



STORIES BEHIND THE ADAPTATION COMMITMENTS IN THE NATIONALLY DETERMINED CONTRIBUTIONS OF CAMBODIA, RWANDA, COLOMBIA, AND FIJI

AARJAN DIXIT AND RYAN O'CONNOR

EXECUTIVE SUMMARY

Highlights

- This paper analyzes the processes used in four countries—Cambodia, Rwanda, Colombia, and Fiji—to develop the adaptation components of their updated nationally determined contributions (NDCs).
- The authors assess whether the following factors are evident in the NDC development process in each country: a whole-of-government approach, alignment with and integration of national and sectoral adaptation processes, use and strengthening of institutional arrangements, inclusion of the latest climate information, wide stakeholder participation, and focus on the needs of the most vulnerable.
- All four countries show improvement in the adaptation components of updated NDCs in terms of adaptation ambition and the process employed in their development. Six of the seven factors are evident across the four countries, with the exception of strengthened institutional processes.
- This assessment of NDC development and linkages to other planning processes for adaptation highlights good practices, which inform and strengthen future development of NDC adaptation components, as well as challenges for implementation.

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Working Papers contain preliminary research, analysis, findings, and recommendations. They are circulated to stimulate timely discussion and critical feedback, and to influence ongoing debate on emerging issues.

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- This paper presents the authors' reflections to country governments, the United Nations Framework Convention on Climate Change (UNFCCC), donors, and researchers to strengthen the process for developing the adaptation components of NDCs (adaptation NDCs) during each submission cycle, which will ultimately influence all countries' climate resilience-building efforts.

Background: Adaptation in the NDCs

The adaptation NDCs are voluntary but are becoming an increasingly important part of countries' commitments to the Paris Agreement.

The NDCs were initially designed to communicate national greenhouse gas emissions abatement. However, many parties—particularly developing countries with high vulnerability to climate change—are communicating information related to adaptation needs and priorities, as well as past adaptation work, in their updated NDCs (Dixit et al. 2022).

Since adaptation NDCs are voluntary, countries are not yet using a standard template to develop them. Although the Paris Agreement provides guidance for an NDC's mitigation components to improve clarity, transparency, and understanding and broader guidelines for separate instruments that may be applied to NDCs, such as Decision 9/CMA.1 for adaptation communications, no standard framework exists for adaptation NDCs. With gaps in existing guidance and agreed indicators, assessing the quality and collective ambition of adaptation NDCs remains challenging (Dixit et al. 2022).

Understanding the process by which countries develop their adaptation NDCs is critical for ensuring that it is strengthened at each update cycle. Assessing the existing process enables country governments to identify practices for robust adaptation NDC development, better align with other adaptation plans, and access financing for implementation. A better understanding of the process can also help national governments improve the clarity and quality of future submissions, and technical and financial packages can be tailored to support these.

About This Working Paper

This working paper presents an analysis of the process that four countries—Cambodia, Rwanda, Colombia, and Fiji—used to develop the adaptation components of their updated NDCs.

Using an analytical framework for assessing adaptation ambition in NDCs developed by World Resources Institute (WRI; Dixit et al. 2022), the authors selected countries that had submitted updated NDCs to the UNFCCC by June 30, 2021, that had extensive adaptation components. The authors then examined the process behind NDC adaptation development in each country through stakeholder interviews, document review, and analysis of adaptation priorities using critical systems for adaptation identified in the Global Commission on Adaptation's *Adapt Now* report (Bapna et al. 2019). The findings of this analysis highlight good practices as well as lessons for developing future adaptation NDCs. These findings will be useful to country governments, the UNFCCC, bilateral and multilateral donors, and researchers.

Case Study Country Selection and Analysis

The authors identified four countries with extensive adaptation NDCs using a qualitative framework to assess ambition in the WRI working paper "State of the Nationally Determined Contributions: Enhancing Adaptation Ambition" (Dixit et al. 2022). This framework helped identify adaptation NDCs that included prioritized actions, monitoring and evaluation (M&E), issues related to losses and damages, and transformative adaptation. Based on this analysis of adaptation NDC content, the authors selected Cambodia, Rwanda, Colombia, and Fiji to explore the NDC development process.

Using document analysis, literature reviews, and interviews with 17 experts and officials, the authors analyzed whether and how there was evidence for the following factors in each country's NDC development process:¹

- **A whole-of-government approach** where all climate-relevant sectors are engaged in the development of the adaptation component
- **Alignment** with national and subnational adaptation and development processes

- A high level of **integration** of adaptation in ongoing sectoral planning processes
- Use and strengthening of existing **institutional arrangements** for adaptation
- Inclusion of recent **information** on climate change impacts, risks, and vulnerabilities; for example, from latest national communications
- Wide stakeholder **participation**, including academia, relevant economic sectors, and diverse and vulnerable groups, during NDC development

- A focus on reducing vulnerability and issues related to **gender, youth, and Indigenous peoples**

Key Findings

Based on information available about the four countries' experiences, Table ES-1 summarizes the analysis of the factors listed above. These findings are synthesized from a more detailed analysis included in Section 3.

Table ES-1 | **Summary of factors in adaptation NDC development for four countries**

DEVELOPMENT FACTORS	CAMBODIA	RWANDA	COLOMBIA	FIJI
Whole-of-government approach	Enabled through the Department of Climate Change leadership and sectoral consultations through the Climate Change Technical Working Group	Extensive sectoral consultations as well as engagement at the district level led by the Ministry of Environment and Rwanda Environment Management Authority	The Ministry of Environment and Sustainable Development (Ministerio de Ambiente y Desarrollo Sostenible; MADS) had lower capacity to develop adaptation components for the nationally determined contribution (NDC) than mitigation but still conducted extensive sectoral engagement	The Ministry of Economy led the NDC update; adaptation priorities are based on Fiji's national adaptation plan (NAP), which used a whole-of-government approach in coordination with sectors and ministries
Alignment with national and subnational adaptation and development processes	NDC is aligned with the National Strategic Development Plan, Cambodia Climate Change Strategic Plan, and Sustainable Development Goals	NDC is aligned with the subsequent adaptation communications, Green Growth and Climate Resilience Strategy, and other national development strategies; links resilience building and economic development	NDC is aligned with the National Plan for Climate Change Adaptation and serves as an adaptation communication; MADS actively promotes policy synergies, avoiding duplications	NDC is closely aligned with NAP and national development plan; NAP synthesizes multiple national strategies to create a unifying adaptation framework
Integration in sectoral planning processes	Sectoral climate change action plans inform the NAP process, ^a improving sector mainstreaming of climate change; NDC reflects sectoral integration with wider coverage of critical systems	Sector working groups improved adaptation integration in sectoral processes, such as land use; ^b NDC includes wider coverage of critical systems, with sectoral priorities not included in the first submission	Colombia improved horizontal coordination and vertical alignment through consideration of territorial plans; NDC increases adaptation priorities across sectors, with wider coverage of critical systems	Fiji's NAP facilitates sectoral integration, leading to wider coverage of critical systems in updated NDC; intersectoral coordination cited as an ongoing barrier to adaptation planning and implementation, which requires long-term support from regional and international partners ^c
Use and strengthening of institutional arrangements	Government ownership of NDC has improved, but updated NDC identifies institutional capacity as ongoing barrier to implementation	Institutional arrangements for NDC development are clearly defined, but updated NDC could improve clarity surrounding institutional roles of synergistic instruments for adaptation, such as the NAP process	Colombia developed its updated NDC under its national climate change framework; this framework ensures institutional coherence across multiple climate change processes	Key institutions, such as a steering committee, were established for the NAP process, but evidence of their continued relevance in NDC development remains limited; more detail on mainstreaming adaptation across government processes is needed

Table ES-1 | **Summary of factors in adaptation NDC development for four countries (cont.)**

DEVELOPMENT FACTORS	CAMBODIA	RWANDA	COLOMBIA	FIJI
Use of recent climate change information	Most recent information drawn from the second national communication and other latest assessments; third national communication is under development	Most recent information drawn from multiple sources, including third national communication	Most recent information drawn from the ongoing NAP process and third national communication	Most recent information drawn from Fiji's NAP, which synthesized national climate change documents; the NDC also builds on a 2017 climate vulnerability assessment for adaptation needs ^d
Wide stakeholder participation	Consultations with government ministries, development partners, private sector, local communities, and Indigenous peoples	Engaged with civil society and private sector throughout development; no public participatory process, but district experts represented subnational interests	Civil society, the private sector, and academia were consulted during development; web page collecting feedback ensured nationwide public engagement	Adaptation priorities communicated in the updated NDC are based on Fiji's NAP, which engaged with civil society, private sector, academia, and the general public
Focus on gender equity and vulnerable groups	Key focus on improving gender responsiveness in updated NDC, with improved targets; online tracking tool measures gender and youth responsiveness	Focus on gender and local communities has increased since first submission, but some process details are lacking; clearer integration of gender and vulnerable groups could be explained in implementation framework	Updated NDC includes improved focus on gender integration into climate change processes and recognition of Indigenous people's disproportionate vulnerability to climate change impacts	Increased emphasis on gender equity in the updated NDC, NAP analyzes adaptation through gender lens and includes local communities; equity is operationalized through a supplementary action plan ^e

Sources: ^a. Murphy 2018; personal communication between the authors and a United Nations Development Programme Climate Change Policy Specialist based in Cambodia, August 9, 2021; b. personal communication between the authors and an Environmental Consultant for the World Bank in Rwanda, August 27, 2021; c. Fiji, MoE 2020a; d. Fiji, MoE 2020a; e. Fiji, MoE 2021.

Reflections

For Country Governments

- National governments could help ensure that the process of updating the **adaptation NDCs is adequately resourced and designed**.
- **The needs of the most vulnerable could be addressed** through direct participation during development and by ensuring that local and provincial adaptation plans, which incorporate their voices, inform national prioritization.
- **Formalizing the process of identifying adaptation priorities could help increase transparency and trust** between different national stakeholders.
- Countries could consider **creating robust and updated climate risk assessments at the country level** for improved consistency in UNFCCC reporting and adaptation planning.

For the UNFCCC

- The UNFCCC could **map out the information needs for different adaptation instruments under the Paris Agreement**, such as the adaptation communication, the NAP process, the national communications, and the biennial transparency reports. Such a mapping could help countries avoid information duplication and clarify how to structure the adaptation NDCs to avoid overlap with other instruments.
- The Adaptation Committee could detail how its **forthcoming guidance on adaptation communications may inform adaptation NDC development**.

For Bilateral and Multilateral Donors

- **Donors could increase their share of support for adaptation and support national governments** to implement the adaptation priorities in the NDCs and NAPs, track their governance and implementation progress, and advance NDC implementation in critical sectors. As an important document that articulates country priorities, the adaptation NDCs could increase the profile of adaptation and help drive action.
- Developing countries also lack the resources to implement the adaptation priorities identified in the NDCs. Donors could increase adaptation financing and help national governments **create and sustain resource mobilization plans or platforms** as part of the planning process to catalyze and leverage funds for NDC implementation.
- Countries face barriers to monitoring the implementation of adaptation commitments. Donors could consider **supporting the further development of M&E systems** through governments and civil society to track implementation progress of the adaptation NDCs.

1. INTRODUCTION

Although nationally determined contributions (NDCs) were initially meant to communicate greenhouse gas emissions abatement in a bottom-up manner, countries are voluntarily including adaptation commitments in their NDCs as important elements of global climate action. To date, most analyses of adaptation components of the NDCs (adaptation NDCs) have focused on global assessments of trends (Dixit et al. 2022), the least developed countries (LDCs; Sejal et al. 2019), and assessing the NDCs using a gender scorecard (CARE and CANSA 2021). These publications, however, do not analyze the detailed *process* countries followed to develop adaptation NDCs nor how the NDCs fit within the adaptation governance architecture at the national level.

This working paper presents case studies from Cambodia, Rwanda, Colombia, and Fiji, describing the process these governments followed to develop their adaptation NDCs. It builds on the World Resources Institute (WRI) working paper “State of the Nationally Determined Contributions: Enhancing Adaptation Ambition,” which presents key findings from an assessment of the adaptation components of 86 updated NDCs submitted until June 30, 2021 (Dixit et al. 2022). Based on that assessment, the

authors chose four countries with NDCs with extensive adaptation components (see Section 2 for details). This analysis focuses on identifying good practices and lessons learned as well as key enabling factors that led to the development of strong adaptation NDCs.

Section 2 discusses the methodology of country selection and criteria for assessing adaptation NDC development. Section 3 presents detailed analyses of the NDC development processes for the four countries. Section 4 presents key findings synthesized from across the four countries. Section 5 provides a set of recommendations for improving the development of adaptation NDCs and advancing implementation. Finally, Section 6 concludes the paper.

2. METHODOLOGY

Case Study Country Selection

Using Dixit et al. (2022), the authors narrowed an initial data set of all countries that had submitted updated NDCs through June 30, 2021, by removing updated NDCs that did not include a separate adaptation component or prioritized adaptation actions, information on adaptation monitoring and evaluation (M&E), losses and damages, and potential transformative adaptation actions. Three qualifications were then used to finalize the selection of the four countries: geographic representation, recommendations from the NDC Partnership Support Unit based on government responsiveness, and final impressions from WRI staff who analyzed the adaptation NDCs as part of this work. Thus, the authors arrived at four countries:

- In the Asia-Pacific region, **Cambodia’s** NDC demonstrates a striking improvement in content between the first and updated versions. Its updated NDC provides detailed information concerning both targets and costs for its adaptation priorities.
- **Rwanda** was selected in Africa due to the unique level of detail its NDC provides on its adaptation priorities. Where many countries provide only cursory detail about their adaptation commitments, Rwanda has presented detailed costs and indicators for each of its adaptation priorities.
- **Colombia** stands out in the Latin America and Caribbean region with an adaptation component that is highly detailed and comprehensive compared to

its first submission, including a significant increase in adaptation priorities that were aligned with ongoing national and subnational adaptation planning processes.

- **Fiji**, a small island developing state in the Pacific, recently completed its first national adaptation plan (NAP). Fiji developed an adaptation NDC based on its NAP, which focused on strengthening systems and developing capacities. Fiji's NDC includes adaptation actions across the economy, although it does not include costs or indicators.

Country Analysis

After the authors selected the four countries, they conducted a total of 11 semistructured individual or group interviews with 17 experts involved in the adaptation NDC development process. The authors conducted 5 interviews for Rwanda and 2 each for Cambodia, Colombia, and Fiji. (See Appendix A for the interview questions and Appendix B for the full list of country experts interviewed.) These interviews aimed to capture the process of developing the adaptation NDCs. The authors recorded the interviews and analyzed the transcripts as well as gray literature, planning documents, reports, and relevant websites.

To analyze the process the four countries followed, the authors developed simple criteria based on the framework in Dixit et al. (2022) for assessing adaptation ambition in the content of adaptation NDCs. They then used these criteria to determine whether and how there was evidence for the following factors in the adaptation NDC development process:

- A **whole-of-government approach** where all climate-relevant sectors are engaged in the development of the adaptation component
- **Alignment** with national and subnational adaptation and development processes
- A high level of **integration** of adaptation in ongoing sectoral planning processes
- Use and strengthening of existing **institutional arrangements** for adaptation
- Inclusion of recent **information** on climate change impacts, risks, and vulnerabilities; for example, from latest national communications
- Wide stakeholder **participation**, including academia, relevant economic sectors, and diverse and vulnerable groups, during NDC development
- A focus on reducing vulnerability and issues related to **gender, youth, and Indigenous peoples**

The small sample size of interviewees per country means that the results do not include a full range of perspectives. Almost all the respondents were closely involved in the NDC update process. Although they were knowledgeable about the details of development, a full range of stakeholder voices were not part of this investigation. Additionally, a lack of literature on adaptation NDC development prevents this research from being exhaustive. Despite these limitations, the snapshots from interviewees provide valuable insights into the development of adaptation NDCs and serve as positive examples for other countries.

The four case studies include countries with extensive adaptation NDCs and were picked to validate the above factors, which help to create strong adaptation NDCs, and to enable learning. The authors did not compare the case studies with processes that countries with less extensive adaptation NDCs followed. To strengthen subsequent analyses, instead of only identifying countries with strong NDCs, a matching set of similar countries with weaker adaptation NDCs could be identified, for example, by using the quantitative methodology developed by R.A. Nielsen (2016). A qualitative process tracing methodology then could be used to isolate and test for specific variables that lead to a stronger or weaker outcome.

Due to country-selection challenges, as well as time and resource constraints, the authors were unable to use these statistical matching and process tracing methods to further analyze the new sets of countries. Future work could refine what determines the strength of the adaptation NDC outcome and analyze them based on a robust parallel process analysis (Trampuscha and Palierb 2016). Such a process may provide stronger evidence for the role of causal factors that drive adaptation NDC development.

More details on the adaptation NDCs of the following countries, including individual adaptation priorities, costs, and indicators, can be found at www.climatewatchdata.org.

3. COUNTRY CASE STUDIES

This section describes each of the four countries' adaptation NDC development process, compares the first and updated NDC submissions, and identifies challenges and good practices for NDC development for the four countries (Figure 1).²

Cambodia

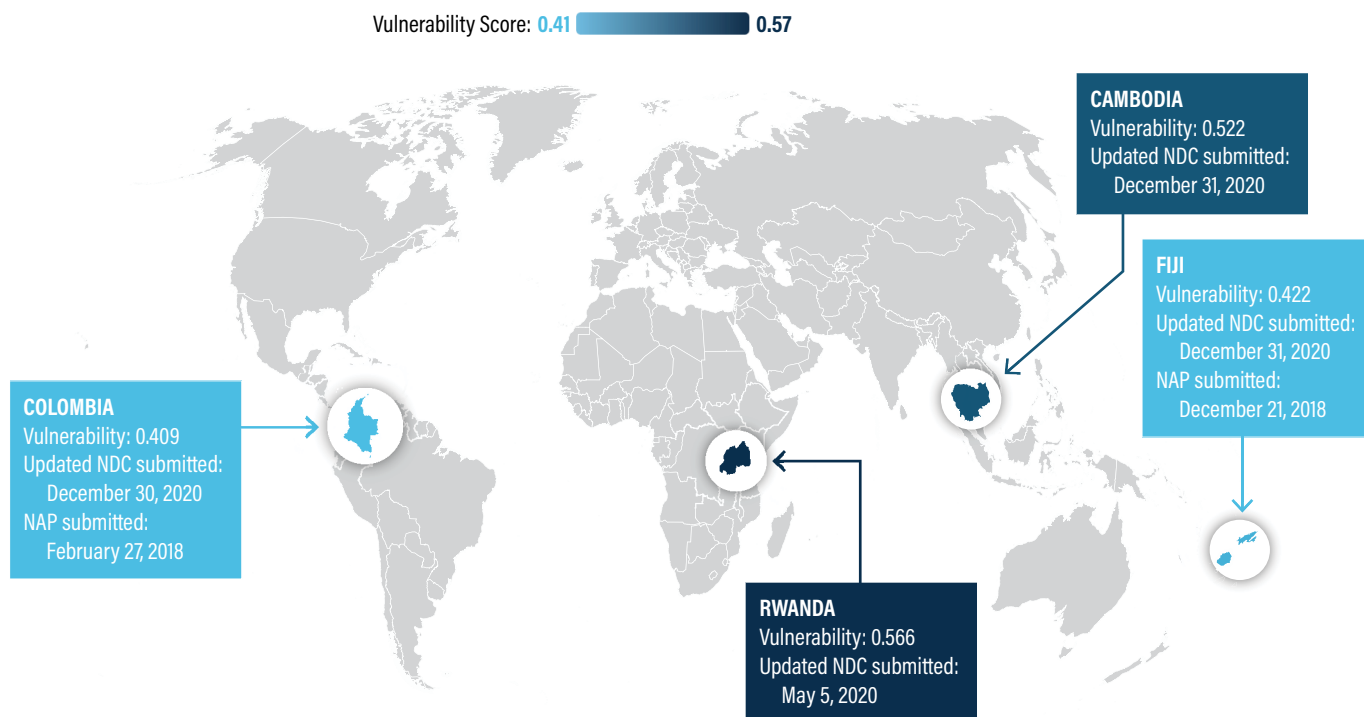
Cambodia is an LDC with high (0.522)³ vulnerability to climate change (ND-GAIN 2019). Its updated adaptation NDC includes improved adaptation priorities, details regarding costs and indicators, and extensive consideration of gender and other cross-cutting issues.

NDC development context and process

Cambodia submitted its updated NDC to the United Nations Framework Convention on Climate Change (UNFCCC) on December 31, 2020. The Department of

Climate Change (DCC), part of the General Secretariat of the National Council for Sustainable Development (GSSD), led and coordinated the NDC update process. The DCC was supported by the Climate Change Technical Working Group (CCTWG), an interministerial body providing technical advisory services on climate change. Line ministries prioritized their respective adaptation actions and identified implementation costs, with coordinating support from the United Nations Development Programme (UNDP). These were submitted to the DCC in a prescribed template.⁴ The CCTWG also held consultations with development partners, the private sector, and nongovernmental organizations (NGOs).⁵ Experts explained that Cambodia conducted engagement on gender and social equity through appropriate ministries, such as the Ministry of Women's Affairs, and finalized the updated NDC through a validation workshop hosted by the CCTWG, which linked prioritized actions

Figure 1 | Map of case study countries



Notes: NAP = national adaptation plan; NDC = nationally determined contribution. Dates shown reflect official dates on the United Nations Framework Convention on Climate Change's NDC Registry and NAP Central, respectively, for NDCs and NAPs.

Source: ND-GAIN 2019.

with those responsible for implementation. Cambodia's updated NDC will inform future outputs of the NAP process, including subsequent NAP documents.⁶

Comparison of first and updated NDCs

Cambodia submitted its first NDC to the UNFCCC on February 6, 2017, with support from external consultants who helped prioritize adaptation actions based on existing plans and strategies. There was limited engagement from

sectoral line ministries during this process.⁷ In contrast, the DCC led the updated NDC, which includes more details regarding prioritized adaptation actions. Issues such as gender, youth, and private sector engagement in adaptation were also identified as gaps in the first NDC, and the government made efforts to improve their integration in the updated NDC.⁸ Table 1 summarizes the differences between Cambodia's first and updated NDCs.

Table 1 | **Cambodia's first and updated adaptation NDC development process**

	FIRST NDC	UPDATED NDC
Lead institution	National Council for Sustainable Development (NCSD)	Department of Climate Change as the General Secretariat of the NCSD
Stakeholders consulted	Line ministries (limited)	16 line ministries, development partners, private sector, and nongovernmental organizations
Information sources used	Based on the Cambodia Climate Change Strategic Plan (CCCSP) and the National Adaptation Program of Action (NAPA)	Builds on NAPA, the CCCSP, the second national communication, National Strategic Development Plan, sector climate change strategic plans, and Cambodia's Sustainable Development Goals; Cambodia's third national communication is under development; ^a also used vulnerability index, and losses and damages data were derived from affected families
Indicators and costs for priorities identified	Adaptation actions do not include indicators or costs	Adaptation actions include indicators and additional targets on gender; actions include costs and are identified as conditional on external support
Inclusion of monitoring and evaluation (M&E) for adaptation	States intention to develop a national-level M&E framework but indicates that adaptation M&E is conducted at the project level	A national system to monitor implementation progress of the updated NDC is under development ^b and will form part of its Enhanced Transparency Framework; ^c a national climate change M&E framework, including vulnerability index tracking, is available in the NCSD's data portal platform that serves as the basis for evaluating implementation of the adaptation actions
Inclusion of gender, local knowledge, and Indigenous peoples	Minor references to reducing vulnerability related to gender; does not include local or Indigenous peoples	Identifies gender as a gap in the first NDC and focuses on integrating gender into adaptation priorities, with engagement conducted through appropriate ministries, such as the Ministry of Women's Affairs; ^d NDC also identifies legal rights of Indigenous peoples and the importance of traditional knowledge, but it does not detail how this inclusion informed the development process
Inclusion of losses and damages	References losses and damages, and includes information about economic losses and damages from the 2013 flooding, which affected more than half of the provinces	Mentions losses and damages, identifies current and future losses and damages, proxy data derived from families affected by hazards (droughts, floods, and storms) available in the NCSD's data portal and includes climate change scenarios; Cambodia plans to include the concept in future national adaptation plans and revised CCCSP using an assessment conducted for the Sendai Framework (Cambodia Disaster Damage and Loss Information System)
Inclusion of transformative adaptation	No transformative adaptation potential was identified in the actions	Does not identify transformative adaptation explicitly but includes multiple actions related to agriculture, infrastructure, and land use that could be considered transformative adaptation

Note: NDC = nationally determined contribution.

Sources: a. GSSD 2020; b. GSSD 2021; c. personal communication between the authors and a United Nations Development Programme Climate Change Policy Specialist based in Cambodia, August 9, 2021; d. personal communication between the authors and senior official in Cambodia's Department of Climate Change, September 6, 2021.

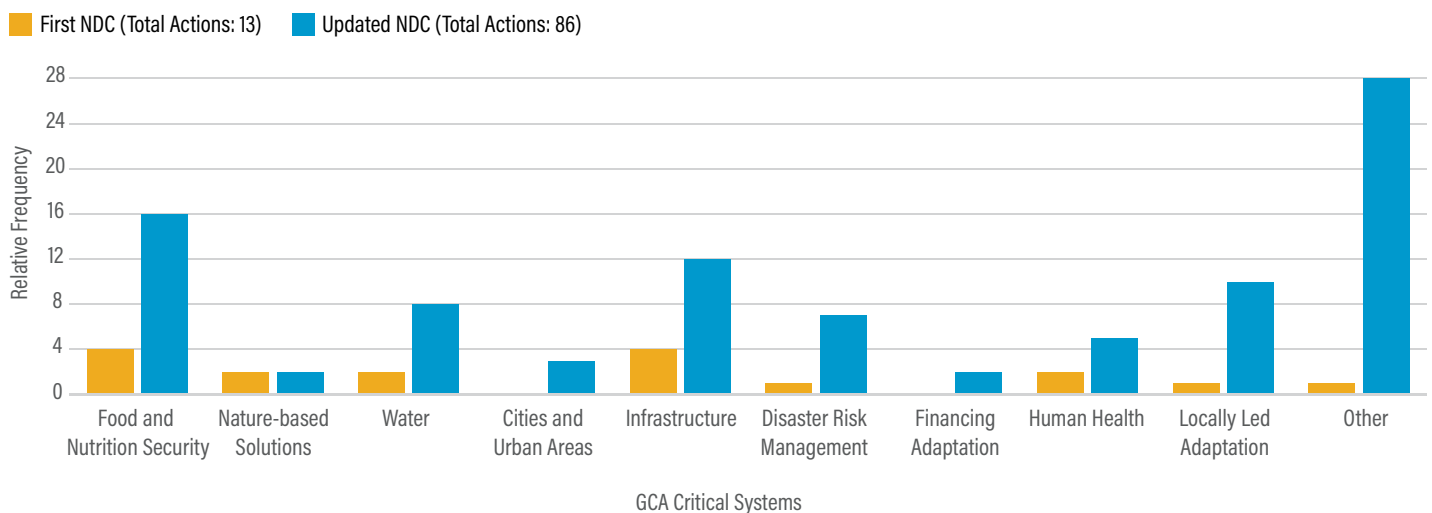
Figure 2 breaks down the adaptation priorities in Cambodia’s updated NDC compared to its first NDC, based on critical systems from the Global Commission on Adaptation’s *Adapt Now* report (Bapna et al. 2019).⁹

Good practices for adaptation NDC development

Several good practices can be identified in Cambodia’s updated NDC development process.

- In contrast to the consultant-driven process that characterized the first NDC development, the DCC took a stronger role and greater **ownership** of the updated NDC. It accomplished this through sectoral engagement and greater support from development actors. Sector line ministries were provided with a timeline and a template to identify their inputs, including prioritized adaptation actions with their costs. The DCC and GSSD consulted all climate-relevant ministries to ensure a **whole-of-government approach**. The adaptation NDC was **aligned** with the NSDP, CCCSP, and Cambodia’s Sustainable Development Goals.
- Cambodia’s updated NDC includes improved details about the prioritized adaptation actions, such as **indicators for actions and associated cost figures**. In contrast, the first NDC included very little additional information beyond the titles of the prioritized adaptation actions.
- Cambodia’s updated NDC shows an ambitious commitment to **gender equity**. Identified as a key gap in the first NDC, the updated NDC prioritized designated gender actions as well as gender targets for all other adaptation priorities. In addition, **youth and private sector** engagement was conducted for each adaptation action.
- Finally, Cambodia is building a tracking system to report progress on its NDC implementation and Sustainable Development Goals. It is designed to **aid the integration of climate and development planning** and aligns with the national M&E framework.¹⁰ This tracking system will inform the development of the Enhanced Transparency Framework under the Paris Agreement, increasing the effectiveness of Cambodia’s adaptation implementation.¹¹

Figure 2 | **Adaptation priorities in Cambodia’s first and updated NDCs**



Notes: NDC = nationally determined contribution. Numerous cross-cutting actions in the updated NDC are categorized as “Other.” These actions relate to education, gender, information, knowledge sharing, and policy and planning.

Source: Authors’ analysis.

Challenges and opportunities for adaptation NDC implementation

Cambodia faces several barriers as it moves towards the implementation of its adaptation NDC. Although the updated NDC includes more details surrounding its adaptation priorities, Cambodia lacks a standard methodology for costing adaptation actions, as each line ministry identified costs for its proposed actions separately before submitting to the DCC.¹² The NDC still needs support from a fully functioning national M&E framework, but Cambodia is working to overcome this gap by developing an online NDC implementation tracking tool (GSSD 2021). Under development, the tool tracks government actions but has yet to include information from implementing partners. Finally, although broad barriers to adaptation remain, including lack of finance, technical and institutional capacity, and high climate vulnerability,¹³ the updated NDC identifies the following support needs to overcome these gaps: access to finance, human resource training, improved data collection and monitoring, and enhancing vulnerability assessment and adaptation technologies (GSSD 2020). Although limited by the above challenges, Cambodia demonstrates a strong desire to advance its NDC implementation through detailed adaptation planning, commitments to gender and social equity, and innovative approaches to M&E. With the proper support to overcome its barriers, the country may be primed to implement its adaptation priorities.

Rwanda

Rwanda is an LDC with a high (0.566) vulnerability to climate change (ND-GAIN 2019). As the first country in Africa to submit its updated NDC, Rwanda's adaptation component stands out due to the inclusion of costs and indicators for each of its prioritized adaptation actions. This detail is unusual among NDCs: just 26 percent of adaptation priorities in updated NDCs submitted through June 2021 include indicators (Dixit et al. 2022).

NDC development context and process

The Ministry of Environment (MoE) led the NDC update process, submitting its updated NDC to the UNFCCC on May 5, 2020. The Rwanda Environment Management Authority (REMA), under the MoE, was also involved in the update process,¹⁴ and Rwanda received technical support from the World Bank (Dusengimana 2021). The MoE used sector focal points to conduct consultations with sectors, such as land use, to understand the state

of existing adaptation efforts.¹⁵ Additionally, sector working groups (SWGs) helped coordinate across sectors and facilitated consultations with civil society and the private sector.¹⁶

The MoE identified priority sectors for adaptation based on Rwanda's NDC Partnership Plan and support from the World Bank (Cook et al. 2020). These sectors then submitted adaptation priorities, which the MoE narrowed down using multicriteria analysis and additional consultations (Dusengimana 2021). This multicriteria analysis employed three evaluation criteria: environmental effectiveness, socioeconomic impacts and cobenefits, and feasibility of implementation (Cook et al. 2020). The MoE also developed indicators and cost estimates for the prioritized actions based on consultations with sector experts (Cook et al. 2020; Gashugi et al. 2021). Rwanda is planning to report progress on these indicators in its upcoming Biennial Transparency Report (Gashugi et al. 2021).¹⁷

Comparison of first and updated NDCs

Rwanda submitted its first NDC to the UNFCCC on October 6, 2016, under the developmental leadership of the then Ministry of Natural Resources (MINIRENA). Experts described this development process as lacking the broad external stakeholder consultations conducted for the updated NDC. Additionally, although both documents identify indicators for adaptation priorities, Rwanda finalized indicators for the updated NDC during the development process, while indicators for the first submission were expanded on throughout implementation. The updated NDC also contains additional information related to M&E as well as gender equity. Finally, the updated NDC was approved by Rwanda's cabinet (Dusengimana 2021), whereas the first NDC was not.¹⁸ Table 2 summarizes the differences between Rwanda's first and updated NDCs.

Figure 3 illustrates the critical systems for adaptation priorities in Rwanda's first and updated NDCs.

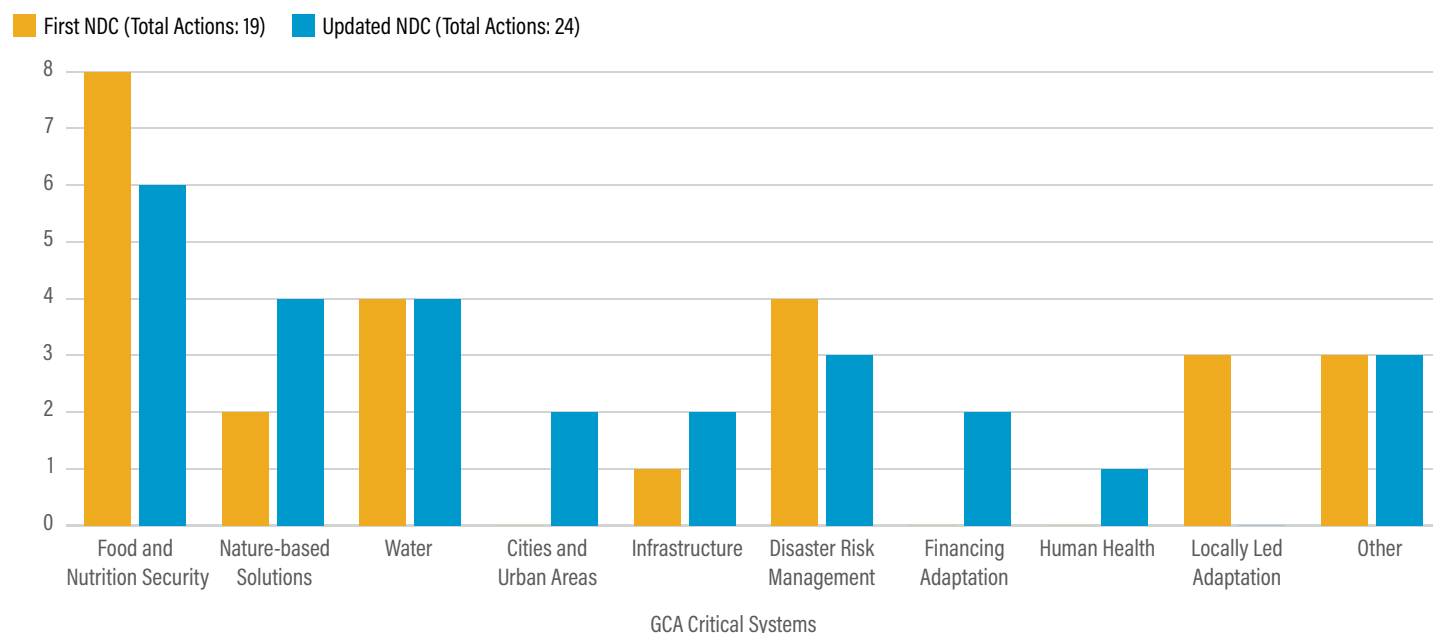
Table 2 | Rwanda's first and updated adaptation NDC development process

	FIRST NDC	UPDATED NDC
Lead institution	Ministry of Natural Resources (MINIRENA), Rwanda Environment Management Authority (REMA)	Ministry of Environment (MoE) (formerly MINIRENA), REMA
Stakeholders consulted	Stakeholders who were consulted are not identified	Government agencies and all sector line ministries, civil society, private sector federation
Information sources used	Builds on Rwanda's National Strategy for Climate Change and Low Carbon Development Strategy; the Green Growth and Climate Resilience Strategy ^a informed the development and prioritization processes	Builds on the first NDC and other recent studies, including the Strategic Program for Climate Resilience ^b along with the Gaps and Needs Analysis, the Forest Investment Program (2017), the vulnerability index (national, 2015; district, 2018), third national communication to the United Nations Framework Convention on Climate Change (2018), the sector strategic plans (2017), and the first NDC implementation plan (2017) ^c
Indicators and costs for priorities identified	Indicators are identified for all adaptation priorities; costs are not included	Indicators are identified for all adaptation priorities; costs are identified for all adaptation priorities, separated as conditional and unconditional costs, and further broken down between 2020–25 and 2025–30 time frames
Inclusion of monitoring and evaluation (M&E) for adaptation	M&E is conducted by MINIRENA through regular statutory stakeholders' consultative engagements, such as the Environment and Natural Resources Joint Sector Review meetings	The Environment and Climate Change Thematic Working Group (E&CC TWG), through its technical working committee, is the national coordinator for all national institutions that implement sector-specific mitigation, adaptation, and finance as well as capacity building and technology transfer and support to operationalize the NDC monitoring, reporting, and verification at the national level; ^d REMA is the chair of the E&CC TWG and appoints a team to the technical working committee
Inclusion of gender, local knowledge, and Indigenous peoples	No gender responsiveness or local and Indigenous engagement is identified in the document	The NDC commits to gender mainstreaming in implementation and gender disaggregated data collection during M&E, but process details remain minimal; local engagement is conducted through consultations by districts and captured in the district development strategies
Inclusion of losses and damages	Mentions increased losses and damages from climate change, but the issue is not treated separately; mentions the relocation of households from high-risk zones	Mentions increased losses and damages from climate change but the issue is not treated separately; mentions increasing insurance coverage and developing early warning and other types of disaster monitoring systems
Inclusion of transformative adaptation	Transformative adaptation is not addressed directly, but some actions related to agriculture, water, and land could be transformative adaptation actions	Transformative adaptation is not addressed directly, but similar actions related to agriculture, water, and land—as in the first NDC—could be transformative adaptation actions

Notes: NDC = nationally determined contribution.

Sources: a. GoR 2011; b. Rwanda, MoE 2017; c, d. Rwanda, MoE 2020.

Figure 3 | **Adaptation priorities in Rwanda's first and updated NDCs**



Notes: NDC = nationally determined contribution. Priorities categorized as "Other" relate to mining, land administration, and capacity building.

Source: Authors' analysis.

Good practices for adaptation NDC development

Good practices found in Rwanda's adaptation NDC development include clarity in substance and process, NDC integration into national development, and support from an extensive M&E framework.

- Rwanda conducted **extensive sectoral consultations** through sector focal points and the SWGs. The government also engaged with district advisory councils and district experts (Dusengimana 2021). Through these district-level and sectoral consultations, the MoE worked to ensure both vertical and horizontal integration of climate adaptation across all levels of government.
- Rwanda has **integrated climate adaptation into its broader development strategy**. This integration is evident in Vision 2050, a national development strategy that guides plans and policies such as the updated NDC (Dusengimana 2021). Other key strategic documents, such as the Green Growth and Climate Resilience Strategy and the Strategic Program for Climate Resilience, also link adaptation and development (GoR 2011; Rwanda, MoE 2017).
- Rwanda improved details surrounding adaptation priorities in its updated NDC through **indicators and costs for the actions** and by **including unconditional and conditional costs**. Multiple experts identified the increased clarity on indicators, articulation of costs, and proportion of unconditional adaptation commitments as key improvements that set Rwanda's updated NDC apart from its first submission (Dusengimana 2021).
- Rwanda supports its updated NDC with a well-developed **M&E system for adaptation**. REMA manages the monitoring of the updated NDC as chair of the Environment and Climate Change Thematic Working Group, and although this process is integrated with mitigation monitoring, reporting, and verification (MRV), it enables the reporting of adaptation indicators to REMA and subsequent tracking of NDC progress.¹⁹ Rwanda has additionally produced an extensive MRV framework document for its updated NDC, which details the country's plans to report adaptation indicators to the UNFCCC in future biennial transparency reports (GoR 2021).

Challenges and opportunities for adaptation NDC implementation

Rwanda identifies limited financing opportunities in its updated NDC as a primary obstacle to the implementation of adaptation priorities (Rwanda, MoE 2020). One interviewee also identified capacity and technology barriers to adaptation, citing key economic sectors such as mining as lacking the tools and techniques to adequately manage climate risks.²⁰ Although the updated NDC includes actionable information, Rwanda requires further support to implement these planned actions. The interviewees agreed that the adaptation NDC advances national goals of poverty reduction and reducing climate vulnerability, reflected in the NDC's detailed articulation of adaptation priorities and extensive integration of adaptation into national development. Rwanda's updated NDC positions the country to advance its adaptation priorities if finance and capacity barriers are adequately addressed.

Colombia

Colombia is an upper-middle-income country with a relatively high (0.409) vulnerability to climate change (ND-GAIN 2019). It stands out for its updated adaptation NDC, which comprehensively aligns with other national processes.

NDC development context and process

The Ministry of Environment and Sustainable Development (Ministerio de Ambiente y Desarrollo Sostenible; MADS) is responsible for the formulation of national environmental policy in Colombia and led the NDC development process, submitting the document to the UNFCCC on December 30, 2020. An NDC road map helped guide this process and determine the NDC's role in both achieving the principles of the Paris Agreement and Sustainable Development Goals and serving as Colombia's adaptation communication (Romer 2021). A team within MADS led the update process for adaptation, coordinating across ministries and sectors to prioritize adaptation actions (López 2021). Colombia held a series of sectoral workshops to improve the 10 core adaptation actions from the first NDC and identify new actions based on sector needs and resources (Cote 2021). MADS also involved civil society and academia throughout this process and hosted a webpage for public consultation (Cote 2021). The Intersectoral Commission on Climate Change approved the proposed adaptation priorities for inclusion in the updated NDC (Cote 2021).

Colombia's NAP (Plan Nacional de Adaptación al Cambio Climático; PNACC) is the primary document that informed the adaptation NDC development process (Cote 2021). First initiated by the National Planning Department in 2012 before both iterations of Colombia's NDC (Cruz 2019), the PNACC process was the country's first effort to produce a national plan to reduce climate change vulnerability (Cote 2021; Romer 2021). The adaptation component of the updated NDC focuses on current priorities and needs rather than broader long-term strategy to avoid duplication with the PNACC (Rivera 2021) and brings international visibility to national efforts as Colombia's adaptation communication. With high synergies and low duplication, the NDC and PNACC represent complementary instruments for advancing adaptation.

Comparison of first and updated NDCs and the PNACC

MADS led the development of both NDC iterations, submitting the first NDC to the UNFCCC on July 12, 2018. The adaptation component of the updated NDC includes a more extensive consultation process for identifying actions (Rivera 2021). The document also provides greater details related to the identification of indicators and cost estimates, information on M&E, and integrating gender equity and Indigenous rights.

The updated NDC also includes information related to losses and damages from climate change in Colombia, such as resettlement and comprehensive risk management. The PNACC includes adaptation priorities that focus on reducing vulnerability, including disaster risk management, community-based adaptation, and ecosystem-based adaptation (DNP 2012).

Table 3 presents different elements included in Colombia's first NDC, updated NDC, and the PNACC.

Figure 4 breaks down adaptation priorities in Colombia's first NDC, updated NDC, and the PNACC based on critical systems.

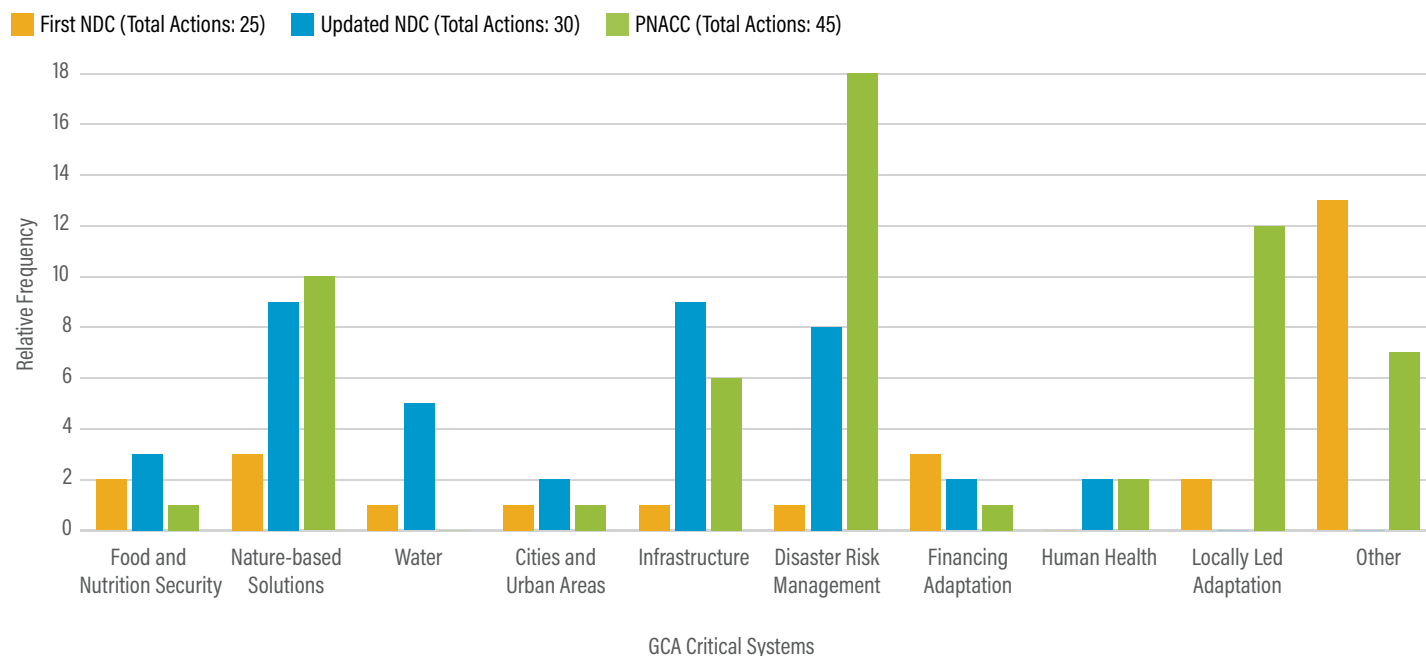
Table 3 | **Colombia's first and updated adaptation NDC and PNACC development process**

	FIRST NDC	UPDATED NDC	PNACC
Lead institution	Ministry of Environment and Sustainable Development (MADS)	MADS, with final approval from the Intersectoral Commission on Climate Change	National Planning Department (Departamento Nacional de Planeación; DNP), MADS, Institute of Hydrology and Environmental Studies, and National Unit for Disaster Risk Management
Stakeholders consulted	Public and private sector, academia, and civil society	Public and private sector, academia, civil society, and general public	Government ministries, productive sectors, territories, and the public
Information sources used	Based on the PNACC, national communications, and territorial adaptation plans	The PNACC, third national communication, and DNP information for costing; update advanced through the national climate change framework (Sistema Nacional de Cambio Climático; SISCLIMA)	Implemented under SISCLIMA and informed by national policies, assessments, and future scenarios
Indicators and costs for priorities identified	Only 24% of adaptation actions include indicators; actions do not include costs	Almost two-thirds (66%) of adaptation actions include indicators; support needs, such as costs, technology, and capacity building for individual adaptation actions, are in Annex 3	No adaptation actions include indicators or costs
Inclusion of monitoring and evaluation (M&E) for adaptation	Does not include information on adaptation M&E	SISCLIMA coordinates M&E; government aims to develop the Integrated Vulnerability, Risk and Adaptation Information System to facilitate monitoring through management indicators and evaluation of adaptation through analysis of change in vulnerability ^a	Does not include information on adaptation M&E
Inclusion of gender, local knowledge, and Indigenous peoples	Does not include information on gender, local knowledge, or Indigenous peoples	Consultations with diverse groups facilitated commitments to integrating climate change into national gender plans; NDC recognizes disproportionate vulnerability of Indigenous peoples, Afro-Colombian communities, and rural populations	Limited references to gender and social equity throughout; identifies traditional and local knowledge as well as community participation as essential for adaptation
Inclusion of losses and damages	Not directly mentioned, but losses and damages from La Niña are identified	Losses and damages are not directly included, but the document identifies information related to internal displacement	References losses and damages with extensive details surrounding losses from the 2010–11 La Niña as well as resettlement and investment as part of comprehensive climate risk management
Inclusion of transformative adaptation	No reference to transformative adaptation or inclusion of actions with transformative potential	Transformative adaptation is not addressed directly, but some actions related to agriculture can be considered transformative	Includes the transformation of systems as a priority in disaster risk management

Notes: NDC = nationally determined contribution; PNACC = Plan Nacional de Adaptación al Cambio Climático.

Source: ^a MADS 2020.

Figure 4 | **Adaptation priorities in Colombia's first and updated NDCs and the PNACC**



Notes: NDC = nationally determined contribution; PNACC = Plan Nacional de Adaptación al Cambio Climático. The first NDC includes broad goals for implementation in addition to sectoral adaptation actions, which are captured under "Other." Priorities coded as "Other" in the PNACC reflect cross-cutting areas and actions related to social development and education.

Source: Authors' analysis.

Good practices for adaptation NDC development

Colombia's adaptation NDC development process includes several good practices related to integration with other processes and inclusion of diverse groups.

- Colombia's adaptation NDC development process **improved vertical and horizontal integration** for adaptation. Extensive coordination led to strong sectoral representation in the prioritization process. National and subnational planning processes were aligned through territorial and sectoral climate plans, resulting in a comprehensive and coherent NDC at all levels (Cote 2021).
- The development process included consultations with **diverse groups**, resulting in strong commitments to integrating gender equity that were not included in the first NDC. The updated document also improves recognition of the disproportionate climate vulnerability of Indigenous peoples and Afro-Colombian communities.

- The updated NDC **is aligned with national plans** and plays a defined role in the larger national adaptation governance architecture. Functioning as the country's adaptation communication, it promotes international visibility for adaptation and the NAP process (Rivera 2021). The document aligns with the long-term strategic vision for adaptation found in the PNACC, as well as the SISCLIMA framework, which coordinates intersectoral and inter-stakeholder climate action (Cote 2021).

Challenges and opportunities for adaptation NDC implementation

Colombia faces diverse challenges to the implementation of its adaptation NDC. A large team developed the updated NDC mitigation component with support from sector focal points and technical experts, and a much smaller team led the development of the adaptation component (Rivera 2021). Although the adaptation development team performed extensive engagement despite its small

size, additional capacity support may be required for the implementation of adaptation priorities. The country also faces knowledge and political barriers at the national level; officials contend with a knowledge gap on adaptation and often prioritize mitigation efforts due to relative ease of finance (IDB and AFD, in draft). Finally, Colombia is working to develop the Integrated Vulnerability, Risk and Adaptation Information System to serve as a comprehensive M&E system for adaptation as well as the Climate Action Tool to provide climate information at the national level (Cote 2021). But development of these systems is currently limited by financial barriers for maintenance and operation (Rivera 2021). If Colombia is able to overcome these challenges, the country may be well positioned to utilize its ambitious network of climate change systems and institutions to further the implementation of adaptation priorities.

Fiji

Fiji is an upper-middle-income country with a relatively high (0.422) climate vulnerability (ND-GAIN 2019). As a small island developing state, it faces disproportionate vulnerability to sudden onset events such as cyclones and storm surges (Fiji, MoE 2020a). Fiji's adaptation NDC is based fully on its recently completed NAP and includes little additional information.

NDC development context and process

The Climate Change and International Cooperation Division (CCICD) of the Ministry of Economy (MoE) is responsible for addressing climate change policy issues in Fiji (Fiji, MoE 2020a). The CCICD led the development of Fiji's updated NDC with support from The Energy Resources Institute of India²¹ and submitted the document to the UNFCCC on December 31, 2020. The CCICD asked relevant ministries to fill out a template based on Fiji's NAP and finalized the development process with additional consultations.²² The adaptation actions in the updated NDC were drawn from existing policies—primarily the country's NAP—and did not include a separate prioritization process.²³ Some adaptation targets—such as the establishment of marine protected areas in exclusive economic zones and the planting of 30 million trees by 2035—were collated from other programs and policies. Fiji's updated NDC is mostly designed to support its NAP process by reflecting the NAP priorities and raising international visibility for adaptation.²⁴

Comparison of first and updated NDCs and NAP

The primary goal of the updated NDC's adaptation component is to increase international visibility for adaptation and to reflect information in Fiji's NAP.²⁵ Compared to its first iteration submitted on April 22, 2016, the updated NDC contains improved information on institutional arrangements for NDC development and implementation, including the structure of M&E systems for adaptation and improved gender representation in decision-making processes. The updated document also calls for strengthening the resilience of public infrastructure and systems (Fiji, MoE 2020a). Submitted to the UNFCCC on December 21, 2018, Fiji's NAP is the seminal document on adaptation and was developed through extensive consultations across society. This process was facilitated by a national workshop through which any stakeholder could consult on the plan with government officials (Fenton 2021). It includes a synthesis of adaptation strategies in Fiji and commits to gender mainstreaming and participation of local stakeholders. Table 4 summarizes the differences between Fiji's first NDC, updated NDC, and NAP.

Figure 5 illustrates adaptation priorities in Fiji's first NDC, updated NDC, and NAP based on critical systems.

Good practices for adaptation NDC development

Good practices for adaptation NDC development in Fiji include integration with other development processes and support for core elements of adaptation planning.

- Fiji's chief agency responsible for climate change, the CCICD, is housed in the MoE (Fenton 2021). **By coordinating adaptation through the country's central planning and budgetary ministry, Fiji is better able to leverage a whole-of-government response to climate change** and undertake systemic changes necessary to reduce vulnerability and build resilience across the country. This also signals that the government views climate change adaptation as both a development and an environmental issue. The CCICD also helped build the evidence base for NAP and NDC development.
- The updated NDC **supports and raises international visibility for Fiji's NAP**. Fiji produced a comprehensive NAP document through a participatory and consultative process, which includes both sectoral and cross-cutting priorities for adaptation. It was also based on a comprehensive

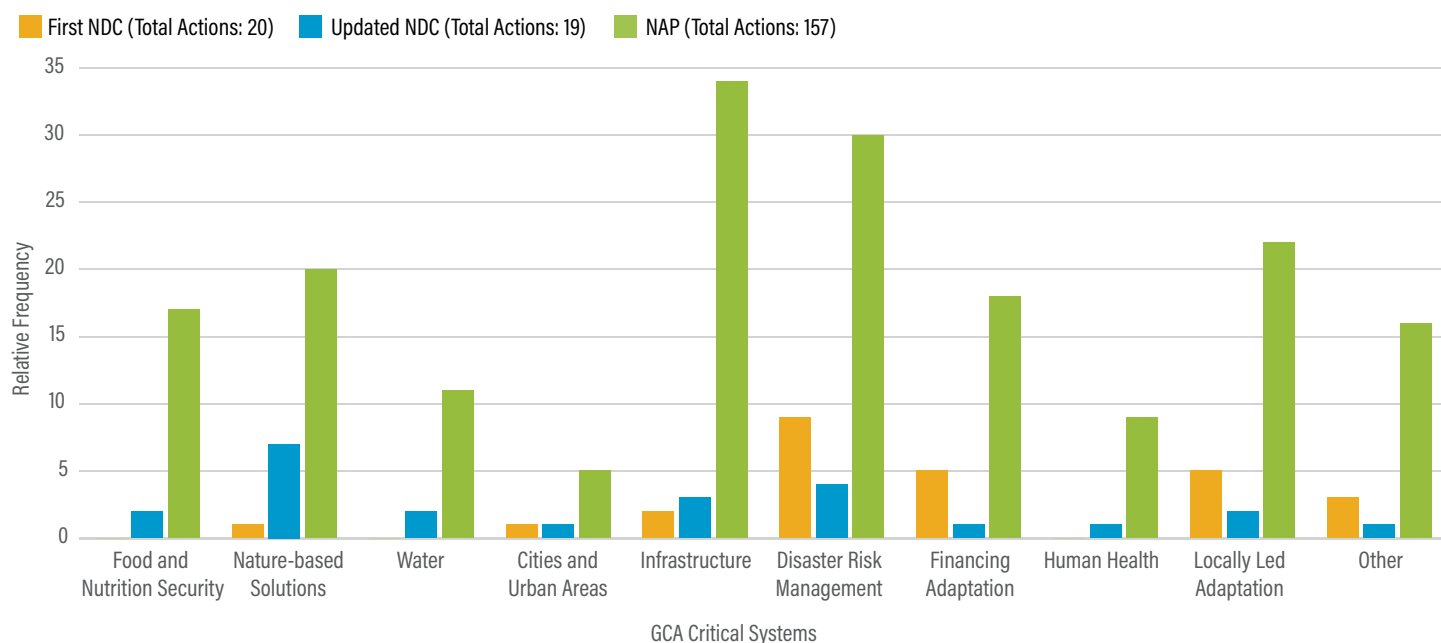
Table 4 | **Fiji's first and updated adaptation NDC and NAP development process**

	FIRST NDC	UPDATED NDC	NATIONAL ADAPTATION PLAN (NAP)
Lead institution	Not specified	Climate Change and International Cooperation Division (CCICD) of the Ministry of Economy (MoE)	CCICD, MoE
Stakeholders consulted	None specified	Line ministries	Line ministries, private sector, faith-based organizations, professional and academic institutions, vulnerable groups, general public
Information sources used	Based on Fiji's Green Growth Framework	Based on information from Fiji's NAP	Synthesized information from documents such as the Green Growth Framework and National Development Plan; four documents were produced to guide NAP development: Fiji's National Adaptation Plan Framework; National Adaptation Plan Proposed Structure; National Adaptation Plan Steering Committee: Terms of Reference; and the National Adaptation Plan Stock-take Report
Indicators and costs for priorities identified	No adaptation actions include indicators; no adaptation actions include costs	No adaptation actions include indicators; no adaptation actions include costs	No adaptation actions include indicators; Fiji's NAP envisioned adaptation as a long-term process and did not create indicators for priorities; no adaptation actions include costs; it identifies financial and economic barriers to adaptation and includes actions related to adaptation finance among its systemic priorities, such as resource mobilization
Inclusion of monitoring and evaluation (M&E) for adaptation	Does not include information on adaptation M&E	An M&E system is planned under Fiji's NAP process but has not been developed yet	An M&E system is planned under Fiji's NAP process but has not been developed yet
Inclusion of gender, local knowledge, and Indigenous peoples	Does not include information on gender, local knowledge, or Indigenous peoples	Emphasizes gender considerations through improved gender balance in decision-making and promoting gender-equitable benefits; does not reference Indigenous or local communities	Mainstreams gender analysis in decision-making and reporting sex- and age-disaggregated data; references support for traditional knowledge and participation of local stakeholders
Inclusion of losses and damages	Mentions the planned development of an assessment framework for losses and damages	Does not treat losses and damages separately, but some current and future losses and damages from tropical cyclones are referenced	Losses and damages from tropical cyclones and other hazards, future estimations of losses, and the use of climate change scenarios are described in detail; yet losses and damages were not considered a major focus area during NAP development
Inclusion of transformative adaptation	Not mentioned, although actions related to relocation could be considered transformative	Does not explicitly mention transformative adaptation, but some actions related to agriculture, infrastructure, and relocation could be considered transformative	Transformative adaptation was considered throughout Fiji's NAP but not explicitly mentioned; numerous priorities related to human settlements, infrastructure, agriculture, water, and cross-cutting processes could be considered transformative; the updated NDC focused on strengthening resilience of public infrastructure systems

Notes: NDC = nationally determined contribution.

Source: Authors' analysis.

Figure 5 | **Adaptation priorities in Fiji's first and updated NDCs and NAP**



Notes: NAP = national adaptation plan; NDC = nationally determined contribution. Fiji's NAP includes priorities for adaptation in addition to sectoral priorities, which relate to climate information services, horizontal and vertical integration, climate change awareness and knowledge, and resource mobilization (MoE 2018). These actions are coded under "Other" in the figure.

Source: Authors' analysis.

quantitative climate vulnerability assessment conducted with support from the World Bank (Fiji, MoE 2017). The updated NDC communicates key commitments derived from Fiji's NAP at the international level.

Challenges and opportunities for adaptation NDC implementation

Fiji faces multiple challenges for implementing its adaptation NDC, including the lack of a system for monitoring adaptation priorities. Although such a system is planned (Fiji, MoE 2020b), capacity constraints worsened by the COVID-19 pandemic impede its development and operation.²⁶ Additional barriers to implementation include insufficient interministerial coordination, low access to climate information, and limited sources of differentiated funding for adaptation and losses and damages.²⁷ Fiji hopes to overcome its domestic funding gaps by leveraging "the role of international market-based cooperation for technology transfer, capacity building, and finance" (Fiji, MoE 2020a, 14). The country remains especially vulnerable to economic losses from extreme events such as cyclones,

which threaten to undo adaptation and development gains (Fiji, MoE 2020a). Fiji has demonstrated ambitious commitments to adaptation planning through its updated NDC and NAP, but these challenges could overwhelm the implementation of future adaptation work if left unaddressed.²⁸

4. SYNTHESIS OF FINDINGS

The updated adaptation NDCs of the four countries show improvement compared to the NDCs submitted five years ago, immediately following the signing of the Paris Agreement. This suggests that these four governments see the NDCs as important instruments to communicate not just mitigation ambition but also future adaptation needs and priorities and to elevate these at national and international levels.

It is also clear that these four governments have spent more effort conducting consultations to develop their updated adaptation NDCs. In the process, horizontal coordination and governmental ownership of the document has improved, resulting in adaptation NDCs with cohesive strategic visions. Various development

actors, including multilateral development banks, bilateral agencies, UN agencies, NGOs, and research organizations provided financial and technical support for the updates.

The countries exhibit elements of all seven criteria for a good adaptation process (see Section 2). Six of these factors were found to be strongly evident across the case studies, but one factor was not fully evident.

All four of the countries employed a **whole-of-government approach** to NDC development. Though the adaptation update process was led by one agency, sectors facing the brunt of climate change impacts, such as agriculture and water, were engaged and involved. Adaptation was not viewed as the sole responsibility of the lead agency developing the NDC. Although adaptation continues to be frequently led by environment ministries, three of the four countries had already shifted leading agencies for climate change adaptation under ministries with wider mandates, such as the MoE in Fiji, or had widened the mandate of their environment ministries, such as the National Council for Sustainable Development in Cambodia and MADS in Colombia. The final document was also approved at a political level in all four countries.

The adaptation NDCs in all four countries were **aligned with other national adaptation and development plans and policies**. The four updated adaptation NDCs had clear linkages with national long-term development visions, to the NAP process when relevant, or based on existing climate change plans and policies.

The updated NDCs of the four countries included adaptation priorities that covered a wider range of the critical systems found in Bapna et. al (2019). In all four countries, critical systems, such as human health, cities and urban areas, infrastructure, and financing adaptation, received new attention and prioritized actions in the updated adaptation NDCs.

The **level of integration of adaptation into sectoral planning processes** plays an important role in the adaptation NDC quality. For Cambodia, Rwanda, and Colombia, it is evident that varied sectors have taken steps to integrate adaptation into their plans and policies, which has improved articulation of needs as part of the NDC development process. In Rwanda, the extractive mining sector's interest and engagement in the adaptation section of the NDC update helped identify mining-related adaptation actions. In Fiji, this analysis did not find

enough information about sectoral integration of climate adaptation to make a meaningful assessment about its impact on adaptation NDC quality.

All four countries included **the latest climate impacts, risks, and vulnerability information** to identify needs and priorities and aid in the prioritization of adaptation actions. Except Cambodia, the three other countries used the latest information from their third national communications, latest vulnerability assessments, and assessments conducted for the development of other plans and policies to further refine the adaptation priorities. The third national communication remains under development in Cambodia and could not be used in the NDC update process.

In all four countries, the lead agency responsible for updating the NDC led comprehensive **stakeholder engagement processes** with a wide range of government and nongovernmental actors—such as sectoral agencies, the private sector, civil society, and academia—to develop the adaptation components. Though the consultation process was limited to only government stakeholders in Fiji, the adaptation NDC was derived wholly from a recently completed NAP that included a much wider stakeholder consultation process.

All four countries show improvements in the integration of **gender equity** across all elements of the adaptation NDC and have a special focus on meeting the **needs of the most vulnerable** in how the adaptation actions were prioritized. Countries have integrated gender and local communities through multiple methods, including Cambodia's gender engagement through the Ministry of Women's Affairs and Rwanda's inclusion of local interests through district experts. Though details on the process for gender mainstreaming could be improved in Rwanda through its NDC implementation framework, the countries have overall made clear advances in addressing gender equity and meeting the needs of the most vulnerable.

However, **it is not clear that institutional arrangements were used or strengthened** during the process of updating the adaptation NDCs. A specific timeline that countries had to follow for NDC development may not have left enough room or time for an institutional strengthening or capacity building focus. The process for updating the adaptation NDCs was largely based on coordinating relevant sectors to identify strategic adaptation needs and priorities that then could

be communicated to the UNFCCC. Cambodia and Rwanda have prioritized a few capacity building and planning actions in their updated NDC. However, Colombia and Fiji, both of which had capacity building and institutional strengthening actions as part of their NAPs, did not include them in their NDCs.

5. REFLECTIONS FOR FUTURE ACTIONS

Based on findings from the four study countries, the authors have the following reflections.

For Country Governments

- **National governments can help ensure that the adaptation NDC development process is well resourced and designed.** A comprehensive and inclusive process will require time and additional costs to coordinate diverse stakeholders. Public feedback on the document can help improve gaps and accountability to citizens. National governments can benefit from ongoing and formalized participation by a diverse set of stakeholders in adaptation NDC and other adaptation decision-making.
- An important element of this process is **ensuring that the needs of the most vulnerable are addressed.** This often implies ensuring that local voices at the front lines of climate impacts can inform national decision-making through direct participation during updating. It also means ensuring that strong vertical coordination efforts are able to identify the needs of vulnerable people. In adaptation decision-making, equitable participation and influence by women and men, including representatives of marginalized groups, can help build capacities and create the conditions for inclusive implementation.
- The iterative nature of NDC development provides ongoing opportunities to use evidence and improve capacities, often by aligning with ongoing processes such as the NAP process. The lead agencies involved in drafting the adaptation NDCs often play a facilitative role to help sector stakeholders identify key priorities. The **formalization of a prioritization process with clear methods, tools, and linkages with other planning processes can help increase transparency and trust** between different stakeholders.

- Although countries have been using the results of their latest national communications to drive the prioritization process, they could also consider **creating robust and updated climate risk assessments at the country level.** These assessments can lead to consistency in use of information across various reports to the UNFCCC and, more importantly, for planning purposes.

For the UNFCCC

- The UNFCCC could consider further work **to map out the objectives and information needs for different adaptation instruments under the Paris Agreement**—such as the adaptation communications, NAP, and the national communications—in line with the Enhanced Transparency Framework. Such a mapping could help advance the objectives of the Glasgow–Sharm el-Sheikh Work Programme on the Global Goal on Adaptation by aiding countries to avoid information duplication and effectively determine and communicate needs. This mapping could then help countries decide how to structure their adaptation NDCs as well. Where possible, this mapping could also include tools from other technical organizations supporting implementation of adaptation actions related to the NDCs.
- The Adaptation Committee could explore how **its forthcoming guidance on adaptation communications** could be used to guide Parties in the development of adaptation NDCs. This is especially relevant if Parties intend to use their NDC as their adaptation communication.

For Bilateral and Multilateral Donors

- National governments face financial, technical, and capacity barriers to the implementation of their adaptation NDCs. Development actors, such as bilateral and multilateral donors, could **support national governments** to improve alignment with other adaptation plans and policies, including NAPs. Actors that provide technical support for NDC development can play a critical role in ensuring that NDCs are aligned and reflect other ongoing adaptation planning and policy processes in a country.

- The fact that NDCs are updated at least every five years means that they create an opportunity to track national priorities and implementation over time. Donors could consider **supporting the further development of M&E systems** for adaptation NDCs aligned with existing national M&E systems. Understanding what works and what does not across all adaptation processes and feeding that information back is important for improving practice. Civil society organizations could also receive support to track and monitor adaptation NDC implementation.
- Recognizing the challenges faced by countries in mobilizing adaptation resources, donors can also help national governments **create and sustain resource mobilization plans or platforms** to catalyze and leverage funds from a wide range of sources for the adaptation NDCs as part of the NDC implementation plans. Successful resource mobilization for the implementation of the NDCs can help improve trust and buy-in across all levels of government and society on the adaptation NDCs.

6. CONCLUSIONS

Although the adaptation components in the NDCs are voluntary, many countries are including adaptation needs and priorities in their NDCs to elevate the role and importance of adaptation to climate change at the national and international levels.

The authors found that a strong adaptation NDC uses a whole-of-government approach to adaptation planning and prioritization. This approach aligns other national, sectoral, and local plans and policies and ensures that climate adaptation is well integrated into sectoral planning concerns. Using the latest climate science and information, focusing on gender equity and meeting the needs of the most vulnerable, and including a wide range of stakeholders were also critical factors. The analysis was not able to provide sufficient evidence to claim that strengthening institutional arrangements is also a critical enabling factor for developing sound adaptation NDCs.

Although the adaptation actions identified in the NDCs themselves may require additional work to ready them for implementation, countries have made substantial efforts to create strong adaptation NDCs. Many developing country governments now face the challenge of securing financial resources and technical capacities to implement these prioritized adaptation actions. Countries need to act now to protect lives, livelihoods, and ecosystems from the impacts of climate change. NDCs are emerging as important vehicles for countries to communicate their adaptation intentions and priorities. When aligned with other adaptation planning processes, they can drive the implementation of adaptation actions.

APPENDIX A: INTERVIEW QUESTIONS

Developing the Adaptation Component of NDCs: Semistructured Interview Questions for Country Experts

Purpose

The purpose of this questionnaire is to understand the process that countries have gone through to produce the adaptation section of their NDCs. We are interested in getting a deeper understanding of how countries created the adaptation section of their NDCs in the last two cycles of NDC development. We want to understand the main challenges and barriers that they faced as well as the enabling factors that facilitated their development. The following questions are meant to serve as a guide to enable a semistructured interview.

Section 1: Broad questions

1. Can you describe your current role and if/how you were involved in the development of the first NDC and/or the updated NDC?
2. What role do you think the adaptation component of the NDC should play/will play in advancing the adaptation agenda in country?

Section 2: NDC development process

3. Can you describe how the adaptation component of the updated NDC was developed?
4. How is the latest updated NDC aligned with other national plans and policies relevant for adaptation in country?
 - a. At what stage is the NAP process in your country? Was there a link between the NAP process and the adaptation section of the NDC?
 - b. Are there other adaptation processes that are important for NDC development?
5. Can you describe how the final list of adaptation actions was prioritized in the NDC?

Section 3: Assessing Ambition

6. In your opinion, compared to the first NDC, is the adaptation component of the latest cycle of NDC submission more ambitious or less?
 - a. If you assess ambition has increased for adaptation, how and why do you think this is the case?
 - b. If ambition has remained unchanged or decreased, can you describe why this may be the case? What are some major gaps and barriers that have impeded the increase in adaptation ambition?
7. Are mechanisms for monitoring and evaluation for adaptation built into the NDC?
8. Were costs and indicators/targets for adaptation actions developed? Who developed them and how?
9. Does the NDC include options to address the underlying causes of vulnerability; address issues affecting different groups of women, men, boys, and girls; and are groups of people who are vulnerable to climate change identified and targeted with appropriate actions?
10. Were issues related to losses and damages from climate change included in the adaptation component of the NDC? What were they? Does the NDC effectively address losses and damages from climate change? Why or why not?
11. Were transformative adaptation actions identified and included in the NDC?
 - a. What does transformative adaptation mean to you?
 - b. What kinds of transformative actions were included in the NDC?
12. What are some of the major challenges for the development and implementation of the adaptation component of the NDC?

APPENDIX B: LIST OF COUNTRY EXPERTS INTERVIEWED

The authors conducted a total of 11 semistructured interviews with 17 experts and officials involved in the adaptation NDC development process for the four case studies. The following number of interviews were conducted for each country: 2 interviews for Cambodia, 5 for Rwanda, 2 for Colombia, and 2 for Fiji. All interviews were conducted online because the COVID-19 pandemic inhibited in-country research. Additionally, the pandemic limited the authors' ability to collect a larger and more diverse sample of expert interviews. The following lists the country experts interviewed by name (when available), relevant position and organization, and date of interview. Experts who preferred to remain anonymous—based on requests for anonymity made by the experts through informed consent forms—are listed only by their position and organization.

Cambodia

1. Senior official, DCC, September 6, 2021.
2. Government official, DCC, September 6, 2021.
3. Officer, DCC, September 6, 2021.
4. Climate Change Policy Specialist, UNDP Cambodia, August 9, 2021.

Rwanda

1. Environmental Consultant, World Bank Rwanda, August 27, 2021.
2. Development Facilitator and Consultant, Rwanda, August 18, 2021.
3. Senior Climate Change Specialist, REMA, August 10, 2021.
4. Theophile Dusengimana, Environment and Climate Change Policy Specialist, MoE, August 9, 2021.
5. NDC Partnership official, Rwanda, August 6, 2021.

Colombia

1. Angela Rivera, International Affairs and Climate Change Adviser, MADS, September 1, 2021.
2. Catalina Piedrahíta López, Independent Climate Change Professional, MADS, September 1, 2021
3. Kirstie Janinne Lopez Romer, Adaptation Adviser, MADS, September 1, 2021.
4. Mauricio Cote, Climate Change Adviser, German Agency for International Cooperation and MADS, August 16, 2021.

Fiji

1. Adaptation Specialist, CCICD, MoE, September 2, 2021.
2. Senior Adaptation Officer, CCICD, MoE, September 2, 2021.
3. Junior Adaptation Officer, CCICD, MoE, September 2, 2021.
4. Adrian Fenton, National Adviser for Fiji's NAP, NAP Global Network, August 26, 2021.

ABBREVIATIONS

CCCCSP	Cambodia Climate Change Strategic Plan	MRV	monitoring, reporting, and verification
CCICD	Climate Change and International Cooperation Division	NAP	national adaptation plan
CCTWG	Climate Change Technical Working Group	NAPA	National Adaptation Program of Action
DCC	Department of Climate Change	NCS	National Council for Sustainable Development
E&CC TWG	Environment and Climate Change Thematic Working Group	NDC	nationally determined contribution
GSSD	General Secretariat of the National Council for Sustainable Development	NSDP	National Strategic Development Plan
LDC	least developed country	PNACC	Plan Nacional de Adaptación al Cambio Climático (Colombia's NAP)
MADS	Ministerio de Ambiente y Desarrollo Sostenible (Ministry of Environment and Sustainable Development)	REMA	Rwanda Environment Management Authority
M&E	monitoring and evaluation	SISCLIMA	Sistema Nacional de Cambio Climático (national climate change framework)
MINIRENA	Ministère des Ressources Naturelles (Ministry of Natural Resources)	SWG	sector working group
MoE	Ministry of Environment	UNDP	United Nations Development Programme
		UNFCCC	United Nations Framework Convention on Climate Change

ENDNOTES

1. See Appendixes A and B for interview details.
2. The authors used the analysis of NDCs and NAPs by Dixit et al. (2022) as a basis for the country case studies and used the same cutoff date of June 30, 2021, for document analysis of NDCs and NAPs. Cambodia submitted an official NAP document after this cutoff date, and its NAP submission was therefore not included in the case studies.
3. The authors used the ND-GAIN Vulnerability Index to measure country vulnerability (ND-GAIN 2019). In this ranking, lower scores are better and refer to lower vulnerability, whereas higher scores are worse and refer to higher vulnerability.
4. Personal communication between the authors and senior official in Cambodia's DCC, September 6, 2021a.
5. Personal communication between the authors and a UNDP Climate Change Policy Specialist based in Cambodia, August 9, 2021b.
6. Pers. Comm. 2021a.
7. Pers. Comm. 2021a.
8. Pers. Comm. 2021b.
9. For this and the following figures, the authors have coded individual adaptation actions with up to three critical systems to calculate relative frequency, so the totals presented in each figure may exceed the prioritized actions in the NDC. The graphs were developed from data retrieved from Climate Watch, www.climatewatchdata.org.
10. Pers. Comm. 2021a.
11. Pers. Comm. 2021b.
12. Pers. Comm. 2021a.
13. Pers. Comm. 2021a.
14. Personal communication between the authors and a Senior Climate Change Specialist in REMA, August 10, 2021c.
15. Personal communication between the authors and an Environmental Consultant for the World Bank in Rwanda, August 27, 2021d.
16. Personal communication between the authors and an NDC Partnership official based in Rwanda, August 6, 2021e.
17. Pers. Comm. 2021d.
18. Pers. Comm. 2021d.
19. Pers. Comm. 2021c.
20. Pers. Comm. 2021d.
21. Personal communication between the authors and an Adaptation Specialist in Fiji's CCICD, MoE, September 2, 2021f.
22. Pers. Comm. 2021f.
23. Pers. Comm. 2021f.
24. Pers. Comm. 2021f.
25. Pers. Comm. 2021f.
26. Pers. Comm. 2021f.
27. Pers. Comm. 2021f.
28. Pers. Comm. 2021f.

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ABOUT THE AUTHORS

Aarjan Dixit is a Consultant in the field of climate change, resilience, and international development.

Contact: aarjand@gmail.com

Ryan O'Connor is a Research Assistant with the Climate Resilience Practice at WRI.

Contact: ryan.oconnor@wri.org

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Our Challenge

Natural resources are at the foundation of economic opportunity and human wellbeing. But today, we are depleting Earth's resources at rates that are not sustainable, endangering economies and people's lives. People depend on clean water, fertile land, healthy forests, and a stable climate. Livable cities and clean energy are essential for a sustainable planet. We must address these urgent, global challenges this decade.

Our Vision

We envision an equitable and prosperous planet driven by the wise management of natural resources. We aspire to create a world where the actions of government, business, and communities combine to eliminate poverty and sustain the natural environment for all people.

Our Approach

COUNT IT

We start with data. We conduct independent research and draw on the latest technology to develop new insights and recommendations. Our rigorous analysis identifies risks, unveils opportunities, and informs smart strategies. We focus our efforts on influential and emerging economies where the future of sustainability will be determined.

CHANGE IT

We use our research to influence government policies, business strategies, and civil society action. We test projects with communities, companies, and government agencies to build a strong evidence base. Then, we work with partners to deliver change on the ground that alleviates poverty and strengthens society. We hold ourselves accountable to ensure our outcomes will be bold and enduring.

SCALE IT

We don't think small. Once tested, we work with partners to adopt and expand our efforts regionally and globally. We engage with decision-makers to carry out our ideas and elevate our impact. We measure success through government and business actions that improve people's lives and sustain a healthy environment.