UNITED NATIONS DEVELOPMENT PROGRAMME

ENHANCING CLIMATE CHANGE TRANSPARENCY

How developing countries are taking action

NOVEMBER 2023

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CLIMATE PROMISE
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Abbreviations

AFDB	African Development Bank
AFD	Agence Française de Développement
AFOLU	Agriculture, Forestry and Other Land Use
BTRs	Biennial Transparency Reports
BAU	Business as Usual
BUR	Biennial Update Report
CBIT	Capacity-Building Initiative for Transparency
CSOs	Civil Society Organizations
ETF	Enhanced Transparency Framework
ETS	Emissions Trading Schemes
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FMCP	Facilitative, Multilateral Consideration of Progress
FREL/ FRL	Forest Reference Emission Level / Forest Reference Level
GGGI	Global Green Growth Institute
GHG	Greenhouse Gas
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
ILO	International Labour Organization
INDCs	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
ITMOs	Internationally Transferred Mitigation Outcomes
LDCs	Least Developed Countries
LEAP	Low Emissions Analysis Platform
LECB	Low Emission Capacity Building Programme
LEDS	Low-Emission Development Strategies
LGIF	Lebanon Green Investment Facility
LTS	Long-Term Strategy
LT-LEDS	Long-Term Low-Emission Development Strategy
NAMAs	National Appropriate Mitigation Actions
M&E	Monitoring & Evaluation
MPGs	Modalities, Procedures and Guidelines
MRV	Measurement, Reporting and Verification
NAP	National Adaptation Plan
NC	National Communication
NDCs	Nationally Determined Contributions
NGOs	Non-Governmental Organizations
QA/QC	Quality Assurance/Quality Control
SBI.57	57th meeting of the Subsidiary Body for Implementation
SIDS	Small Island Developing States
SIRENE	Brazil's National Emissions Registry System
SPC	The Pacific Community (formerly the South Pacific Commission)
UNCFD	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
VFD	Variable frequency drives

Contents

Executive summary

In the context of global climate change policy and actions, transparency equals trust. Trust that all countries are undertaking efforts to address the climate crisis within their borders as outlined in thier Nationally Determined Contributions (NDCs), and depending on their capacity, supporting other countries with their climate actions and commitments. This trust is built not only through concrete actions and the distribution of finance, but also through information sharing. This allows countries to collectively gauge global progress towards meeting climate change goals, thus improving understanding of how to undertake climate action quickly and efficiently. In this collaborative context, climate action, finance, and transparency (e.g., information sharing) follow the "principle of equity and common but differentiated responsibilities and respective capabilities, in light of different national circumstances", as highlighted in Article 2.2 of the **Paris Agreement** and Article 3.1 of the United Nations Framework Convention on Climate Change (UNFCCC), referred to as the "**Convention**".

About this report and analysis

To further the process of enhancing transparency, this report has three objectives:

1. Share the successes, best practices, and lessons learned by countries in their progress of enhancing transparency at the national level;

2. Highlight various challenges that countries face in their efforts to enhance transparency at the national level; and

3. Inform the design of future support or collaborations between countries and bilateral and multilateral partners to enhance transparency frameworks.

This report utilizes the valuable results of the technical paper, "**Problems, constraints, lessons learned and capacity-building needs in preparing national communications and biennial update reports**," prepared by the Consultative Group of Experts from the 57th meeting of the Subsidiary Body for Implementation (SBI.57). By expanding on the SBI.57 analysis, this report shares how and where countries are addressing climate change-related transparency challenges. To do this, qualitative analysis was conducted on initiatives supported by UNDP-managed projects, using a sample of 24 developing countries from Africa, Asia and the Pacific, Europe, Latin America, and the Middle East. Subsequently, this report offers a general, global snapshot of climate transparency-related activities. This, however, is not a comprehensive picture of the status of global transparency as there are many other national and international entities supporting climate change and transparency-related activities in developing countries around the world.

The analysis reveals common best practices that countries have taken to address different challenges that fall within the enhanced transparency themes. Additional areas and elements of support needs that countries have identified for further enhancing their transparency are also presented.

GHG inventories

Best practices for addressing transparency within the broader greenhouse gas (GHG) inventory systems include participating in institutional training on the Intergovernmental Panel on Climate Change (IPCC) reporting guidelines or the use of the IPCC software, improving protocols and formal institutional arrangements for data sharing and management, and the use of online information systems for centralizing data. While training on quality assurance/quality control (QA/QC) is taking place, related activities also include establishing country-specific emission factors, procedures, and institutional arrangements with the use of national and/or international consultants for assistance.

When addressing the GHG inventory in the energy sector, transparency-related best practice includes using simplified tools to facilitate data collection and training national experts to collect the data. In addition, different digital models, country-specific methodologies, and emissions factors are developed and used in calculating and projecting emissions in the energy sector.

Within the Agriculture, Forestry, and Other Land Use (AFOLU) sector, countries support data collection by using common data collection forms and tools for different subsectors, surveys for livestock, and employing satellite images from global information systems (GIS) to map land use over time. For many of these activities, countries are training national experts to use the related models and calculation methodologies. In addition, emissions estimations are being strengthened by developing categorical national emissions factors, including enteric fermentation and agricultural soils, completing studies that calculate soil organic carbon content and, in some cases, by further analysing harvested wood products. While there is no international consensus on the definition of “Forest”, countries are using national definitions in their GHG inventories considering their national circumstances.

In strengthening the GHG inventory for the waste sector, countries are completing training programmes on the IPCC guidelines and methodologies for waste, developing national emissions factors, strengthening subsector activity data, implementing data collection and management procedures, and including QA/QC practices.

Mitigation progress

To enhance the transparency of mitigation progress, countries are developing their capacity to use various tools and digital models to build scenarios, and to estimate and eventually track emissions reductions in different sectors. Some countries have elected to conduct specialized studies to assess, prioritize, and measure mitigation, such as circular economy mitigation analyses, low-emission development strategies (LEDS) and subsector methodologies. Unique to some countries are activities implemented to set up national institutional frameworks, information processes, and registries to support measurement, reporting, and verification (MRV) and their participation in **Article 6** to generate and transfer internationally mitigation outcomes.

In the energy and industry sectors, countries are establishing subsector-specific methodologies for determining business as usual (BAU) baselines and mitigation potential, implementing MRV systems to determine achieved emissions reductions, and training relevant personnel from the institutions responsible for implementing the mitigation actions using these methodologies and tools. These activities include ensuring identified data parameters, preparing data collection templates, and developing MRV procedures.

By addressing transparency in mitigation and carbon sequestration from the AFOLU sector, some countries have developed a standard for MRV in subsectors (e.g., bovine meat, coffee production, and re-carbonization of soils) and prepared initial baseline and mitigation assessments for converting grassland to silvopastoral systems, including better livestock practices with MRV integrated into national digital MRV systems. Countries have also prepared their Forest Reference Emission Level / Forest Reference Level (FREL/FRL), which provides a baseline for evaluating performance in implementing REDD+ activities and is the parameter for measuring, reporting, and verifying the reduction of forest carbon emissions in the context of results-based payment.

To enhance transparency in waste sector mitigation, some countries have prepared nationally appropriate mitigation actions (NAMAs) for landfill gas flaring and utilization, which include emissions methodologies, assessed BAU emissions and mitigation potential, developed MRV methodologies, and identified data needs. Other countries have undertaken similar activities outside of the NAMA framework, which also included waste composting.

Adaptation progress

Countries are providing a strong background as a basis for impact analysis by developing climate projections and scenarios at national and subnational levels. In addition, several countries have taken steps towards developing vulnerability assessments for sectors, such as agriculture, energy, mining, tourism, and human health, as well as for resource assessments for water and food security. At least one country has used the results of risk and vulnerability assessments, combined with climate projections, to create a digital atlas and a disaster risk registry. In addition, some countries have also completed studies that include assessments of the impact on socio-economic development and loss and damage. Importantly, countries are also training technical staff to integrate adaptation into development planning at the sectoral, territorial and local levels.

Strengthening the resilience of coastal areas is an objective that multiple countries have prioritized in their adaptation plans, and as such, they have initiated activities to improve M&E in this area. This includes developing databases for monitoring coastal adaptation measures; at least one country has set up an Integrated Coastal Zone Management (ICZM) interministerial platform to coordinate coastal adaptation projects. Another country has focused on land management and agriculture by supporting research on pathogens affecting farms for pest management, improving traceability systems for production, and establishing soil carbon baselines. Other countries have addressed adaptation planning at the subnational level by training technical staff to integrate adaptation into development planning, including software for risk assessment and management.

Tracking support needed and received

To enhance the transparency of support needed and received, countries commonly undertake activities that map and track public expenditures related to climate change and/or track and report support through digital MRV systems. In addition, countries have identified the specific capacity-building and technical assistance needed to support the implementation of mitigation and adaptation actions, as well as investment needs for implementing mitigation and adaptation actions.

Cross-cutting issues

Countries have strong needs for centralized and easily accessible repositories for data and additional information on their national inventories, mitigation and adaptation actions, Article 6 trading, the support they both need and receive, and information required for climate change policies and plans. In response to these needs, multiple countries have developed country-specific software that is referred to generically as digital MRV systems, to manage climate change information, including tracking progress towards NDC targets. Underlying the development of digital MRV systems are activities carried out on countries' institutional frameworks that support the transparency information system, which identify weaknesses, best practices, and areas for improvement for system implementation.

Many countries face a broad challenge to ensure that information and other material produced under transparency reporting is widely distributed and understood by stakeholders and the public. One common activity that countries undertake for information dissemination is developing or improving online platforms (sometimes called "climate portals") that publicly share information about climate change. In addition to online platforms, governments address information dissemination by coordinating public awareness campaigns and using strategies such as live events or media productions, including virtual courses on climate change, and organizing climate change innovation challenges.

Numerous countries have begun taking steps towards gender mainstreaming in climate change plans and actions. The first step often includes establishing solid country-specific background knowledge via analyses of existing legal, policy, and institutional frameworks regarding gender. This is followed by mainstreaming gender-responsive actions and activities in climate change planning and vulnerability assessments, as well as by prioritizing gender-sensitive policies and developing gender indicators. Countries achieve this by completing gender assessments, preparing strategic documents such as gender mainstreaming handbooks and action plans, and undertaking associated training.

Synergies of transparency with other national components

Countries are implementing institutional frameworks for transparency through new policies and legal frameworks that mandate or facilitate transparency reporting, data collection and sharing, and collaboration between institutions to ensure the smooth implementation of transparency processes. These include, but are not limited to, suitable institutional frameworks for deploying digital MRV systems and developing information (needs) standards for sectors and subsectors. This is accomplished through training activities, revising mandates and policies already in place, and synergizing regulations and processes for Emissions Trading Schemes (ETS) and EU accession.

Actions that facilitate transparency reporting naturally feed into countries' strategic short-, medium-, and long-term planning to address climate change. This includes incorporating actions to enhance transparency and improving usable information for reporting under Paris Agreement obligations, including 5-year cycles for NDC revisions (next up in 2025) and 2-year cycles for biennial transparency reports (BTRs) (from 2024). In many countries, transparency-related activities enhance the GHG inventory, demonstrate mitigation and adaptation progress, address support, inform national strategy and planning, and contribute to assessing progress in achieving SDG goals.

To enhance transparency concerning climate finance, countries are establishing formal mechanisms to drive investment in climate projects via investment facilities and funds. This includes building knowledge and institutional frameworks for finance relevant to mitigation actions, while also creating digital systems specifically to track climate finance support. Countries have also developed systems that include relevant indicators to validate the success of investment facilities and funds linked to NDC and national development plan indicators. Furthermore, countries include research and finance analyses, sectoral feasibility assessments, and studies for de-risking renewable energy investments to further support transparency.

Collaboration helps fill in transparency gaps

Collaboration of national stakeholders within and outside of governments is critical to enhancing climate change transparency. Countries that take a whole-of-government approach usually include horizontal collaboration between line ministries and vertical collaboration within ministries for information and data collection. Countries are also communicating with academia by establishing formal agreements with national universities to strengthen data collection, management, and to carry out targeted studies and training on GHG inventories and mitigation actions. In some countries, development organizations play a significant role in fostering collaboration between national stakeholders, specifically at the sectoral level for GHG inventory processes.

Multiple countries have leveraged collaboration and coordination between development agencies to strengthen their transparency reporting by accessing additional expertise and resources. Such collaboration and coordination have allowed countries to enhance GHG inventories more efficiently, develop mitigation options and MRV systems, improve NDCs and progress reporting, and carry out adaptation studies.

Where national resources and expertise have not been sufficient to cover the needs of countries' transparency reporting, international know-how transferred via bilateral collaboration between governments has been beneficial in bridging the gaps. This direct bilateral support, between ministries of different governments, has helped with developing and operationalizing national digital MRV platforms, improving GHG inventories, and modelling for LEDS and Long-term Strategies (LTS).

Ten key lessons in enhancing transparency

Based on the best-practice experience of UNDP support in the 24 countries analysed, several successful commonalities are shared across the different areas of the ETF. These ten key lessons in enhancing transparency are:

1. **The common strengthening and use of information leads to quality and efficiency.** Optimized transparency systems allow for the cross-utilization of quality data and other information for GHG inventories, mitigation and adaptation support, and cross-cutting issues.

2. **The ability to sustain qualified national human capacity plays a significant role in the magnitude of enhanced transparency that is achieved.** Many countries have successfully retained qualified national staff, in the form of national project management and/or technical consultants, by including the funding of their salaries in multi-year supporting programmes (e.g., GEF, GCF, and others).

3. **Regional programmes and networks make a difference when it comes to enhanced transparency outcomes.** There is value in global programmes that provide know-how and assistance for enhanced transparency, however, regional programmes and networks have a strong impact on the volume of enhanced transparency-related outcomes.

4. **Digital systems and tools are significantly increasing efficiency and their use is growing.** Three types of digital systems and tools increase the efficiency of professionals working within enhanced transparency. These include modelling tools, repository tools and online MRV tools.

5. **Collaboration and coordination of activities save resources that can be used for greater transparency enhancement.** Resource success is gained when there is continual group collaboration and coordination between national ministries and development partners.

6. **Collaboration between national stakeholders allows for continued capacity.** Some countries have succeeded by establishing long-term formal collaborations and data share agreements with national universities and local NGOs or CSOs for routine activities, such as developed parts of NCs, BURs and BTRs.

7. **Knowledge sharing is paying dividends.** Experience shows that knowledge sharing enhances transparency regarding the quality of outcomes, resource use, and timing. Two successful knowledge-sharing methods included bilateral capacity-building between governments and online training platforms.

8. **International knowledge and skills are still needed to advance enhanced transparency.** Enhancing transparency is a continual journey; specialized know-how and skills often come from experienced international professionals and solutions that utilize the latest innovations.

9. **Gender and youth inclusion drives enhanced transparency and climate action.** There are great examples of women and youth inclusion at the implementation and reporting levels of enhancing transparency and climate action. These activities often encompass areas of culture, education, information sharing and jobs. Sharing this experience and further innovation will be critical to the rapid enhancement of transparency.

10. **Interoperable capacity-building increases the quality and efficiency of enhanced transparency.** Experience shows that the quality of outputs from, and the use of resources for, capacity-building activities increases with the amount of interoperability that these activities have across the ETF themes, areas and elements.

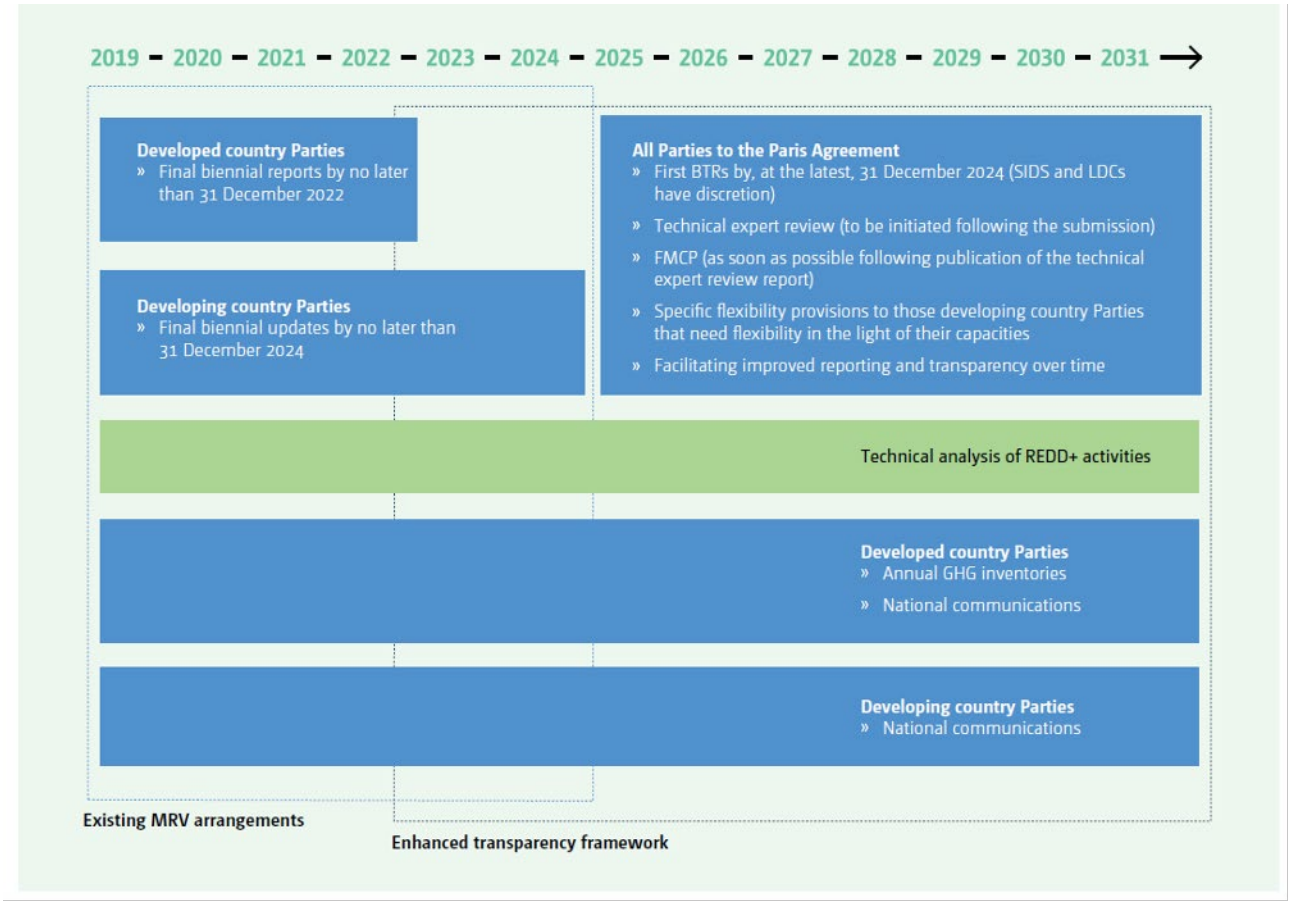
1. Introduction to the Enhanced Transparency Framework

> In order to build mutual trust and confidence and to promote effective implementation, an enhanced transparency framework for action and support, with built-in flexibility which takes into account Parties' different capacities and builds up on collective experience is hereby established.
>
> **Paris Agreement, Article 13.1**

In the context of global climate change policy and actions, transparency equals trust. Trust that all countries are addressing the climate crisis within their borders as outlined in thier Nationally Determined Contrinbutions (NDCs), and depending on their capacity, supporting other countries with their climate actions and commitments. This trust is built not only through concrete actions and the distribution of finance, but also through information sharing. This allows countries to collectively gauge global progress towards meeting climate change goals, thus improving understanding of how to undertake climate action quickly and efficiently. In this collaborative context, climate action, finance, and transparency (e.g., information sharing) follow the "principle of equity and common but differentiated responsibilities and respective capabilities, in light of different national circumstances", as highlighted in Article 2.2 of the **Paris Agreement** and Article 3.1 of the United Nations Framework Convention on Climate Change (UNFCCC), referred to as the '**Convention**'.

The requirements and processes for sharing national and collective global climate change-related information have evolved significantly since the first National Communications (NCs) were issued to the UNFCCC by many developed countries in 1994 and most developing countries between 1997 and 1999. This continuous development has shaped the framework and guidance on what information to share and how to share it. For example, in 2014, developing countries started providing biennial update reports (BURs) in addition to their NCs. The latest step in this evolution is the introduction of the Enhanced Transparency Framework (ETF) with Article 13 of the Paris Agreement, and more specifically, the modalities, procedures, and guidelines (MPGs) for the ETF. The MPGs outline the specific reporting requirements for both developed and developing countries for their NDCs and reporting through biennial transparency reports (BTRs) that will replace BURs in late 2024 (UNFCCC, 2019), as illustrated in Figure 1. Noting that the MPGs of the BTR define more information that shall, should, or may be disclosed by countries than information disclosures described in the guideline for the BURs. Furthermore, Small Island Developing States (SIDS) and the Least Developed Countries (LDCs) are granted discretion on the timing of their BTR submissions (UNFCCC, 2022b).

Figure 1: Moving towards the Enhanced Transparency Framework



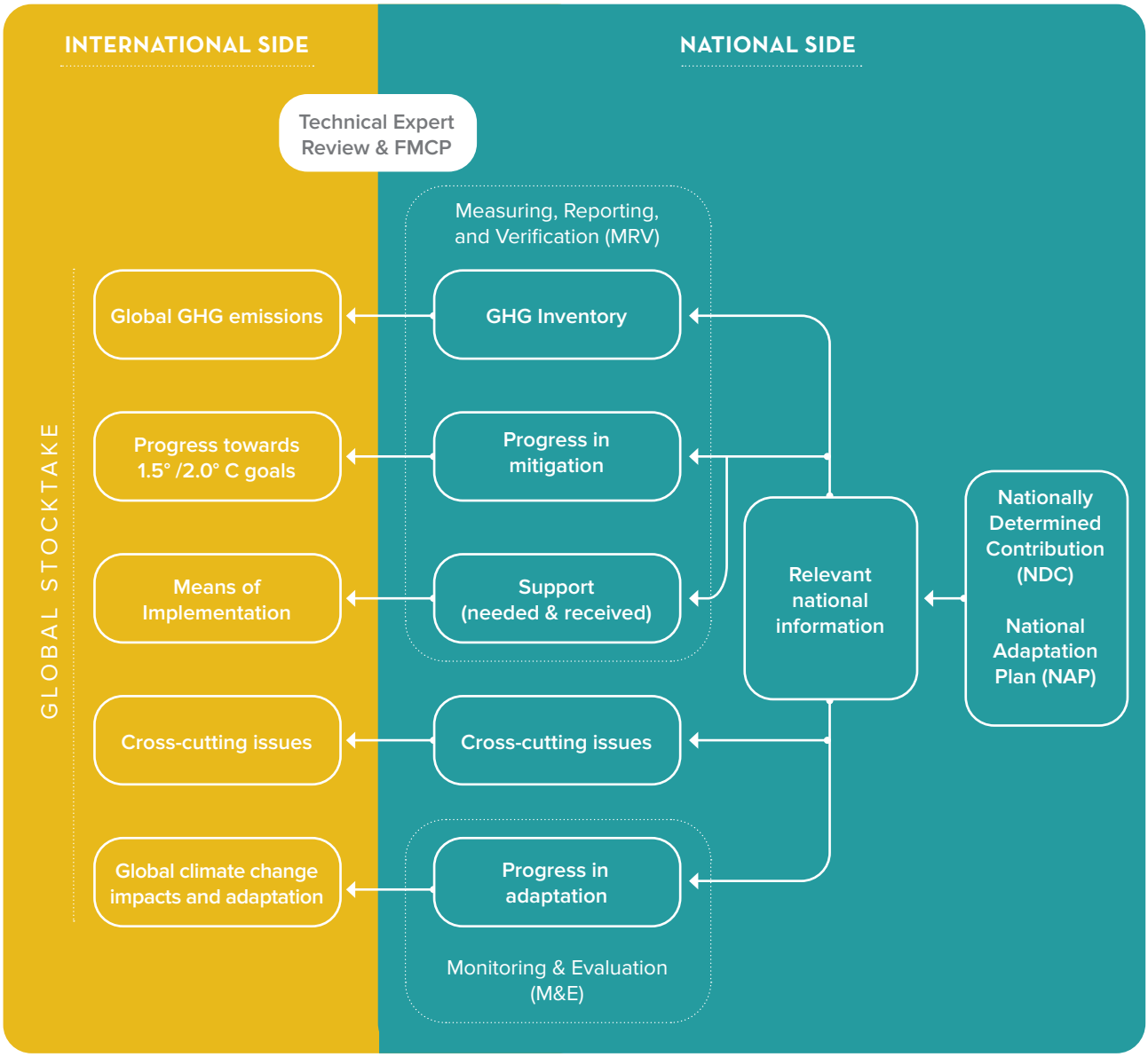
Source: UNFCCC, 2022b.

In practice, many countries see the ETF as a comprehensive information system with two sides: international and national transparency. Nationally, the use of the terminology of measurement, reporting, and verification (MRV) refers to the systems that provide information for transparency reporting on issues, such as mitigation actions and national greenhouse gas (GHG) emissions and removals, that are a part of global stocktaking towards meeting the Paris Agreement's 1.5° / 2.0° C goals. In addition, the term monitoring and evaluation (M&E) refers to transparency regarding adaptation. At the same time, other cross-cutting issues, such as the inclusion of gender, youth, and Indigenous Peoples, are often included by countries in both MRV and M&E. Moreover, countries commonly use the terminology of capacity-building, technology transfer, and climate finance separately. However, countries are slowly transitioning to collectively referring to these terms as Means of Implementation and support that is provided, needed, or received, as defined in the Paris Agreement. The Means of Implementation are often tracked under the national MRV system that addresses a combination of support for mitigation, adaptation, and transparency.

At the international level, a technical expert review of the information that countries provide in their BTR[1] and the facilitative, multilateral consideration of progress (FMCP) where other countries can comment on the BTR connects the two sides of the ETF. The consolidated information from all BTRs will then be used for global stocktaking of progress. Figure 2 depicts the structure of the ETF as a comprehensive information system. For further details regarding the ETF please refer to the UNFCCC's "**Reference Manual for the Enhanced Transparency Framework under the Paris Agreement**".

1 Note that the technical expert review is included in the BTR process for reporting prior to 2024.

Figure 2: ETF as a broad system including international and national sides



Source: Adapted from SBI 57, 2022.

2. Sharing experiences in enhancing transparency

2.1 Purpose of the report

To further the process of enhancing transparency this report has three objectives:

1. Share the successes, best practices, and lessons learned by countries in their progress towards enhancing transparency at the national level;

2. Highlight various challenges that countries face in their efforts to enhance transparency at the national level; and

3. Inform the design of future support or collaborations between countries and bilateral and multilateral partners to enhance transparency frameworks.

This report utilizes the valuable results of the technical paper, "**Problems, constraints, lessons learned and capacity-building needs in preparing national communications and biennial update reports**," prepared by the Consultative Group of Experts from the 57th meeting of the Subsidiary Body for Implementation (SBI.57) of the UNFCCC (SBI 57, 2022). Expanding on the SBI.57 analysis, this report shares how and where countries address climate change-related transparency challenges. To do this, qualitative analysis was conducted based on initiatives supported by UNDP-managed projects, using a sample of 24 developing countries from Africa, Asia and the Pacific, Europe, Latin America, and the Middle East (see Section 2.3). Subsequently, this report offers a general, global snapshot of UNDP-supported climate transparency-related activities. This, however, is not a comprehensive picture of the status of global transparency as there are many other national and international entities supporting climate change and transparency-related activities in developing countries around the world.

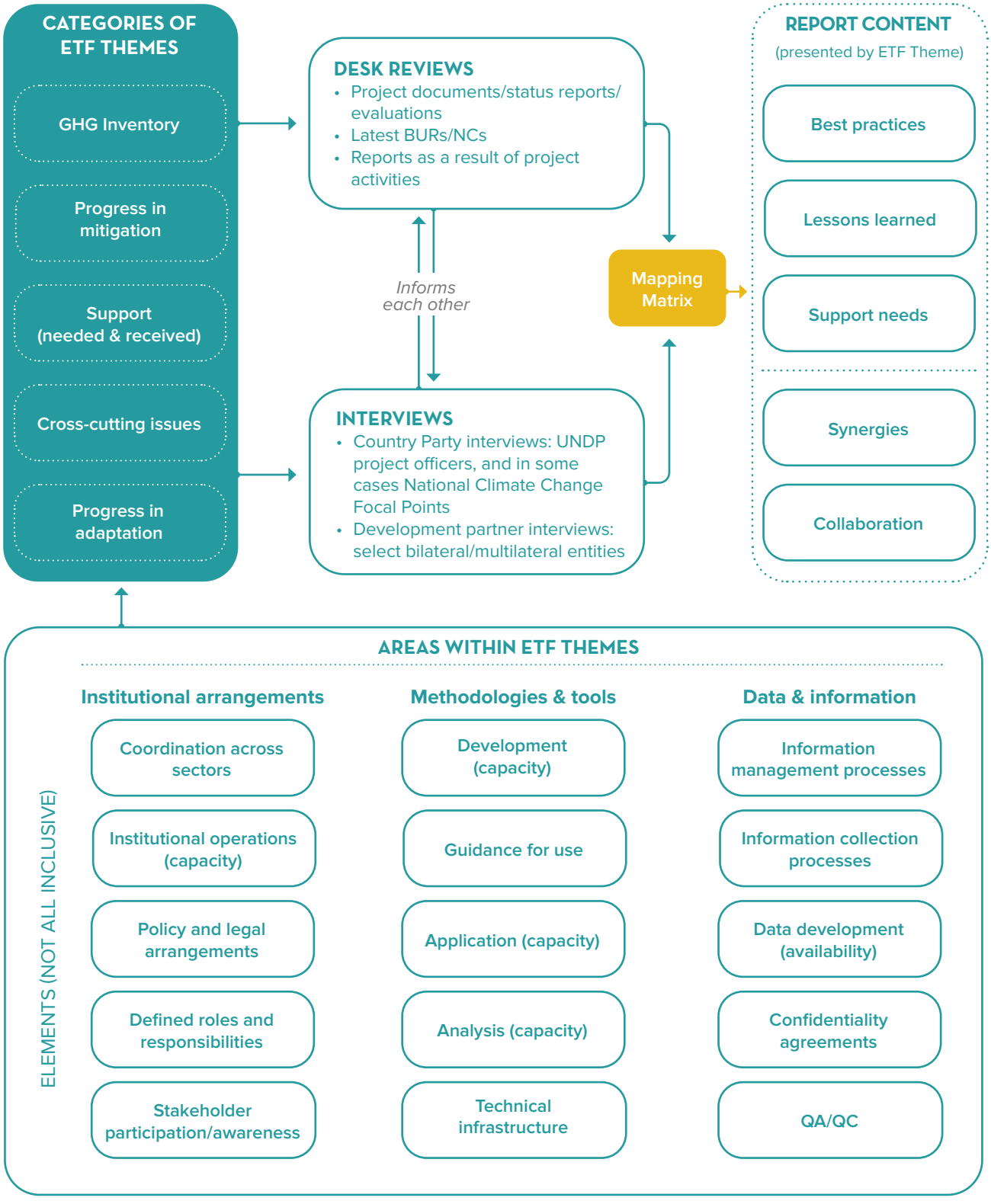
The target audience of this report encompasses three groups of key stakeholders who address transparency activities in countries: national entities, bilateral and multilateral development partners, and climate change professionals. This report will support these key stakeholders to gain additional insights and further their collective efforts to enhance transparency efforts at the national level.

2.2 Approach for this analysis and report

The approach for the analysis that provides the foundation of this report is depicted in Figure 3 below. It follows a framework for analysis, structuring information and providing qualitative outputs that highlight the transparency-related actions that have taken place in the 24 countries

sampled, while also highlighting future, anticipated needs and foreseeable challenges to enhancing transparency. Aligned to the objectives highlighted in Section 2.1, the report's goal is to demonstrate best practices, lessons learned, next challenges, synergies, and collaborations that developing countries have established and/or may establish in the future to enhance climate transparency in the context of national capacity.

Figure 3: Approach diagram – ETF themes, areas, and elements



Source: Adapted from SBI 57, 2022.

The analysis began by taking the results of the SBI.57 technical paper, which offers an effective structure for macro-level analysis and identifies the top challenges and gaps most countries face in establishing their enhanced transparency systems. The SBI.57 report breaks down the complexity of transparency systems into specific themes under the ETF, which are also defined in the MPGs, as shown in Figure 3, where countries indicated that they need additional capacity-building and other support to address the indicated challenges (SBI 57, 2022). Within each theme are the three areas that comprise national transparency systems: institutional arrangements, methodologies and tools, and data and information. Within each area are different elements addressed via transparent information. This structure categorizes qualitative transparency-related information from completed activities, including additional support needs, from selected UNDP-managed projects in 24 developing countries. As shown in Figure 3, this information was gathered from desk reviews of project documents, NCs, BURs, and interviews with UNDP staff, national climate change focal points and other relevant development partners.

The analysis included qualitative information for each country using a mapping matrix to filter information and provide specific content for this report. The first layer of the mapping matrix was structured around the five transparency themes and the areas and issues defined by the SBI.57 report. The second layer was structured into sectors addressed by transparency, followed by country-specific qualitative information. Using this information, a large set of best practices, lessons learned, challenges and support needs, synergies, and collaborations from the collective experiences of the 24 sampled countries between 2015-2022 were derived. In addition, short case study examples were identified to illustrate, in more detail, unique best practices and lessons learned. A brief explanation of the types of qualitative information included in the mapping matrix is provided below:

Best practices are activities that solve a transparency-related challenge the country faced and overcame.

Lessons learned are successes and failures that were experienced in the process of enhancing transparency, demonstrating what worked and what did not, with the aim to refine best practices.

Support needs are the needs for enhancing transparency in a country, including strengthening institutional arrangements, enhancing MRV and M&E information systems, and tracking support.

Synergies are where information gained from national climate-related activities, such as sectoral mitigation analysis, enhanced NDC assessments, NDC investment plans, vulnerability assessments and climate legislation are used to either build MRV and M&E information systems within the ETF themes or to provide specific information towards reporting under ETF requirements.

Colloboration is when different national entities, development agencies, and bilateral support from outside governments work together to address the different pieces to enhance the national transparency system.

2.3 Selected countries included in the analysis

The analysis incorporates 24 countries in five global regions, including three SIDS and three LDCs.[2] The selected countries, who are at various stages of implementing their national transparency systems, are illustrated below in Figure 4, each having received country-specific support from UNDP for enhancing their transparency.

Figure 4: Selected countries included in the analysis.

2 The SIDS include Marshall Islands, Palau and Vanuatu. The LDCs include Cambodia, The Gambia and Togo.

3. How UNDP is supporting enhanced transparency

As indicated in Section 2.2, the information and basis for this report come from UNDP's long history of supporting climate change related transparency through capacity-building and technical assistance on a global scale. Before and after the Paris Agreement's ratification, UNDP has worked with 126 developing countries to improve their transparency in line with the MPGs. This support originated from numerous global programmes and bilateral donor-supported projects, as described below.

Figure 5: UNDP helped 126 countries to enhance transparency (between 2015-2022)

Low Emission Capacity Development Programme (LECB)

Towards the end of the Kyoto Protocol and before the Paris Agreement, the LECB programme was established as a UNDP globally managed programme to support 25 developing countries around the world across different areas of transparency. LECB transparency-related support focused on country projects addressing GHG inventory system development, national appropriate mitigation actions (NAMAs), low-emission development strategies (LEDS), MRV, and Intended Nationally Determined Contributions (INDCs). The LECB programme was funded with approximately EUR 31,980,000 and operated between 2011 and 2018 (UNDP, 2018)[3].

NDC Support Programme and Climate Promise

The NDC Support Programme was established to continue and expand the LECB programme's work, with a more targeted focus on developing countries' needs to implement their NDCs and transparency in line with the Paris Agreement. Managed by UNDP, the NDC Support Programme provides technical assistance and capacity-building to 46 developing countries and one territory around the world. This programme continued UNDP's support for the transparency activities of NAMAs, LEDS, MRV, and enhanced NDCs. In addition, the NDC Support Programme assisted countries in more targeted actions addressing institutional frameworks and gender inclusion that relate to transparency. The programme was funded with approximately $75 million and is operating between 2017 and 2023 (UNDP, 2023b).[4]

The Climate Promise was launched by UNDP in 2019, building upon the efforts of the NDC Support Programme and other relevant enabling activities, and has expanded transparency-related support to over 126 developing countries in five regions globally. The Climate Promise is currently in its second phase (and, as part of its objectives, supports both the enhancement and implementation of NDCs and transparency). This support includes addressing transparency-related actions linked to the Paris Agreement, including, but not limited to, information in developing NDCs, MRV of mitigation actions, M&E of adaptation actions, institutional transparency arrangements, tracking support/climate finance, and South-South knowledge exchange. The second phase of the Climate Promise is currently funded, in 2023, is currently in operation (UNDP, 2023a).[5]

Under the Climate Promise portfolio, the Enhancing Climate Transparency (ECT) project provides comprehensive capacity-building support on climate data and transparency to meet the requirements of the ETF under the Paris Agreement and to foster South/South exchanges among countries. Funded by the Government of Belgium, this project is supporting Francophone and Lusophone country networks to strengthen their MRV systems and track the implementation of the NDCs, on the road towards the ETF. The support is being implemented as a contribution to the Climate Promise and currently supporting 35 countries.

Global Environment Facility (GEF) projects managed by UNDP

Over the course of several decades, UNDP has supported countries to comply with their reporting obligations to the UNFCCC and with enhancing their transparency frameworks. As

3 Supported mainly by the governments of Australia, the European Commission and Germany.

4 Supported mainly by the governments of the European Union, Germany and Spain.

5 Supported mainly by the governments of Belgium, Germany, Iceland, Japan, Italy, Latvia, the Netherlands, Portugal, Spain, Sweden, United Kingdom and UNDP core donors.

a GEF implementing agency, UNDP has mobilized around $186 million for 252 projects for climate change-related enabling activities, including Biennial Update Reports (BURs), National Communications and Biennial Transparency Reports (BTRs) and 26 Capacity-building Initiative for Transparency (CBIT) projects. CBIT projects aim to (a) strengthen national institutions for transparency-related activities in line with national priorities; (b) provide relevant tools, training, and assistance for meeting the provisions stipulated in Article 13 of the Agreement; and (c) assist in the improvement of transparency over time.

Bilateral donor-supported projects

In addition to the programmatic support that UNDP provides, based on multilateral funding, UNDP also supports individual developing countries through transparency-related projects funded by bilateral donors (e.g., where a developed country supports actions in a developing country). These bilateral donor-supported projects occur in five regions globally.

Other UNDP programmes and projects

The Climate and Forests team in UNDP provides technical assistance and policy support to countries on REDD+ MRV as well as market readiness. The Climate and Forests team is well-placed to support the transparency-related technical advisory services outlined below, with a focus on the forest sector. This work relies on the **Paris Agreement LULUCF Assessment and NDC Tool (PLANT)**, which is being used to assess the current capacities and systems and the necessary additional support needed to meet requirements under the ETF.

Lastly, UNDP supports climate change adaptation action in the context of agriculture and food security, water resources, coastal zone management, ecosystems protection, public health, resilient infrastructure, urban resilience, livelihoods, and climate information/early warnings. Building on the experiences and lessons from a portfolio of initiatives in over 137 countries, UNDP advances a 'whole-of-society' approach to accelerate adaptation and continues to support countries to mobilize public and private finance to implement their adaptation priorities. UNDP helps government partners to scale up the integration of climate change adaptation into policy, planning, and investments at both national and local levels through support to the National Adaptation Planning (NAP) process and NDCs. The robust in-house adaptation expertise will play a role in equipping countries with tools and methodologies to better report on adaptation action. Since 2017, UNDP has been engaged with 50 countries on advancing National Adaptation Plans (NAPs) with funding from the Green Climate Fund (GCF) Readiness Programme and other bilateral donors. Most of these countries are supporting the development of monitoring, evaluation and learning systems for adaptation which will help enhance not only calibration of adaptation impacts and actions, but also decision-making systems. The strengthening of these systems will also contribute to supporting the enhanced transparency framework in terms of improved reporting on adaptation.

4. Best practices to enhance transparency and identified support needs

This chapter presents some common best practices that countries within the analysis have taken to address different challenges that fall within the enhanced transparency themes. Each section within the chapter addresses a separate theme, where best practices are presented based on each theme's different areas and elements. This presentation identifies the transparency-related challenges faced by the countries and the practices that one or more countries used to address those challenges. Furthermore, each section presents additional areas and elements of support needs that countries have identified to further enhance their transparency.

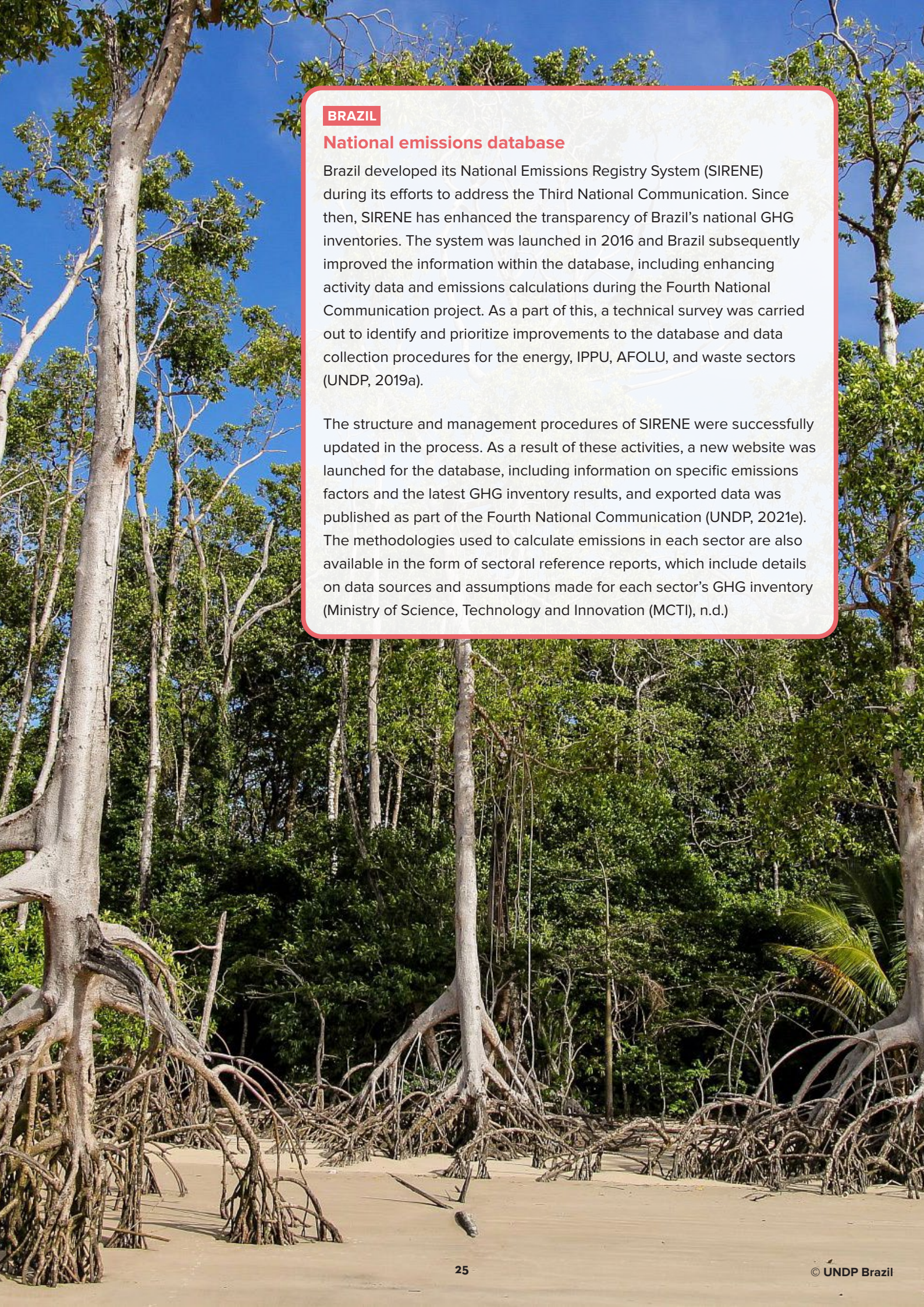
4.1 GHG inventory

4.1.1 Common elements

A broad challenge that countries face is ensuring continual institutional knowledge (e.g. capacity) when it comes to the reporting guidelines for GHG inventories under the Convention and the Paris Agreement. Countries such as **Ecuador**, **Kazakhstan** and **Togo** are working to build and sustain this institutional knowledge through training on the IPCC reporting guidelines or using the IPCC software.

Data management and collection present cross-cutting challenges for many countries. In **Vanuatu**, they are revising and improving data management protocols employed by national agencies, developing harmonized collection and measurement methodologies, and conducting training in analysing and measuring environmental trends. Other countries, such as **Brazil**, **Morocco** and **Serbia**, have laid the groundwork for their national GHG inventories by establishing formal institutional arrangements, defining relevant roles, and establishing cooperation between national agencies for data collection. An important facet of these efforts is the use of online information systems to ensure that activity data, documentation of methodologies, and calculations for national GHG inventories are available in a centralized system. Such systems are employed in, for example, **Brazil** and **Costa Rica**. Tackling another element of data quality management, **Ghana** and **North Macedonia** make use of various methodologies and tools to carry out uncertainty analyses.

Quality assurance/quality control (QA/QC) is a key element of GHG inventory reporting under the IPCC 2006 guidelines and is a prominent challenge faced by countries in data management. Activities undertaken in this category include the development of and training for QA/QC



BRAZIL

National emissions database

Brazil developed its National Emissions Registry System (SIRENE) during its efforts to address the Third National Communication. Since then, SIRENE has enhanced the transparency of Brazil's national GHG inventories. The system was launched in 2016 and Brazil subsequently improved the information within the database, including enhancing activity data and emissions calculations during the Fourth National Communication project. As a part of this, a technical survey was carried out to identify and prioritize improvements to the database and data collection procedures for the energy, IPPU, AFOLU, and waste sectors (UNDP, 2019a).

The structure and management procedures of SIRENE were successfully updated in the process. As a result of these activities, a new website was launched for the database, including information on specific emissions factors and the latest GHG inventory results, and exported data was published as part of the Fourth National Communication (UNDP, 2021e). The methodologies used to calculate emissions in each sector are also available in the form of sectoral reference reports, which include details on data sources and assumptions made for each sector's GHG inventory (Ministry of Science, Technology and Innovation (MCTI), n.d.)

and country-specific procedures, as seen in **Brazil**, **Moldova** and **Togo**. In **Ghana** and **North Macedonia**, institutional arrangements for QA/QC are being established. In **Kazakhstan**, to strengthen their inventory capacities, they have hired national and/or international consultants to directly assist with conducting QA/QC for their inventory.

Identified support needs

Efforts to address common elements for national GHG inventories are ongoing and several countries involved in this analysis have identified support needed to enhance their inventories. These include:

- Increasing institutional capacity to conduct QA/QC for the national GHG inventory.
- Increasing know-how and stakeholder capacity for enhancing the quality and collection of data in different sectors, including the strengthening of institutional arrangements for data sharing.
- Developing harmonized systems for data collection from decentralized actors, including data sharing mandates and agreements (e.g., with universities, sector experts, and the private sector).
- Enhancing the conformity of information systems and data collection for the UNFCCC's reporting requirements, plus additional needs for countries undergoing EU accession.

4.1.2 Energy and industry sectors

Improving energy-sector data for national GHG inventories is a priority for many countries, each with its own unique challenges and successes. Data collection and the need for sectoral stakeholders to understand relevant data procedures and requirements presents a real challenge. However, some countries, such as **Togo**, are progressing with this issue by prioritizing the development of simplified tools to facilitate data collection for relevant sectoral stakeholders. Other countries, including **Kazakhstan** and **Moldova**, are training local experts on gathering data and using tools for their energy sector GHG inventories. Data collection for some categories, such as transport, has also been strengthened in **North Macedonia** by establishing cooperation between national agencies for data sharing and disaggregated data collection. **Tunisia** is also seeking to improve their use of models and methodologies for calculating and projecting emissions in the energy sector, either by developing country-specific methodologies or by updating existing ones (such as COPERT[6]), as well as providing training.

Another pressing issue in the energy sector for many countries is the challenge to develop accurate national emissions and energy factors for power generation through various fuels, such as coal and natural gas, as well as in transport. **Montenegro** has completed calculations for country-specific emissions factors, while **Kazakhstan** and **Serbia** have also developed relevant calculation tools. Through similar activities, **Costa Rica** and **Serbia** have undertaken studies to calculate the carbon content and caloric value of fuels, such as biomass and coal, to strengthen the accuracy of emissions calculations.

6 COPERT is a vehicle emissions modelling tool.

Identified support needs

Countries are continuously working to strengthen the development of GHG inventories for the energy sector and have pinpointed areas that would benefit most from future support. These support needs include:

- Analysing the carbon and energy content of fossil fuels used in the country.
- Enhancing activity data collection on the consumption of biomass and biofuel.
- Developing national emissions factors in specific energy subsectors.
- Enhancing the means to collect data and methodologies to determine disaggregated energy data, particularly for the end use of fossil fuels by subsector.
- Training on the 2006 guidelines and use of GHG emissions accounting tools, such as NAIIS[7], 2006 IPCC[8], and energy planning tools, such as LEAP[9].

4.1.3 AFOLU sector

A key challenge for the agriculture, forestry and other land use (AFOLU) sector is obtaining comprehensive data and updating historic data. In **Togo**, data collection in this sector is supported through the use of common data collection forms and tools for different subsectors. Another challenging area for many countries is improving the quality of available AFOLU data. In **North Macedonia**, sectoral data has been strengthened by conducting surveys on livestock for the manure management category; while other countries have developed land use matrices and employed satellite images to map land use over time, as seen in **Uruguay**, **Cambodia**, **Kazakhstan** and **Brazil**.

When it comes to tools and methodologies used to analyse data in the AFOLU sector, countries are providing guidance and training to their national experts using models and calculation methodologies, such as the Canadian Carbon Budget Model (CBM-CSF3[10]), a type of activity undertaken by **Kazakhstan**.

Undertaking studies on national emissions factors and soil organic carbon content in national soils is also a key element in the capability of countries to improve their AFOLU sector GHG inventories. **Uruguay** has developed national emissions factors in categories including enteric fermentation and agricultural soils. In **Serbia** and **Costa Rica**, studies have calculated soil organic carbon content and, in some cases, further analysed harvested wood products through partnerships with domestic research institutions.

7 **NAISS** is the GHG inventory reporting tool developed by the UNFCC.
8 2006 **IPCC inventory software**.
9 **EAP** is a low emission modelling platform developed by the Stockholm Environment Institute.
10 **CBM-CSF3** is developed by the Canadian Government.

KAZAKHSTAN

Carbon Budget Model

Kazakhstan's work to enhance transparency has a special focus on the AFOLU sector to determine its national GHG inventory, as shown in its Eighth National Communication and Fifth Biennial Update Report (UNDP, 2019c). To strengthen information for this sector and improve the accounting of emissions and removals, Kazakhstan developed a land-use matrix to track the transition of land between different use categories (UNDP, 2020c).

To further strengthen information within this sector, Kazakhstan has adapted the Carbon Budget Model of the Canadian Forest Sector (CBM – CFS3) model for updating forestry emissions projections within the national GHG inventory (UNDP, 2021b). The geographic coverage of the CBM – CFS3 model reached 90 percent of the total land area, including major tree species, while also considering other tree species via an appropriate correction factor (Republic of Kazakhstan, 2021). To increase national capacity, national experts responsible for developing the AFOLU component of the GHG inventory were provided with training on the use of the model (UNDP, 2021b).

Identified support needs

Given the unique complexities of the AFOLU sector, it receives a high level of support. There are several support needs identified by countries who are diligently working within the sector, including:

- Strengthening understanding of necessary activity data by sector stakeholders and providing training on acquiring this data.
- Increasing activity data accuracy and lowering the levels of data uncertainties.
- Expanding the collection of data within subsectors/categories.
- Updating data (to be most recent) within subsectors/categories.
- Improving technical capacity using global information systems (GIS) and remote sensing tools to acquire and strengthen activity data.
- Developing national emissions factors in specific AFOLU subsectors.

4.1.4 Waste sector

In many countries, national GHG inventories in the waste sector are more problematic than in other sectors due to gaps arising from the need for more institutional knowledge and data availability.

Building up the capacity of institutions and experts responsible for waste sector GHG inventories is a key area in which several countries have concentrated their efforts. In **Chile**, **Kazakhstan** and **Serbia**, training programmes on the IPCC guidelines and methodologies, the development of national emissions factors, data collection and management procedures, and QA/QC within the waste sector have been undertaken. In **Vanuatu**, they are strengthening subsector activity data by focusing on solid waste disposal and wastewater treatment practices in urban areas.

Identified support needs

For many countries, the waste sector GHG inventory process is less developed than other sectors, insofar as many countries only use IPCC default values instead of country-specific activity data. This means that continuous support is essential when it comes to strengthening waste sector inventories. These support needs include the following:

- Increasing data accuracy and minimizing uncertainties of national activity data and related emissions factors.
- Strengthening institutional capacity to compile and determine the GHG inventory and to especially perform related QA/QC, including increases in the number of experts and know-how.
- Undertaking training for collecting activity data at the subnational and community level, including using online data collation tools.
- Addressing gaps in national activity data collection, especially in solid waste and wastewater characterization, generation, and disposal methods.

4.2 Mitigation progress

4.2.1 Common elements

A common challenge many countries face is their ability to assess and model mitigation options and the lack of technical knowledge required to use tools for that purpose. **Costa Rica**, **Serbia** and **Togo** have focused on developing this capacity by providing training and supporting the use of various tools and models, such as **GACMO**, LEAP, the **2006 IPCC worksheets**, **TIMES**, **CAPRI**, **PRIMES - GEM-E3**, **MARKAL**, etc.

Some countries have elected to conduct specialized studies to assess and prioritise mitigation measures. Examples include the circular economy mitigation analyses completed in **The Gambia** and **Vanuatu** and a market study on green cooling solutions undertaken in **North Macedonia**. In **Morocco**, a LEDS was developed, including potential mitigation in several economic sectors and potential investment needs, whereas in **Uruguay**, numerous subsector methodologies were developed to track the progress of mitigation actions.

Many countries have started the process of preparation of their LTS with mitigation measures and actions in various sectors and subsectors, such as in **Côte d'Ivoire** and **Palau**, among others.

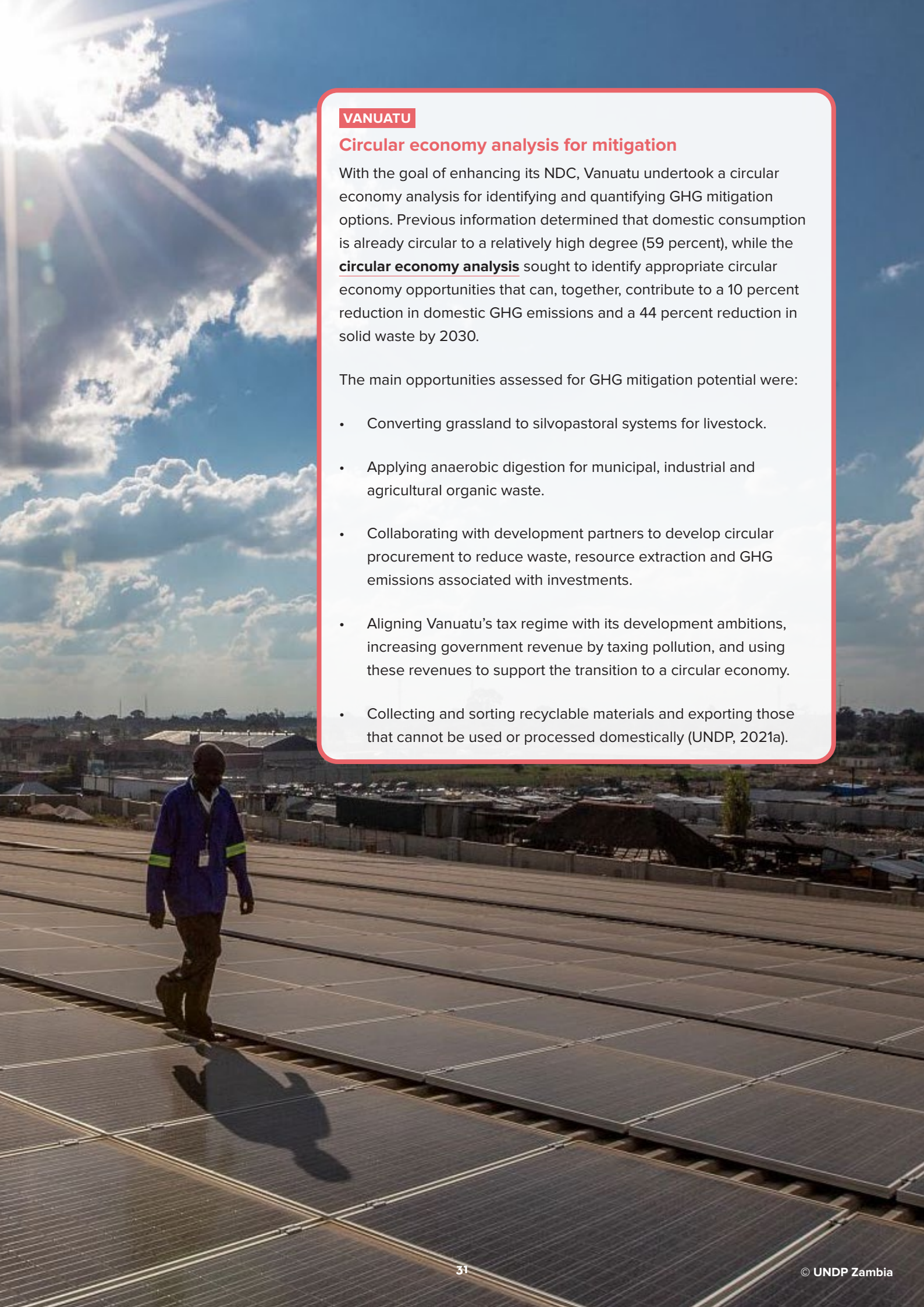
Unique to some countries are activities that support their participation in Article 6 for the generation and transfer of internationally transferred mitigation outcomes (ITMOs). For example, **Ghana** and **Vanuatu** have prepared the national institutional framework, information processes, and registry needed to implement and monitor emissions reduction projects under ITMOs. In addition, thousands of participants from countries are using on-demand online training on operationalizing ITMOs under Article 6.2, including institutional frameworks for MRV and specific international reporting requirements.[11]

Identified support needs

While work on the broad assessment of mitigation actions is ongoing, several countries also view that there are remaining challenges to overcome to improve transparency. Support is needed for:

- Strengthening data availability at subsector and subnational levels used as the basis for BAU and mitigation scenarios.
- Improving national-level assumptions for BAU and mitigation emissions projections.
- Assistance with sectoral and subsectoral future GHG emissions and mitigation projections, especially for successive NDCs (2025-2035) and BTRs (2024 and beyond).

11 UNDP offers a Learning for Nature online course on "**Operationalizing Article 6.2 of the Paris Agreement: Achieving ambitious climate action through cooperative approaches**".



VANUATU

Circular economy analysis for mitigation

With the goal of enhancing its NDC, Vanuatu undertook a circular economy analysis for identifying and quantifying GHG mitigation options. Previous information determined that domestic consumption is already circular to a relatively high degree (59 percent), while the **circular economy analysis** sought to identify appropriate circular economy opportunities that can, together, contribute to a 10 percent reduction in domestic GHG emissions and a 44 percent reduction in solid waste by 2030.

The main opportunities assessed for GHG mitigation potential were:

- Converting grassland to silvopastoral systems for livestock.
- Applying anaerobic digestion for municipal, industrial and agricultural organic waste.
- Collaborating with development partners to develop circular procurement to reduce waste, resource extraction and GHG emissions associated with investments.
- Aligning Vanuatu's tax regime with its development ambitions, increasing government revenue by taxing pollution, and using these revenues to support the transition to a circular economy.
- Collecting and sorting recyclable materials and exporting those that cannot be used or processed domestically (UNDP, 2021a).

GHANA

Carbon registry (for Article 6)

To help finance mitigation actions in Ghana, the Government intends to voluntarily participate in Article 6 trading under the Paris Agreement and has developed a comprehensive framework on international carbon markets and non-market approaches. This framework focuses on participatory requirements for Ghana, particularly under Article 6.2 for Internationally Transferred Mitigation Outcomes and for voluntary carbon markets, while including the related transparency needs and reporting requirements defined under the Paris Agreement and its subsequent decisions (Ghana Carbon Registry System, 2023).

In connection with the above framework, the Government has developed and launched the voluntary **Ghana Carbon Registry** (GCR) that serves as a database for collecting, verifying, and tracking emissions data from emissions reduction efforts and transactions at project, programme, corporate, and organization levels. The GCR is designed to allow for data collection that is relevant to the reporting needs of Ghana under Article 6, including reporting requirements under the MPGs for corresponding adjustments (Ghana Carbon Registry System, 2023).

MOROCCO

Long-Term Low-Emission Development Strategy

As a part of the effort to enhance its first NDC, Morocco prepared a comprehensive **Long-Term Low-Emission Development Strategy** (LT-LEDS) that addressed mitigation pathways in both unconditional and conditional scenarios. The LT-LEDS addressed numerous mitigation actions in seven areas: agriculture, forestry, buildings, solid and liquid waste, energy generation, industry, and transport.

For each of the seven areas, a BAU baseline was determined using national-level data from 2010 and projected into 2020 and 2030. Based on selected mitigation actions for each area and the scale of implementation, scenarios for unconditional, conditional, and additional mitigation were then developed. The LT-LEDS also highlights different barriers and constraints faced in each area with a general explanation of how mitigation will be implemented. Estimations for the total investment needs of each mitigation action between 2020 to 2030 are included within each area's pathway, along with the estimated levelized cost of mitigation. Approximately $62.2 billion of investment will be needed to fully implement the LT-LEDS, and various financial instruments and sources of finance have been identified that may be activated to support Morocco's low-carbon transition (Royaume du Maroc, 2021).

4.2.2 Energy and industry sectors

In several countries, the activities for addressing transparency of mitigation actions in the energy sector are closely linked to mitigation actions, especially sector and subsector assessments, developed and established over time. Most mitigation actions and their MRV systems relate to energy, specifically energy production, transport, and energy efficiency. Among these are mitigation actions that focus on implementing wind, solar PV and concentrated solar power technology, energy production through biogas and biomass use, and energy savings achieved using efficient lighting, cooking, and industrial equipment. For the transport sector, specific mitigation actions and MRV systems primarily relate to the transition to low-carbon transport.

Another facet of improving mitigation reporting in this area is establishing specific methodologies for determining mitigation potential and MRV systems to determine achieved emissions reductions. MRV systems in **Ecuador**, **The Gambia**, **Ghana**, **Moldova**, **Sri Lanka** and **Tunisia** include identified data parameters, preparing data collection templates, and developing MRV procedures. On a broad level, this information is used to prepare countries for implementation, such as in Tunisia, where the developed MRV system is linked to a strategic level NAMA for solar power.

Other activities, such as those in **Sri Lanka**, **Tunisia** and **Vanuatu**, focus on developing data management systems for the MRV outcomes of mitigation measures regarding emissions reductions and other sustainable development outcomes. Training relevant personnel from the institutions responsible for implementing mitigation actions using these methodologies and tools is also a vital part of the work undertaken in **The Gambia** and **Sri Lanka**. In **North Macedonia**, focus had been on models and tools (such as COPERT) for specialized mitigation analysis in the transport sector. In **Morocco**, extensive subsector BAU emissions analysis was performed for the land transport sector and mitigation actions/scenarios were defined for public transport, taxis, buses, and private vehicles. In **Lebanon**, a mitigation action was developed to encourage the private sector's use of more efficient vehicles, including scrapping older vehicles. This included methodologies for BAU emissions, mitigation potential, and MRV during implementation. Whereas in **Palau**, subsector assessments for BAU emissions, mitigation scenarios, and MRV methodologies were developed for mitigation actions involving land and maritime transport, as well as energy efficiency from low-carbon buildings and the electricity generation and distribution system.

Within industry, many countries focus on GHG emissions from energy consumption in terms of mitigation actions, though sectoral BAU emissions scenarios may include emissions from industrial processes and chemicals. In **Morocco**, an extensive BAU emissions and mitigation opportunities analysis was completed. It included emissions from cement, phosphate, and other industries, and the mitigation scenarios focused on energy efficiency within these production areas.

TUNISIA

Tunisian Solar Plan NAMA

Tunisia is in the process of implementing its **Tunisian Solar Plan NAMA**. Under the plan, Tunisia developed an MRV system for solar energy, including the electricity sector, as well as a standardized baseline for this type of mitigation action (UNDP, 2021).

In addressing this, the Tunisian Solar Plan project developed a set of 10 sustainable development criteria and 16 quantitative indicators corresponding to these criteria. These cover economic, social, and environmental aspects, as well as energy and strategic dimensions. The criteria are designed with the prospect of being used for broader energy sector mitigation actions and possibly expanded to mitigation actions for other sectors (UNDP, 2019f).

Importantly, these criteria will also aid Tunisia in incorporating gender equality, empowerment of women and energy poverty in information systems for the monitoring and evaluation of mitigation policies in the energy sector (UNDP, 2019f).

SRI LANKA

Energy generation and end-use sectors NAMAs

Sri Lanka is implementing three NAMAs involving **energy generation and end-use sectors**, which include solar PV net-metering with battery storage, biogas and the use of variable frequency drives (VFD) (UNDP, 2019d). As part of these NAMAs, Sri Lanka worked to address the lack of an MRV framework to track GHG emissions reductions and co-benefits. This MRV framework was supported through the development of an Energy Data Management System that was introduced to solar PV providers, tea factories where VFD was implemented, and in four provinces targeted by the biogas NAMA (UNDP, 2019d). Two national-level training programmes were carried out on MRV procedures for GHG mitigation; another four were carried out for relevant field officers and executives on a provincial level. Additional training aimed at province-level officials was conducted on the development of an MRV framework for future measures, while follow-up workshops were also provided (UNDP, 2020b).

As such, pilot projects have now been successfully launched for each of the three NAMAs and the system was implemented for MRV of emissions reductions (UNDP, 2020b). Regarding the MRV of the biogas project, the system has been integrated into the administrative structure of provincial councils, whereas in the tea sector, it has been integrated on a factory/plantation level (UNDP, 2019d).

Identified support needs

Within the energy and industry sectors, several countries have pointed out the following support needs:

- Improving the accuracy of sector and subsector energy data, especially in proving disaggregated energy consumption by subsectors and mode of consumption.
- Inclusion of more subsectors in national mitigation planning, including developing comprehensive nationally appropriate mitigation methodologies and MRV systems for tracking progress. In some countries, this can include non-energy related GHG emissions in the industry sector.

4.2.3 AFOLU sector

Not all countries have included mitigation and carbon sequestration from the AFOLU sector in their current NDCs, though some have related activities taking place. One example is in **Costa Rica**, where efforts are being made to develop a standard for MRV in bovine meat and coffee production, including traceability of productive units to non-deforested areas and methodologies for the re-carbonization of soils. **Vanuatu** has prepared initial baseline and mitigation assessments for converting grassland to silvopastoral systems and better livestock practices with MRV integrated into its national digital MRV system as a part of the circular economy and enhanced NDC assessments. Meanwhile, **Cambodia** and **Ecuador** developed their second Forest Reference Emission Level / Forest Reference Level (FREL/FR), which provides a baseline for evaluating the country's performance in implementing REDD+[12] activities and serves as a parameter for measuring, reporting, and verifying the reduction of forest carbon emissions in the context of results-based payment. In both countries, the FREL/FRL was used to inform the latest BUR and enhanced NDC. In **Cambodia**, REDD+ activities also include the development of an online project registry database and deforestation risk map tool to inform MRV in the future.

Identified support needs

The support needs for the AFOLU sector, among others, include those identified in Sections 4.1.3 and 4.3.2.

12 REDD+ stands for reducing emissions from deforestation and forest degradation in developing countries.

COSTA RICA

Climate resilience of agriculture and land use

Costa Rica, through the **Climate Ambition on Land Use and Agriculture** (SCALA) project, is seeking to transform the agriculture and land use sector with a focus on monitoring and limiting land-use change, promoting climate-resilient practices, and improving market access to deforestation-free commodities (UNDP, 2023c).

To strengthen the climate resilience of family farming and reduce potential deforestation emissions, Costa Rica targeted cattle and coffee production by developing a new methodology to calculate the amount of carbon deposited in soils, seeking to preserve and improve the amount of soil carbon via newly developed technical systems.

The project also developed standards for sustainable beef production (UNDP, 2023c) and upgraded the systems for bovine traceability and piloted them in selected cantons. To further reinforce the resilience of farming, Costa Rica is studying the main pathogens that affect farms with regard to climate change, as well as elaborating a methodology to model the behaviour of pathogens in different areas (UNDP, 2022a).

4.2.4 Waste sector

Many countries included the waste sector in their enhanced NDCs and have addressed specific mitigation actions for solid waste disposal and wastewater treatment. **Lebanon** and **Moldova** prepared emissions methodologies to address national-level NAMAs for landfill gas flaring and utilization, assessed BAU emissions and mitigation potential, developed MRV methodologies, and identified related data needs. In **Palau**, methodologies, and assessments for BAU emissions in solid waste and wastewater were prepared, including mitigation scenarios for landfill gas flaring and waste composting. MRV methodologies and data needs were also prepared.

Identified support needs

Within the waste sector, several countries have pointed out the following support needs:

- Strengthening the capacity of local governments in data collection and monitoring related to solid waste and wastewater management practices, including mass generation and disposal/treatment methods.
- Enhancing understanding of solid waste and wastewater streams and related analysis of sources, pathways, and disposal/treatment. This includes studies for country and regional solid waste and wastewater characterizations (fractions), per-capita waste generation, and other waste-related factors.

4.3 Adaptation progress

4.3.1 Assessing impacts of climate change and related planning

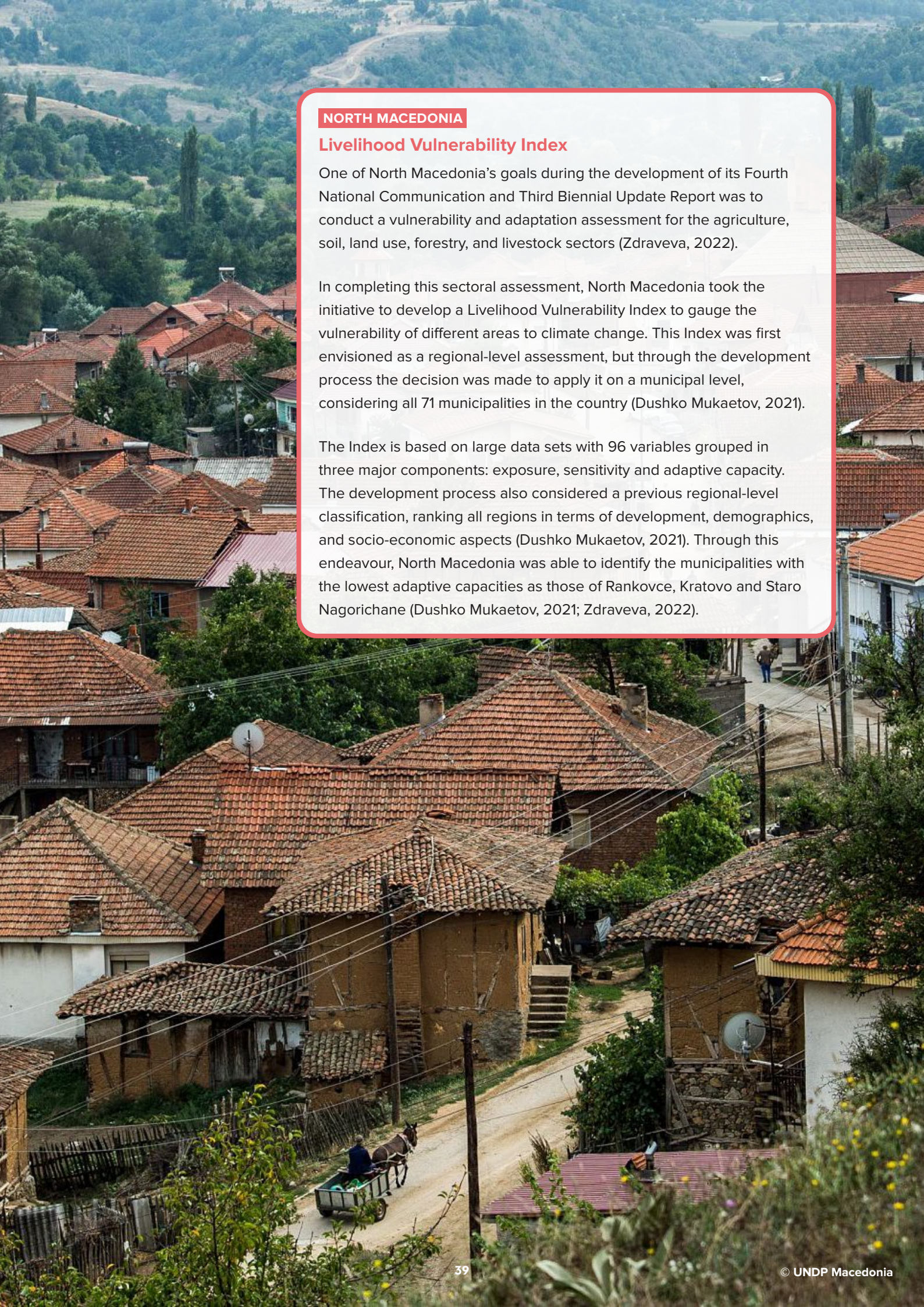
Perhaps the most persistent challenges encountered in adaptation reporting is the need for solid research to enhance the understanding of the impacts of climate change, the lack of well-established and harmonized measures for vulnerability and resilience, and the lack of information observed on current and potential impacts within countries.

To provide a strong background as a basis for impact analysis, countries such as **Kazakhstan**, **Sri Lanka** and **Togo** have developed climate projections and scenarios at national and subnational levels. In addition, several countries have taken steps towards developing vulnerability assessments for sectors including agriculture, energy, water resources, mining, tourism and human health, as well as for resource assessments for water and food security. Countries that have completed vulnerability assessments include **Cambodia**, **Chile**, **Côte d'Ivoire**, **Kazakhstan**, **North Macedonia**, **Serbia**, **Sri Lanka**, **Thailand**, **Togo** and **Vanuatu**. Some studies have also included assessments of impact on socio-economic development and loss and damage, as is the case in **Kazakhstan**, **Serbia** and **Sri Lanka**. In **Ecuador**, a training programme was implemented to strengthen the skills for integration of adaptation into development planning of technical staff at the sectoral, territorial, and local levels. This training included the development of educational materials to support the curriculum for a master's degree in agriculture and climate change and a virtual course for professionals in parks and fire management. Meanwhile, **Brazil** and **North Macedonia** have developed and successfully used specific methodologies to perform vulnerability assessments, while in **Serbia**, the results of its risk and vulnerability assessments were compiled, as well as its climate projections, in the form of a **digital atlas and a disaster risk registry**.

Identified support needs

Certain aspects of the ongoing research into climate change vulnerability and impacts still present a challenge for countries. The following support needs have been identified:

- Strengthening national and subnational capacity to use appropriate tools to develop climate risk scenarios.
- Enhancing the know-how of adaption measures with subnational governments and communities to limit the impacts of climate change.
- Enhancing the quality and accuracy of subsector/area information needed for adaptation planning.
- Developing frameworks for measuring and reporting adaptation progress beyond baseline vulnerability and risk assessment activities. This includes developing harmonized adaptation/resilience indicators for reporting and building capacities of stakeholders to accurately measure progress.



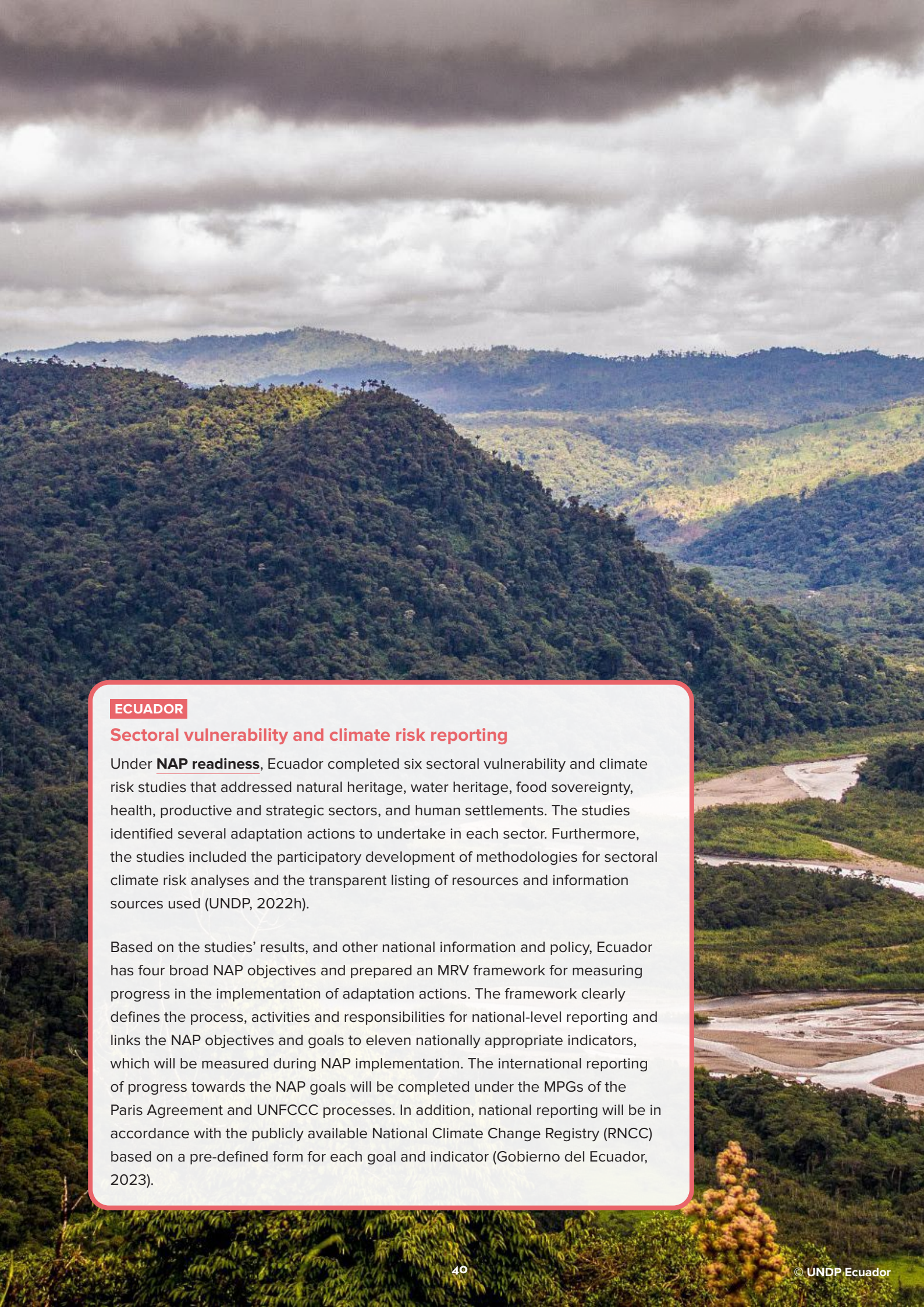
NORTH MACEDONIA

Livelihood Vulnerability Index

One of North Macedonia's goals during the development of its Fourth National Communication and Third Biennial Update Report was to conduct a vulnerability and adaptation assessment for the agriculture, soil, land use, forestry, and livestock sectors (Zdraveva, 2022).

In completing this sectoral assessment, North Macedonia took the initiative to develop a Livelihood Vulnerability Index to gauge the vulnerability of different areas to climate change. This Index was first envisioned as a regional-level assessment, but through the development process the decision was made to apply it on a municipal level, considering all 71 municipalities in the country (Dushko Mukaetov, 2021).

The Index is based on large data sets with 96 variables grouped in three major components: exposure, sensitivity and adaptive capacity. The development process also considered a previous regional-level classification, ranking all regions in terms of development, demographics, and socio-economic aspects (Dushko Mukaetov, 2021). Through this endeavour, North Macedonia was able to identify the municipalities with the lowest adaptive capacities as those of Rankovce, Kratovo and Staro Nagorichane (Dushko Mukaetov, 2021; Zdraveva, 2022).



ECUADOR

Sectoral vulnerability and climate risk reporting

Under **NAP readiness**, Ecuador completed six sectoral vulnerability and climate risk studies that addressed natural heritage, water heritage, food sovereignty, health, productive and strategic sectors, and human settlements. The studies identified several adaptation actions to undertake in each sector. Furthermore, the studies included the participatory development of methodologies for sectoral climate risk analyses and the transparent listing of resources and information sources used (UNDP, 2022h).

Based on the studies' results, and other national information and policy, Ecuador has four broad NAP objectives and prepared an MRV framework for measuring progress in the implementation of adaptation actions. The framework clearly defines the process, activities and responsibilities for national-level reporting and links the NAP objectives and goals to eleven nationally appropriate indicators, which will be measured during NAP implementation. The international reporting of progress towards the NAP goals will be completed under the MPGs of the Paris Agreement and UNFCCC processes. In addition, national reporting will be in accordance with the publicly available National Climate Change Registry (RNCC) based on a pre-defined form for each goal and indicator (Gobierno del Ecuador, 2023).

4.3.2 Implementing adaptation actions and M&E

Strengthening the resilience of coastal areas is an objective that multiple countries have prioritized in their adaptation plans, initiating activities to improve M&E in this area. **The Gambia** and **Tunisia** have developed databases for monitoring coastal adaptation measures, including relevant indicators, while **Tunisia** has set up an Integrated Coastal Zone Management (ICZM) inter-ministerial platform to coordinate coastal adaptation projects.

Alternatively, **Costa Rica** has focused on land management and agriculture in their adaptation activities by researching pathogens affecting farms for pest management, improving traceability systems for production, and establishing soil carbon baselines.

In **Chile**, activities have focused on addressing subnational climate change planning in four regions, including the training and use of the territorial adaptation planning and monitoring tool **ARCLim**. This operates as a software for risk assessment and management programme for climate change. A similar activity has taken place in **Ecuador**, where the training programme strengthened the skills for integration of adaptation into development planning of technical staff at the sectoral, territorial, and local levels.

Identified support needs

Different aspects of tracking the progress of implementation and impacts of adaptation actions remain challenging for countries. The following support needs have been identified:

- Enhancing the ability of national statistics, health, and agricultural agencies to evaluate and incorporate new adaptation and loss and damage parameters into the gathering and reporting of different national and subnational statics (e.g., household surveys, economic and jobs activity, sector surveys. etc.).
- Enhancing the know-how of subnational governments and communities to implement nature-based and biodiversity adaptation actions, including the means to measure implementation progress and impact.
- Designing evidence-based evaluation methods to assess the actual impact on the resilience of projects or programmes that contribute to adaptation actions, including training on use and reporting for national stakeholders.

THE GAMBIA

Coastal resilience measures

The Gambia is committed to incorporating coastal adaptation in its national policies and planning. Under a project addressing the **vulnerability of coastal communities**, The Gambia has established a coastal monitoring database, training over 200 technical staff in climate, sea, and river risk management.

Subsequently, The Gambia has successfully launched various pilot engineering intervention measures aimed at strengthening the capacities of coastal communities for adaptation. These measures include an initiative for mangrove restoration, the development of an integrated farming system for coastal communities, and the construction of a polder and anti-salt dike, as well as different coastal defence barriers. The implementation of these adaptation measures has been monitored and found to benefit more than 1,500 families in coastal areas, increasing their resilience to a rise in sea levels.

Building upon these measures, The Gambia has also provided capacity-building for rice growing and fishing communities to access the community-based integrated farming systems, as well as training on other livelihood support areas, such as pest management, compost making, resource management, and financial records keeping. This capacity-building, provided to over 1,500 producers, was carried out with the goal of enabling producers to increase their production sustainably and diversify their income-generating capabilities (UNDP, 2019e).

MOLDOVA

M&E framework for adaptation

Moldova is addressing its NAP process, part of which focuses on the development of a M&E system for climate change adaptation.

As a part of this effort, Moldova has proposed a framework consisting of two levels of indicators: four macro-indicators, pertaining to a national impact level, and 34 micro-indicators, pertaining to a sector/local outcome within the agriculture, water, forestry, energy, health, and transport sectors. The indicators were developed considering lessons learned from international M&E frameworks and the first iteration of the country's National Adaptation Planning (NAP-1) process, while supporting its second iteration (NAP-2). To ensure the national appropriateness of these indicators, validation was performed through consultations with national sectoral experts and relevant stakeholders (Rijpma, 2022). The framework will support the second iteration of NAP-2.

4.4 Tracking support needed and received

4.4.1 Tracking support for capacity-building, technology transfer, and finance

Many countries started their journey of tracking climate change-related support by starting with their government budgeting and accounting, as finance is a common thread for much of this support. This includes money spent on addressing capacity-building, technology assistance and transfer, financing investments, and increasing transparency. This support often co-finances projects and activities through national public funding and international support funding. A common activity involves mapping and tracking public expenditures related to climate change, as seen in **Morocco** for water, housing, and energy, and in **Chile** within the agriculture, energy, environment and finance ministries.[13]

An important way that countries track and report support is through what are often referred to as digital MRV systems. These are designed to include information on the support received and needed under different projects and activities for GHG inventories, mitigation, adaption, climate finance, and broader transparency and reporting (e.g., NCs, BURs, and BTRs). The information included in these digital MRV systems matches what is required for reporting support under the MPGs, though only some tools integrate every data point defined in the MPGs. Many countries have developed and started implementing this type of digital MRV system, including **The Gambia** and **Vanuatu**.

Numerous countries have identified the specific capacity-building and technical assistance needed to support the implementation of mitigation and adaptation actions, such as in **Palau**, for the mitigation activities and MRV in transport, energy efficiency and waste sectors. Going further, **Morocco** determined investment needs for implementing mitigation actions in the transport and industry sectors, while the **Marshall Islands** has prepared a strategy for national-level capacity-building needs in ten critical areas related to climate change.

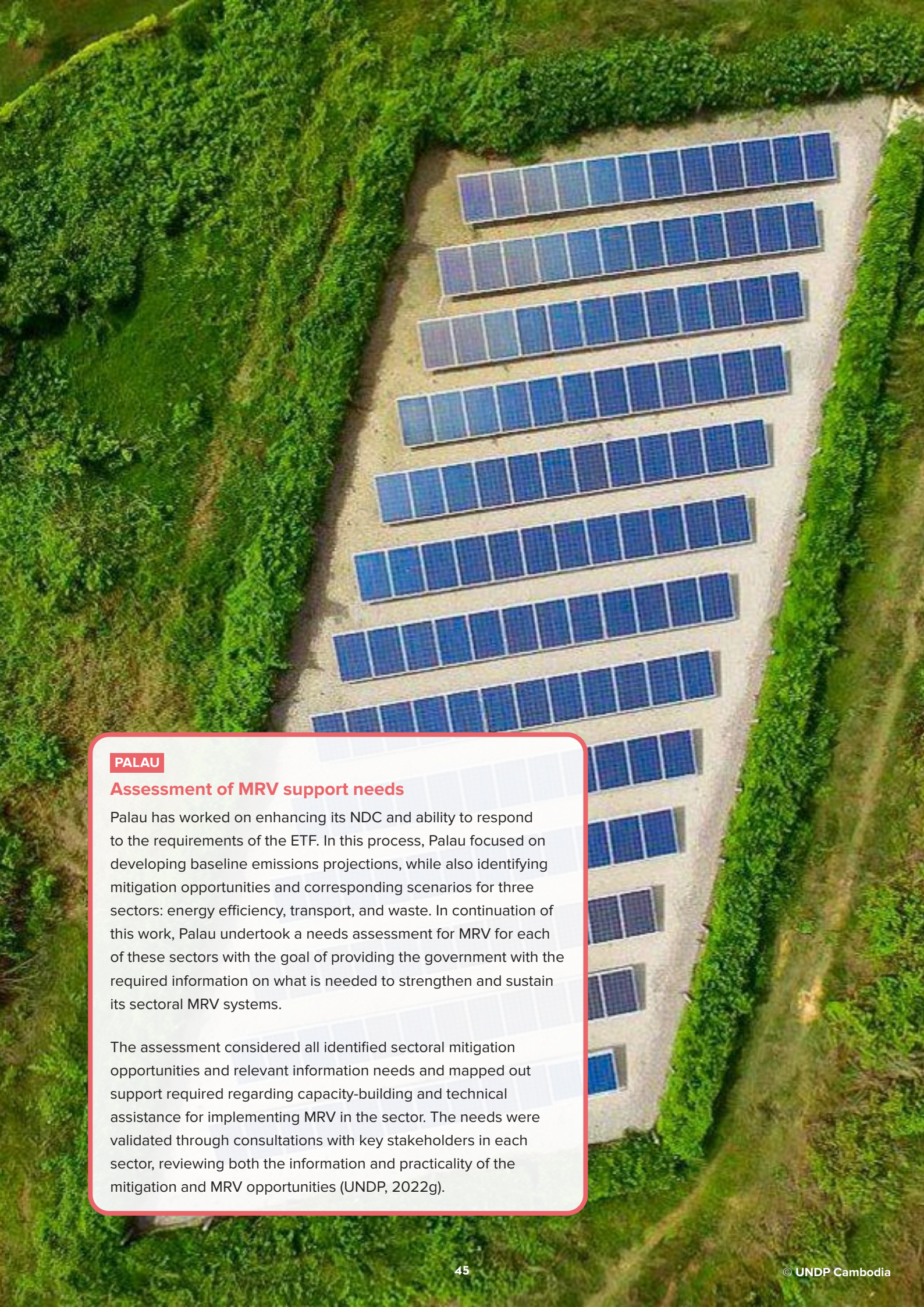
Identified support needs

Different aspects of tracking support still present challenges, and countries have identified the following support needs:

- Enhanced and continual capacity-building to facilitate line ministries' staff in identifying and inputting related information into the digital MRV systems developed to track support.
- Technical assistance to integrate national data regarding support needed and received with countries' digital MRV systems, and for integrating automatic reporting using the common reporting tables of the MPGs.[14]
- Not all climate actions defined in countries' NDCs indicate the broad or specific support needs for ensuring implementation and transparency. Technical assistance is required to determine these actions' capacity-building, technology transfer, and finance needs.

13 Note this mapping and tracking of public expenditures is also commonly referred to as climate budget tagging.

14 To harmonize required reporting under various articles of the Paris Agreement, the UNFCC has prepared common tabular formats for the electronic reporting of the information, including information on financial, technology development and transfer and capacity-building and transparency support (**Decision 5/CMA3**).



PALAU

Assessment of MRV support needs

Palau has worked on enhancing its NDC and ability to respond to the requirements of the ETF. In this process, Palau focused on developing baseline emissions projections, while also identifying mitigation opportunities and corresponding scenarios for three sectors: energy efficiency, transport, and waste. In continuation of this work, Palau undertook a needs assessment for MRV for each of these sectors with the goal of providing the government with the required information on what is needed to strengthen and sustain its sectoral MRV systems.

The assessment considered all identified sectoral mitigation opportunities and relevant information needs and mapped out support required regarding capacity-building and technical assistance for implementing MRV in the sector. The needs were validated through consultations with key stakeholders in each sector, reviewing both the information and practicality of the mitigation and MRV opportunities (UNDP, 2022g).

4.5 Cross-cutting issues

4.5.1 Digital systems and other tools

Developing and implementing country-specific digital systems and using other internationally available digital tools is a crucial challenge for countries aiming to strengthen their transparency systems. Countries' broad needs include centralized and easily accessible repositories for data with additional information on their national inventories, mitigation and adaptation actions, Article 6 trading, the support they both need and receive, and information required for climate change policies and plans. Multiple countries have developed country-specific digital systems that address these needs. In most of these countries, these are referred to generically as digital MRV systems to manage climate change information, including tracking progress towards NDC targets. Countries that have developed and implemented this type of digital system include **Cambodia**, **The Gambia**, **Uruguay** and **Vanuata** and digital MRV systems are also under development in **Lebanon**, **Montenegro** and **Togo**. Underlying the development of digital MRV systems and other tools are activities carried out on countries' institutional frameworks that identify weaknesses, best practices, and areas for improvement for the implementation of transparency information systems, including using digital MRV systems and other tools. These countries further ensure the smooth implementation of new digital MRV systems by undertaking training and capacity-building on their use.

In addition to the digital MRV systems and other tools described above, some countries have also encountered challenges developing more specialized tools to aid specific MRV processes or information. **Serbia** has developed information systems that assist subnational governments in reporting, planning, and implementing climate change measures. **Costa Rica** has undertaken work in developing, updating, and enhancing GIS systems to track land use to facilitate decision-making. In **Ghana**, a digital system that specifically tracks climate finance support is being utilized.

Identified support needs

Many activities have focused on developing digital MRV systems and other tools; however, there are areas where support is still needed, including the following:

- Technical assistance and capacity-building for the MRV information system that feeds data into digital MRV systems and other tools, usually on a sector or subsector basis.
- Continual training on the use of digital MRV systems and other tools, with the possibility of country-specific on-demand online training.
- Updating pre-existing digital MRV systems and other tools to include the latest transparency guidance under the MPGs, including automatic reporting of the common reporting tables.
- Updating methodologies, algorithms, and data inputs for tracking mitigation actions within digital MRV systems and other tools.

CAMBODIA

NDC tracking tool

Cambodia's updated NDC, submitted in 2020, aims for a 42 percent reduction in GHG emissions. To achieve this goal, the NDC identifies 33 priority mitigation actions, 58 priority adaptation actions, and 29 priority enabling actions for NDC implementation. Cambodia also submitted its **Long-Term Strategy for Carbon Neutrality (LTS4CN)** in 2021 (Ministry of Environment Cambodia, 2023).

Supporting these plans, Cambodia developed a **tracking system for its NDC and LTS4CN**, focusing on the forestry and energy sectors. The tool, which follows the general structure of Cambodia's M&E framework, contains all information relevant to reporting under the Paris Agreement (Ministry of Environment Cambodia, 2023).

The platform includes NDC tracking on different levels, namely a vulnerability index, sectoral indicators, and institutional readiness indicators, in addition to the latest GHG inventory and NDC actions tracked across cross-cutting issues, such as gender, finance, private sector engagement, youth engagement, technology transfer, SDG contribution, and capacity needs (Ministry of Environment Cambodia, 2023).

4.5.2 Information dissemination and stakeholder engagement

Many countries face challenges in ensuring that information and other material produced under transparency reporting is widely distributed and understood by stakeholders and the public. One common activity that countries undertake for information dissemination is developing or improving online platforms (sometimes called "climate portals") that publicly share related information about climate change. This includes national GHG emissions, mitigation and adaptation measures and their progress, climate-relevant policies and plans, actions conforming to the ETF, and government activities. Among the countries that have established such platforms are **Brazil**, **Costa Rica**, **North Macedonia**, **Serbia**, **Sri Lanka** and **Uruguay**.

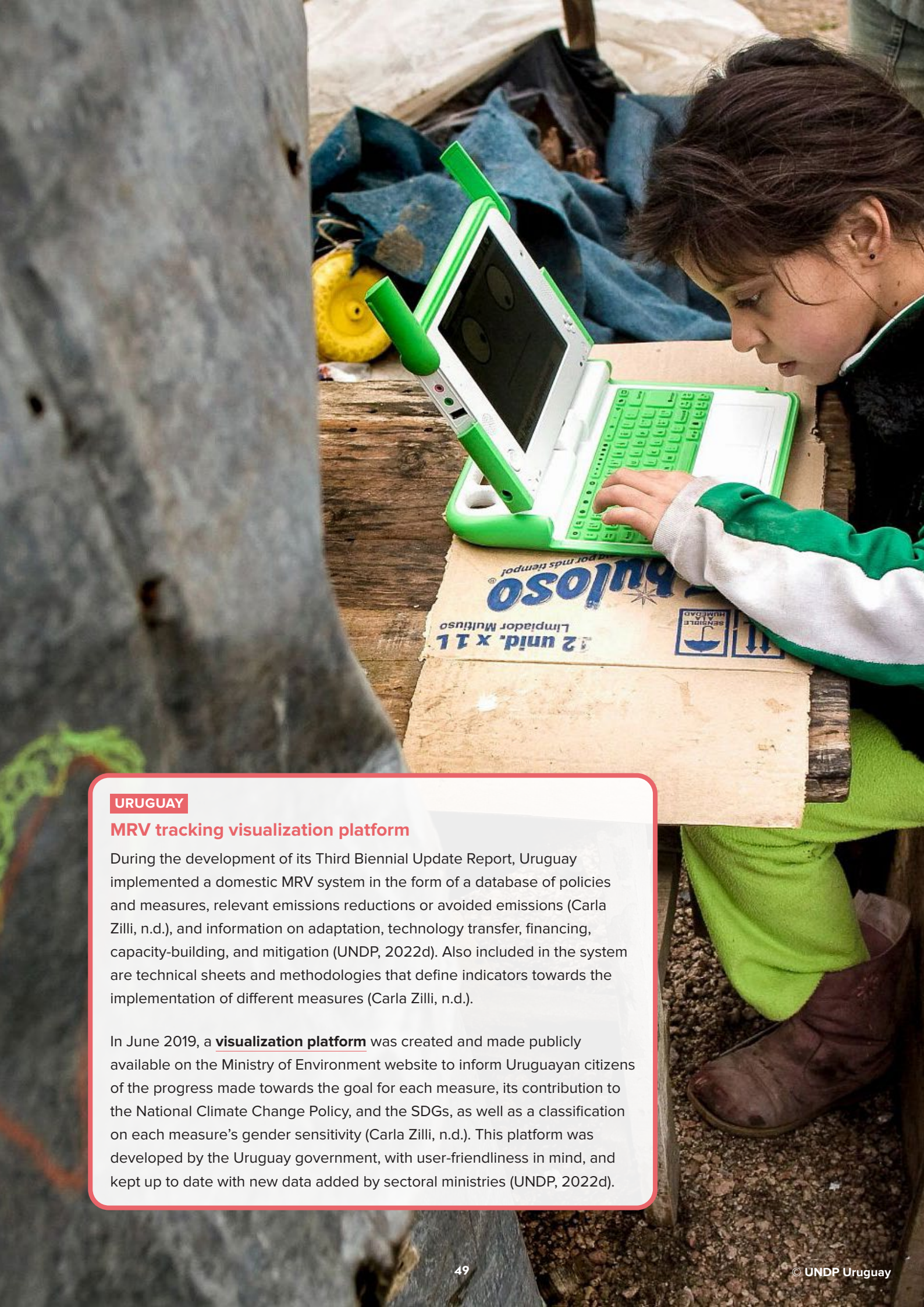
An essential part of national-level transparency is the general public's knowledge about climate change and related government actions. In addition to online platforms, governments address this by coordinating public awareness campaigns and using strategies involving live events or media productions, such as campaigns in **Ecuador**, **Ghana**, **North Macedonia** and **Thailand**. **Ecuador** has developed and implemented virtual courses on climate change and adaptation for children and youth, as well as targeted courses on adaptation, climate change and gender for other groups.

The lack of engagement of youth of all ages in climate action is also a concern for various countries. **Costa Rica**, **Moldova** and **Serbia** have made efforts to scale up youth engagement by developing educational material for young audiences and training teaching staff. In **Sri Lanka** and **Thailand**, they actively engage with youth organizations, including organizing climate change innovation challenges and providing mentoring.

Identified support needs

Continual engagement of stakeholders and public availability of transparent climate change-related information still needs to be improved across countries. The following support needs have been identified:

- Dedicated communications and engagement capacity for public awareness (e.g., knowledgeable communications staff).
- Support utilizing more channels for broader communications and engagement, including developing more public and classroom-relatable content, in both digital and printed form so that all communities with different levels of access can be reached.
- Encourage increased engagement and local ownership, involve youth, women and marginalized groups in the early stages of production and publication of climate change related information and its dissemination.
- Translate information into formats that can easily be understood at the grassroots level, and in a language that different stakeholders groups understand. This may require different versions of materials within the same information campaign.



URUGUAY

MRV tracking visualization platform

During the development of its Third Biennial Update Report, Uruguay implemented a domestic MRV system in the form of a database of policies and measures, relevant emissions reductions or avoided emissions (Carla Zilli, n.d.), and information on adaptation, technology transfer, financing, capacity-building, and mitigation (UNDP, 2022d). Also included in the system are technical sheets and methodologies that define indicators towards the implementation of different measures (Carla Zilli, n.d.).

In June 2019, a **visualization platform** was created and made publicly available on the Ministry of Environment website to inform Uruguayan citizens of the progress made towards the goal for each measure, its contribution to the National Climate Change Policy, and the SDGs, as well as a classification on each measure's gender sensitivity (Carla Zilli, n.d.). This platform was developed by the Uruguay government, with user-friendliness in mind, and kept up to date with new data added by sectoral ministries (UNDP, 2022d).

4.5.3 Gender mainstreaming

Numerous countries have begun taking steps towards mainstreaming gender in climate change actions, plans and strategies. One of the first steps in gender mainstreaming is establishing solid country-specific background knowledge to move forward with crucial actions and activities. In **Lebanon**, UNDP has supported analyses of existing legal, policy, and institutional frameworks regarding gender, focusing on NDC actions, identifying weaknesses, and proposing the next steps for mainstreaming gender-responsive actions and activities. Meanwhile in **Cambodia**, gender analysis in vulnerability assessments have been undertaken.

Several countries have also incorporated gender aspects into their climate change planning. In **Côte d'Ivoire**, **Marshall Islands**, **Montenegro**, **North Macedonia** and **Thailand**, gender assessments and strategic documents, such as gender mainstreaming handbooks and action plans, have been developed. In other cases, progress has been made towards integrating gender aspects within broader national strategies and plans, such as NDCs, LEDS, or roadmaps, through prioritizing gender-sensitive policies and developing gender indicators.[15] Countries that have undertaken such activities include **Cambodia**, **The Gambia**, **Montenegro** and **Uruguay**.

To further develop national capacity for gender mainstreaming, training and workshops have been carried out in **Lebanon**, **North Macedonia**, and **Thailand**. **North Macedonia** and **Côte d'Ivoire** have also been strengthening the institutional arrangements that facilitate gender integration into national plans.

Identified support needs

Regarding gender mainstreaming, countries have identified weaknesses and areas where targeted support could be delivered in the future. These include the following:

- Ensure that sufficient funds are both allocated and tracked for gender-responsive climate activities within capacity-building, technology transfer and the implementation of adaptation and mitigation actions.
- Promote gender parity and inclusivity, and the tracking thereof, in climate decision-making processes to ensure diverse perspectives are considered.
- Further incorporating gender actions into relevant policies and laws.
- Collecting gender- and sex-disaggregated data for climate change reporting.
- Improving national capacity for gender mainstreaming, including training and capacity-building on conducting gender analyses.
- Showcasing, in detail, best practices of gender mainstreaming in different levels of policy and planning via South-South learning.
- Recognizing the role of indigenous women as bearers of traditional knowledge that contributes to addressing mitigation and adaptation, by ensuring their space, and the tracking thereof, in climate change related decision-making and implementation of actions.

15 UNDP has developed a guidance to support gender analysis for NDCs titled **Gender Analysis and NDCs: Short Guidance for Government Stakeholders**.

THAILAND

Gender and social inclusion handbook

Thailand has published a handbook on **integrating climate change, gender, and social inclusion into planning and budgeting**. The handbook is intended to serve as a tool to strengthen the inclusion of climate change and social aspects in plans by government agencies, as well as to strengthen the country's capacity to use its budget efficiently and effectively in promoting these aspects within national sustainable development strategies (UNDP, 2022c).

Among the handbook's contents are eight criteria for screening climate change-related projects that include gender and social aspects, which will form the basis for the approval or rejection of project proposals. Alongside these criteria, the handbook also presents an assessment form for the integration of gender and social inclusion (GSI) into project proposals (Worakul, 2022).

A pilot project has been launched by UNDP in collaboration with the Office of Natural Resources and Environmental Policy and Planning (ONEP), the Ministry of Natural Resources and Environment, the Office of Agriculture Economics (OAE), and the Ministry of Agriculture and Cooperatives (MOAC) with the goal of guiding government agencies, researchers and local communities in executing assessments of GSI, as well as integrating GSI into project proposals and budgets (Worakul, 2022).

MONTENEGRO

Gender Action Plan

Montenegro has developed a Gender Action Plan regarding climate change that addresses gender goals. This includes incorporating a gender perspective into climate change policy, mainstreaming gender into the climate change transparency framework, including a gender representative in the Working Group for Climate Change in its National Council for Sustainable Development, and strengthening the collection of sex- and gender-disaggregated data for MRV purposes (UNDP, 2020a).

Under the framework of this plan, Montenegro dedicated a part of its NDC background report to gender mainstreaming. This section contains an analysis of all proposed mitigation measures from a gender perspective, as well as recommendations for further data collection and decision making. Similarly, gender-related indicators and information were included in Montenegro's NDC Roadmap (UNDP, 2021f).

Montenegro plans to continue its work on gender mainstreaming during the development of its Fourth National Communication and First Biennial Transparency Report. This includes providing training to the employees of its statistics agency on collecting and analysing sex- and gender-disaggregated data, as well as analysing measures taken to assist women in adapting to climate change in priority sectors, such as health and education (UNDP, 2021d).


12 PRODUCCIÓN Y CONSUMO RESPONSABLES
11 CIUDADES Y COMUNIDADES SOSTENIBLES
3 SALUD Y BIENESTAR
5 IGUALDAD DE GÉNERO
EDUCACIÓN DE CALIDAD
2 HAMBRE CERO

5. Synergies of transparency with other national components

5.1 Institutional frameworks for transparency

The development of MRV systems is enabled by the broader transparency framework established in each country. In this context, countries often need help in ensuring institutional frameworks and arrangements that are robust enough to allow them to maintain and enhance their transparency processes. Implementing policies and laws that mandate or facilitate transparency reporting, data collection and sharing, and collaboration between institutions can ensure the smooth implementation of transparency processes. In **Côte d'Ivoire** and **Montenegro**, governments are working on legal frameworks that provide a basis for MRV and enhance climate transparency. In **Moldova** and **North Macedonia** support to develop suitable institutional frameworks for deploying digital MRV systems is supported through activities such as strengthening relevant laws and policies requiring information sharing. On a more targeted basis, countries are also working on preparing and monitoring the implementation of standards that ensure that needed information is available, such as standards for energy efficiency in **Cambodia** or deforestation-free beef production in **Costa Rica**. All of the above helps synergise information management, collection, and analysis across governments' climate change policy and planning activities.

Strengthening countries' existing frameworks and capacities that address transparency activities is another crucial component. This is accomplished through training activities or revising mandates and policies already in place, such as those in **The Gambia** and **Vanuatu**.

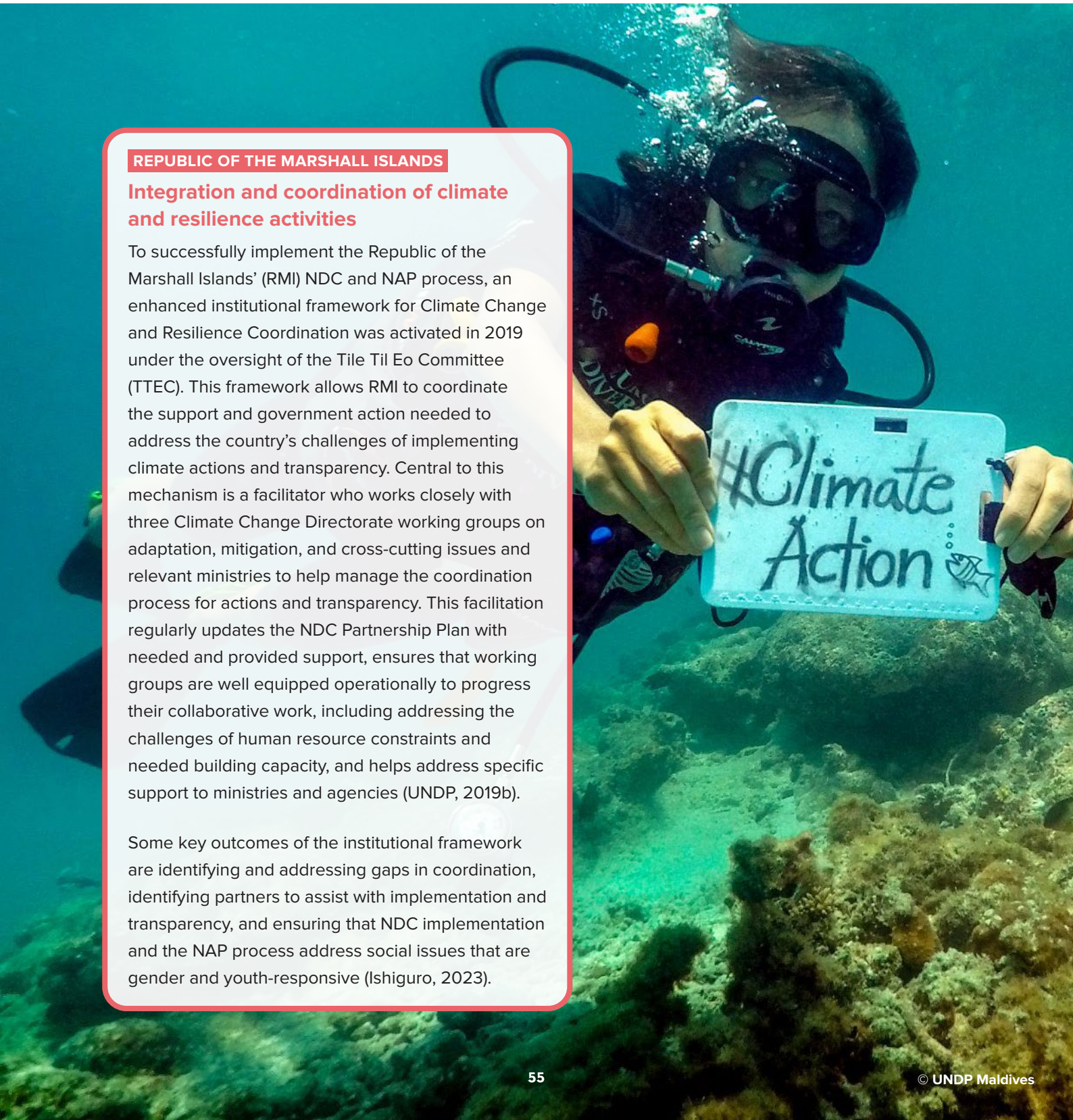
Other initiatives synergizing with climate transparency actions are the preparation for Emissions Trading Schemes (ETS). Some countries, such as **Kazakhstan** and **Moldova**, are working on such schemes, particularly in connection with the EU's ETS in the case of Moldova, which included activities for drafting relevant policies or the development of methodologies for ETS monitoring.

Identified support needs

Countries still face transparency-related challenges within institutional frameworks and the following related support needs have been identified:

- Additional strengthening of institutional capacities for different parts of the transparency system that link to other regulations and laws.
- Institutionalizing processes related to transparency systems, such as collecting and sharing national and sectoral information, appointing focal points, and defining roles and responsibilities for transparency-related reporting.

- Enhancing the alignment of climate and sustainability targets (NDC, SDG, etc.) and MRV from the national to local levels so that local authorities can collect data to inform national targets.
- Enhancing arrangements and resources for effective institutional stakeholder engagement regarding existing national transparency systems and for future changes needed to enhance transparency over time, while staying in accordance with changes in UNFCCC and Paris Agreement modalities and guidance.
- Improving the effectiveness of existing institutional mechanisms in supporting the implementation of climate change and transparency policies.
- Robust mechanisms should be developed to track gender integration progress within NDCs/ LTS etc., ensuring transparency and accountability.



REPUBLIC OF THE MARSHALL ISLANDS

Integration and coordination of climate and resilience activities

To successfully implement the Republic of the Marshall Islands' (RMI) NDC and NAP process, an enhanced institutional framework for Climate Change and Resilience Coordination was activated in 2019 under the oversight of the Tile Til Eo Committee (TTEC). This framework allows RMI to coordinate the support and government action needed to address the country's challenges of implementing climate actions and transparency. Central to this mechanism is a facilitator who works closely with three Climate Change Directorate working groups on adaptation, mitigation, and cross-cutting issues and relevant ministries to help manage the coordination process for actions and transparency. This facilitation regularly updates the NDC Partnership Plan with needed and provided support, ensures that working groups are well equipped operationally to progress their collaborative work, including addressing the challenges of human resource constraints and needed building capacity, and helps address specific support to ministries and agencies (UNDP, 2019b).

Some key outcomes of the institutional framework are identifying and addressing gaps in coordination, identifying partners to assist with implementation and transparency, and ensuring that NDC implementation and the NAP process address social issues that are gender and youth-responsive (Ishiguro, 2023).

5.2 Strategy and planning

Actions that facilitate transparency reporting naturally feed into countries' strategic short-, medium- and long-term planning to address climate change, which involves incorporating actions to enhance transparency and the use of improved information for the Paris Agreement reporting of 5-year cycles for NDC revisions (next up in 2025) and 2-year cycles for BTRs (from 2024).[16] This includes developing and changing implementation and financing strategies and plans which support NDCs.

When it comes to NDCs, several countries, such as **Lebanon**, **Sri Lanka**, **Uruguay** and **Vanuatu** have participated in activities for their enhancement. This includes the development of methodological data sheets for mitigation actions reported in NDCs, developing NDC implementation roadmaps, or coordinating exercises in SDG and NDC synchronization with other national strategies and plans. National activities often go beyond specific activities linked to NDCs, as seen in **Ecuador**, **Kazakhstan**, **Lebanon**, **North Macedonia**, **Serbia**, **Sri Lanka** and **Tunisia** where countries have developed low-carbon transition or carbon neutrality development strategies, sectoral net-zero roadmaps, or climate mainstreaming plans, as well as other related long-term strategies.

In other cases, countries aiming to enhance their climate change knowledge have made efforts to do so through the development and validation of research and learning strategies, such as the activities undertaken in **Côte d'Ivoire** and **Sri Lanka** or by supporting specific studies on topics like short-lived pollutants or nature-based solutions, such as with studies in **Serbia**.

Identified support needs

Countries have highlighted several challenges that they see in synchronizing national strategies and plans with climate change transparency. Identified support needs are as follows:

- Resources and know-how to incorporate themes such as blue carbon, blue economy and circular economy into the next NDCs, including the related transparency elements.
- Developing a systematic national approach to climate change research needed for enhancing climate action and transparency.
- Capacity and know-how for incorporating enhanced climate action and transparency into future national development plans, including integrating subnational governments within the process.
- Engagement mechanisms for Indigenous Peoples in decision-making processes, and the tracking thereof, that respect their free prior and informed consent on all matters that impact on them and their rights.

16 Actions to enhance transparency and the use of improved information are highlighted through the other sections of this report, including the use of digital systems and other tools that play a significant role in developing national strategies and plans.

CHILE

Subnational climate change planning

Chile, in accordance with its long-term objectives, places great weight on reducing GHG emissions and strengthening resilience for all its territories. The country recognizes the importance of integrating climate action into planning at the regional and local levels. Instruments for achieving this are outlined in the Framework Law for Climate Change and include the preparation of Regional Action Plans on a territory level, and Communal Action Plans on a municipal level. So far, there are four Regional Action Plans in place for Chile's territories, while Communal Action Plans are expected to be submitted by 2025. These subnational strategies are required to align with one another, as well as with Chile's overarching Long-Term Climate Strategy (Gobierno de Chile, 2022).

Subnational governments have received elaborate guidance on the implementation of the Action Plans, the progress of which must be monitored and reported to the government. In addition, the Government of Chile, aiming to further enhance the institutional framework and the capacities of its municipalities, has established an alliance between the Ministry of Environment, the Secretariat for Regional Development, the Chilean Association of Municipalities, and the Association of Municipalities for Environmental Sustainability, as well as a Subnational Agenda for Climate Action. Through these actions, Chile aspires to effective and inclusive climate action planning and implementation at a local level (UNDP, 2022b).

5.3 Climate finance

Access to climate finance and reliable ways to monitor and evaluate the results of climate investments are challenges faced by countries aiming to develop and implement ambitious climate actions. Multiple countries also seek to build capacity by developing specific climate finance mechanisms based on different financial instruments. All these activities synchronize with transparency needs for monitoring and reporting climate finance support that is needed and received, and national budgeting/allocations and reporting of expenditures.

On an institutional level, establishing mechanisms to drive investment in and create an enabling environment for climate projects, such as the Green Investment Facility in **Lebanon** or the Energy Transition Fund in **Tunisia**, is a step forward for climate finance. Other countries such as **The Gambia** and **Ghana** have been building knowledge and institutional frameworks for finance relevant to their various mitigation actions. Specifically, **Ghana** has implemented a process and software to track climate finance support. On the other hand, **Uruguay** and **Côte d'Ivoire** have started the development of systems to institute green bonds, including relevant indicators for validating the success of the green bonds that are also linked to NDC and national development plan indicators.

Additionally, efforts in this area sometimes include research and finance analyses, including sectoral feasibility and studies for de-risking renewable energy investments, such as in **Côte d'Ivoire** and **Lebanon**.

Identified support needs

Some support needs that countries have identified to strengthen their abilities to make use of climate finance and related transparency are the following:

- Resources to fund further developing and implementing climate finance tracking tools.
- Furthering the design and implementation of national mechanisms and financial instruments to finance climate action, including the information systems needed to ensure effectiveness and transparency; for example, developing ITMO trading, green/blue bonds and climate-related funds.
- Flexible mechanisms to track direct access to climate finance by communities, that also address the capacity and context of communities on the ground.

LEBANON

Lebanon Green Investment Facility

Lebanon, intending to strengthen climate and green finance, is addressing several actions for designing and implementing the Lebanon Green Investment Facility (LGIF) with the collaboration of the World Bank and the Islamic Development Bank. The goal of the LGIF is to support climate finance by facilitating access to finance instruments for the public and private sectors (UNDP, 2021c).

The next steps in supporting the LGIF are the design of a LGIF climate finance mechanism, as well as investment options contributing to the implementation of Lebanon's NDC. Additionally, Lebanon will be developing a series of bankable projects for the LGIF, while also incorporating gender aspects into its overall finance strategy (UNDP, 2022f).

6. Collaboration helps fill in transparency gaps

6.1 Collaboration between national stakeholders

Collaboration of national stakeholders within and outside government is critical to enhancing climate change transparency. A whole-of-government approach usually includes horizontal collaboration between line ministries and vertical collaboration within ministries for information and data collection, where information and data often originate from the private and academic sectors. As an example of engaging with academia, **Serbia** and **Togo** formed agreements with national universities to strengthen data collection and management and carry out targeted studies as a part of both works on GHG inventories and mitigation actions. Moreover, part of countries' efforts in this area are dedicated activities for improving collaboration by providing capacity-building of national entities, such as the training activities on the IPCC guidelines in **Kazakhstan** and **Togo** which also includes strengthening the expertise offered by a diverse group of local experts. In **Cambodia**, **Costa Rica**, **Lebanon** and **North Macedonia** development organizations play a significant role in fostering collaboration between national stakeholders, specifically at the sectoral level for GHG inventory processes. In **Chile**, a somewhat different approach was taken where the facilitation of activities and fostering of collaboration at national and subnational levels for both the GHG inventory and MRV of mitigation was backstopped by permanent technical advisors stationed in the Climate Change Office.

Identified support needs

Countries see support needs in expanding or sustaining national-level collaborations, including the following:

- Enacting and improving institutional mandates to share information between national stakeholders.
- Capacity-building at the sectoral level to support an increase in the know-how of national stakeholders who address GHG inventories and mitigation and adaptation actions, while soliciting input from local experts to improve the implementation and efficiency of MRV and M&E systems.
- Including traditional knowledge, knowledge of Indigenous Peoples and local knowledge systems into the collaborations for climate change information processes.

TOGO

Collaboration with the University of Lomé

Although there is a limited amount of funds available for MRV processes in Togo (Polo-Akpisso, 2023), the country has effectively leveraged these funds to support the development of its national GHG inventory and mitigation analyses via the signing of a Memorandum of Understanding between the Presidency of the University of Lomé and the Ministry of the Environment (MoE) (Edou, 2022). The GHG inventory component of this agreement extends to the energy, IPPU, AFOLU, and waste sectors, while the mitigation component extends to the energy and AFOLU sectors (République Togolaise, 2021).

Support of this collaboration came in the form of training activities for all university actors and national experts on National Communications, IPCC guidelines and software, and the evaluation of policy and measures. Through these activities, Togo found that the overall understanding of the GHG inventory process regarding data collection, analysis, and management was greatly improved, as was the collaboration between the MoE and the University. Looking forward, Togo would like to continue building upon the collaboration of the government and other development partners, including those in the private sector (Polo-Akpisso, 2023).

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6.2 Collaboration between development agencies operating in countries

Multiple countries have sought to leverage collaborations with development agencies to strengthen their transparency reporting by accessing additional expertise and resources. Such collaboration has allowed countries to enhance GHG inventories, develop mitigation options and MRV systems, improve NDCs and progress reporting, and carry out adaptation studies. This type of development agency collaboration exists in **The Gambia** and **Uruguay** with collaboration between the governments there and UNDP, the International Renewable Energy Agency, and the Food and Agriculture Organization of the United Nations (FAO). Furthermore, countries have strengthened synergies between different projects by coordinating the collaboration between multiple development partners, as is the case for projects in **Costa Rica** and **Côte d'Ivoire**, where components of different projects involve the NDC Partnership agencies.[17]

In the Pacific region, development partners coordinate with the Regional Pacific NDC Hub and Pacific Island governments to implement projects addressing capacity-building and technical assistance involving sectoral actions and related transparency needs, such as in **Palau**.

17 The **NDC Partnership** brings together more than 200 members, including more than 115 countries, developed, and developing, and more than 80 institutions to create and deliver on ambitious climate action that helps achieve the Paris Agreement and the SDGs. Governments identify their NDC implementation priorities and the type of support that is needed to translate them into actionable policies and programmes. Based on these requests, the membership offers a tailored package of expertise, technical assistance, and funding. This collaborative response provides developing countries with efficient access to a wide range of resources to adapt to and mitigate climate change and foster more equitable and sustainable development.

CÔTE D'IVOIRE

Collaboration between development partners

Côte d'Ivoire benefits from a strong level of support from development partners who assist the government in addressing climate change, including enhancing transparency. An example of this was the collaborative efforts taken by the government and development partners to prepare **Côte d'Ivoire's enhanced NDC**, issued in 2022. These efforts included coordination and information sharing across numerous projects managed by NDC Partnership members including UNDP, United Nations Environment Programme (UNEP), United Nations Capital Development Fund (UNCFD), FAO, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Agence Française de Développement (AFD), African Development Bank (AFDB), and the International Labour Organization (ILO) (Côte d'Ivoire, 2022).

Much of the collaboration and information sharing by the partners under the enhanced NDC process was based on outputs from sectoral activities in adaptation, mitigation, and finance. This level of collaboration not only allowed for the determination of NDC commitments and support needs but also created a more transparent basis for information in the NDC, which was reinforced by the results of the different sectoral projects.

The extent of the collaboration during the enhanced NDC process also strengthened other transparency-related outputs, such as the GHG inventory and BUR reporting, development of mitigation and adaptation actions, and efforts for assessing vulnerability (Brou, 2022).

6.3 International collaboration between governments

Where national resources and expertise have not been sufficient to cover the needs of countries' transparency reporting, international know-how has been beneficial in bridging the gaps. This has mostly taken the form of collaborations between developing and developed countries.

In particular, candidates for EU accession have actively sought the aid of EU countries in their transparency efforts. Most notably, **Serbia** collaborated with Austria to develop its MRV IT platform, **North Macedonia** received guidance from the **Czech Republic** on UNFCCC and EU reporting requirements, and **Montenegro** leveraged Austria's expertise in improving its GHG inventory reporting and GHG projections.

Outside of the EU, other countries have also benefited from international collaboration. **Kazakhstan** has established collaboration with Russia in two areas, namely in receiving guidance on regulation and reporting on GHG inventory based on IPCC guidelines and introducing its ETS with the latter including additional participation of Belarus. In the case of **Tunisia**, support was provided by the French Environment and Energy Management Agency on the elaboration of regional scenarios and modelling for LEDS. At the same time, **Serbia** is cooperating with Japan on developing a roadmap for a just transition to a low-carbon economy, particularly regarding its coal-intensive regions and communities. Another country currently collaborating with Japan is **Sri Lanka**, which is working on overcoming barriers in the agriculture sector and related livelihood security in connection with NDC targets.

SERBIA

Partnership with Austria for information technology system

Serbia's transparency framework benefits from an information technology (IT) tool to support the MRV system. For its development, Serbia sought the collaboration of the Austrian Environmental Protection Agency (Umweltbundesamt). The tool was first hosted by the Austrian Environmental Protection Agency (UNDP, 2022e, p. 46) but has since been successfully migrated to Serbian government servers.

This national MRV-IT system consists of six different modules (UNDP, 2022e):

1. GHG Inventory;
2. Projections and Scenarios;
3. Policies and Measures (PaMs);
4. Climate Change Adaptation;
5. Climate Finance; and
6. NDC.

With Austria's support, Serbia also upgraded its MRV-IT system with two additional systems, namely a Climate-Smart IT system for local self-governments and a NAP-IT platform. Austrian funding also enabled Serbia to improve the links between these IT systems, as well as deliver training and capacity-building on MRV for members of local self-governments (UNDP, 2022e). The system is now complete, though not fully implemented, as additional capacity-building is required.

7. Ten key lessons learned in enhancing transparency

This report shares some of the best practices for implementing the ETF in 24 countries and how synergies and collaborations make a difference in the quality and level of transparency. Based on this experience, it is easy to see that several commonalities are shared across the different areas of the ETF in terms of what works well. These are highlighted below in the ten key lessons in enhancing transparency.

1. **The common strengthening and use of information leads to quality and efficiency.** Optimized transparency systems allow for the cross-utilization of quality data and other information for GHG inventories, mitigation and adaptation support and cross-cutting issues. Efficiencies are gained by national stakeholders when data parameters and additional information are well thought out, have a clear multi-purpose for use, and that sources are both identified and available.

2. **The ability to sustain qualified national human capacity plays a significant role in the magnitude of enhanced transparency that is achieved.** Many countries, especially SIDS and LDCs, need help with the availability and retention of qualified national human capacity. Many countries have successfully retained qualified national staff, in the form of national project management and technical consultants, by including the funding of their salaries in multi-year supporting programmes (e.g. GEF, GCF, and others). This also requires that supporting programmes are designed to provide funding for at least three to five years.

3. **Regional programmes and networks make a difference when it comes to enhanced transparency outcomes.** There is value in global programmes that provide know-how and assistance for enhanced transparency, however, regional programmes and networks have proven to make a difference, including in the volume of enhanced transparency-related outcomes. Examples of regional programmes are NDC Hubs in **Africa** and the **Pacific** and the regional networks that are embedded within the **Climate Promise**, **Global Support Programme** and **NDC Partnership**. These programmes and networks create solutions to common challenges faced by countries within regions and a means to share know-how and best practices, however, programmes are limited by the availability of technical experts with experience in the regions.

4. **Digital systems and tools are significantly increasing efficiency and their use is growing.** Three types of digital systems and tools increase the efficiency of professionals working with enhanced transparency. The first are modelling tools that help define GHG emissions trends, risks and impacts, mitigation and adaptation. The second are repository tools that consolidate national and subnational information into one accessible location, allowing for international reporting[18]. In some countries, online MRV tools combine these types of digital

18 The UNFCCC will soon make available a global digital platform for the international reporting of countries in the next generation of IPCC inventory software, as well as for common tabular formats for the reporting on progress informed within NDCs, BURs and BTRs.

systems and tools into a single customized digital solution. The third is the expanding use of online training platforms in the form of course webinars that allow for immediate interaction or on-demand courses that are self-paced. These digital systems and tools allow for greater participation and timely and efficient access to new transparency-related knowledge.

5. **Collaboration and coordination of activities save resources that can be used for greater transparency enhancement.** One of the challenges in enhancing transparency is when two or more projects address the same issue in a country, thus not only duplicating results but often leading to slightly different conclusions, making it difficult for countries to take the next step. Success in the use of resources is gained when there is continual group collaboration and coordination between national ministries and development partners. This often follows a centralized method for the national processes in NC/BUR/BTR reporting, NDC enhancement, NDC planning and investment, and other national climate change policy and planning.

6. **Collaboration between national stakeholders allows for continued capacity.** Much enhanced transparency work is ad-hoc within countries using national and international consultants periodically to address activities. Some countries have succeeded by establishing long-term formal collaborations and data share agreements with national universities and local NGOs or CSOs for routine activities, such as developed parts of NCs, BURs and BTRs. These national experts also contribute to the information systems' design, implementation, and efficiencies that contribute to enhanced transparency. Though these collaborations often require initial capacity-building and technical assistance for the national stakeholders involved, they help retain the know-how within the national stakeholders and help prevent having to start over when addressing routine activities.

7. **Knowledge sharing is paying dividends.** Experience shows that knowledge sharing impacts enhancing transparency in terms of quality of outcomes, resource use, and timing. Two methods for sharing knowledge are making a difference for countries. The first is tailored bilateral capacity-building between governments where staff work directly together to address enhanced transparency challenges. The second is online training platforms described in Section 4, where free knowledge-sharing platforms are operated by global partners offering solutions and physical seminars within regions. To further encourage using both methods, dedicated resources (e.g., person-hours and funds for expenses) must be allocated by governments and international agencies, including resources to encourage staff to participate in knowledge-sharing activities.

8. **International knowledge and skills are still needed to advance enhanced transparency.** Enhancing transparency is a continual journey for all countries that requires the completion of many dedicated activities. For many countries, this means implementing new information systems and pathways and enhancing older ones. This specialized know-how and skills often come from experienced international professionals and solutions that stay current on the latest innovations in their respective areas. Using these international professionals and solutions helps drive change in enhancing transparency and improving quality and efficiency.

9. **Gender and youth inclusion drives enhanced transparency and climate action**. With the global goal to limit temperature rise and long-term national goals to reach net-zero, global populations must be represented and included, in particular, women and youth.

Even though many activities are currently at the policy and planning level, there are some great examples of inclusion at the implementation and reporting levels of enhancing transparency and climate action. These activities often encompass the areas of culture, education, information sharing, and jobs, and sharing this experience and further innovation will be critical to the rapid enhancement of transparency.

10. **Interoperable capacity-building increases the quality and efficiency of enhanced transparency.** Nearly all actions for enhancing transparency include capacity-building within both the national and international parts of the ETF. Experience shows that the quality of outputs from, and the use of resources for, capacity-building activities increases with the amount of interoperability these activities have across the ETF themes, areas and elements. This includes capacity-building outcomes used across national climate change development policy and planning and financing activities. Interoperability in capacity-building also includes maximizing existing structures and institutions so that the outcomes of know-how, information, and related processes have multiple uses and are widely understood across different groups. This interoperability can also make a great difference in multi-level climate governance and related reporting. A good example is the training for, and use of, mitigation methodologies that require multi-source data parameters as inputs that serve as the same parameters for the MRV of emissions reduction. The same training materials and tools may also be used for capacity-building to implement supporting policies, structuring, accessing finance (especially results-based finance), and communicating results to the public and policymakers.

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