approach with interministerial coordination and local government involvement.	Strong institutional arrangements, with clear roles and responsibilities, ensure effective adaptation planning and stakeholder consultation.

49. Adaptation planning is inherently multifaceted, and involving both technical and participatory elements helps to ensure that all relevant information and perspectives are considered (Adaptation Committee 2023a). The case studies from **Costa Rica**, **the ACCCRN initiative** and the **Democratic Republic of the Congo** illustrate the critical role of institutional arrangements and stakeholder engagement in developing effective adaptation plans. These examples highlight how diverse and inclusive approaches can lead to more comprehensive and actionable adaptation strategies.

50. **South Africa**'s NDC highlights the country's commitment to involving all sectors of society in its adaptation efforts, which demonstrates a move towards more inclusive and comprehensive climate action. However, the data in reference to the NDC also show areas for improvement, particularly the need for stronger institutional capacity and better coordination across governance levels (Government of South Africa 2021).

51. **Brazil** has made significant steps in advancing the implementation of its NAP by integrating climate adaptation into sectoral policies, particularly in agriculture, water resources and health (Government of Brazil, Ministry of the Environment 2023). The country has emphasized stakeholder engagement by involving Indigenous communities and local governments in adaptation planning and implementation. This approach has helped Brazil address specific vulnerabilities while promoting sustainable development.

52. **Viet Nam** has focused on enhancing its institutional capacity for adaptation through the implementation of its Viet Nam National Adaptation Plan (NAP) Development and Operationalization Support Project – NAP-Sup (UNDP Viet Nam 2019). The NAP-Sup project focuses support on five priority sectors: Agriculture and Rural Development, Transport, Health, Natural Resources and Environment, and Planning and Investment and therefore involves collaboration between a number of ministries, including: MONRE (Ministry of Natural Resource and Environment), MARD (Ministry of Agriculture and Rural Development), MPI (Ministry of Planning and Investment), MOT (Ministry of Transportation), and MOH (Ministry of Health). In addition to the GoV, research institutions, civil society and private sector organizations will also be involved. The 2022 evaluation report[16] of the project highlights Viet Nam's efforts to engage stakeholders across various sectors, including agriculture, infrastructure and disaster risk management. The country has also improved its data collection and monitoring systems, which supports more effective adaptation planning and implementation at the local and national level.

53. **Bangladesh**, through its NAP, as successfully mainstreamed adaptation initiatives that are gender-responsive and inclusive by actively involving community-based organizations in climate planning and implementation (Government of Bangladesh 2023b). These initiatives focus on ensuring that women and other marginalized groups and vulnerable communities are integral to the decision-making process. By prioritizing local knowledge and promoting community leadership, Bangladesh ensures that adaptation strategies are equitable and address specific needs across all sectors of society. This approach fosters inclusivity and enhances the resilience of communities, particularly those disproportionately affected by climate change impacts.

[16] See https://erc.undp.org/evaluation/documents/detail/21757.

54. **Bhutan** has developed comprehensive river basin management plans and climate-resilient master plans as part of its broader adaptation strategy. These plans integrate climate adaptation measures into key planning processes, ensuring that river basins and urban development projects are resilient to climate impacts. By embedding adaptation into these broader frameworks, Bhutan aims to enhance the sustainability and effectiveness of its climate response while addressing subnational and local vulnerabilities (Government of Bhutan 2023).

55. **Serbia** has integrated climate adaptation into key documents such as the Nature Protection Programme and the Urban Development Strategy, while the Philippines has crafted a stakeholder engagement strategy and incorporated adaptation measures into local and sectoral plans.

3.3. Implementation

56. The implementation of adaptation measures requires a coordinated and structured approach that involves multiple institutional arrangements and extensive stakeholder engagement. Institutions responsible for high-level oversight, decision-making and coordination are critical in this regard, supported by operational and technical bodies that provide essential guidance and expertise. The execution of adaptation action also necessitates resource mobilization, coordination across various levels of governance and alignment with both national and international processes (UNFCCC 2012). This subsection explores how countries such as **Tonga**, **Timor-Leste** and **Thailand** have approached the implementation of their adaptation strategies by highlighting their institutional frameworks, stakeholder engagement and lessons learned.

57. **Tonga**'s approach to implementing its Joint National Action Plan 2 on Climate Change and Disaster Risk Management 2018–2028[17] is an example of adaptation action (Government of Tonga 2020). This framework ensures that all aspects of climate change and disaster risk management are addressed through well-coordinated efforts. Stakeholder engagement in Tonga is extensive and includes government ministries, NGOs, the private sector and community representatives. Capacity-building is a significant component of the implementation process, with training programmes designed to enhance the capabilities of local institutions and communities in managing and executing adaptation action.

Case study: How Tonga's joint NAP enhances adaptation using an institutional framework and stakeholder involvement

Tonga's approach to implementing adaptation measures, as outlined in the Joint National Action Plan 2 on Climate Change and Disaster Risk Management 2018–2028, reflects a well-structured institutional arrangement and a robust stakeholder engagement strategy. The Action Plan is overseen by the Tonga Climate Change Committee (TCCC), which coordinates climate adaptation and disaster risk management efforts across government departments, including the Ministry of Meteorology, Energy, Information, Disaster Management, Climate Change and Communications (MEIDECC). This high-level committee ensures that adaptation and resilience policies are integrated into national development plans and executed effectively.

Tonga employs a participatory approach that involves local communities, civil society organizations, faith-based organizations, and the private sector in the planning and

[17] See https://climatechange.gov.to/ and https://unfccc.int/sites/default/files/resource/JNAP2_Final-2018-2028.pdf.

implementation phases. The Action Plan includes regular consultations, workshops, and dialogues to incorporate local knowledge and address the specific needs of vulnerable populations. By creating inclusive platforms for collaboration, Tonga ensures that adaptation measures are contextually relevant and widely supported.

Lessons learned from Tonga's experience include the importance of establishing clear institutional frameworks to manage adaptation efforts and the value of inclusive stakeholder engagement. The participatory approach helps align adaptation strategies with local realities and enhances community buy-in, which is crucial for successful implementation and sustainability of adaptation measures.

The outcomes of Tonga's approach include improved coordination among stakeholders, which leads to more effective adaptation and disaster risk management. Increased resilience of communities and ecosystems through targeted interventions reflects the success of this comprehensive framework. Lessons learned emphasize the importance of involving a diverse range of stakeholders to ensure inclusive and effective implementation and the necessity of a well-defined institutional framework for effective coordination and oversight.

58. In **Timor-Leste**, interim implementation arrangements have been developed to support the NAP process (Timor-Leste Government 2018). This framework includes the establishment of the National Adaptation Steering Committee and sector-specific working groups to guide the implementation process. Capacity-building is also a focus, with efforts aimed at strengthening the capabilities of government agencies and local communities through training and technical support.

Case study: Timor-Leste's insights on governance and stakeholder engagement from the NAP process

Timor-Leste's NAP underscores a comprehensive approach to adaptation, with a focus on institutional arrangements and stakeholder engagement. The National Directorate for Climate Change within the Ministry of Agriculture and Fisheries oversees the NAP by providing strategic direction and coordination. This effort is bolstered by the Climate Change Coordination Committee, which comprises representatives of various government sectors to ensure that adaptation measures align with national policies.

Stakeholder engagement is central to Timor-Leste's strategy, with a participatory approach involving local communities, civil society organizations and the private sector. Consultations, workshops and community meetings are conducted regularly to incorporate local knowledge and ensure that adaptation strategies meet specific needs and have broad-based support.

Resource mobilization is addressed by securing funding from both national and international sources to support adaptation projects. These efforts have resulted in enhanced institutional capacities for planning and implementing adaptation actions, as well as improved coordination among sectoral ministries and stakeholders. Key lessons from Timor-Leste's experience include the importance of investing in capacity-building for effective implementation and the flexibility of interim arrangements to adapt to evolving needs during early-stage adaptation efforts.

59. **Thailand** has adopted a different approach by establishing a Working Group on National Climate Change Adaptation Implementation Integration (Government of Thailand 2024). This group comprises representatives of various government ministries, research institutions and civil society organizations and promotes a cohesive and integrated implementation of

adaptation strategies. A significant aspect of Thailand's approach is the integration of climate change adaptation into sectoral policies and development plans.

Study case: Thailand's governance structures and collaborative approaches

Thailand's NAP (2024) emphasizes a structured approach to implementing adaptation measures through effective institutional arrangements and stakeholder engagement. The National Climate Change Committee provides high-level oversight and strategic direction, ensuring that adaptation action aligns with national policies. Supporting this Committee is the Adaptation Working Group, which is tasked with monitoring and evaluating the progress of adaptation action. This group ensures that measures are effectively implemented and aligned with national objectives.

Stakeholder engagement is a key component of Thailand's approach. The NAP process includes extensive consultations with local communities, NGOs and the private sector to gather diverse perspectives and ensure that adaptation strategies are contextually relevant. This participatory approach helps incorporate local knowledge and foster broad-based support for adaptation initiatives.

The outcomes of Thailand's approach include enhanced integration of adaptation measures into both national and sectoral policies and improved implementation through coordinated efforts and stakeholder engagement. Lessons learned from Thailand's experience highlight the importance of embedding adaptation into broader policy frameworks to ensure coherence and effectiveness. Additionally, a collaborative approach involving multiple stakeholders is crucial for enhancing the implementation process, as it ensures that adaptation strategies are comprehensive and responsive to the needs of various sectors and communities.

60. The experiences of Tonga, Timor-Leste and Thailand provide insights into the implementation of adaptation action. Tonga's multi-stakeholder approach and strong institutional framework, Timor-Leste's capacity-building and interim arrangements, and Thailand's integrated policy approach all offer lessons on how to effectively manage and execute adaptation efforts. Each case underscores the importance of structured institutional arrangements and active stakeholder engagement, as well as the integration of adaptation measures into broader policies and development plans. These examples can serve as references for other countries seeking to enhance their adaptation implementation frameworks.

61. The table below summarizes key case studies that highlight effective institutional arrangements and stakeholder engagement in adaptation implementation, along with the valuable lessons learned from each example.

Table 5. Summary of case studies of effective institutional arrangements and stakeholder engagement in implementation.

Case Study	Highlights	Lessons Learned
Tonga	Joint National Action Plan 2 (JNAP 2) on Climate Change and Disaster Risk Management (2018-2028) with a robust institutional framework and broad stakeholder involvement.	Clear institutional frameworks enhance coordination and improve implementation; participatory approaches ensure local buy-in and relevance.

Timor-Leste	National Adaptation Plan (NAP) supported by the National Adaptation Steering Committee and sector-specific working groups, with focus on capacity-building.	Investment in capacity-building strengthens implementation; flexible interim arrangements can adapt to evolving needs during early stages.
Thailand	National Climate Change Adaptation Implementation Integration Group integrates climate change adaptation into sectoral policies with a focus on stakeholder engagement.	Integrating adaptation into national and sectoral policies ensures coherence; collaboration across ministries and stakeholders strengthens implementation.

3.4. Monitoring, evaluation and learning

62. MEL is crucial for effective climate adaptation action. While countries use various terms for MEL, this report will consistently use the term as defined by the AC (Adaptation Committee 2023a). A robust MEL system is vital for ensuring that adaptation strategies are on track, achieving their goals and supporting ongoing improvement[18]. Such systems depend on well-structured institutional arrangements and active stakeholder engagement to ensure continuous collection, documentation and communication of essential data (NAP Global Network and UNFCCC 2019; NAP Global Network 2023b). This subsection examines the MEL systems of Mozambique, Liberia, Kiribati, Kenya and Rwanda by highlighting their approaches and key lessons learned.

63. **Mozambique**'s National System for Monitoring and Evaluation of Climate Change is a central element of its NAP process (Government of Mozambique 2020). The centralized system was established to systematically track climate change impacts and adaptation efforts across the country. The system facilitates comprehensive monitoring and evaluation by collecting and analysing data from various sources. Stakeholder involvement is a key feature, with contributions from government agencies, NGOs and local communities.

Case study: Centralized data systems and broad stakeholder engagement in Mozambique's climate adaptation efforts

Mozambique's NAP emphasizes a robust MEL system as a cornerstone of effective climate adaptation. The country has established an institutional framework that integrates the National System for Monitoring and Evaluation of Adaptation Measures, which centralizes data collection and analysis to ensure consistency and accessibility. This system is supported by various government bodies and agencies responsible for overseeing adaptation initiatives to ensure alignment with national objectives.

A key aspect of Mozambique's MEL approach is its broad stakeholder engagement. The involvement of local communities, NGOs and sectoral experts ensures that the data collected are comprehensive and representative of diverse perspectives. Capacity-building efforts are integral to this process, with targeted training programmes designed to enhance stakeholders' abilities to contribute effectively to monitoring and evaluation activities. These efforts help improve data-collection capabilities and ensure that stakeholders can participate meaningfully in the adaptation process.

The outcomes of Mozambique's MEL approach include enhanced data collection and informed decision-making. Data gathered through the National System for Monitoring and Evaluation

[18] See https://www.iied.org/13507iied.

of Adaptation Measures guide policy adjustments and strategy refinements to improve the effectiveness of adaptation measures. Centralizing the monitoring system has been beneficial for maintaining data consistency and accessibility. Additionally, the involvement of stakeholders at all levels has supported the credibility and comprehensiveness of the data, ensuring that adaptation strategies are both responsive and robust.

64. **Liberia** has developed a MEL framework as part of its NAP[19], which is managed by its Environmental Protection Agency. This framework provides a structured approach to tracking adaptation actions, with the Agency playing a key role in coordinating monitoring and evaluation activities.

Case study: The role of MEL frameworks and stakeholder collaboration in Liberia

Liberia's NAP integrates a comprehensive MEL framework designed to enhance climate adaptation efforts (Government of Liberia 2019). The country *has established a robust institutional arrangement led by the national Environmental Protection Agency, which plays a pivotal role in coordinating and overseeing the MEL system. This institutional framework ensures that adaptation measures are aligned with national goals and effectively implemented. The leadership of Liberia's Environmental Protection Agency is crucial as it provides strategic direction and ensures that the MEL framework remains relevant and responsive to emerging needs.*

The MEL system includes reporting mechanisms that document progress, challenges and lessons learned. Structured reporting enhances transparency and accountability, which makes it easier to track the effectiveness of adaptation measures and make necessary adjustments. This process involves collecting data from various sources and stakeholders, which are then analysed to assess the performance of adaptation initiatives.

Stakeholder engagement is a key component of Liberia's MEL approach. The NAP emphasizes the involvement of a diverse range of stakeholders, including local communities, government agencies and civil society organizations. This broad engagement ensures that data collected are representative and that the perspectives of all relevant groups are considered. Capacity-building initiatives are also a vital part of the MEL framework, with training programmes designed to improve stakeholders' ability to participate effectively in monitoring and evaluation activities.

Overall, Liberia's MEL framework supports adaptive management by providing valuable insights into the effectiveness of adaptation actions, fostering transparency, and ensuring that strategies are continually refined on the basis of real-world feedback and evolving conditions.

65. **Kiribati**'s approach to monitoring and evaluation is embodied in its monitoring and evaluation framework for the KJIP (Kiribati 2020). The Development Coordination Committee oversees the implementation of the KJIP, while the Kiribati National Expert Group manages the overall coordination of the monitoring and evaluation process.

Case study: Monitoring climate adaptation efforts as part of Kiribati's joint implementation plan

[19] See https://unfccc.int/sites/default/files/resource/LIBERIA_%20NAP_%20FINAL_%20DOCUMENT.pdf.

Kiribati has developed a robust MEL framework as part of its climate adaptation efforts, detailed in the KJIP. The MEL system is anchored in a well-defined institutional structure that ensures adaptation action is coordinated and aligned with national objectives.

The framework incorporates various levels of government and technical bodies, with the Office of the President providing overall leadership and oversight. This centralized coordination helps maintain consistency and effectiveness in the implementation of adaptation measures. It supports continuous improvement by facilitating regular assessments and adjustments of adaptation strategies. The multilevel coordination and the engagement of national experts are critical in ensuring the reliability and quality of the monitoring and evaluation process. These efforts contribute to a responsive and adaptive approach to climate change, thereby enhancing the effectiveness of Kiribati's adaptation initiatives.

Stakeholder engagement is an essential aspect of Kiribati's MEL approach. The framework involves a wide range of stakeholders, including local communities, government agencies and NGOs. This broad involvement ensures that the data collected reflect diverse perspectives and local needs. Regular consultations and participatory processes are integral to the MEL system and allow for continuous feedback and adaptation of strategies based on real-world experience.

66. In **Kenya**, the Integrated Monitoring, Reporting, and Verification System, coordinated by the Climate Change Directorate, is a core component of the country's adaptation efforts (Government of Kenya 2016). This system is embedded within the National Integrated Monitoring System and the County Integrated Monitoring System.

Case study: Experiences from Kenya's MEL and MRV systems

Kenya has established a comprehensive MEL system to support its climate adaptation efforts, as detailed in its updated NDC. The MEL framework is designed to provide a robust mechanism for monitoring and reporting on climate change action at the national and subnational level. This institutional arrangement ensures that adaptation measures are systematically tracked and evaluated, and therefore contribute to improved effectiveness and accountability.

Central to Kenya's MEL system is the involvement of various stakeholders, including government agencies, local communities and NGOs. These entities play a crucial role in data-collection, reporting and verification processes. By integrating monitoring systems across various levels of governance, Kenya achieves a holistic view of climate action, thereby enhancing transparency and supporting informed decision-making.

The MRV system, which is part of the broader MEL framework, is key to ensuring that adaptation action is aligned with national goals. Regular reporting and verification processes contribute to the credibility of the data collected and ensure that adaptation strategies are continuously refined on the basis of empirical evidence.

Stakeholder engagement is integral to this system, facilitates a collaborative approach to climate adaptation and reinforces the reliability and comprehensiveness of the monitoring and evaluation process. This multilevel coordination enhances Kenya's ability to respond effectively to climate challenges and supports ongoing improvement in adaptation efforts.

67. **Rwanda** has established a robust MRV system managed by the Rwanda Environment Management Authority (Government of Rwanda 2006). This system features a well-defined institutional framework with clear roles and responsibilities for various stakeholders.

Capacity-building initiatives are an essential part of the MRV system, aimed at improving the skills and knowledge of relevant institutions and stakeholders.

Case study: Rwanda's monitoring and evaluation system and its role in climate resilience

Rwanda has established a robust MEL framework for adaptation that emphasizes strong institutional arrangements and stakeholder engagement. A 2022 report by the Rwanda Environment Management Authority outlines a comprehensive strategy supported by clear institutional roles and responsibilities to ensure effective monitoring and reporting. Key institutions, including the Environment Management Authority and the Ministry of Environment, play pivotal roles in coordinating these activities (Rwanda Environment Management Authority 2022).

Regular monitoring and reporting are integral to maintaining data quality and refining adaptation strategies. This process involves frequent updates and assessments to ensure that adaptation measures are responsive to emerging information and changing conditions. Clarity in roles and responsibilities within Rwanda's MEL system has significantly enhanced its efficiency. Each institution is tasked with specific duties related to monitoring and reporting, which has streamlined the process and improved overall data reliability.

Stakeholder engagement is at the core of Rwanda's approach. The involvement of local communities, civil society organizations and private sector partners ensures that diverse perspectives are incorporated into the adaptation planning and evaluation processes. This inclusive approach not only fosters greater ownership of adaptation measures but also enhances the adaptability and effectiveness of strategies. Continuous monitoring and iterative learning from these stakeholder inputs have been crucial in adapting strategies to better address the impacts of climate change.

68. As summarized in Table 5 below, the case studies from Mozambique, Liberia, Kiribati, Kenya, and Rwanda illustrate diverse approaches to Monitoring, Evaluation, and Learning (MEL). These examples highlight the role of continuous learning and improvement in enhancing the effectiveness of climate adaptation strategies.

Table 5. Summary of case studies on effective institutional arrangements and stakeholder engagement in monitoring, evaluation, and learning for adaptation.

Case Study	Highlights	Lessons Learned
Mozambique	Centralized MEL system integrating national data collection and analysis, supported by diverse stakeholders including government, NGOs, and local communities.	Broad stakeholder engagement and centralized data systems enhance consistency and improve adaptation decision-making.
Liberia	MEL framework coordinated by the Environmental Protection Agency, with structured reporting mechanisms and involvement of local	Structured reporting and broad stakeholder collaboration ensure transparency, accountability, and continuous improvement of adaptation actions.

	communities, government, and civil society.	
Kiribati	MEL framework embedded in the KJIP, with oversight by the Development Coordination Committee and the involvement of national experts and local stakeholders.	Multilevel coordination and stakeholder engagement ensure consistency and effectiveness in adaptation implementation.
Kenya	Integrated Monitoring, Reporting, and Verification (MRV) system within the National Integrated Monitoring System, with active participation of local communities, government agencies, and NGOs.	Multilevel governance and stakeholder involvement ensure transparency, data credibility, and informed decision-making in adaptation.
Rwanda	Robust MRV system led by the Rwanda Environment Management Authority, with clear institutional roles and capacity-building initiatives for stakeholders.	Clear roles, regular reporting, and strong stakeholder involvement improve data reliability and adaptation responsiveness.

69. The case studies on MEL systems emphasize the importance of developing integrated frameworks that cover various aspects of adaptation. In these examples, developing countries are increasingly setting up comprehensive systems to track indicators related to water quality, biodiversity and climate-sensitive diseases. For instance, Bhutan has implemented a real-time water monitoring system, and the **Philippines** uses MEL indicators to track NAP implementation and share reports at multiple levels(Government of Bhutan 2023; Government of the Philippines 2024). These developments reflect a shift towards more systematic and sophisticated monitoring approaches that facilitate better assessment of adaptation efforts and informed decision-making.

70. Many countries are focusing on building capacity and training stakeholders to enhance their involvement in monitoring and evaluation activities. **Papua New Guinea**, for example, has developed a comprehensive adaptation monitoring and evaluation framework, trained staff in key themes and established a progress dashboard (Government of Papua New Guinea 2022). **Serbia** has adopted by-laws for adaptation programme reporting and conducts national surveys to gauge public awareness of climate issues (Government of Serbia 2024). These examples underscore the importance of involving various stakeholders and institutionalizing MEL processes to ensure effective adaptation action.

71. Specific indicators are increasingly being incorporated into MEL efforts to enhance their effectiveness. **Bangladesh** has established a system for regular monitoring and evaluation, including national and project-level reports, which demonstrates a commitment to transparent and accountable adaptation efforts (Government of Bangladesh 2023b). **Bhutan**'s integrated water quality monitoring system and permanent research plots reflect efforts to improve long-term data collection and research capacity (Government of Bhutan 2023).

3.5. Other cross-cutting enabling factors and actions including gender

3.5.1. Gender considerations

72. Engaging people of all genders in adaptation planning and implementation, including women in all their diversity, is essential for inclusive and effective strategies that build resilience against climate change. Gender-responsive institutional arrangements that support this engagement and consider the specific vulnerabilities of different genders are key to achieving gender equality and women's empowerment, while enhancing adaptive capacity for all genders.

73. Developing countries have made important and increasing efforts in this regard, on the basis of their national circumstances and specific contexts. The following subsections provide further information on gender-responsive stakeholder engagement and institutional arrangements, as well as an overview of the efforts in developing countries as reported through different reporting vehicles under the Convention and the Paris Agreement.

3.5.2. Gender-responsive institutional arrangements

74. Gender-responsive institutional arrangements ensure that gender expertise is appropriately considered in decision-making, while also ensuring gender balance and inclusivity in the process. When gender experts and the government institutions responsible for gender and social inclusion are involved in designing adaptation plans and implementing action, action is more likely to effectively address gender considerations (NAP Global Network and UNFCCC 2019).

75. Strategies that governments can undertake to ensure that institutional arrangements are gender-responsive include conducting a gender analysis on policies and institutions to identify opportunities and challenges, involving gender experts as advisers to institutional structures, appointing or reinforcing the role of gender and climate change focal points in relevant ministries, tracking and reporting on gender equity in institutional arrangements, creating institutional mechanisms such as technical working groups to foster collaboration between gender and climate change actors, and including the ministries or agencies responsible for gender in institutional mechanisms for coordinating and implementing adaptation (NAP Global Network and UNFCCC 2019).

76. Globally, there is a positive trend in the implementation of gender-responsive institutional arrangements related to adaptation. For example, an increasing number of NAPs highlight the involvement of the ministry responsible for gender within institutional arrangements for adaptation, either as a coordination mechanism or tasked with implementing specific actions (Dazé and Hunter 2022).

77. However, in their different reports, Parties have identified gaps and needs related to supportive legal and institutional frameworks, including incentive mechanisms, to promote gender-responsiveness in adaptation policies. Parties have also emphasized the shortage of gender specialists or focal points within relevant ministries and agencies, as well as the need for capacity-building and awareness-raising among government officials and implementing agencies on gender-responsive adaptation (Adaptation Committee 2023b).

3.5.3. Gender-responsive stakeholder engagement

78. Inclusive decision-making processes and opportunities drive progress towards more gender-equal societies. Evidence shows that participatory decision-making on climate action that addresses the experience and needs of people of all genders leads to more effective adaptation (Prakash et al. 2022).

79. A gender-responsive approach to the implementation of adaptation action recognizes that women, in all their diversity, are central actors in responding to climate change—and in many cases, are leading the way. Key principles for effective and inclusive implementation include engaging diverse stakeholders to advocate for gender equality and women's empowerment through coordinated efforts, strengthening the technical capacity of government agencies, organizations, and local communities to integrate gender considerations into adaptation programmes, promoting local ownership of projects, and ensuring the provision of adequate resources (Adaptation Committee 2023b; IUCN Global Gender Office 2012; Least Developed Countries Expert Group 2015).

80. Leveraging women's context-specific experience and knowledge can be a valuable asset for adaptation, particularly in protecting and restoring ecosystems, managing natural resources and contributing to sectors such as farming, forestry and fisheries (Least Developed Countries Expert Group 2015; Miranda et al. 2022), as well as in science, innovation and entrepreneurship. Adaptation action led by women's groups at the local level exemplifies how implementation can enhance women's participation (Prakash et al. 2022).

81. Although important efforts have been undertaken globally to advance equal participation in decision-making on adaptation, some challenges remain. In their NAPs, NDCs and adaptation communications, countries have recognized various gaps and needs in effectively incorporating gender-responsiveness into adaptation planning and implementation. For instance, in many cases there is not an equitable representation of women in decision-making on adaptation, which leads to a lack of integration of women's perspectives on their own needs and contributions. Additionally, greater efforts are needed in capacity-building, training and raising awareness in communities and women's groups to advocate for, design and execute gender-responsive adaptation action (Adaptation Committee 2023b).

3.5.4. Efforts of developing countries in gender-responsive institutional arrangements and stakeholder engagement

82. Developing countries have undertaken significant efforts to advance gender-responsive adaptation planning and implementation, including through the engagement of women, as well as to develop institutional arrangements that support gender equality.

83. The following assessment was based on the review of NDCs, NAPs, adaptation communications and BTRs submitted to the UNFCCC by developing countries as of 11 December 2024.[20]

84. The analysis was based on two research questions:

[20] MAXQDA Analytic Pro 24 qualitative software was used to perform coding and qualitative analysis of the documents from 152 developing countries. The documents were found in English, French, Spanish, Arabic and Russian (the latter two were unofficially translated into English). All the coded data were then exported to an Excel spreadsheet according to the two research questions presented in paragraph 85 and the frequencies for each document group were calculated.

a) What efforts were made by developing countries to establish institutional arrangements for adaptation that are responsive to gender considerations (i.e. gender-responsive institutional arrangements)?

b) What efforts were taken by developing countries to engage gender in the stakeholder process for adaptation (i.e. gender-responsive stakeholder engagement)?

85. Although each type of national report makes extensive reference to gender considerations in the context of adaptation planning and implementation, for the purposes of this report only the following were considered:

a) Efforts made in institutional arrangements that were explicitly focused on gender, such as the establishment of new ministries, departments, committees or focal points dedicated to gender-related matters;

b) Efforts reported on public consultation and participatory processes that involved gender (namely women and girls) as one of the stakeholder groups.

86. Regarding gender-responsive institutional arrangements, 47% of adaptation communications, 20% of NDCs and 8% of NAPs from developing countries mention specific efforts to set up institutional arrangements for adaptation with a focus on gender. No BTRs from developing countries submitted as at 11 December 2024 mention specific efforts on this topic.

87. On gender-responsive public consultations and participatory processes to set up adaptation plans and priorities, 45% of adaptation communications, 38% of NAPs, 32% of NDCs and 14% of BTRs of developing countries mention specific actions to involve women.

88. While reporting on specific initiatives remains limited, overall efforts to achieve and sustain the full, equal and meaningful participation of women in climate change are much more frequently included in national documents. For example, 77.3% of NAPs, 49.4% of NCs and 35.7% of long-term low-emission development strategies submitted between July 2022 and July 2024 contain references to gender that could be associated with the priority area on gender balance, participation and women's leadership in the enhanced Lima work programme on gender and its gender action plan.[21, 22]

89. More generally, gender consideration in climate policy and action has increased across all document types, and developing countries continue to systematically integrate gender into their reporting under the Convention and the Paris Agreement. Overall, references to gender have become more detailed, with some Parties including dedicated sections on gender dimensions, sector-specific gender analyses or gender-responsive implementation strategies in their reporting. The reports generally highlight gender-responsiveness as a way to enhance the ambition and effectiveness of Parties' climate action. Additionally, a majority of Parties reiterated their commitment to promoting gender equality as a cross-cutting priority in achieving these goals to consider gender in climate policy and action.[23]

3.6. Promoting knowledge exchange

90. Examples from developing countries illustrate how adaptation planning can be effectively addressed through institutional arrangements and stakeholder engagement. For

[21] See decision 3/CP.25.
[22] See document FCCC/CP/2024/5.
[23] *Ibid*.

instance, **Rwanda**'s leadership in integrating climate resilience into its national planning has been recognized globally and has inspired other countries to follow its example (Rwanda Environment Management Authority 2022). In addition, sharing successful strategies through knowledge exchange helps other countries facing similar challenges learn from others' experience. For example, the dissemination of **Ethiopia**'s experience in restoring degraded lands through community-led initiatives has informed similar efforts in neighbouring countries.

91. In **Bangladesh**, efforts have focused on ecosystem-based adaptation options and the active involvement of community-based organizations, which both highlight the integration of adaptation into local practice (Government of Bangladesh 2023b). **Bhutan** has demonstrated its commitment to embedding adaptation into key planning processes through the development of river basin management plans and climate-resilient master plans.

92. A comprehensive approach in the **Philippines** includes the creation of a stakeholder engagement strategy, integration of adaptation plans with local and sectoral programmes, and development of simplified versions of the NAP for local use (Government of the Philippines 2024). These initiatives reflect a commitment to effective communication and coordination. Similarly, **Serbia**'s integration of climate adaptation into its Nature Protection Programme and Urban Development Strategy underscores the importance of embedding adaptation measures within broader policy frameworks.

93. Capacity-building and community engagement are central to effective adaptation planning. Countries are investing in training and developing local disaster risk management plans, particularly in vulnerable and marginalized communities. This approach empowers local entities to actively participate in adaptation efforts, thereby enhancing the overall effectiveness of climate strategies and ensuring that they address specific local needs. For instance, the **Philippines** has created sectoral teams and developed local adaptation plans, and **Papua New Guinea** as integrated climate change into school curriculums and established sectoral focal points (Government of Papua New Guinea 2022). These efforts underscore the importance of coordinating across different levels of government and involving local communities in the adaptation planning and implementation processes.

94. For example, in the **Philippines**, institutional arrangements that prioritize community engagement have been crucial in developing disaster risk reduction strategies that protect the most vulnerable populations. These arrangements help overcome resource constraints by improving resource allocation and attracting international support. Inclusivity and equity are also paramount and ensure that adaptation strategies address the needs of marginalized communities. Finally, institutional arrangements support capacity-building and knowledge-sharing, which are essential for enhancing adaptive capacities and fostering innovation in developing countries.

3.7. Overall coordination

95. Examining the experiences of countries such as **Cambodia**, **Dominica**, **Viet Nam**, **Kenya** and **Brazil** provide insights into diverse strategies for enhancing climate adaptation through coordinated institutional frameworks and active stakeholder participation.

96. In **Cambodia**, significant progress was made from 2006 to 2015 in its climate change response through the development and refinement of national institutional arrangements. The establishment of the National Climate Change Committee was a key step in this process. The Committee, a multisectoral body, was tasked with coordinating climate change responses across various government ministries and sectors. Additionally, the Cambodia Climate Change Strategic Plan was formulated to outline the country's climate priorities and actions. Capacity-

building programmes were implemented to provide government officials and stakeholders with the necessary skills and knowledge to effectively overcome the projection of climate change impacts. This structured approach to addressing climate projections and their implications led to enhanced interministerial coordination, better resource allocation and improved alignment of climate action with national development goals, and therefore underscored the importance of robust institutional frameworks and continuous capacity development. This case illustrates the importance of evolving institutional frameworks to support climate adaptation efforts. The establishment of multisectoral bodies and strategic plans, coupled with capacity-building initiatives, has significantly improved the coordination and effectiveness of Cambodia's climate action (Government of Cambodia 2022).

97. **Dominica**'s response to the devastation caused by Hurricane Maria in 2017 included the establishment of CREAD. Created to centralize and streamline resilience-building efforts, CREAD plays a crucial role in coordinating actions across various sectors. The Agency's focus on involving local communities, the private sector and international partners in resilience-building efforts has ensured a comprehensive approach to integrating climate resilience into national policies and development plans. The centralized coordination has facilitated a holistic strategy for enhancing the country's capacity to manage and recover from climate-related disasters. This case demonstrates the effectiveness of centralized coordination and broad stakeholder engagement in building resilience and ensuring cohesive action. Dominica's experience with CREAD demonstrates how centralized coordination and broad stakeholder engagement can enhance resilience and streamline adaptation efforts.

98. **Viet Nam**'s governance system presents both challenges and opportunities for climate change adaptation. The country has worked on developing climate change adaptation policies at both the national and local level while involving a range of stakeholders, including local governments, communities and the private sector. However, the hierarchical nature of governance in Viet Nam has posed challenges to effective policy implementation. Despite these obstacles, targeted capacity-building efforts have improved the ability of local governments to plan and implement adaptation measures. This case highlights the need for flexible governance structures that can adapt to hierarchical systems and the critical importance of strengthening local capacities for effective adaptation. Viet Nam's governance system shows the complexities and challenges of implementing climate adaptation policies within a structured governance framework. The case highlights the need for flexibility and inclusiveness in governance to overcome implementation barriers and strengthen local capacities (UNDP 2024.).

99. **Kenya**'s approach to climate adaptation is guided by its NAP and National Climate Change Action Plan. These frameworks outline the country's institutional and coordination systems for adaptation and stakeholder engagement. Key activities include developing the NAP to guide national adaptation efforts, implementing a comprehensive stakeholder engagement strategy under the National Climate Change Action Plan and establishing interministerial committees to coordinate adaptation action. Kenya's experience underscores the importance of integrating adaptation planning into national development agendas and the benefits of involving diverse stakeholders in adaptation planning and implementation processes. Effective coordination mechanisms and stakeholder engagement strategies are crucial to successful adaptation efforts (UNDP Kenya Annual Report 2016).

100. In **Brazil**, the Brazilian Climate Change Forum serves as a key multi-stakeholder platform for fostering coordination between civil society and government entities. Established to promote dialogue and mobilize society to address climate change, the Forum includes representatives of government, civil society, business and academia. The creation of thematic areas, including one focusing on adaptation, has facilitated discussions and advancements on

specific climate issues. The Forum's national, subnational, and municipal climate change entities engage local stakeholders, which is critical for advancing climate policy across different governance levels. Brazil's case highlights the effectiveness of multi-stakeholder platforms in raising public awareness, influencing national policies and engaging subnational and local entities in climate policy development (Brazil Ministry of the Environment 2024).

101. These case studies highlight the diverse approaches and outcomes of different countries' efforts to coordinate climate adaptation. The experiences of **Cambodia**, **Dominica**, **Viet Nam**, **Kenya** and **Brazil** underscore the key role of institutional arrangements and stakeholder engagement in achieving effective climate adaptation. Robust regulatory frameworks, clear functional mandates and ongoing capacity-building efforts are essential for integrating adaptation into national development agendas. The understanding gained from these examples offers valuable lessons for future adaptation initiatives and emphasizes the need for coordinated and inclusive approaches to building climate resilience.

3.8. Information, education, communication and climate services

102. Appropriate and effective institutional dissemination of climate change information and adaptation strategies is vital for building societal resilience and facilitating informed decision-making (IPCC 2022b). Effective adaptation relies on robust information, education, communication and climate services. Strengthening the articulation between various actors involved in these processes is crucial for building capacity and establishing effective adaptation measures. Lessons learned from partnerships in these areas highlight the importance of collaborative efforts in enhancing knowledge dissemination and capacity-building. Case studies show that well-coordinated partnerships can significantly improve the effectiveness of adaptation strategies and ensure that relevant information reaches all stakeholders (Green Climate Fund 2023; World Bank 2023).

103. This subsection explores how various countries have established institutional frameworks and engaged stakeholders to enhance communication, education and climate services. Examining case studies from **India**, **South Africa**, **Côte d'Ivoire**, **Peru**, **Senegal** and the **Dominican Republic** provides insights into successful approaches and identifies key lessons learned.

104. **India**'s approach to climate change adaptation in its rapidly urbanizing cities is noteworthy. Singh et al. provides a comprehensive review of existing adaptation actions and explores opportunities for achieving success by realizing simultaneous benefits for climate mitigation, adaptation and development. The assessment involved engaging local governments, NGOs and community groups, which highlighted the importance of integrating diverse perspectives into adaptation strategies (Singh et al. 2021). The outcomes from the review include enhanced urban resilience and actionable policy recommendations that underscore the value of combining adaptation and development goals while actively involving various stakeholders.

105. In **South Africa**, the National Climate Change Information System represents a significant effort to centralize climate data and improve access to climate services (Government of South Africa 2021). The System integrates data from various sources into a dedicated platform, which makes it accessible and user-friendly. Capacity-building initiatives have been crucial in training stakeholders to effectively use the system and interpret climate data. This System enhances informed decision-making and ensures that stakeholders can access reliable climate services tailored to their needs, thereby demonstrating the importance of making climate information accessible and supporting users through training.

106. **Côte d'Ivoire's** NAP communication strategy and youth-focused digital campaign represent an innovative model for public engagement in climate adaptation. Launched in 2024, the strategy includes targeted messaging and the use of digital platforms such as social media to raise awareness among young people and promote active participation. This approach demonstrates how strategic communication and digital outreach can effectively mobilize youth for adaptation action and contribute to broader societal resilience efforts.[24]

107. **Peru**'s NAP process highlights the critical role of public engagement and communication. Peru has conducted various stakeholder consultations and public awareness campaigns, in addition to making other efforts to disseminate information, to build broad-based support for climate adaptation. By involving a diverse range of stakeholders and using multiple media channels to share information, Peru has increased public understanding of and participation in adaptation efforts. This approach illustrates the importance of inclusive engagement and clear communication in fostering support for adaptation measures. (NAP Global Network 2022).

108. The development of climate information services and early warning systems in **Senegal** provides valuable lessons in enhancing resilience to climate impacts. (Fakhruddin and Schick 2019). Following the 2020 floods in Thiès, Senegal implemented early warning systems and climate information services to improve community preparedness and response. Engaging communities in the development and use of these systems has been crucial for ensuring their relevance and effectiveness. Senegal's experience underscores the importance of timely information and community involvement in reducing vulnerability to climate hazards.

109. **The Dominican Republic**'s Climate Change and Resilience Observatory (Observatorio de Cambio Climático y Resiliencia, OCCR), established at the Instituto Tecnológico de Santo Domingo (INTEC), serves as a pivotal platform for enhancing access to climate information and supporting informed decision-making.. Through its online portal, infoclima.intec.edu.do, the Observatory provides free, up-to-date climate data, interactive maps, and analytical tools tailored for researchers, policymakers, municipal planners, and the public. By focusing on data collection, analysis and dissemination, the Observatory enhances decision-making and resilience and highlights the benefits of using collaborative approaches and user-friendly information.

110. NAPs are increasingly emphasizing the importance of information, education, communication and climate services as fundamental components of effective adaptation strategies (UNFCCC 2012). One notable improvement regarding the NAPs is the development and implementation of tools and methodologies to integrate climate adaptation into broader planning and policy frameworks, which includes creating technical guides, integrating adaptation into master plans and developing improved methodologies for local climate adaptation planning (State and Trends in Adaptation Report 2022).

111. Another significant trend is preparing and implementing sector-specific climate adaptation plans. Many of the 58 countries that had submitted NAPs as at 15 August 2024, including **Bangladesh** and **Indonesia**, are focusing on developing comprehensive sectoral plans that address climate change impacts and involve multiple stakeholders in the planning and execution process. This approach highlights the importance of tailoring adaptation strategies to specific sectors and ensuring active stakeholder engagement throughout the process.

[24] See https://napglobalnetwork.org/2024/04/cote-divoire-launches-nap-comms-strategy-engage-youth-climate-change-adaptation/.

112. Enhancing communication and stakeholder engagement strategies is also a growing focus. Several countries are developing targeted engagement strategies, simplifying adaptation plans for local entities and employing various communication techniques to reach specific stakeholder groups. These efforts underscore the recognition of the need for effective communication to ensure that adaptation measures are well-understood, accepted and implemented by all relevant actors.

113. Capacity-building and institutional strengthening are additional key trends. Many countries are investing in updating institutional frameworks and the roles of specific committees, sectors, and local entities to support climate adaptation efforts. This includes defining clear roles and responsibilities for various government units and establishing coordinating mechanisms that align with national and international frameworks. Strengthening institutional arrangements ensures that climate adaptation efforts are well-coordinated and effectively managed.

3.9. Finance and investment strategies

114. Finance and investment strategies are integral to the effective implementation of climate adaptation efforts. Developing these strategies involves not only specialized financial expertise but also close coordination with entities responsible for planning and executing adaptation interventions. Institutional arrangements and stakeholder engagement are crucial for ensuring that these strategies are robust, comprehensive and aligned with national adaptation goals. This subsection examines the approaches of **Cambodia, Chile**, **Colombia**, **Kyrgyzstan** and the **Pacific region** and provides insights into their finance and investment strategies for climate adaptation.

115. **Cambodia** has established a comprehensive financing framework to support its NAP[25]. Developing this framework involved creating a detailed plan that outlines various funding sources, mechanisms and priorities for managing adaptation finance. The National Adaptation Plan Financing Framework and Implementation Plan (NAPFFIP), published by the General Secretariat of the National Council for Sustainable Development (NCSD), outlines various funding sources, mechanisms, and priorities for managing adaptation finance. The framework integrates financial planning with adaptation strategies to ensure alignment with national goals. Key activities in developing the NAPFFIP included stakeholder engagement with government agencies, international donors, and private sector entities to foster collaboration and secure diverse funding sources. Capacity-building efforts were also emphasized to strengthen the ability of local institutions to manage and implement adaptation finance effectively. These efforts have led to successful resource mobilization from multiple sources, including international climate funds and domestic budgets. The outcomes of these initiatives demonstrate enhanced coordination among stakeholders, leading to more efficient use of financial resources. Lessons learned highlight the importance of an integrated approach to financial planning and broad stakeholder involvement in mobilizing and managing adaptation finance. The NAPFFIP identifies medium- and long-term approaches, as well as short-term suggestions for 40 priority climate change actions, selected among over 148 yet-to-be-funded Climate Change Action Plan actions from key climate-sensitive ministries and agencies. Lessons learned highlight the importance of an integrated approach to financial planning and broad stakeholder involvement in mobilizing and managing adaptation finance[26].

[25] See: https://unfccc.int/documents/638457.
[26] See https://climate-laws.org/document/cambodia-climate-change-strategic-plan_5e34.

116. **Chile**'s Financial Strategy on Climate Change outlines a national approach to financing both adaptation and mitigation efforts. The strategy encompasses developing a financial strategy that includes funding sources, financial instruments and investment priorities. The integration of climate finance into broader economic and financial policies has been a central focus and has enhanced both coherence and effectiveness. Efforts to enhance capacity targeted financial institutions in order to improve their ability to assess and manage climate risks. The strategy has led to the alignment of climate finance with national policies and the development of innovative financial instruments designed to attract private sector investment in climate adaptation. Key lessons learned include the value of integrating climate finance into broader financial policies and the role of innovative instruments in mobilizing additional resources[27].

117. In **Colombia**,[28] the Financial Management Committee, established within the National Climate Change System, has been instrumental in promoting the integration of climate finance into economic and financial planning. The Committee oversees and coordinates climate finance activities by focusing on resource mobilization from both domestic and international sources. Incorporating climate finance considerations into national economic and financial planning processes has enhanced the efficiency and effectiveness of resource use. Outcomes include improved coordination of climate finance activities across various sectors and successful mobilization of resources for climate adaptation and mitigation projects. Lessons learned emphasize the benefits of a coordinated approach and the importance of integrating climate finance into comprehensive planning processes.

118. **Kyrgyzstan** has established the Climate Finance Centre to streamline the development and implementation of climate investment programmes and projects (The Kyrgyz Republic's Climate Finance Centre 2021). The Centre coordinates climate finance activities and promotes stakeholder engagement in designing, implementing and monitoring climate investment. The Centre's activities have led to improved coordination across sectors and enhanced support for climate investment programmes. Effective implementation of these programmes has been a significant outcome. Key lessons learned include the advantages of centralized coordination for managing climate investments and the importance of active stakeholder engagement to successful programme development and execution.

119. The **Pacific region** has implemented the Pacific Climate Change Finance Assessment Framework to provide a structured approach to assessing and managing climate finance (Pacific Region's Pacific Climate Change Finance Assessment Framework 2020). This framework evaluates climate finance needs, sources and mechanisms and enhances the ability of regional and national institutions to manage climate finance effectively. The development of the framework involved capacity-building to improve institutional capabilities and coordination among various stakeholders, including governments, donors and the private sector. Outcomes include improved assessment capabilities and strengthened institutional capacities for handling climate finance. Lessons learned highlight the importance of comprehensive assessment frameworks and the need for capacity-building to manage climate finance effectively.

120. Finance and investment strategies are crucial to the success of NAPs, as they focus on mobilizing and using resources for climate resilience. An emerging trend in such strategies is the emphasis placed on integrating climate adaptation into various sectors through targeted investments. This includes funding for climate-resilient infrastructure, agricultural practices

[27] See https://arclim.mma.gob.cl/about/.

[28] See https://www.minambiente.gov.co/cambio-climatico-y-gestion-del-riesgo/plan-nacional-de-adaptacion-al-cambio-climatico/.

and urban development. For example, investments in climate-resilient infrastructure such as roads and drainage systems, as well as climate-smart agricultural practices, are becoming more common. This trend reflects a growing recognition of the need for comprehensive, sector-specific adaptation measures to build resilience.

121. Exploring diverse approaches to adaptation finance and investment is crucial for understanding the role of various actors and instruments. Multilateral development banks and private financial institutions are increasingly engaged in financing adaptation projects, with each employing different strategies and tools. Identifying and analysing relevant cases where these financial mechanisms have been applied successfully can provide valuable insights into effective finance and investment strategies for adaptation. Case studies of successful financial initiatives can illustrate how different actors and instruments contribute to advancing adaptation efforts (Green Climate Fund 2023).

122. Institutional arrangements and stakeholder engagement are vital for effective adaptation finance strategies. Many countries are setting up dedicated sectoral teams, focal points and local adaptation programmes to ensure that adaptation measures are well-coordinated and aligned with local needs. For example, the Philippines and Papua New Guinea have established sectoral teams and focal points to oversee and implement climate adaptation strategies. The trend of setting up these sectoral teams, focal points and local adaptation programmes emphasizes the need for robust institutional frameworks and active stakeholder involvement to drive effective adaptation outcomes.

Case studies on the costing of climate adaptation institutional arrangements and stakeholder engagement in developing countries

1. Integration of climate-resilient infrastructure (Bangladesh)

Bangladesh has undertaken significant efforts to integrate climate resilience into its infrastructure, particularly through its NAP. The country has invested approximately USD 5 billion in climate-resilient infrastructure projects such as flood defences and urban drainage systems. The cost of implementing these projects includes not only the construction and engineering expenses but also the costs associated with institutional arrangements and stakeholder engagement. For instance, the Bangladesh Climate Change Strategy and Action Plan emphasizes the importance of involving local communities and stakeholders in the planning process, which adds an additional layer of costs related to public consultations, community training and participatory planning workshops. These costs are necessary to ensure that adaptation measures are tailored to local needs and that the implementation is effective and sustainable (Government of Bangladesh 2023a).

2. Enhancing institutional capacity for climate adaptation (Kenya)

Kenya has invested significantly in building institutional capacity to support climate adaptation. The country's NAP outlines a budget of approximately USD 1.2 billion to strengthen institutional frameworks and improve stakeholder engagement across various sectors. This budget includes costs for developing and implementing institutional arrangements, such as creating dedicated climate adaptation units within ministries, as well as costs for capacity-building programmes for local and national stakeholders. Additionally, Kenya has allocated funds for extensive stakeholder engagement processes, including holding public consultations and developing multi-stakeholder platforms to ensure inclusive participation. These investments are aimed at improving governance and coordination for more effective adaptation outcomes (NAP Global Network 2023a; UNDP Kenya Annual Report 2016).

3. Strengthening climate finance and stakeholder engagement for adaptation in Viet Nam

Viet Nam's 2020 NDC[29] outlines a strategy to strengthen climate finance for adaptation by identifying investment gaps, removing barriers, and developing policies to mobilize resources from public, private, and international sectors. Priority areas include renewable energy, energy efficiency, and green growth. Financial tools like green bonds and investment funds are being advanced, while planning and budgeting processes are aligned with adaptation and mitigation goals for the 2021–2025 and 2026–2030 periods.

Institutional arrangements focus on coordinating ministries, local governments, and businesses to mobilize investment and address financial risks. Stakeholder engagement is key, with project pipelines encouraging private sector participation and international support. Viet Nam also allocates resources for regular reporting to the UNFCCC, ensuring transparency and accountability in its adaptation finance efforts.

4. Costs of institutional and technical capacity-building (Haiti)

Haiti has faced considerable challenges in building institutional and technical capacity for climate adaptation, as reflected in its NAP costing. The country has allocated approximately USD 700 million to enhancing institutional frameworks and technical capabilities. This budget covers the costs of developing new and upgrading existing institutions dedicated to climate adaptation and training personnel in climate resilience practices. Additionally, Haiti has invested in stakeholder engagement activities, including consultations with vulnerable communities and capacity-building workshops for local stakeholders. These efforts are essential for improving the effectiveness of adaptation measures and ensuring that they are well-coordinated and supported across different levels of government and society (UNDP Haiti 2022).

5. Data collection and technical support costs (Papua New Guinea)

Papua New Guinea has invested around USD 300 million in climate adaptation efforts, with a significant portion allocated to improving data collection and technical support. This investment is crucial for addressing gaps in climate data and enhancing technical capacities to support adaptation planning and implementation. Costs include the establishment of monitoring and evaluation systems, training for technical staff and the development of climate data platforms. Additionally, Papua New Guinea has allocated funds for stakeholder engagement activities, such as consultations and workshops aimed at integrating local knowledge and perspectives into adaptation strategies. These expenditures are vital for ensuring that adaptation measures are informed by accurate data and are effectively implemented at the community level[30].

3.10. Lessons learned, good practices and innovations

123. This section summarizes key insights from case studies on climate adaptation in developing countries, focusing on effective institutional arrangements and stakeholder engagement. Table 3 highlights various lessons learned, good practices and innovations that demonstrate the impact of tailored approaches and collaborative efforts.

[29] See https://unfccc.int/sites/default/files/NDC/2022-06/Viet%20Nam_NDC_2020_Eng.pdf.
[30] See https://ccda.gov.pg/.

124. This overview provides a snapshot of practices and strategies that can recognize, inform and inspire effective national climate adaptation measures and support.

Table 3. Lessons learned, good practices and innovations implemented by developing countries to enhance climate adaptation through effective institutional arrangements and stakeholder engagement

Lesson learned, good practice or innovation	Country	Description
Community-based adaptation projects	Nepal	Involve local stakeholders in climate-resilient agricultural practices to enhance food security and resilience (State and Trends in Adaptation Report 2022)
Regional cooperation on climate challenges	Pacific island nations	Involves sharing resources and best practices to address sea level rise and other common climate issues (UNFCCC 2022.)
National system for monitoring and evaluation	Mozambique	Aligns with national governance and climate challenges to enhance relevance and sustainability (Government of Mozambique 2020).
Long-term sustainable engagement framework	Liberia	Represents a transition from short-term projects to a long-term monitoring and evaluation framework led by Liberia's Environmental Protection Agency (UNFCCC 2019)
Development coordination committee	Kiribati	Engages diverse stakeholders in monitoring and evaluating the KJIP (Government of Kiribati 2019)
Integrated MRV system	Kenya	Includes centralized coordination to ensure alignment of adaptation actions with national goals and to reduce inefficiencies (Government of Kenya 2016).
MRV system with continuous training	Rwanda	Incorporates regular training to build capacity and adapt to evolving challenges in the MRV system (UNFCCC 2021).
Financial management committee	Colombia	Integrates climate finance into national economic planning to ensure alignment with broader development goals (World Bank 2022).
Climate adaptation learning hubs	Philippines	Foster knowledge-sharing and capacity-building for adaptation among the government, academia and civil society organizations (Philippine Development Report 2023).
Digital platforms for risk mapping	Kenya	Use for participatory risk mapping and involve local communities in data collection and adaptation planning (Government of Kenya 2016).

4. BARRIERS AND CHALLENGES FACED BY DEVELOPING COUNTRIES

125. Despite notable progress, institutional arrangements and stakeholder engagement in developing countries continue to face persistent gaps. Limited technical and financial

capacities often hinder the full operationalization of adaptation frameworks (NAP Global Network 2023a). In addition, coordination among key actors — such as government agencies, local communities and the private sector — frequently remains inconsistent. For example, while several African nations have established national adaptation steering committees, these entities are often under-resourced and lack the authority to implement effective measures. Similarly, marginalized groups — including women, youth and Indigenous communities — are often underrepresented in adaptation planning and decision-making processes (UNDP 2015).

126. The key barriers and challenges faced by developing countries in strengthening institutional arrangements and stakeholder engagement are summarized in Table 4 below.

Table 4. Identifying the barriers and challenges faced by developing countries

Identified barriers and challenges	Description
Limited financial resources	One of the primary obstacles to effective institutional arrangements. Many developing countries struggle to secure the funding needed for comprehensive climate adaptation plans. For instance, resource limitations have hindered the implementation of NAPs in various countries, which has negatively affected their ability to invest in resilient infrastructure and prioritize key adaptation measures (Adaptation Fund 2022).
Institutional capacity and governance issues	Weak institutional frameworks, insufficient technical expertise and a lack of human resources remain significant barriers. Poor coordination across governance levels and among government organizations and NGOs often reduces the effectiveness of adaptation efforts. In some cases, weak institutional capacity has delayed the implementation of strategies outlined in NAPs and hampered overall progress (NAP Global Network 2023a).
Political instability and shifting priorities	Frequent changes in government leadership and priorities can disrupt adaptation initiatives. The lack of consistency that frequently occurs when implementing adaptation projects in politically unstable environments can lead to inefficiencies in stakeholder engagement and diminished support for climate resilience efforts (Climate Policy Initiative and GCA 2023).
Limited stakeholder involvement	Inclusivity remains a critical challenge, particularly for marginalized groups such as Indigenous communities, women and youth. Although stakeholder engagement is increasingly emphasized by developing countries, challenges persist in ensuring stakeholders' participation is meaningful, which could affect the relevance and local support of adaptation strategies.[31]
Technical and data limitations	Access to reliable climate data and technical expertise is a significant barrier. Many developing countries lack the capacity to conduct comprehensive risk assessments and support evidence-based adaptation planning. Inadequate data

[31] See https://www.oecd.org/en/topics/environment.html.

Identified barriers and challenges	Description
	collection and analysis limit the effectiveness of climate adaptation interventions (IPCC 2022a).
Institutional fragmentation and poor coordination	Fragmentation across governmental departments and agencies often results in inefficiencies. A lack of cohesive governance structures complicates the implementation of adaptation measures, especially those outlined in NAPs.[32]
Social and cultural barriers	Social norms, cultural practices and language differences can impede effective stakeholder engagement. In some cases, traditional knowledge and practices are not sufficiently integrated into formal adaptation processes, which can lead to resistance from local communities (SEI et al. 2020).
Complexity and scale of adaptation needs	The extensive and multifaceted nature of adaptation challenges often overwhelms existing institutional capacities. Balancing immediate needs with long-term goals requires robust and scalable frameworks, which are difficult to establish under constrained conditions (NAP Global Network 2023a).

127. Despite significant progress, institutional arrangements and stakeholder engagement in developing countries still face gaps. Many nations lack the technical and financial capacity to fully operationalize adaptation frameworks. Coordination among key actors, such as government agencies, local communities and the private sector, often remains inconsistent. For instance, while some African countries have formed national adaptation steering committees, these bodies frequently lack adequate resources or authority to ensure the effective implementation of NAPs. Additionally, local stakeholder engagement is often lacking inclusionary efforts, with marginalized groups including women, youth and Indigenous communities underrepresented in adaptation planning and decision-making processes.

128. Some barriers and challenges related to setting up institutional arrangements and engaging stakeholders in adaptation have been identified in the sources and case studies analysed for this report.

129. One of the primary obstacles is limited financial resources. Many developing countries struggle with inadequate funding to support comprehensive climate adaptation plans and institutional frameworks. For example, in some developing countries the lack of sufficient financial resources has limited the implementation of their NAPs, which has impacted their ability to build resilient infrastructure and invest in key adaptation measures.

130. Another significant challenge is institutional capacity and governance issues. Developing countries frequently encounter weak institutional frameworks, lack of technical expertise and insufficient human resources. In some developing countries, a weak institutional capacity has hampered the effective coordination of adaptation efforts and the implementation of adaptation strategies outlined in the NAP. This situation often results in poor coordination between different levels of government and between government organizations and NGOs, thereby reducing the overall effectiveness of adaptation measures.

[32] See https://unfccc.int/news/governments-must-seek-win-win-synergies-by-tackling-climate-and-sustainable-development-crises.

131. Political instability and shifting priorities also pose considerable challenges. In many developing countries, political instability can disrupt climate adaptation efforts by causing frequent changes in government priorities and policies. In some developing countries, political instability has affected the continuity and consistency of adaptation projects outlined in the NAP, which has led to disruptions in implementation and stakeholder engagement efforts. Frequent changes in leadership can result in fluctuating levels of commitment and support for climate adaptation initiatives.

132. Limited stakeholder involvement is another critical barrier. In some developing countries, there is insufficient engagement of local communities, marginalized groups and other stakeholders in the adaptation planning process. In some developing countries, despite efforts to involve stakeholders in the NAP process, challenges remain in fully engaging marginalized communities, which impacts the inclusivity and effectiveness of adaptation strategies. Without meaningful participation, adaptation measures may lack local relevance and fail to gain broad-based support.

133. Technical and data limitations further complicate adaptation efforts. Many developing countries face challenges related to inadequate data collection and analysis, which are essential for informed decision-making and effective adaptation planning. In some developing countries, gaps in climate data and limited technical capacity have hindered the development of accurate risk assessments and adaptation strategies, as outlined in their NAPs. The lack of reliable and up-to-date climate data affects the quality and effectiveness of adaptation interventions.

134. Institutional fragmentation and poor coordination also contribute to the challenges faced by developing countries. In some developing countries, adaptation efforts are often fragmented across various departments and agencies, which leads to inefficiencies and lack of cohesion. This institutional fragmentation complicates the implementation of comprehensive adaptation strategies and affects the overall coordination of adaptation actions, as outlined in their NAPs.

135. Social and cultural barriers play a role in complicating stakeholder engagement. Developing countries often face challenges related to social norms, cultural practices and language barriers that can affect the inclusivity and effectiveness of stakeholder engagement efforts. In some developing countries, traditional practices and local knowledge are not always adequately incorporated into formal adaptation planning processes, which leads to resistance or lack of support from local communities.

136. The complexity and scale of adaptation needs can overwhelm existing institutional arrangements. Developing countries often face extensive and multifaceted adaptation challenges that require coordinated and large-scale responses. In some developing countries, the scale of adaptation needs, coupled with limited institutional capacity, can complicate the implementation of comprehensive strategies outlined in the NAP. Balancing immediate needs with long-term goals requires robust and scalable institutional frameworks, which can be difficult to establish and maintain under constrained conditions.

137. Addressing these barriers and challenges requires a multifaceted approach that includes enhancing financial mechanisms, strengthening institutional capacities, ensuring political stability, improving stakeholder engagement and building technical and data capabilities.

138. Opportunities include leveraging regional synergy, promoting community-based adaptation and strengthening multilevel governance to integrate national and local adaptation efforts effectively.

5. CONCLUDING REMARKS

139. Developing country Parties have made significant steps in establishing institutional arrangements and engaging diverse stakeholders throughout the adaptation cycle. These efforts, which are critical for addressing climate vulnerabilities, deserve recognition in the context of the global stocktake. To build on this progress, Parties should prioritize inclusive and equitable participation by involving local communities, Indigenous Peoples, women, youth and NGOs in planning and decision-making processes. Additionally, developing and updating comprehensive adaptation plans grounded in scientific data and tailored to local priorities is essential. These plans should include clear objectives, strategies and timelines while incorporating lessons learned and stakeholder feedback to ensure relevance and effectiveness. Strengthening monitoring and reporting mechanisms through standardized metrics and indicators is equally important to assess progress, track financial flows and identify areas for improvement. Regular reporting through UNFCCC channels will enhance transparency and contribute to the global understanding of adaptation progress.

140. International collaboration helps to accelerate adaptation efforts, as joint initiatives, research partnerships and platforms for knowledge-sharing provide opportunities to exchange best practices and build capacity. Leveraging the expertise and resources of international organizations, research institutions and regional initiatives can support the implementation of robust adaptation measures in developing countries. Furthermore, recognizing the achievements of developing countries in advancing institutional arrangements and stakeholder engagement can encourage continued innovation and cooperation among all Parties. By pursuing these actions collectively, Parties can strengthen global adaptation efforts, which will make them more equitable and effective while aligning with the overarching goals under the Convention and the Paris Agreement.

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