Food and Agriculture Organization of the United Nations

Aligning national drought plans with global and national policy frameworks

Methods, case studies and global lessons

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by

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Foreword

Building resilience to drought requires more than technical solutions. Most important, it demands coherent policies that link sectors, align priorities and translate global goals into local actions. In an era when climate shocks increasingly disrupt food systems, livelihoods and ecosystems, policy alignment has become a foundation of effective and sustainable governance. It ensures that actions across sectors and domains advance the Sustainable Development Goals (SDGs) in tandem, creating synergies rather than trade-offs between growth, equity and environmental integrity.

This report presents a structured approach to policy alignment in the context of drought management. It builds on global methodologies designed by the Food and Agriculture Organization of the United Nations (FAO) to assess policy coherence, identify gaps and promote integrated planning. Through the application of the multicriteria framework for national drought planning and the policy alignment methodology for implementation, the study demonstrates how alignment can enhance both preparedness and resilience. These tools provide governments with practical means to bridge the divide between policy design and implementation, ensuring that drought priorities are systematically embedded in national policy frameworks.

The findings underscore that policy alignment is not an administrative exercise but a driver of transformation. When countries align sectoral policies around shared objectives, such as drought risk reduction, land restoration and water security, they not only improve coordination but also optimize investments, mobilize co-financing, and generate broader social and economic benefits. In doing so, they lay the foundation for more adaptive and inclusive governance systems capable of responding to an increasingly uncertain climate future.

The report was prepared by FAO in collaboration with the United Nations Convention to Combat Desertification (UNCCD) under the framework of the project "Enabling activities for implementing UNCCD COP15 decisions on drought" funded by the Global Environment Facility (GEF). The project aims to enable the UNCCD Parties to address drought-related challenges and gaps and supports the operationalization of national drought plans according to the principles of integrated drought management.

We hope this report provides useful insights and cases to support more countries improving policy alignment to address the challenge of drought in the future.

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Abbreviations

COP	Conference of the Parties
DRR	disaster risk reduction
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
GIS	geographic information system
GWP	Global Water Partnership
ICT	information and communications technology
IDM	integrated drought management
IDMP	Integrated Drought Management Programme
IDRM	Integrated Drought Risk Management
NDMC	National Drought Mitigation Center
NDP	national drought plan
OECD	Organisation for Economic Co-operation and Development
REDD+	Reducing Emissions from Deforestation and Forest Degradation Plus
SDGs	Sustainable Development Goals
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification

Executive summary

This report presents a comprehensive set of methodologies, country experiences, and global insights to support governments in aligning national drought plans (NDPs) with national regulatory and policy frameworks. Strengthening this alignment is essential for advancing proactive, risk-based drought management and ensuring that national development processes, sectoral policies and international commitments work together to build resilience in the face of intensifying climate variability.

Positioning policy alignment as a core element of implementing national drought plans: Since its launch in 2018, the UNCCD Drought Initiative has encouraged countries to shift from emergency response towards preparedness and risk reduction. More than 70 countries have developed NDPs that emphasize flexibility, inclusiveness, gender responsiveness, and coherence with political priorities and the Sustainable Development Goals (SDGs). Because drought affects a wide array of sectors, effective implementation requires integrated governance and coordinated policies. International bodies such as the Organisation for Economic Co-operation and Development (OECD) and the Global Environment Facility (GEF) identify policy coherence as a prerequisite for sustainable development and the achievement of global environmental goals. Decisions of the Conference of the Parties of the United Nations Convention to Combat Desertification (UNCCD) similarly call for countries to capitalize on synergies across the Rio Conventions and other frameworks, promote ecosystem-based solutions, and harmonize data, reporting and planning processes. Policy alignment thus enables countries to avoid contradictory mandates, optimize resource use, and deliver multiple benefits, such as land restoration, biodiversity conservation, climate resilience and drought risk reduction, through coordinated actions.

Methodologies and approaches for advancing alignment throughout the planning and implementation of national drought plans: Addressing both the planning and implementation phases is essential because policy alignment must begin with well-prepared NDPs and continue as these plans are operationalized within national regulatory frameworks. In the planning phase, FAO's multicriteria assessment framework, focusing on 12 weighted criteria in the context of the integrated drought management pillars, provides a structured and objective method to review the quality and readiness of plans. It ensures that they contain the essential elements, such as risk assessment, institutional responsibilities, mitigation actions, and links to other policies, needed for meaningful integration. This methodology strengthens the internal consistency of the plans and identifies gaps that may hinder alignment with broader sectoral and legislative instruments. In the implementation phase, the policy alignment approach evaluates how drought is recognized within sector-specific policies through situational analysis, stocktaking of policy documents, cross-matching of sector relevance, and institutional analysis. Its objective is to embed drought priorities across sectors, enhance coordination mechanisms, and formulate recommendations that are universally applicable or tailored to national contexts. Together, these methodologies ensure that NDPs are both robust in design and effectively integrated into national policy frameworks, enabling more coherent and multisectoral drought management.

Insights from national applications of the alignment approaches: The application of the methodologies and approaches is piloted in 12 national cases that represent diverse geographic, institutional and climatic contexts. These cases demonstrate how the multicriteria assessment framework and

the policy alignment approach were applied either analytically or through in-country consultations to evaluate the readiness of NDPs, assess their linkages with sectoral policies, and identify opportunities to strengthen coherence. Together, they provide practical insights into how countries are advancing drought management within their regulatory frameworks and offer a basis for synthesizing global trends, common challenges, and emerging lessons:

- **Algeria:** The multicriteria assessment shows strong results in monitoring, risk assessment, mitigation and communication while revealing gaps in gender, vulnerable groups and coordination guidelines, reflecting the country's long-lasting, geographically uneven drought patterns. Cross-matching indicates robust drought recognition in forestry and water policies but exposes gaps in agriculture and irrigation frameworks, despite severe pressures on water resources in a largely arid landscape.
- **Burundi:** Burundi's plan scores well in monitoring, gender inclusion, communication, and priority actions but requires stronger coverage of vulnerable groups and phased drought actions, consistent with the country's history of severe, recurrent drought events such as those in the Bugesera depression. Cross-matching reveals strong drought integration in land restoration, water, agriculture, climate and disaster risk reduction policies but limited recognition in health and energy, despite the national-scale socioeconomic losses linked to past drought events.
- **Eswatini:** The assessment highlights strong monitoring, risk and vulnerability mapping, and phased actions while noting weaknesses in sectoral drought severity and sphere standards, reflecting the country's experience of major drought emergencies such as the 2015-16 event that led to widespread water rationing. Cross-matching shows that drought is well embedded in disaster risk, food security and agricultural policies but less clearly integrated into environmental and wetlands management frameworks, even though ecosystems are heavily affected by water scarcity.
- **Ghana:** Ghana's plan performs well in communication, risk assessment, and implementation priorities but is weaker on gender, vulnerable groups, and prioritization of water supply, mirroring the wide-ranging economic impacts of Ghana's recurrent droughts. Cross-matching indicates strong integration of drought in water, agriculture, climate and disaster frameworks, yet significant gaps in environmental sustainability, irrigation, livestock and health sector policies remain.
- **Grenada:** Grenada's multicriteria assessment shows strengths in communication, monitoring and gender considerations but gaps in risk assessment and mitigation actions, reflecting the particular vulnerability of a small island developing state with drought-sensitive sectors such as water supply and tourism. Cross-matching shows that drought is mainly addressed in water and climate adaptation policies, but concrete operational measures are limited in agriculture and disaster management frameworks despite the island's exposure to compounded climate risks with rapidly cascading impacts.
- **Guyana:** Guyana's plan scores strongly in monitoring, risk assessment, mitigation, gender and vulnerable groups but lacks detailed impact assessment methodologies, consistent with the country's exposure to drought in both coastal regions and hinterland agricultural areas. Cross-matching indicates explicit drought integration in water, agriculture, climate and disaster policies but limited recognition in health, forestry and land-use planning documents.

- **Mali:** The result shows strong performance in monitoring, risk assessment, gender and communication but reveals gaps in vulnerable groups, water prioritization and impact methodologies, in line with the country's severe drought impacts on agriculture and food security. Cross-matching highlights strong integration in water governance and disaster preparedness but weaker recognition in agriculture and health, influenced by the reliance on temporary emergency mechanisms rather than permanent drought institutions.
- **Montenegro:** Montenegro's multicriteria assessment shows comprehensive coverage of monitoring, risk assessment, communication and phased actions, reflecting its detailed treatment of drought impacts across agriculture, energy, water, forestry and health. Cross-matching shows strong integration in water, climate, forestry and disaster risk reduction (DRR) policies but insufficient attention to drought in energy and environmental frameworks despite increasing pressures on hydropower and ecosystem health.
- **Panama:** Panama's plan performs well in monitoring, mitigation and communication, with gaps in vulnerability, gender and staged actions, particularly critical given the country's high economic dependence on water availability for the Panama Canal. Cross-matching shows strong drought recognition in water security and climate adaptation frameworks but limited integration in disaster risk management, agriculture and food security policies.
- **Philippines:** The national drought plan of the Philippines shows strong performance in monitoring, communication, risk assessment and phased actions, but gaps remain in impact methodologies and gender mainstreaming. Drought management is integrated into the larger disaster management umbrella, organized in clusters. Cross-matching highlights that drought is well integrated into climate, water, forestry and disaster management policies though insufficiently addressed in several social and environmental sectors.
- **Sri Lanka:** Sri Lanka's multicriteria assessment reveals strong monitoring, risk assessment and gender considerations but weaknesses in drought response actions, water conservation and coverage of vulnerable groups, reflecting the significant impacts of drought on agriculture and energy. Cross-matching shows explicit integration of drought in climate, disaster and environmental frameworks but limited incorporation in broader sustainability and development policies, while the mitigation actions are almost entirely integrated in the water sector.
- **Tunisia:** Tunisia's national drought plan performs well in risk assessment, gender, vulnerable groups and communication while showing gaps in monitoring, impact assessment and drought indices, in a context where drought has cross-sectoral effects but is particularly severe in agriculture. Cross-matching indicates strong drought recognition in water, agriculture and desertification policies, supported by a dedicated Drought Management Guide. Yet, institutional coordination remains fragmented, with drought management still embedded within general disaster structures.

Overview of global progress in the policy alignment: The global outlook shows that countries perform strongly on the scientific and technical pillars of drought management, with monitoring and forecasting indicators approaching 90 percent; planning, legislation and communication scoring

at moderate levels between 50 and 70 percent; and social inclusion, gender, vulnerable groups and phased drought actions remaining below 30 percent. Mitigation measures across the reviewed NDPs demonstrate that aligned policies are translating into diverse sectoral responses, ranging from alternative water sourcing and conservation in the water sector to climate-smart agriculture, ecosystem restoration, health surveillance and energy diversification, reflecting both immediate and long-term resilience needs. Overall, alignment is most advanced in water, agriculture, environment, climate change and disaster risk management, where drought is widely recognized and policy frameworks are more mature. By contrast, sectors such as health, energy, education, gender, tourism and mining continue to show limited integration, with drought often framed narrowly within agriculture rather than as a systemic development challenge. These patterns indicate that while technical capacities have progressed considerably, institutional and social dimensions of drought governance are evolving more slowly, revealing a need for stronger policy coherence beyond traditionally drought-exposed sectors. They also suggest that advancing alignment in lagging sectors will be critical for achieving broader development objectives, as drought increasingly affects livelihoods, public services and socioeconomic stability in interconnected ways.

Advancing policy alignment through phased actions: The global recommendations on policy alignment are structured around three groups reflecting the degree to which sectors recognize drought and incorporate it into their policy frameworks. For sectors that already acknowledge drought and include priority actions, the focus is on strengthening institutional coordination, ensuring that drought priorities are embedded in budgets and operational workplans, and establishing regular reporting and impact assessment mechanisms to sustain implementation. In sectors where drought is recognized but not yet translated into concrete actions, countries are encouraged to designate lead institutions, identify and integrate priority measures into sectoral plans, and develop basic monitoring and reporting arrangements to anchor these actions in existing governance structures. For sectors that do not yet recognize drought, recommendations emphasize creating institutional coordination mechanisms, advocating for drought inclusion in sectoral agendas, conducting rapid assessments to identify entry points, and piloting priority actions to generate evidence for broader integration. Together, these tiered recommendations provide a progressive pathway for countries to deepen policy alignment across all sectors.

Operational pathways of translating policy alignment into investment planning and stakeholder engagement at subnational level: The results of policy alignment feed into two main follow-up directions that support the operationalization of the NDPs. The first is the development of investment plans through the policy-to-budget principle, which ensures that aligned policies are accompanied by dedicated financial resources, promotes multi-objective investment designs, and enables co-financing by balancing different risk appetites across public and private actors. This strengthens accountability, improves resource efficiency, and ensures that drought measures generate revenues even in off-drought periods. The second direction is the consideration of subnational needs, where alignment is scaled down to local levels through a process that includes the selection of drought risk hotspots, plan review, stakeholder consultations, formulation of recommendations, validation workshops, and final reporting. This approach anchors drought management in local needs, incorporates indigenous and community knowledge, and enhances ownership and sustainability of drought actions where impacts are most strongly felt.

Introduction

The Drought Initiative of the United Nations Convention to Combat Desertification (UNCCD) was established in 2018 to facilitate the change in the process from a reactive and crisis-based perspective towards proactive and risk-based drought management, thus improving the preparedness and resilience of communities. The Drought Initiative focuses on setting up drought preparedness systems, particularly national drought plans (NDPs); working together at the regional level to reduce drought vulnerability and risk; and providing a toolbox that stakeholders can use to boost the drought resilience of both people and ecosystems. The first focus area is directly related to improving strategic planning. To date, over 70 countries have joined the Drought Initiative and prepared their NDPs. Guidelines for the compilation of the NDPs highlight that the planning must be sufficiently flexible to match the country context; enable future modifications; consider all affected and contributing stakeholders, including vulnerable communities; and demonstrate gender-responsiveness. Additional requirements include demonstrated political commitment, responsible institutions, alignment

with the Sustainable Development Goals (SDGs), and expected collaboration among all stakeholders. Such cooperation is critical in the field of drought management, which involves a diverse and unique mix of sectors and their responsible organizations and stakeholder groups. Aligning the objectives and interests of all is a prerequisite for the resource-efficient and effective implementation of the NDPs.

The alignment of policy frameworks has widely recognized benefits. The Organisation for Economic Co-operation and Development (OECD, 2025) states that as the main objective of policy coherence, sustainable development requires governments to improve their ability to create, implement and monitor integrated policies by balancing trade-offs, aligning domestic and international goals, and managing policy spillovers on other countries and future generations. For the Global Environment Facility (GEF), policy coherence is understood as integrating environmental objectives into domestic policymaking by achieving coordination, maximizing benefits, and managing trade-offs across economic, social and environmental policy areas while balancing these domestic objectives with commitments under multilateral environmental agreements (Stafford *et al.*, 2022). The GEF sees policy alignment as crucial to ensure that global environmental benefits from its projects are not undermined by misaligned policies. At the global commitment level, the Conference of the Parties (COP) of the UNCCD consistently emphasizes the importance of leveraging synergies among the conventions because desertification, land degradation and drought are closely interlinked with climate change and biodiversity loss. Hence, coordinated action can deliver stronger, faster and more sustainable results. By reaching synergies, the Parties can avoid policy fragmentation, make more efficient use of resources, and generate multiple benefits at once, such as land restoration that simultaneously supports biodiversity, climate goals and resilience to drought. At COP15 (2022), the focus was on exploring complementarities, particularly aligning the convention-specific targets with other frameworks such as Nationally Determined Contributions, National Biodiversity Strategies and Action Plans, and the Sendai Framework. Also, decisions emphasized the promotion of the integration of satellite data and Earth observations into national planning and reporting. By COP16 (2024), this approach had evolved towards actively leveraging and scaling up synergies. It encouraged Parties to pursue holistic, ecosystem-based solutions; strengthen the interoperability of data and reporting systems; and promote joint science–policy collaboration among the conventions and their scientific bodies. To deliver the UNCCD mandate synergistically, countries are increasingly integrating land degradation neutrality into their national development plans. Over 120 nations have set targets with UNCCD support to restore ecosystems and enhance water security, thereby reducing drought risk. The policy alignment process is particularly important for mitigating drought events that affect multiple sectors simultaneously and through their cascading impacts. At the national level, when policies are aligned, countries can capitalize on harmonized processes, avoid counterproductive trade-offs, increase efficiency by avoiding duplication, and ensure that progress in one sector does not undermine gains in another.

This is because proactive drought management, similar to the concept of disaster risk management, is not a single sector but the application of drought-relevant plans, policies or strategies to mitigate risk by bringing together the needs of different stakeholders. Consequently, effective drought management cannot be achieved without integration into relevant regulatory frameworks. Furthermore, drought planning and management are complicated by their inherently "multi" nature, which involves numerous sectors, themes, time frames, spatial scales and stakeholders. It is crucial to incorporate each aspect into the plans without diminishing the importance of others. This level of integration demands a careful approach in developing these plans and contextualizing them in national policy frameworks. To date, there have been no guidelines and methods constructed to support the alignment process. The Food and Agriculture Organization of the United Nations (FAO), together with its partners, implements the GEF-funded project "Enabling Activities for Implementing the UNCCD Drought Decisions." The overall objective of the project is to support Member Countries in utilizing the information derived from the UNCCD Drought Initiative to complete the first steps of implementing NDPs. Supporting countries in the alignment of the NDPs with national

regulatory frameworks is among the project's direct objectives. By aligning the plans and policy frameworks, the process aims to address the challenges that persist in the implementation of integrated drought management (IDM). These challenges include weak governance and drought management, poor coordination, fragmentation, and policy and legal disconnect (UNCCD and UNESCO, 2024). If these challenges are not addressed systematically, the efforts to build drought resilience at the global, regional and national levels could be at risk. In turn, aligning policies can raise drought resilience on the political agenda by promoting resource-efficient and multi-objective drought management practices.

The policy alignment process in drought management planning offers numerous benefits, beyond merely responding to the global recognition of developing sector-specific policies coherent with others. The overall objective differs somewhat from other definitions. The policy alignment of NDPs aims to increase the recognition of drought in sector-specific policies by consistently mainstreaming resilience-building measures in their objective frameworks. Its specific objectives include better coordination among institutes, active involvement of stakeholders across all sectors, joint and leveraged resources, diverse communication channels, learning about cause–effect relationships, and rapid detection of risks. These objectives lead to results such as clearly defined responsibilities and roles, increased inclusivity and ownership, higher resource efficiency and knowledge transfer, more inclusive information flows, more accurate prediction of foreseen impacts, and improved effectiveness and timing of anticipatory actions. The objectives highlight the practical, institutional and operational outcomes of aligning the NDPs with national regulatory frameworks.

This report offers practical methodologies and approaches for aligning the NDPs with regulatory frameworks, while offering the foundation for the integration and alignment of needs at subnational level.

Contents of the report

The overall objective of the report is to support the Parties to the UNCCD in aligning drought management planning with national policy frameworks. The specific objectives are the following:

- to provide methodologies and approaches for the review and alignment of NDPs with policy frameworks;
- to showcase practices of the alignment process through national case studies;
- to establish a global overview of the status of the alignment;
- to provide a set of recommendations for implementing the policy alignment at the national level; and
- to specify further intended use areas of the policy alignment assessment results, including extending the process to subnational levels and integrating the findings into investment plans.

The report is structured according to its specific objectives (Figure 1). The first chapter explains the established methodologies and approaches required for the policy framework. It outlines the necessary resources and steps for implementation. The second chapter serves as a repository of national case studies, where the policy alignment exercise was initiated at either the analytical or in-country consultation levels. When the case studies were conducted at an analytical level, the chapter displays the globally applicable recommendations for conducting the policy alignment. Country cases with carried-out consultations include country-specific recommendations, too.

The second chapter concludes with the global overview, synthesizing the lessons learned from the case studies. The last chapter sets out a pathway for the intended use of the results of the policy alignment analysis. It gives an insight into the methodology of scaling the process at the subnational level. It also demonstrates how the results can inform drought investment plans by enabling the analysis of multisectoral objectives and benefits of investment cases. Consequently, the chapter proves how the policy alignment serves the purposes of integrating stakeholder views through community engagement and supporting resource mobilization. ■

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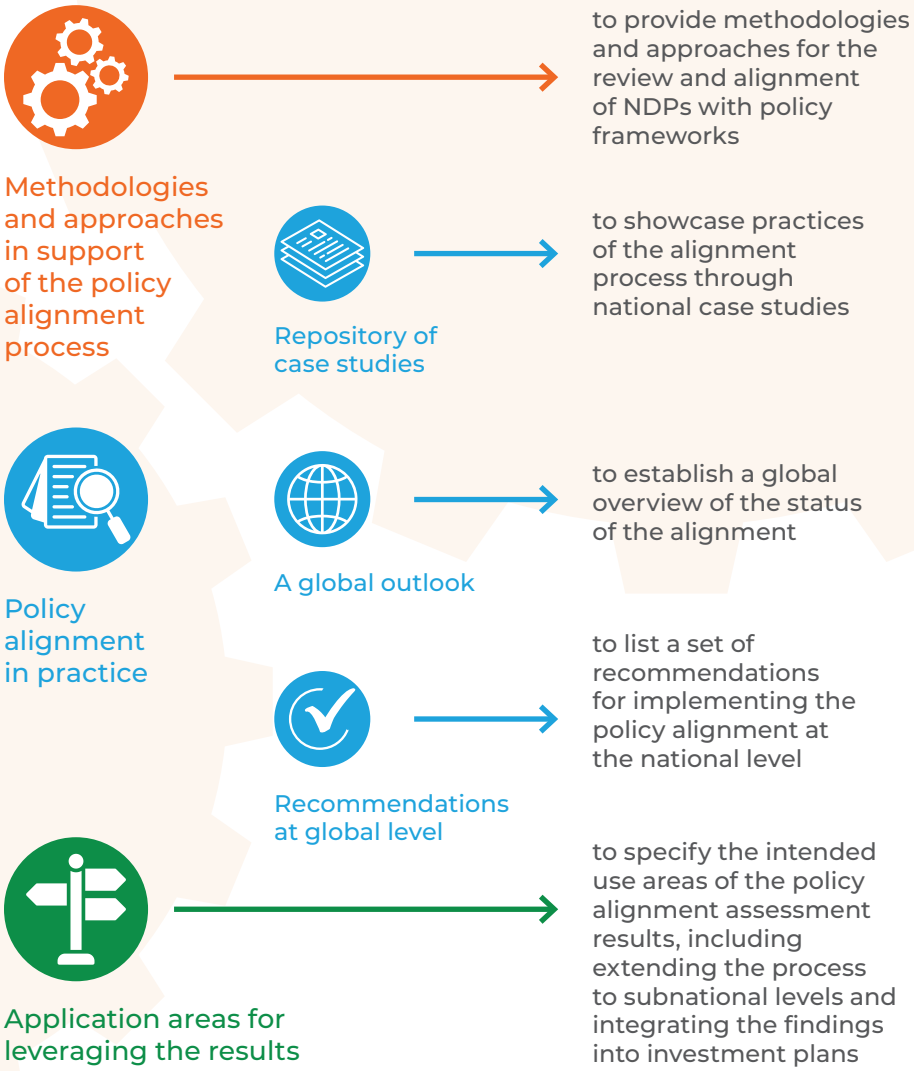
FIGURE 1. OUTLINE OF THE REPORT



Source: Authors' own elaboration.

1 Methodologies and approaches for aligning national drought plans with regulatory frameworks

The policy alignment process is mainstreamed into both preparation and implementation phases of the NDPs. Alignment at the design stage ensures that the NDP is consistent with other national priorities and international commitments. It allows policymakers to anticipate trade-offs, build in synergies from the start, and avoid contradictions or costly revisions later. Nevertheless, the alignment remains critical as contexts evolve, new data emerges, and cross-sectoral impacts become visible. Continuous alignment supports adaptive management, helps detect risks early, and ensures coherence between actual practices, financing flows and long-term objectives. In line with this, FAO's methodologies and approaches are phased into two steps. The first is related to the preparation or review of an NDP, and the second is related to the implementation of the NDP, as illustrated in Figure 2.

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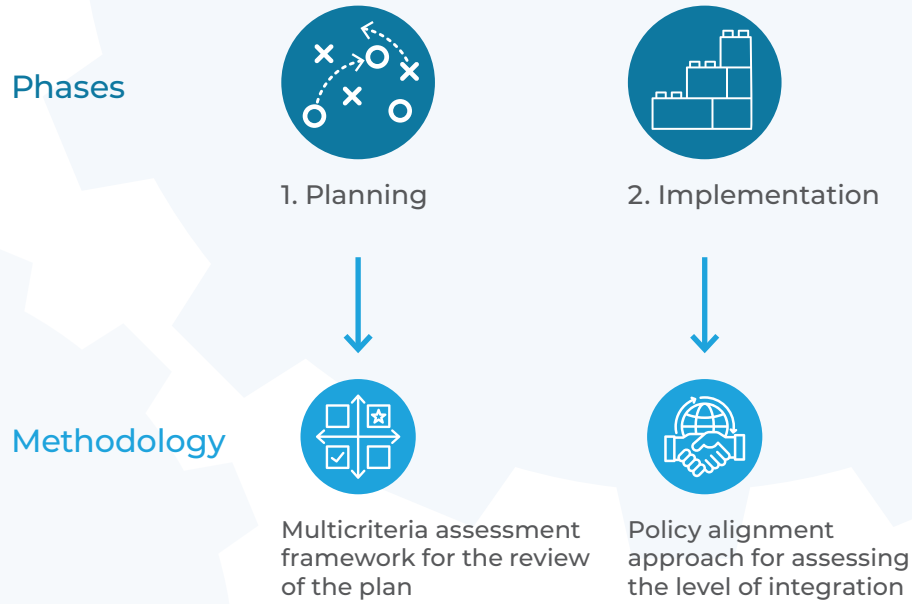
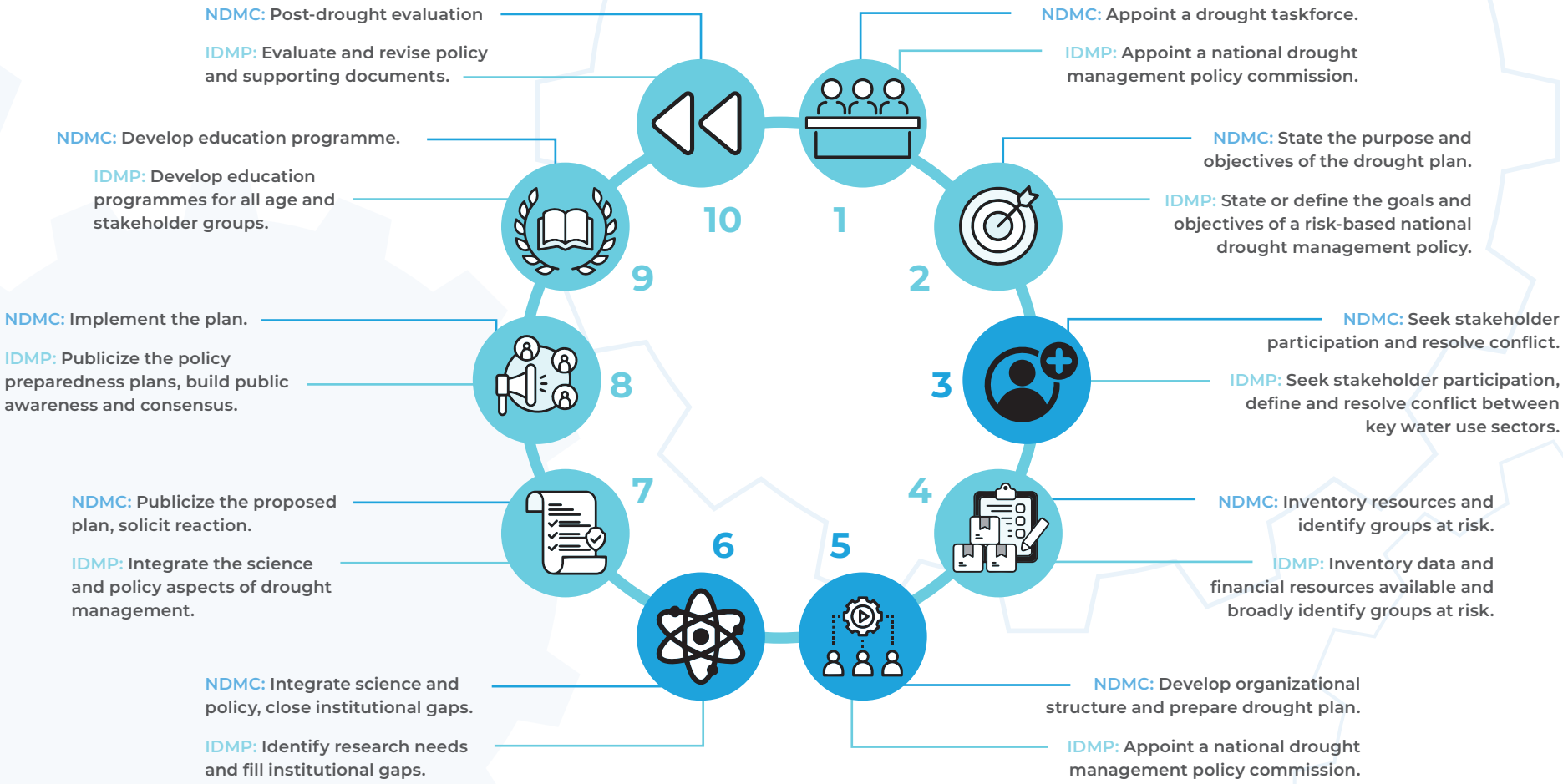
FIGURE 2. RECOMMENDED METHODOLOGIES AND APPROACHES UNDER THE PHASES OF DROUGHT MANAGEMENT



Source: Authors' own elaboration.

Understanding the planning process of the NDPs is crucial to constructing a methodology for making or reviewing the plans. Based on the recommendations of the UNCCD, the National Drought Mitigation Center (NDMC), and the Integrated Drought Management Programme (IDMP), the planning is structured in ten steps to reflect the countries' contexts (Figure 3). The NDPs prepared under the Drought Initiative followed this process.

FIGURE 3. TEN-STEP PROCESS DEFINED BY THE INTEGRATED DROUGHT MANAGEMENT PROGRAMME AND THE NATIONAL DROUGHT MITIGATION CENTER



Notes:
IDMP - Integrated Drought Management Programme; NDMC - National Drought Mitigation Center

Source: Authors' elaboration based the on Model National Drought Plan of the UNCCD. (https://www.unccd.int/resources/ publications/model-national-drought-plan).

Both the NDMC and IDMP processes involve steps that indirectly initiate policy alignment. These include ensuring stakeholder involvement, appointing responsible organizations, and integrating science, policy and institutions. These actions help align the drought plan with stakeholder-specific policy goals and their regulatory frameworks. The NDPs, following the ten-step process, initiated the stakeholder involvement by default. As a result, the relationship of the NDPs' objectives with national policies is detailed in the plans.

Beyond the ten-step planning technique, the NDP guidelines prepared by the UNCCD and IDMP offer the desirable structure of the information content, as shown in Figure 4. The principles of the NDP preparation include but are not limited to the following:

- broadly outlined structure to provide flexibility for future changes, thus reflecting the rapidly evolving contexts of drought impacts and vulnerability;
- inclusive and equitable contribution to all regions, population groups and sectors while reflecting on regional differences in drought characteristics, vulnerability and impact;
- strong adherence to the SDGs through alignment with the targets;
- demonstrated cooperation among all stakeholders, including agencies, national authorities and institutions and communities, and incorporated assessment of needs and resources;
- proven political commitment, supported by suitably prepared and efficiently functioning institution and governance; and
- preparedness at all levels, from individuals and communities to relevant authorities, through existing information and their sources.

All principles encourage policy alignment, either directly or indirectly, by emphasizing the importance of stakeholder involvement, adherence to global commitments, and political support.

FIGURE 4. CHAPTERS OFFERED BY THE MODEL NATIONAL DROUGHT PLAN

Source: United Nations Convention to Combat Desertification (UNCCD). 2018. Model National Drought Plan. https://www.unccd.int/sites/default/files/2021-12/Model%20National%20Drought%20Plan%20Guidelines.pdf

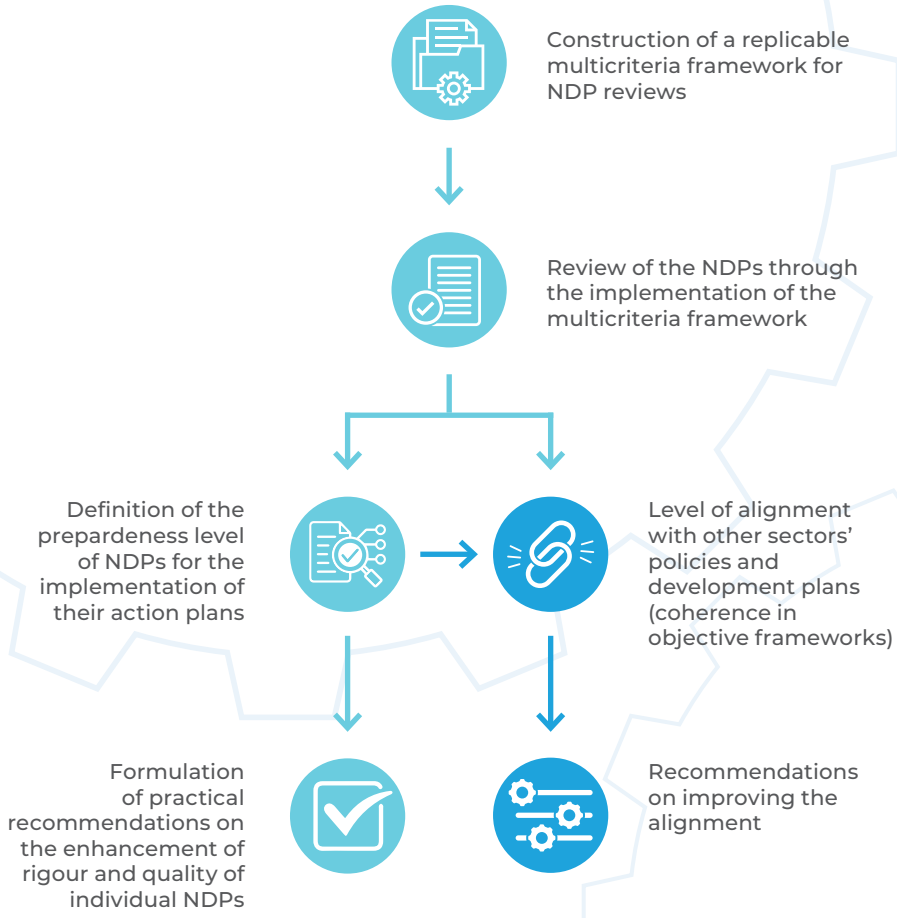
Within the NDP structure, Chapter 2 – the relationship with other plans and policies – aims to explore how the NDP is linked to national water laws, drought mitigation strategies and international laws. While the chapter does not directly address sector-specific alignment, combined with the sections on organization, responsibilities and impact assessment, it offers useful insights into the level of integration. Chapter 9 on recommendations and implementation includes information about updates to the plan, in line with the principle of flexibility. In general, the NDPs have a 5-year implementation window, after which a review process is recommended. Existing plans without demonstrated policy alignment implementation should consider a robust methodology-based chapter that extends beyond alignment with water laws and policies. FAO's multicriteria framework for the review of the NDPs is established to support this process.

1.1. Planning phase: a multicriteria framework for the review of national drought plans

The development of a multicriteria assessment methodology was driven by the need to prepare the NDPs for action. This approach offers a step-by-step process for reviewing existing plans or emphasizing guidelines and principles crucial for creating new ones. Because drought management practices differ widely among countries, assembling background information and required actions demand technical expertise. Therefore, the technical details of the NDPs are not directly comparable or easily transferable. As a result, assessment frameworks should evaluate the robustness of planning methods in determining how well-informed the plans are rather than how accurate their content is.

To address this demand, FAO developed a multicriteria framework that helps identify which sections of the NDPs need revision, including those related to policy frameworks. This methodology contextualizes policy alignment within the overall plan, as demonstrated by Figure 5.

FIGURE 5. CONTRIBUTION OF THE MULTICRITERIA ASSESSMENT FRAMEWORK TO THE POLICY ALIGNMENT PROCESS AT THE PLANNING PHASE



Source: Alkadir, M.A., Pek, E. and Salman, M. 2022. A multi-criteria assessment framework for national drought planning. Rome, FAO. https://doi.org/10.4060/cc1276en

1.1.1. Methodology of the multicriteria framework

The methodology relies on reference texts that outline key principles and requirements for drought planning. These guiding publications related to IDM are the primary tools for maintaining the criteria framework's objectivity and alignment with globally recognized standards. Several reasons support using these texts along with the model NDP:

- Utilizing multiple resources provides a thorough and integrated understanding of realistic NDP content;
- Focusing on different aspects of the NDP calls for specific guiding documents; and
- The rapidly evolving policy environment and new challenges demand drawing from a diverse set of resources.

The 13 reference documents and their relevance to the review are detailed:

The Drought Resilience, Adaptation and Management Policy Framework

Part 4 of the document outlines actions that reduce exposure and vulnerability while increasing resilience and fostering transformations. It explains how to prepare for, respond to, and recover from drought. It guides the process of transferring and sharing drought risks, which are also connected to mitigation and response measures. Therefore, the recommendations and implementation actions are used during the assessment of the main criteria related to response efforts and necessary interventions at various stages of drought events.

The Drought Resilience, Adaptation and Management Policy: Supporting Technical Guidelines

The Guidelines outline the multicriteria system concerning indices and indicators, types of drought, risk and vulnerability assessment formulas, communication and responses. They also offer guidance on how to reduce exposure and enhance resilience to drought, along with recommendations related to some of the IDRM pillars.

Strategic Framework for Drought Risk Management and Enhancing Resilience in Africa

The proposed elements of the strategic framework and their guiding principles have a strong connection to the three pillars. Therefore, the document contributes to the core criteria of the NDPs and encompasses the multicriteria system. However, it only addresses the necessary alignments of NDPs within the context of Africa.

Gender Mainstreaming in Drought Management

This text offers guidance on the importance of a gender-responsive approach to NDP design. It highlights several relevant issues, such as the significance of including gender considerations in the formation of taskforces and committees, the need to involve both women and men in the overall process and decision-making, the assessment of different challenges faced by each gender, and the needs and priorities of men and women. Topics like why gender matters, gender mainstreaming in the NDP, and the gender entry point in policy formulation are connected to the basic and additional criteria covered in the NDPs. Moreover, the text lists resources that experts can consult when incorporating gender perspectives into NDP preparation and disaster risk management.

National Drought Management Policy Guidelines: A Template for Action

This document thoroughly elaborates on the ten-step process that provides an outline for planning. It is linked to the additional criteria for introducing the ten-step process in the NDP. It also relates to the drought risk and impact assessment, mitigation and response activities of the NDPs.

Hyogo Framework of Action: Building the Resilience of Nations and Communities to Disasters

This document outlines the priority actions covering all types of disasters, including drought. Among others, these priorities include establishing a strong institutional foundation for implementation; identifying, assessing and monitoring disaster risks alongside early warning systems; and utilizing knowledge, innovation and education to foster a culture of safety and resilience at all levels. These elements contribute to the main criteria related to monitoring and impact assessments, involving the most vulnerable groups, and communication and response actions. They also inform additional criteria concerning organizations and responsibilities.

The Sendai Framework for Disaster Risk Reduction

The defined priorities and guiding principles of the framework are linked to and contribute to additional main criteria primarily related to organizations and responsibilities, and secondarily to mitigation and response actions.

Framework for the Assessment of Benefits of Action/Cost of Inaction (BACI) for Drought Preparedness

Chapter 2 discusses why there has been a lack of action on drought risk management, and Chapter 3 summarizes some of the current tools and approaches to drought risk management. Both aspects relate to issues covered in the NDPs, such as understanding drought and its impacts, thereby emphasizing the importance of the NDP and the tools of drought risk management linked to vulnerability and risk assessment.

Drought Risk Reduction Framework and Practices: Contributing to the Implementation of the Hyogo Framework of Action

The framework broadly references the NDPs, covering various topics such as understanding disaster risk and risk governance, investing in risk management, and improving disaster preparedness. This information is comprehensive and spans both the main and additional assessment criteria.

The Sphere Handbook

The handbook is partly overarching and partly specific to content within the criteria framework. From a direct content perspective, the most important references are the quality, quantity and source of water; the capacity related to the gender aspect; and the role of communication in the humanitarian response. Such guidance relates to drought response actions, considerations for gender and vulnerable groups, and communication aspects included in the multicriteria framework.

Integrated Drought Management Programme website

The online toolbox presents the three pillars of the IDRM. It provides information on: what should be monitored; why it is monitored; how the assessment of impacts is conducted; and what short-term, medium-term and long-term measures are implemented. This information is linked to and contributes to most of the basic criteria of the assessment.

Handbook of Drought Indicators and Indices

The handbook explicitly references the main criteria related to the first pillar of IDRP, specifically concerning indicators and indices, early warning and forecasting, and impact assessments. The repository of indicators and indices assists in selecting the most suitable options for the country's context.

Drought Impact and Vulnerability Assessment: A Rapid Review of Practices and Policy Recommendations

The review contributes to the main criteria related to the second pillar of IDRM, specifically regarding drought monitoring, forecasting, impact assessment, risk, and vulnerability assessment.

Box 1. Latest guidelines relevant to the review process

The Food and Agriculture Organization of the United Nations (FAO) and its partners have published several international guidelines since the establishment of the methodology for the multicriteria assessment framework. The guidelines are the product of the collaboration with the drought community-of-practice, including the UNCCD Parties that participated in the FAO GEF-funded project. Using these guidelines as further references is recommended to ensure that up-to-date information, tools and methodologies are considered during the review process.

Mainstreaming gender in national drought plans, national action plans and national policies *by FAO and the Global Water Partnership (2025)*

Gender-transformative approaches engaging both women and men as agents of change are essential for overcoming social barriers and promoting equality. The Feminist Critical Policy Analysis Framework offers a structured approach to evaluate drought policies through a gender lens, identifying gaps and enhancing gender integration. Case studies of Grenada, Jordan and Somalia reveal areas for improving gender and social inclusion in drought planning. The Minimum Standards for Mainstreaming Gender Equality and Social Inclusion in Climate Action guide the development of gender-sensitive policies.

Source: Mwale, N.S., Sievers, L.M., Bokal, S., Salman, M., Stefanski, R. & Aich, V. 2025. Mainstreaming gender in national drought plans, national action plans and national policies.Rome, FAO. https://doi.org/10.4060/cd4147en

Guidelines on institutional coordination for drought management *by FAO, Global Water Partnership, and the World Meteorological Organization (2024)*

Drought has direct or indirect impacts on all aspects of society, the environment and the economy. This multifaceted nature has implications for managing drought events, particularly in coordinating mitigation efforts. Institutional coordination and communication are vital for drought management as they enable effective collaboration among government agencies, stakeholders and communities. Coordinated efforts facilitate the sharing of information, expertise and resources, leading to more robust risk

assessments and drought management plans, improved community engagement, more timely response, and better preparedness for drought events.

Source: Walker, D.W., Salman, M., Pek, E., Stefanski, R. & Aich, V. 2024. Guidelines on institutional coordination for drought management. Rome, FAO. https://doi.org/10.4060/cd2282en

Economic assessment of drought risk management: a two-tier framework for cost–benefit analysis of proactive versus reactive drought management *by FAO (2024)*

Different and evolving drought events can be mitigated with varying proactive measures, but the best trade-off between efficacy and profitability – be it a financial or an economic profit – must be targeted. The report investigates the broad concept of the economics of drought management; provides a conceptual, two-tier framework for the assessment of proactive and reactive actions; and disseminates case studies for the implementation of the framework in decision-making processes. This report aims to assist decision-makers, policymakers, planners, and national authorities responsible for planning and programming to conduct an exhaustive economic assessment related to drought. With the knowledge gained from the report, a critical step in the drought investment decision-making process can be effectively undertaken.

Source: Cuevas, S, Pek, E. & Salman, M. 2024. Economic assessment of drought risk management – A two-tier framework for cost–benefit analysis of proactive versus reactive drought management. Rome, FAO. https://doi.org/10.4060/cc9981en

The multicriteria framework was developed by reviewing the reference documents and examining the NDPs, shown in Figure 6. As of the period of the assessment, 31 NDPs were officially published under the Drought Initiative. Most of the criteria reflect the sections recommended in the model NDP, while some extra criteria were added to make the assessment more thorough. A quick screening of the NDPs also helped identify what information was realistically available. To make the assessment more objective and move from qualitative to quantitative analysis, 12 criteria were established, each with a specific weight (Figure 6). The first group of four criteria provides background and context for the NDPs, with each weighted equally. The second group includes eight criteria directly linked to the IDM pillars. These eight criteria measure how ready the NDPs are to implement actions. Each criterion was further divided into subcriteria to ensure no important information was overlooked. Subcriteria also make it easier to identify missing content and suggest improvements. Every NDP was reviewed against these subcriteria, using multiple readings and a scale to score performance. The subcriterion scores were then aggregated into a total. Any gaps from this maximum indicates the amount of work required to strengthen the plan. Finally, the results of the assessment were reviewed by experts through consultations and peer review. This process reduced bias and confirmed the final evaluation of the NDPs. Further details on the criteria and subcriteria are available in the Annex.

FIGURE 6. SCORING SCHEME OF THE MULTICRITERIA ASSESSMENT FRAMEWORK

	Additional criteria					Main criteria						
Subcriteria	Background	Relationship with other plans and policies	Overview of drought	Organization and assignment of responsibilities	Monitoring, forecasting and impact assessment	Drought risk and vulnerability	Gender consideration	Vulnerable people and the sphere standard	Drought communication and response actions	Drought mitigation and response actions	Recommen-dations and implementa-tion actions	Required actions at various stages
	Purposes, scope, goals and objectives	National water laws	Historical occurrence	Organizational overview	Drought indices	Drought risk and vulnerability assessment	Membership of the taskforce	Vulnerable people's consideration	Drought communication protocol	National water resource monitoring and impact assessment	Priority implementa-tion actions	Pre-drought
	Introduction of the ten-step process	Mitigation strategies and planning	Under-standing of drought	Assignment of responsibility	Drought monitoring, forecasting and data collection	Geographic information system (GIS)-based mapping	Reflection in the NDP basic contents	Sphere standard consideration	Declaration of drought condition	Development of new and alternative water resources	Future updates and revisions	During drought
		Importance of NDP	Drought impact by sector		Drought severity in all relevant sectors	Drought risk areas and/or locations			Communication and coordination guidelines	Water conservation practice, public education and awareness creation		Post-drought
		Access to safe water			Drought impact assessment methodology				Drought response actions	Prioritization of water supply for all people at an affordable price		
										Legislation and land use planning		

Source: Authors' own elaboration.

The multicriteria framework supports policy alignment at the planning phase by providing a structured and objective way to assess the quality and readiness of the NDPs before they are linked with other development and sectoral frameworks. First, it supports policy alignment by assessing those chapters that directly deal with other sectors' involvement. Second, by breaking down the plans into clear criteria and subcriteria, it highlights gaps and generates concrete recommendations for improvement. This ensures that when the plans are brought into alignment with broader policies, they already contain the essential elements that make integration meaningful. For example, rigorously assessing drought risk is crucial for identifying the geographical areas where interventions are needed. Subsequently, the importance of national policies can be evaluated based on how extensively they are implemented in those areas. Clearly defined mitigation actions specify which sectors' interventions are cross-cutting. In this way, the framework acts as a foundation. It strengthens the internal consistency of the NDPs so that policy alignment is not just about avoiding conflicts but about embedding well-prepared, actionable strategies into different agendas.

1.2. Implementation phase: an approach to align national drought plans with the regulatory frameworks

The policy alignment approach is advised during the NDP implementation phase, when the plans are finalized, but additional steps are needed to move closer to the objectives. The overall objective of analysing the alignment between the NDPs and national regulatory frameworks is to integrate drought priorities across different sectors. Further goals include enhancing institutional frameworks and coordination mechanisms responsible for drought management; effectively involving stakeholders; facilitating communication and information exchange on drought and risk detection; and mobilizing resources for interventions.

The policy alignment approach involves an analytical work that evaluates the recognition of drought in the objective frameworks of the relevant sectors' policy agendas. It is phased into a situational analysis at the national level and the evaluation of the policy framework. At first, a situational analysis is conducted to inform the alignment process about the country context and its main features, including climate, geography and socioeconomic background. The situational analysis draws on the information provided by the NDP, the outcome of the multicriteria assessment for national drought planning, and further desk research. The evaluation of the policy framework in the context of the NDP has five steps: identification of sectors relevant to drought; stocktaking of policies, strategies, plans, frameworks and commitments at national and international levels (hereafter referred to as documents); cross-matching the attributed weight of drought in the documents; analysis of institutional responsibilities; and formulation of recommendations to integrate drought in the sector-specific objectives.

Definitions of the sectors directly or indirectly affected by drought, which require actions to mitigate the impacts (e.g. agriculture, livestock, water resources) or have potential contribution to integrated drought management (e.g. weather service, statistical service). The sectors are identified based on the recommendations of the NDP and keyword-specific search in FAOLEX.

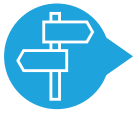
Identification and collection of the original texts of sector-specific policies, strategies, plans, frameworks and international commitments that are in force. The stocktaking categorizes the documents according to national and international relevance.

Comparison of the identified relevance of the sector in the NDP and the reference to drought in each document. The cross-matching highlights the consistency or the inconsistency between the position of drought in the sector-specific agenda and the stress on the sector in the NDP. For example, irrigation is arguably a priority sector in the case of agricultural drought.

If the irrigation sector planning has poor reference to drought, the inconsistency is flagged. And vice versa, if the sector planning refers to drought mitigation, but the NDP does not address the sector sufficiently, the inconsistency is flagged. Overall, the analysis results classify the revised documents into three groups:

- **Group 1:** Acknowledged drought with some drought-related priority actions.
- **Group 2:** Acknowledged drought without drought-related priority actions.
- **Group 3:** No recognition of drought.

Analysis of the allocated roles, responsibilities and mandates of the involved organizations. An institutional framework is the connector between drought management and specific sectors. The organizational responsibilities depicted by the NDP overlap with the organizational charts of the sectors. The overlapping enables the identification of those responsibilities that might remain uncovered or represent a redundant organizational mandate.



Formulation of recommendations to align the policies. The recommendations are phased into short-, medium-, long-term actions as per the required timespan of the desired impact. The recommendations are concisely defined to allow for flexibility in the implementation. There are two sets of recommendations:

- **Universally applicable:** recommendations that are applicable in all countries and contexts;
- **Country-specific:** recommendations that are formulated through a national consultation process, hence, are tailored to the specific country.

The second approach to policy alignment represents a concrete action during the NDP implementation because it translates finalized plans into practice by embedding drought priorities directly into sectoral policy agendas. While the multicriteria framework strengthens the internal quality of NDPs, the alignment process operationalizes them by ensuring that their objectives are taken up across sectors. In this way, policy alignment moves the NDP beyond a strategic document towards an integrated tool that guides the implementation across sectors, bringing drought resilience objectives closer to the sector-specific objectives.

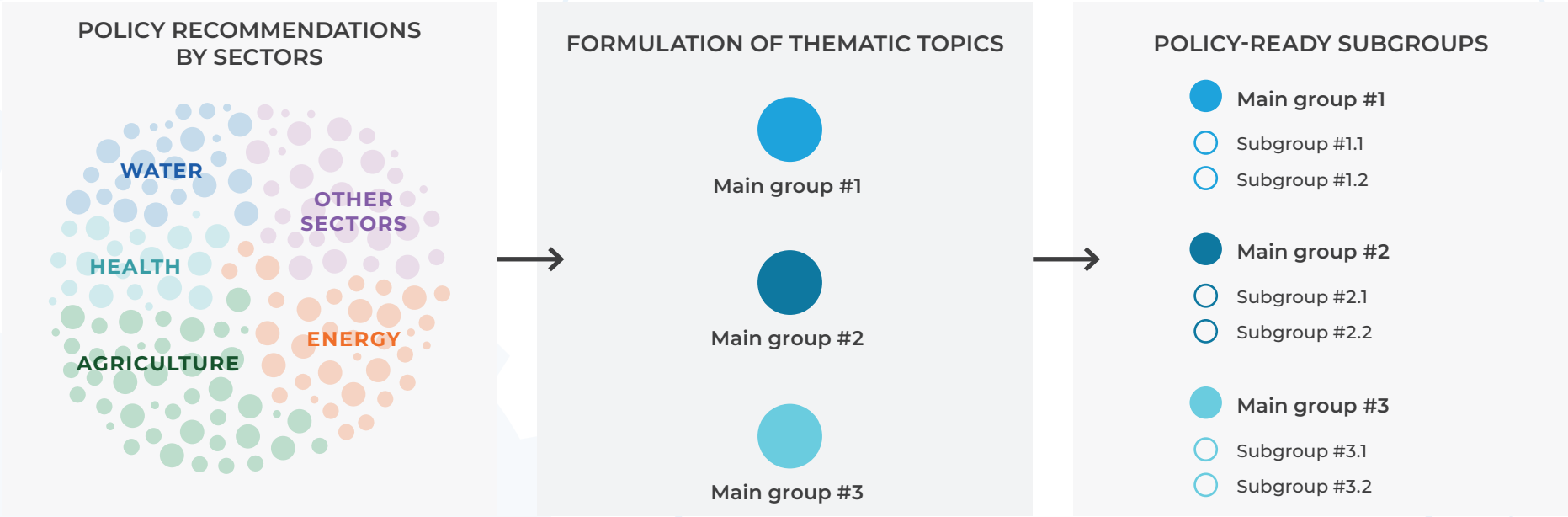
Although the FAO-defined approach offers globally applicable and ready-to-use recommendations for aligning the NDPs with regulatory frameworks, country-specific recommendations should be based on a supplementary process. These recommendations vary depending on the unique governance, political, and legislative circumstances of each country.

1.2.1. Process for country-specific recommendations

The process typically begins with broad consultations at the national level. A platform is established where all relevant stakeholders representing all sectors are invited to contribute. The objective of this stage is to gather a wide range of perspectives and ensure that policy objectives from different fields are represented. Effective participation requires stakeholders to have a clear understanding of their sector's policy priorities, negotiation skills, and the authority to make decisions. This inclusive approach helps identify existing policies and gaps, ensuring that initial recommendations are comprehensive and relevant to the needs of all stakeholders.

Once consultations are completed, the process advances to developing recommendations, as shown in Figure 7.

FIGURE 7. PROCESS FLOW OF THE DEVELOPMENT OF COUNTRY-SPECIFIC RECOMMENDATIONS



Source: Authors' own elaboration.

At this stage, policy proposals are crafted by sectors and then grouped thematically to transcend traditional silos. This approach enables policymakers to address issues comprehensively, recognizing interconnections such as how water management relates to agriculture or how energy policies impact environmental outcomes. When defining these groups, the process may employ manual methods or utilize technology-based tools. However, technology-driven grouping, like large language models, requires careful application to ensure recommendations remain aligned with national priorities. These conditions include:

- **Geography:** Recommendations covering the geographical areas with drought risk should be ranked over the others.
- **Priority topics:** Issues that have priorities in the development agenda, such as emergencies or human rights concerns, should be considered independently and with priorities;
- **Decision-making power:** Issues that are considered to be priorities but are downplayed due to structural issues, such as weak institutions or negotiation power, should be recognized and formulated independently.

The final phase involves refining these recommendations into policy-ready outputs. Thematic groups are broken down into smaller, more targeted subgroups, each with a focused set of recommendations that align with national priorities. The process emphasizes logical structuring, prioritization and efficient resource allocation, ensuring that recommendations are not only comprehensive but also feasible to implement. By systematically narrowing down from broad consultations to specific, actionable policies, this process ensures that the resulting recommendations are both inclusive and practical, ready to be aligned with national frameworks and development objectives. ■

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2 Policy alignment in practice

Analysing the alignment of the NDPs and the national regulatory frameworks is a crucial step towards implementing the plans. The policy alignment methods and approaches described in the previous chapter were applied to the national case studies. Twelve countries were involved to analyse the level of alignment, relying on the multicriteria assessment framework and the policy alignment approaches. The 12 countries represent all UNCCD and FAO regions, thus providing a global overview and framing the analysis in distinct contexts. Based on the outcomes of the 12 case studies, a global overview of the trends and challenges in the alignment is constructed. The global overview concludes by examining how NDPs relate to different sectors, identifying the most integrated sectors and highlighting where consistent gaps exist, including in relation to development objectives.

2.1. Repository of national case studies

The results of each case study are presented considering these elements:

- The multicriteria assessment helps countries determine whether their plans are ready for implementation or require revisions beforehand. An overall performance assessment of the case is presented, and areas that need improvement are identified.
- Sectors relevant to drought are identified by providing a sector-specific overview of impacts and adaptation measures. This is crucial as it helps determine which stakeholders should be actively involved based on the sectors affected by drought.
- Results of the stocktaking of policies, strategies, plans, frameworks and commitments at all levels are provided. The stocktaking of policy documents follows a top-down approach, presenting international, regional and national documents in sequence.
- The policy documents outlined in the stocktaking are then cross-matched. The cross-matching process involves assessing the relationship between sector-specific policies and drought. The three groups of documents, distinguished by the level of recognition of drought-related priority actions, are matched with recommendations grouped into short-, medium-, and long-term actions, indicating the necessary time frame for implementation.
- The analysis of institutional responsibility is included to complement the other elements presented. The institutional context is crucial for policy alignment as it provides a roadmap for harmonizing the NDP with national policy frameworks and ensures better coordination among institutions, leading to well-defined mandates, roles and responsibilities.

Overall, the national case studies highlight gaps, strengths and opportunities to improve coherence between drought planning and national policy frameworks. They also provide a reference model to guide similar assessments in other countries and promote the integration of drought risk considerations into wider policy and planning activities.

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2.1.1. Algeria

Algeria joined the Drought Initiative supported by the UNCCD in 2019. The country prepared its NDP based on the IDM pillars, the model NDP and complementary technical guidelines, and a broad consultation approach was employed during the NDP's development. The analysis of policy alignment in Algeria showed that the country is among the few in the Near East and North Africa region to have established strategic plans for drought management.

FIGURE 8. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR ALGERIA

Monitoring, forecasting and impact assessment	Drought risk and vulnerability	Gender consideration	Vulnerable people and sphere standard	Drought communication and response actions	Drought mitigation and response actions	Recommendations and implementation actions	Required actions at various stages
Drought indices	Drought risk and vulnerability assessment	Membership of taskforce	Vulnerable people consideration	Drought communication protocol	National water resource monitoring and impact assessment	Priority implementation actions	Pre-drought
Drought monitoring, forecasting and data collection	GIS-based mapping	Reflection in NDP basic contents	Sphere standard consideration	Declaration of drought condition	Development of new and alternative water resources	Updates and revisions	During drought
Drought severity in all relevant sectors	Drought risk areas and/or locations			Communication and coordination guidelines	Water conservation practice, public education and awareness creation		Post-drought
Drought impact assessment methodology				Drought response actions	Prioritization of water supply for all people at affordable price		
					Legislation and land use planning		

Need for complementary information — All required information available

Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Algeria

In relative terms, Algeria's main criteria assessment highlights strengths in NDP preparation, including monitoring, forecasting, impact assessment, drought risk and vulnerability, drought mitigation and response actions, drought communication and response actions, recommendations, and implementation actions, as described:

- **Monitoring, forecasting and impact assessment:** Of the four subcriteria, the criterion for drought monitoring, forecasting and data collection is well covered, but the drought indices criterion is addressed to a lesser extent.
- **Drought risk and vulnerability:** The main criterion has been well established through its subcriteria, which include drought risk and vulnerability assessment, mapping based on geographic information system (GIS), and identification of drought risk areas or locations.
- **Drought mitigation and response actions:** The subcriteria of national water resource monitoring and impact assessment, development of new and alternative water resources, water conservation practices, and public education and awareness creation are sufficiently addressed. Legislation and land-use planning are less comprehensively covered.
- **Drought communication and response actions:** The NDP of Algeria thoroughly covers aspects of communication and drought response actions. It also addresses elements of drought-related communication protocols and the declaration of drought conditions, though to a lesser extent.
- **Recommendations and implementation actions:** Algeria's NDP is comprehensive regarding updates and revisions to adapt to evolving social, economic and political conditions, although the subcriterion for priority implementation actions is also considered but to a lesser extent.

Identified areas that need strengthening

During the upcoming review, Algeria should ensure that the NDP strengthens its focus on vulnerable populations and sphere standards, as well as gender considerations, particularly in the membership of the taskforce and the core content of the drought plan. The subcriteria for communication and coordination guidelines, along with the prioritization of water supply for all people at an affordable price, also need improvement. Clearly outlining actions for different drought phases is essential as having defined actions before, during and after drought events helps assess how effectively the plan aims to address drought proactively.

Assessed performance of the additional criteria

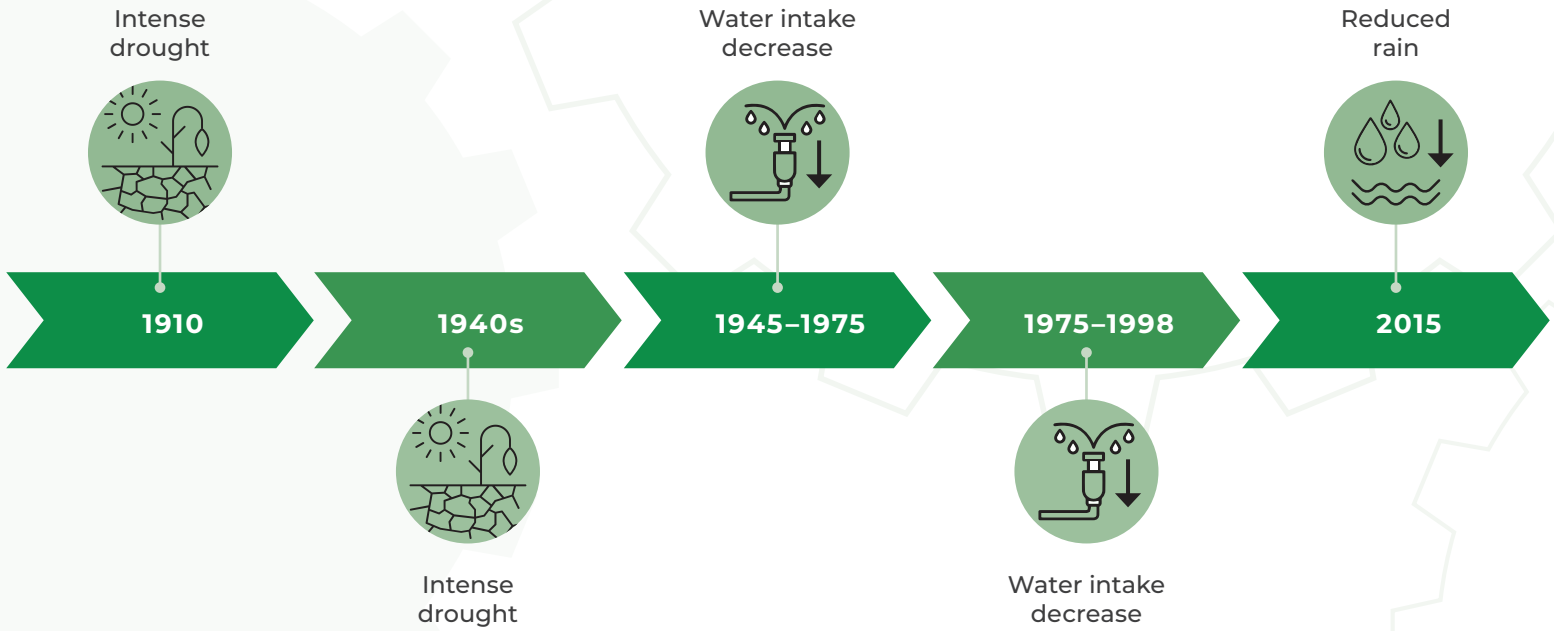
The subcriteria concerning the introduction of the ten-step process, as well as its purposes, scope, goals and objectives, are addressed in Algeria's NDP albeit to a lesser degree for the former. Regarding the criterion of the relationship with other plans and policies, the national water laws, mitigation strategies and planning issues are adequately presented in the NDP. However, the importance of the NDP is not scored, and additional information is needed on the subcriterion of access to safe water.

The additional criterion of providing an overview of drought is well covered in terms of its historical occurrence and understanding, while the impact of drought by sector is addressed to a lesser extent. The subcriteria related to the organization and assignment of responsibilities were not assessed, as there is a need to restructure the relevant information presented under the topic "Existing structures and systems for monitoring, warning, drought management, and sectoral responses" under the additional criteria. This is because the current information in the NDP refers to the newly proposed "Drought Group" structure and responsibilities.

2.1.1.2. Findings from the identification and mapping of affected sectors in Algeria

Algeria has faced drought events since 1910 (Government of Algeria, 2019), with the most severe occurring in 1910 and 1940, and becoming more frequent from 1975 to 1980, as well as at the beginning of the century. It is also noted that the most recent drought has lasted for twenty years and has been particularly severe in the country's western regions (Figure 9).

FIGURE 9. TIMELINE OF THE MAJOR DROUGHT EVENTS IN ALGERIA



Source: Authors' own elaboration.

Long-term climate observations reveal a gradual decline in both the quantity and quality of water supply in Algeria. Drought events linked to these climate patterns have adversely affected water demands across all socioeconomic sectors, especially agriculture and the preservation of terrestrial and aquatic ecosystems. Figure 10 provides examples of impacts and corresponding adaptation strategies for four key sectors in Algeria that are affected by drought.

FIGURE 10. AFFECTED SECTORS AND ADAPTATION MEASURES FOR ALGERIA

DROUGHT IMPACTS AND MITIGATION EFFORTS				
SECTOR	**Water**	**Agriculture**	**Forestry and biodiversity**	**Health**
IMPACT	Decline in groundwater reserves of major aquifers, drying up of wells and springs, reduced water supply, and overexploitation of groundwater.	Decline in soil water content reduced crop yield, decreased pasture and water availability for livestock, resulting in an increased susceptibility of animals to diseases.	Massive tree mortality, biodiversity loss and the disruption of natural ecosystems, and vulnerability to future climate conditions.	Poor hygiene and sanitation threaten people's well-being and result in outbreaks of waterborne diseases, increased food insecurity, and undernutrition.
RESPONSE	Mobilization of exploitable water resources, protection of existing water resources, rehabilitation of treatment systems, and reduction in water losses.	Standards and support for sustainable agricultural practices, adaptation of agricultural calendars to climate change, and selection of varieties and seeds adapted to the arid climate.	Implementation of initiatives like the Algerian Green Barrage and the creation of a biodiversity observatory, coupled with an alert system.	Rehabilitation of health structures, promotion of local health for specific pathologies, and establishment of efficient operational research laboratories.

Source: Authors' own elaboration.

The geography and climate of Algeria make its fragile ecosystems more vulnerable to drought. While drought events cause the degradation of natural resources, especially soil, ecosystems with limited buffering capacities are less able to cope with these impacts. In this context, the country acknowledges the importance of further studying the effects of drought through a systemic approach that emphasizes the central role of ecosystems.

2.1.1.3. Findings from the policy stocktaking for Algeria

Algeria's NDP highlights policies relevant to drought management at international and subnational levels. The stocktaking identified eight international protocols, conventions and agreements, and four regional and subregional documents, as well as 16 national policy documents covering legislation, plans, policies and strategies, as shown in Box 2.

Box 2. Algeria policy framework

International conventions, agreements and treaties:

- Paris Agreement, Framework Convention on Climate Change;
- Convention on Biological Diversity, 1992;
- Kyoto Protocol to the Framework Convention on Climate Change, 2005;
- United Nations Convention to Combat Desertification, 1996;
- Vienna Convention for the Protection of the Ozone Layer, 1988;
- Montreal Protocol on Substances that Deplete the Ozone, 1989;
- Ramsar Convention on Wetlands of International Importance; and
- African Convention on the Conservation of Nature and Natural Resources.

Regional and subregional documents:

- Programme for Prevention, Preparedness, Response to Natural and Man-Made Disasters South;
- North-eastern Atlantic, the Mediterranean and Connected Seas Tsunami Early Warning and Mitigation System;
- Islamic Strategy for Disaster Risk Reduction and Management; and
- Middle East and North Africa Strategic Framework for Climate Action.

National policies, strategies and legislation:

- Algeria's National Vision 2030;
- Law on the Prevention of Major Risks and Disaster Management, 2004;
- Drought in the National Forest Strategy, 2030;
- National Water Policy, 2005;

- National Water Plan, 2007;
- National Climate Plan;
- National Action Plan to Combat Desertification, 2003;
- National Reforestation Plan;
- Nationally Determined Contribution;
- Environment Protection Law;
- Executive Decree on the Identification of the Natural Events/Disasters;
- Algeria National Wetlands Strategy 2015–2030;
- Decree on Disaster Risk Prevention, 1985;
- Decree to Declare of Public Utility, the Operation Relating to the Hydro-Agricultural Development Works, 2016;
- Executive Decree 2019 Fixing the Typology of Irrigation Perimeters; and
- National Biodiversity Strategy and Action Plan 2016-2030.

Source: Authors' own elaboration.

Although the country recognizes the impact of drought on public health and the costs associated with disease outbreaks, it lacks comprehensive policy documents in the sector. As a result, it is difficult to identify existing policy and legal provisions.

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2.1.1.4. Findings from cross-matching the relevance of drought in policy frameworks of Algeria

Based on the stocktaking, the documents were classified into three categories according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 11.

FIGURE 11. CLASSIFICATION OF POLICY DOCUMENTS IN ALGERIA

8 International commitments **10 National policies** **6 Legal instruments**

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• National Water Policy, 2005 • National Action Plan to Combat Desertification, 2003 • Drought in the National Forest Strategy, 2030 • Law on the Prevention of Major Risks and Disaster Management, 2004 • National Climate Plan • Nationally Determined Contribution • National Biodiversity Strategy and Action Plan 2016–2030	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalized) Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports) Conducting an impact assessment of planned drought-related actions	Short term Short term Short term Medium term

Reflection on drought	National policies	Recommendations	Time frame
Group 2: Recognizing drought with no priority actions	• National Water Plan, 2007 • National Reforestation Plan • Executive Decree on the Identification of the Natural Events/ Disasters • National Biodiversity Strategy and Action Plan	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize)	Short term
		Facilitating the identification of drought-related priority actions	Medium term
		Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions	Medium term
		Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports)	Medium term
		Conducting impact assessment of planned drought-related actions	Medium term
Group 3: Not recognizing drought with no priority actions	• Algeria's Vision 2030 • Environment Protection Law • Decree to Declare of Public Utility, the Operation Relating to the Hydro-Agricultural Development Works, 2016 • Executive Decree 2019 Fixing the Typology of Irrigation Perimeters • Decree on Disaster Risk Prevention, 1985	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize)	Medium term
		Advocating for the recognition of drought	Long term
		Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method	Long term
		Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Long term

Source: Authors' own elaboration.

Under Group 1, Algeria has policies that clearly recognize drought as a national priority, with the forestry sector playing a central role. The National Forest Strategy 2030 includes specific measures for drought management through forest restoration, sustainable land management and desertification control. Supporting frameworks such as the National Water Policy (2005), the National Action Plan to Combat Desertification (2003), and the Law on the Prevention of Major Risks and Disaster Management (2004) reinforce this approach by linking forest, land and water management. The National Climate Plan, Nationally Determined Contributions, and National Biodiversity Strategy and Action Plan (2016–2030) also recognize forests as key to soil protection, water regulation and carbon sequestration. These policies establish a strong base for tackling drought via the forestry sector, but balancing focus across sectors is crucial to prevent neglecting the significance of others.

Group 2 policies acknowledge drought but lack operational measures for implementation. The National Water Plan (2007), the National Reforestation Plan, and the Executive Decree on the Identification of Natural Events and Disasters refer to drought and related risks but do not include specific resilience-building actions. The National Biodiversity Strategy and Action Plan mentions land and ecosystem degradation but does not connect biodiversity management to drought risk reduction. These frameworks provide an entry point for drought mainstreaming but require clearer responsibilities, targets and funding mechanisms to become actionable.

Group 3 policies do not integrate drought, even though they address sectors highly exposed to its impacts, particularly irrigation and agriculture. Algeria's Vision 2030, the Environment Protection Law, the Decree on Hydro-Agricultural Development Works (2016), the Executive Decree 2019 on Irrigation Perimeters, and the Decree on Disaster Risk Prevention (1985) focus on land and water use efficiency but overlook drought as a major constraint to agricultural productivity. The absence of drought considerations in these irrigation-related policies limits opportunities to improve water efficiency, safeguard crop yields, and strengthen resilience in the agricultural sector.

Overall, Algeria's policy framework shows strong recognition of drought within forestry, water and land management instruments under Group 1. However, the lack of operational measures in Group 2 and the absence of drought integration in the irrigation sector under Group 3 reveal significant gaps. Strengthening coordination between forestry, water and agriculture policies is necessary to establish a coherent national approach to drought resilience.

2.1.1.5. Findings from a review of the institutional responsibilities for Algeria

Algeria's NDP has identified specific gaps in institutional coordination, such as the dominant crisis-focused response and financial constraints in managing disaster risk. The institutional coordination for climate change and drought management in Algeria aims to harness synergies to enhance effective management. The NDP has proposed new institutional arrangements and responsibilities to promote comprehensive drought management and foster a more unified approach to addressing this issue. The NDP proposes establishing a dedicated thematic drought group, which reports to the National Climate Committee, to ensure strong synergy between the national climate plan and the NDP. The NDP emphasizes the importance of aligning the tasks, actions and operational procedures of the NDP with the national climate plan.

A national institutional body to combat desertification and lead the work related to the Barrage Vert was formed in 2020 and subsequently amended in 2024 to include drought-related mandates. This national body, with its extended mandate, is expected to be a permanent, high-level body that makes swift, enforceable decisions. It includes all relevant ministries, key drought experts, specialized agencies, the private sector and civil society, with a balanced gender representation. The analysis of Algeria's NDP and sectoral policies, strategies, programmes and plans reveals ongoing parallel initiatives. Moreover, there has been a tendency to prioritize the national disaster risk management system and regulatory actions in response to earthquakes

and flooding. This situation could result in drought being neglected and not receiving the political commitment, legislation, autonomous departments or institutions, budgeting, planning, or implementation it requires from the government or development partners.

Thus, the working body is a positive step for the country, though it must be legally recognized to access the necessary resources to fulfil its responsibilities. The government has demonstrated adequate effort in recognizing the importance of drought management in specific sectors; it must, therefore, promote similar measures across sectors relevant to drought risk management.

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2.1.2. Burundi

The NDP of Burundi was developed through the involvement of and consultation with relevant stakeholders at various levels and across different sectors. To achieve its specific objectives, the NDP adopts a proactive approach to anticipate the impacts of drought and strengthen the resilience of individuals, communities and ecosystems. The NDP emphasizes the need for improved alignment of drought management with sectoral policies to counter the growing threats posed by climate change, including intensified events and increased competition for water resources resulting from population growth. Burundi has implemented several initiatives to support proactive drought management, thereby building resilience and preparedness.

2.1.2.1. Findings from a multicriteria assessment of the Burundi National Drought Plan

Figure 12 presents the results of the assessment of the main criteria and their related subcriteria for Burundi.

FIGURE 12. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR BURUNDI

Monitoring, forecasting and impact assessment	Drought risk and vulnerability	Gender consideration	Vulnerable people and sphere standard	Drought communication and response actions	Drought mitigation and response actions	Recommendations and implementation actions	Required actions at various stages
Drought indices	Drought risk and vulnerability assessment	Membership of taskforce	Vulnerable people consideration	Drought communication protocol	National water resource monitoring and impact assessment	Priority implementation actions	Pre-drought
Drought monitoring, forecasting and data collection	GIS-based mapping	Reflection in NDP basic contents	Sphere standard consideration	Declaration of drought condition	Development of new and alternative water resources	Updates and revisions	During drought
Drought severity in all relevant sectors	Drought risk areas and/or locations			Communication and coordination guidelines	Water conservation practice, public education and awareness creation		Post-drought
Drought impact assessment methodology				Drought response actions	Prioritization of water supply for all people at affordable price		
					Legislation and land use planning		

Need for complementary information — All required information available

Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Burundi

In relative terms, the assessed performance of Burundi's main criteria highlights strong aspects of the NDP preparation, including monitoring, forecasting, impact assessment, gender consideration, drought communication and response actions, recommendations, and implementation actions, as described:

- **Monitoring, forecasting and impact assessment:** The NDP identifies key indices for assessing drought severity, primarily through rainfall data, and tracks and predicts drought conditions. The plan evaluates drought severity across various sectors, with special focus on crop and livestock farming due to their high vulnerability. To address the lack of impact assessment methods, the NDP introduces two approaches for evaluating the impacts of drought. These are household surveys and qualitative information generated by key informants and remote sensing, and geographic information systems (soil water content, state of vegetation).
- **Gender consideration:** The NDP not only recognizes the disproportionately vulnerable position of women and the adverse effects of drought on gender equality, but it also acknowledges women as vital resources for building resilience. It further demonstrates the inclusion of women in the planning process, including institutional mechanisms focused on gender.
- **Drought communication and response actions:** In the absence of a communication protocol, the NDP proposes a mechanism with clearly outlined responsibilities to address the communication gap, thereby strengthening the ability to declare and communicate drought and mobilize necessary resources. It recognizes that the importance of effectively tackling the highly complex phenomenon of drought demands an integrated approach to communications management within the overall programme.
- **Priority implementation actions:** The NDP includes a detailed action plan to mitigate the risks of drought and strengthen the adaptive capacities of vulnerable communities. The identified actions, based on several recommendations, outline gaps and provide priority actions for implementation, along with timelines, responsible authorities, estimated costs and indicators.

Identified areas that need strengthening

Although the analysis shows some promising results, some main criteria, such as the vulnerable people, sphere standards, drought mitigation and response actions, and required actions at various stages of drought, need some complementary information to ensure the NDP is prepared for action.

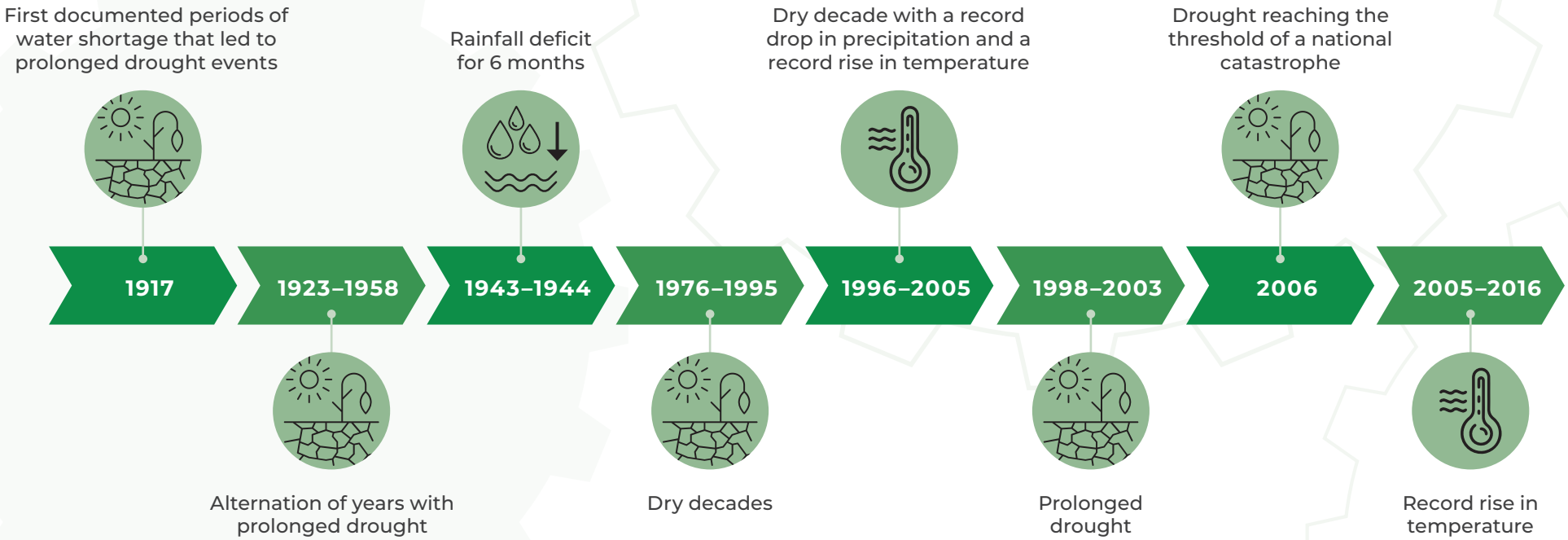
Assessed performance of the additional criteria

Other criteria were added to the analysis. Most of the subcriteria are supported by extensive information, and based on the policy assessments, it is evident that Burundi has approved several policies, strategies and plans that directly or indirectly help to tackle drought challenges. The additional criteria, background, relationship with other plans and policies, overview of drought, and organization and assignment of responsibilities are well covered. However, the subcriterion of access to safe water under the relationship with other plans and policies lacks information.

2.1.2.2. Findings from the identification and mapping of affected sectors in Burundi

The history of drought events in Burundi is extensive (Figure 13). Since 1917, the country has experienced severe drought events, with notable periods in 1943–1944 that led to the "Manori" famine resulting in a significant loss of life. The socioeconomic impacts of drought are severe, as evidenced by the prolonged drought events in the Bugesera depression in 1917–2003, which caused water levels in lakes Rweru, Cohoha, Rwihinda and Kanzigiri to decline. Since 2000, the situation has deteriorated, particularly in Kirundo and Muyinga provinces. By 2005, drought had escalated to a national disaster, resulting in deaths and environmental refugees. The effects varied across regions, with Bugabira, Busoni, Bwambarangwe and Gitobe being especially hard hit.

FIGURE 13. TIMELINE OF THE MAJOR DROUGHT EVENTS IN BURUNDI



Source: Authors' own elaboration.

Burundi has experienced several severe drought events that have affected multiple sectors, as shown in Figure 14. These events are estimated to cause a loss of 5–17 percent of the country's gross domestic product (GDP) per incident. Climate change trends are expected to increase the frequency and severity of drought events, posing a threat to the country's water supply and food security (Ministry of Foreign Affairs of the Netherlands, 2018).

FIGURE 14. AFFECTED SECTORS AND ADAPTATION MEASURES FOR BURUNDI

DROUGHT IMPACTS AND MITIGATION EFFORTS					
SECTOR	**Water**	**Agriculture**	**Forestry and biodiversity**	**Health**	**Energy**
IMPACT	Lack of water resources for all uses, drying lakes.	Soil moisture deficit, agricultural production decline, milk production decline.	Drying of plant cover, spread of bushfires, soil erosion, and aquatic ecosystem deterioration.	Increased food insecurity, malnutrition, and resurgence of tropical diseases.	Shutdown of power plants, ceased plant operations.
RESPONSE	Water conservation practices, drought-resistant crops, boreholes and water reservoirs, territorial water and sanitation diagnostics.	Conservation agriculture practices, quality seeds production, climate-smart and resilient farming techniques.	Degraded areas rehabilitation, dissemination of forest species and silvicultural varieties adapted to climate change.	Health and environment research programme development, legal framework development for the link between health and the environment.	New hydropower plants, rehabilitation of existing plants, and capacity building.

Source: Authors' own elaboration.

The analysis revealed that despite significant progress in planning for effective natural disaster and drought management, drought risk is given less priority at the national level compared to other disasters. While several measures concentrate on preparedness and response, they only partially address mitigation aspects. The sectors identified for adaptation options have varying degrees of commitment to addressing drought risk, and most are in the process of implementation. However, the NDP notes that the successful execution of these measures heavily relies on adequate funding. Therefore, securing sufficient financial resources for these measures is essential to maximize their effectiveness in climate change adaptation and drought mitigation efforts (Figure 14).

2.1.2.3. Findings from the policy stocktaking for Burundi

The Burundi NDP identifies policies, strategies and plans from international to subnational contexts that are relevant to drought. The stocktaking of legal and policy documents identified 3 international conventions and 1 agreement, 6 regional and subregional documents, and 25 national documents, including legislation, policies, plans, frameworks and strategies, as shown in Box 3.

Box 3. Burundi policy framework

International conventions, agreements and treaties:

- Convention on Biological Diversity of 1992, ratified on 22 December 1996;
- Paris Climate Agreement of 2015, ratified on 17 January 2018;
- United Nations Convention to Combat Desertification of 1994, ratified on 22 July 1996; and
- United Nations Framework Convention on Climate Change of 1992, ratified on 6 April 1997.

Regional and subregional documents:

- African Regional Strategy for Disaster Risk Reduction;
- Comprehensive Africa Agriculture Development Programme;
- Convergence Plan for the Sustainable Management of Forest Ecosystems in Central Africa;
- East African Community Master Plan on Climate Change;
- East African Community Strategy on Climate Change; and
- Policy of the East African Community on Climate Change.

National policies, strategies and legislation:

- Burundi National Gender Policy, 2012;
- National Forest Policy;
- Energy Policy Letter, 2011;
- Land Degradation Neutrality Target Setting Programme, 2019;
- Land policy letter, 2008;

- National Action Plan for Adaptation to Climate Change, 2007;
- National Action Plan for Integrated Water Resources Management;
- National Action Programme to Combat Land Degradation, 2005;
- National Adaptation Plan, 2023;
- National Agricultural Investment Plan 2018–2022;
- National Agricultural Investment Programme 2016–2020;
- National Communication Strategy for Adaptation to Climate Change and Early Warning Against Extreme Climate Events, 2014–2018;
- Third National Communication on Climate Change, 2019;
- National Contingency Plan, updated in 2020;
- National Development Plan of Burundi 2018–2027;
- National Health Policy 2005–2015;
- National Strategic Plan for Food Security and Nutrition 2014–2017;
- National Strategy and Action Plan for Biological Diversity, 2013;
- National Strategy and Action Plan on Climate Change, 2013;
- National Strategy and Action Plan to Combat Land Degradation, 2011;
- National Strategy and REDD+ Action Plan Burundi, 2019;
- National Strategy for Disaster Risk Reduction 2018-2025 and Action Plan 2018–2025 and Action Plan 2018-2021;
- National Water Resources Management Policy, 2009;
- National Water strategy 2011–2020; and
- Vision 2025.

Source: Authors' own elaboration.

2.1.2.4. Findings from cross-matching the relevance of drought in policy frameworks of Burundi

Based on the stocktaking, the documents were classified into three categories according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 15.

FIGURE 15. CLASSIFICATION OF POLICY DOCUMENTS IN BURUNDI

4 International commitments **6 Regional commitments** **2 Development plans**

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• National Action Programme to Combat Land Degradation, 2005	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalized)	Short term
	• National Water Resources Management Policy, 2009		
	• National Action Plan for Adaptation to Climate Change, 2007	Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol	Short term
	• National Agricultural Investment Programme 2016–2020		
	• National Communication Strategy for Climate Change Adaptation and Early Warning of Extreme Weather Events 2014–2018	Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports)	Short term
	• National Strategy for Disaster Risk Reduction 2018–2025 and Action Plan 2018–2021	Conducting an impact assessment of planned drought-related actions	Medium term

Reflection on drought	National policies	Recommendations	Time frame
Group 2: Recognizing drought with no priority actions	• Burundi National Gender Policy, 2012 • National Strategy and Action Plan for Biological Diversity, 2013 • National Development Plan of Burundi 2018–2027 • National Strategy for Disaster Risk Reduction and Action Plan 2018–2025 • National Strategy and REDD+ Action Plan Burundi, 2019 • National Forest Policy • Land Degradation Neutrality Target Setting Programme, 2019	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Facilitating the identification of drought-related priority actions Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports) Conducting impact assessment of planned drought-related actions	Short term Medium term Medium term Medium term Medium term
Group 3: Not recognizing drought with no priority actions	• National Health Policy 2005–2015 • Land Policy Letter, 2008 • National water strategy 2011–2020 • National Strategic Plan for Food Security and Nutrition 2014–2017, • Vision 2025 • Energy Policy Letter, 2011	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize) Advocating for the recognition of drought Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Medium term Long term Long term Long term

Source: Authors' own elaboration.

Under Group 1, Burundi has a comprehensive set of policies that explicitly recognize drought and define priority actions, particularly in land restoration, water management, agriculture, climate adaptation and disaster risk reduction. Key instruments include the National Action Programme to Combat Land Degradation (2005), the National Water Resources Management Policy (2009), the National Action Plan for Adaptation to Climate Change (2007), and the National Agricultural Investment Programme (2016–2020). Other relevant frameworks, such as the National Strategy for Disaster Risk Reduction (2018–2025), the National Contingency Plan (2020), and the National Strategy and Action Plan on Climate Change (2013), strengthen institutional preparedness and early warning capacity. The National Communication Strategy for Climate Change Adaptation and Early Warning (2014–2018), the Third National Communication on Climate Change (2019), and the National Adaptation Plan (2023) further link early warning, agricultural resilience and natural resource management. These instruments show Burundi's recognition of drought as both an environmental and socioeconomic challenge. However, their wide distribution across sectors highlights the need for stronger coordination and sustainable financing to ensure coherence and effective implementation.

Group 2 policies acknowledge drought but lack specific or actionable measures. These include the Burundi National Gender Policy (2012), the National Strategy and Action Plan for Biological Diversity (2013), the National Development Plan (2018–2027), and the National Strategy and REDD+ Action Plan (2019), as well as the National Forest Policy, the Land Degradation Neutrality Target Setting Programme (2019), and the National Strategy and Action Plan to Combat Land Degradation (2011). These instruments address environmental degradation, social inclusion and sustainable resource management but treat drought as one of many environmental pressures without operational mechanisms for resilience-building. They, therefore, provide enabling conditions for drought adaptation but require better integration of drought-specific measures into planning and monitoring systems.

Group 3 policies do not reference drought, even though they govern highly vulnerable sectors such as health, food security, energy and land management. The National Health Policy (2005–2015), the Land Policy Letter (2008), the National Water Strategy (2011–2020), the National Strategic Plan for Food Security and Nutrition (2014–2017), Vision 2025, and the Energy Policy Letter (2011) focus on long-term development and resource management but omit consideration of how drought risk may affect these objectives.

Burundi also provides a strong example of gender-responsive drought management. The NDP recommends a study on the impacts of drought across gender, age and social groups and calls for integrating women's traditional knowledge throughout the drought management cycle, especially in monitoring and early warning. This inclusive approach strengthens the social dimension of resilience and aligns with broader national goals for gender equality and climate adaptation.

2.1.2.5. Findings from a review of the institutional responsibilities for Burundi

The NDP of Burundi has outlined both the current and proposed institutional and coordination mechanisms aimed at enhancing proactive and intersectoral disaster management, with a focus on drought. The country lacks a specific body directly responsible for drought management. Consequently, there is no proper drought management mechanism. Instead, drought is considered one of the natural disasters managed by three central institutions based on their mandate. These are:

- the General Directorate of Public Security, through the National Platform for the Prevention of Risk and Disaster Management;
- the Geographical Institute of Burundi, which handles the collection, archiving, analysis and processing of climate data and serves as the focal point for the United Nations Framework Convention on Climate Change; and

- the Burundian Office for the Protection of the Environment, which manages climate-related changes and is responsible for disaster prevention through the national environmental education programme.

Numerous gaps have been identified at the institutional level, including the lack of consideration for drought in sectoral strategies, inadequate capacities and skills within public services, poor intersectoral coordination, and limited information exchange among stakeholders. Furthermore, there is limited involvement and accountability of civil society and local authorities, along with the lack of knowledge about drought management techniques and difficulties accessing reliable data on current drought conditions. Establishing a dedicated drought management agency is essential, at least at the unit level, to take ownership of the agenda plans and implement IDM strategies.

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2.1.3. Eswatini

Eswatini approved its NDP in 2020, aiming for a fundamental shift from a reactive humanitarian or emergency response to a proactive approach focused on reducing the country's drought risk and vulnerability and increasing drought mitigation efforts. This, in turn, enhances the resilience of the nation, community and environment. The country's disaster management agenda has gained strong attention from the Government of Eswatini, which oversees it through the prime minister's office and the deputy prime minister, to whom the National Disaster Management Agency (NDMA) reports. The country is developing a national drought policy to provide a framework for embedding drought risk management within suitable structures and for strengthening national capacities to effectively prepare for, prevent, respond to, mitigate and recover from drought events, safeguarding lives and livelihoods, the environment and the economy.

2.1.3.1. Findings from a multicriteria assessment of the Eswatini National Drought Plan

Figure 16 presents the results of the assessment of the main criteria and their related subcriteria for Eswatini.

FIGURE 16. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR ESWATINI

Monitoring, forecasting and impact assessment	Drought risk and vulnerability	Gender consideration	Vulnerable people and sphere standard	Drought communication and response actions	Drought mitigation and response actions	Recommendations and implementation actions	Required actions at various stages
Drought indices	Drought risk and vulnerability assessment	Membership of taskforce	Vulnerable people consideration	Drought communication protocol	National water resource monitoring and impact assessment	Priority implementation actions	Pre-drought
Drought monitoring, forecasting and data collection	GIS-based mapping	Reflection in NDP basic contents	Sphere standard consideration	Declaration of drought condition	Development of new and alternative water resources	Updates and revisions	During drought
Drought severity in all relevant sectors	Drought risk areas and/or locations			Communication and coordination guidelines	Water conservation practice, public education and awareness creation		Post-drought
Drought impact assessment methodology				Drought response actions	Prioritization of water supply for all people at affordable price		
					Legislation and land use planning		

Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Eswatini

The Eswatini NDP displays a mix of elements. However, the majority of the subcriteria provide sufficient information, including those on drought indices, drought risk and vulnerability, legislation and land-use planning, recommendations and implementation actions, and required actions at various stages. Some of these are briefly explained:

- **Drought monitoring and forecasting:** The core drought monitoring indicators are well outlined by the NDP. As such, to monitor and forecast drought onset, duration, conclusion, severity and impacts, the country employs the Standard Precipitation Index (SPI), land surface temperature (LST), and Normalized Difference Vegetation Index (NDVI). The World Bank and the European Union support Eswatini in developing a drought monitor to enhance the country's drought resilience, reduce drought impacts, and coordinate drought preparedness programmes and responses effectively and efficiently. The NDP presents meteorological drought through monthly climate assessments and outlooks, seasonal outlooks, monthly drought assessments, and dry spell evaluations. Drought, dry spells and dry conditions constitute the three categories of drought experienced by Eswatini. The NDP addresses drought forecasting and agricultural drought, and discusses data-collection methodologies.
- **Required actions at various stages:** The Eswatini NDP recognizes that actions are phased into pre-drought, during and post-drought and states that it assesses the physical, social, economic and environmental pressures on communities to identify who and what are at risk and why, before, during and shortly after drought.
- **Recommendations and implementation actions:** Under this main criterion, updates and revisions are thoroughly covered. The NDP states that regular updating and revision of the drought plan will enhance drought resilience and preparedness by strengthening the capacity of institutions and drought-affected communities to reduce their risks and vulnerability. The NDP also states that its implementation will be carried out through the clusters established under the NDMA Act, which are used to coordinate and direct the implementation of disaster risk management programmes in the country.
- **Other strong points:** Gender consideration as a reflection in the NDP basic content is well covered and emphasizes the need to mainstream gender into drought risk reduction. The NDP includes aspects of vulnerable people, drought communication protocols, drought response actions, drought mitigation and response actions, legislation, and land-use planning.

Identified areas that need strengthening

The subcriteria that require strengthening include drought severity across all relevant sectors, membership in the taskforce regarding gender considerations, and consideration of sphere standards. Therefore, during the upcoming review of the NDP, the subcriteria above will need adequate information to make the NDP more comprehensive.

Assessed performance of the additional criteria

The performance in the additional criteria differs from that in the main criteria, whose subcriteria are supported by abundant information. According to Eswatini's NDP, the subcriteria under the country's drought overview are clearly presented. These include historical occurrences, an understanding of drought, and drought impacts by sector. In line with this, the organizational overview and assignment of responsibility for drought management are also well outlined.

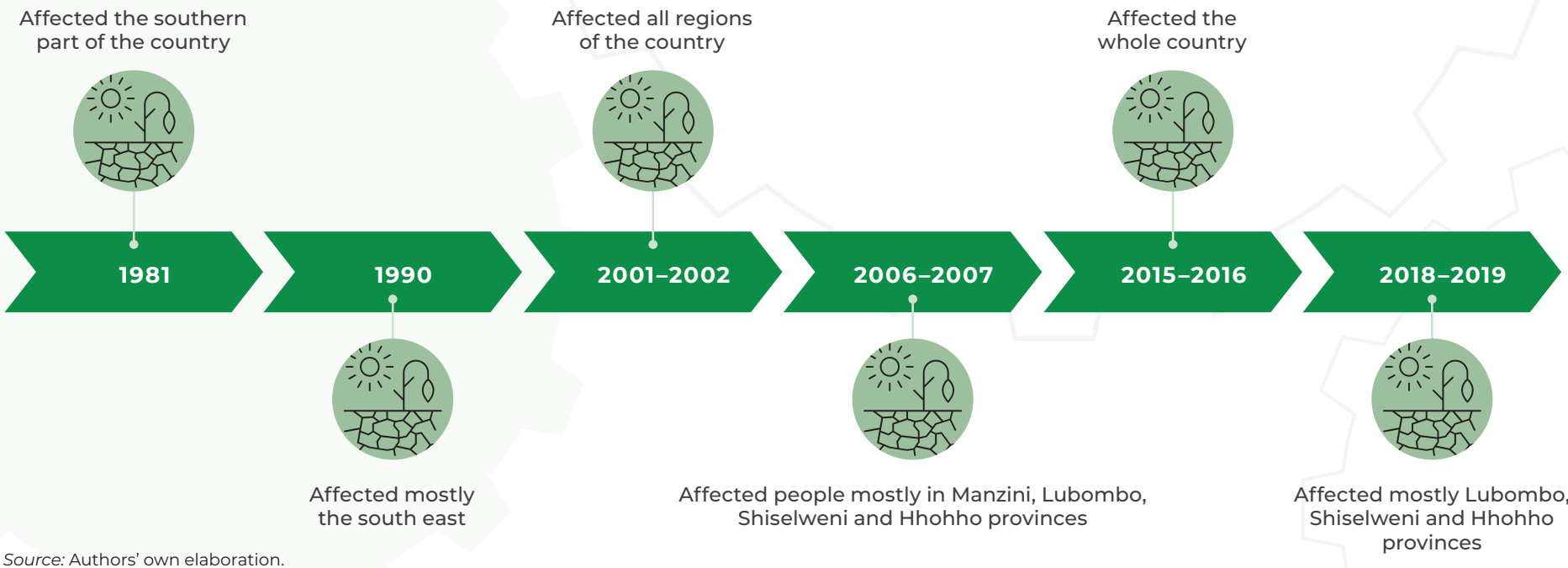
According to the NDP presentation, some agencies provide technical support on drought. For instance, the Eswatini Meteorological Service issues seasonal forecasts. It raises farmers' awareness of the importance and use of these forecasts for planning. Simultaneously, the Department of Water

Affairs monitors hydrometeorological indicators and issues drought-related information. The National Early Warning Unit is responsible for conducting food supply assessments in collaboration with other stakeholders, offering advice on food security policies; gathering, analysing and disseminating information on food security issues; and providing early warning information on expected weather conditions and crop production in coordination with the Eswatini Meteorological Services. However, areas that require strengthening include the subcriteria of the introduction ten-step process, new water laws, and access to safe water.

2.1.3.2. Findings from the identification and mapping of affected sectors in Eswatini

The Eswatini NDP shows that between 1980 and 2014, several drought events were recorded, with varying durations and intensities (Figure 17). The 2015/16 drought prompted the government to declare a national emergency, affecting over 300 000 people and causing food shortages. Water rationing was introduced as the country's rivers and dams reached their lowest points.

FIGURE 17. TIMELINE OF THE MAJOR DROUGHT EVENTS IN ESWATINI



Source: Authors' own elaboration.

Drought is regarded as the hazard that has caused the most significant adverse impact in Eswatini. It has negatively affected various sectors, particularly agriculture and food security, water, energy, health, biodiversity and ecosystems, which in turn have cascading effects on other areas (World Bank, 2021; Tfwala *et al.*, 2020). The NDP states that the impact of drought brings many economic and social consequences, including decreased income for agriculture and wider economic sectors, higher food prices, and unemployment. Drought planning, encompassing preparedness and risk-mitigation measures, will help lessen the impacts and improve human well-being and security during and after drought. Figure 18 illustrates some of the drought impacts and corresponding adaptation measures for the sectors in Eswatini.

FIGURE 18. AFFECTED SECTORS AND ADAPTATION MEASURES FOR ESWATINI

DROUGHT IMPACTS AND MITIGATION EFFORTS					
SECTOR	**Water**	**Agriculture**	**Forestry and biodiversity**	**Health**	**Energy**
IMPACT	Rivers and dams reaching their lowest levels, increased vulnerabilities, water rationing, and effects on water quality and quantity.	Significant losses in both crop and livestock yields, food insecurity, a reduction in the availability of pasture for grazing livestock, and a negative impact on households' livelihoods.	Significant reduction in grassland coverage, decline in the Lubombo bushveld ecosystem, and increased risk of species range reductions or extinctions.	Food insecurity and malnutrition, diarrheal diseases such as cholera, typhoid fever and salmonellosis, and health hazards such as wildfires, dust storms and extreme heat events.	Complete shutdown of hydropower production due to low water levels, importation of 100 percent of the electricity needed, and increasing energy demand.
RESPONSE	Promoting rainwater harvesting, increasing water sector knowledge, strengthening institutional capacity for integrated water resources management (IWRM), early warning systems and information sharing.	Rangeland management, conservation practices, climate-smart agriculture, crop intensification and water management.	Design and implement *ex situ* conservation measures, ecosystem restoration and management, protected areas management, and implement programmes to manage invasive species.	Disaster preparedness, increased disease surveillance, and enhanced infectious disease control programmes.	Increased hydropower generation, promotion of energy efficiency, and installation of solar power systems.

Source: Authors' own elaboration.

2.1.3.3. Findings from the policy stocktaking for Eswatini

The Eswatini NDP defines policies relevant to drought contexts at the international and subnational levels. The stocktaking of the legal and policy documents identified 11 international conventions and protocols, 4 regional and subregional commitments, and 34 national policy documents, including legislation, policies, programmes and strategies, as shown in Box 4.

Box 4. Eswatini policy framework

International conventions, agreements and treaties:

- Sendai Framework for Disaster Risk Reduction 2015–2030;
- United Nations Convention to Combat Desertification;
- United Nations Framework Convention on Climate Change (UNFCC);
- Windhoek Declaration, 2016;
- Kyoto Protocol;
- Convention of the World Meteorological Organization;
- Convention on Biological Diversity;
- Paris Climate Accords;
- Ramsar Convention on Wetlands of International Importance;
- Montreal Protocol on Substances that Deplete the Ozone Layer; and
- Vienna Convention for the Protection of the Ozone Layer.

Regional and subregional documents:

- Drought Resilience and Prepared Africa;
- Regional Inter-Agency Standing Committee for Southern Africa;
- Africa Region Strategy on Disaster Risk Reduction; and
- Southern Africa Development Community (SADC) Strategy.

National policies, strategies and legislation:

- National Development Plan 2023/24 – 2027/28;
- Poverty Reduction Strategic and Action Plan, 2007–2015;
- National Food Security Policy, 2005;
- National Emergency Response, Mitigation and Adaptation Plan, 2016–2022;
- National Disaster Management Agency Strategic Plan, 2017–2021;
- Swaziland Environment Action Plan, 1997;
- National Climate Change Policy, 2016;
- Initial Adaptation Communication to the UNFCCC, 2021;

- Updated Nationally Determined Contributions, 2021;
- National Energy Policy, 2018;
- National Water Policy, 2018;
- Water Act (WA), 2003;
- National Multi-Hazard Contingency Plan, 2019–2020;
- Comprehensive Agricultural Sector Policy;
- Swaziland's Third National Communication to the UNFCCC, 2016;
- National Disaster Risk Management Policy, 2011;
- Kingdom of Swaziland National Land Degradation Neutrality Targets;
- Swaziland Biodiversity Strategy and Action Plan, 2001;
- Swaziland's Second National Biodiversity Strategy and Action Plan, 2016;
- Swaziland Resilience Strategy and Action Plan, 2017;
- Disaster Management Act, 2006;
- Environment Management Act, 2002;
- National Gender Framework, 2024;
- National Health Sector Strategic Plan 2024/25 – 2027/28;
- National Health Sector Policy version 3, 2016–2026;
- National Education and Training Sector Policy, 2018;
- Environmental and Social Management Framework, 2021 (Ministry of Education and Training);
- Education Sector Strategic Plan, 2022–2034;
- Kingdom of Eswatini National Wetlands Policy, 2023;
- Action Plan for Implementing the Convention on Biological Diversity's Programme of Work on Protected Areas, 2012;
- Technology Needs Assessment for Climate Change Adaptation in Eswatini's Water Sector;
- Ministry of Agriculture Strategic Plan, 2018–2023;
- National Irrigation Policy, 2005; and
- National Social Development Policy, 2010.

Source: Authors' own elaboration.

2.1.3.4. Findings from cross-matching the relevance of drought in policy frameworks of Eswatini

Based on the stocktaking, the documents were categorized into three groups according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 19.

FIGURE 19. CLASSIFICATION OF POLICY DOCUMENTS IN ESWATINI

11 International commitments

4 Regional commitments

34 National policy documents

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• National Development Plan 2023/24 – 2027/28	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalized)	Short term
	• Poverty Reduction Strategic and Action Plan, 2007–2015		
	• National Food Security Policy, 2005;	Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol	Short term
	• National Emergency Response, Mitigation and Adaptation Plan, 2016–2022		
	• The National Disaster Management Agency Strategic Plan (NDMASP) 2017–2021	Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports)	Short term
	• Swaziland Environment Action Plan, 1997	Conducting an impact assessment of planned drought-related actions	Medium term
	• National Climate Change Policy, 2016		
	• Updated Nationally Determined Contributions, 2021		
	• Initial Adaptation Communication to the UNFCCC, 2021		

Reflection on drought	National policies	Recommendations	Time frame
	• National Water Policy, 2018 • Swaziland Resilience Strategy and Action Plan, 2017 • National Multi-Hazard Contingency Plan, 2019–2020 • Comprehensive Agricultural Sector Policy • National Disaster Risk Management Policy, 2011 • Technology Needs Assessment for Climate Change Adaptation in Eswatini's Water Sector		
Group 2: recognizing drought with no priority actions	• National Energy Policy, 2018 • National Gender Framework, 2024 • National Health Sector Strategic Plan 2024/25 – 2027/28 • National Health Sector Policy version 3, 2016–2026 • National Education and Training Sector Policy, 2018 • National Irrigation Policy, 2005 • Kingdom of Swaziland National Land Degradation Neutrality Targets • Swaziland Biodiversity Strategy and Action Plan, 2001 • Swaziland's Third National Communication to the UNFCCC, 2016 • Environmental and Social Management Framework, 2021 (Ministry of Education and Training)	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Facilitating the identification of drought-related priority actions Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports) Conducting impact assessment of planned drought-related actions	Short term Medium term Medium term Medium term Medium term

Reflection on drought	National policies	Recommendations	Time frame
	• Education Sector Strategic Plan, 2022–2034 • Ministry of Agriculture Strategic Plan, 2018–2023 • National Social Development Policy, 2010 • Water Act, 2003 • Swaziland's Second National Biodiversity Strategy and Action Plan, 2016 • Disaster Management Act, 2006 • Action Plan for Implementing the Convention on Biological Diversity's Programme of Work on Protected Areas, 2012		
Group 3: Not recognizing drought with no priority actions	• Environment Management Act, 2002 • Kingdom of Eswatini National Wetlands Policy, 2023	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize) Advocating for the recognition of drought Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Medium term Long term Long term Long term

Source: Authors' own elaboration.

Under Group 1, Eswatini's policies explicitly recognize drought and outline specific priority actions, emphasizing disaster risk management, climate resilience, sustainable development, food security and poverty alleviation, among other areas. The National Disaster Management Agency Strategic Plan (2017–2021) and the National Disaster Risk Management Policy (2011) serve as key policy documents for the drought risk reduction framework and require strong political commitment, community involvement, and consideration of local realities and indigenous knowledge. The Comprehensive Agricultural Sector Policy and the National Food Security Policy (2005) include drought adaptation strategies such as adopting suitable dryland cultivation techniques, focusing on drought-tolerant crop varieties, and enhancing applied research on agricultural diversification. The National Development Plan (2023/24 – 2027/28) is a vital development planning document for the country. It recognizes the frequency of drought, thereby emphasizing the need to strengthen institutions, improve the regulatory framework, and support innovation and technology that foster drought resilience.

Group 2 includes frameworks that recognize drought but do not specify concrete priority measures. Key sector frameworks include the National Energy Policy (2018), the National Gender Framework (2024), the National Health Sector Strategic Plan (2024/25 – 2027/28), the National Health Sector Policy, version 3 (2016-2026), the Ministry of Agriculture Strategic Plan (2018–2023), the National Social Development Policy (2010), the Water Act (2003), and the Disaster Management Act (2006), among others. These policies and laws outline the challenges posed by drought events in Eswatini, such as dramatic drops in dam levels disrupting electricity production; the disproportionate impact of drought on women and girls who spend more time collecting water; adverse effects on children's overall development and ability to learn; and threats to household food security. Although these frameworks highlight the negative impacts of drought, they do not specify targeted actions for managing drought risks across key sectors, including energy, water, health and agriculture.

Group 3 comprises policies that do not explicitly address drought, even though they cover areas highly vulnerable to its impacts. The Environment Management Act (2002) and the Kingdom of Eswatini National Wetlands Policy (2023) stress the importance of providing for and promoting the enhancement, protection and conservation of the environment and, where appropriate, the sustainable management of natural resources. They also promote the wise use of sustainable management of wetland resources to enhance sustenance of their ecological and socioeconomic functions for the present and future generations of Eswatini. However, the absence of drought considerations in these frameworks weakens Eswatini's ability to integrate opportunities to link drought management with environmental and wetlands management, which are key to the development of the communities and the country at large.

Overall, Eswatini has made significant progress in integrating drought into its national policy frameworks. For future review and development of Eswatini's policies, strategies, plans and laws, there is a need to adopt a clear, straightforward approach to incorporating drought considerations not only at the planning level but also through actions at the implementation level. To implement the recommendations outlined in Figure 19, political will, ownership and resource allocation must be secured.

2.1.3.5. Findings from a review of the institutional responsibilities for Eswatini

The overall review and analysis of the NDP and regulatory framework highlight the absence of independent drought-specific policies or institutional arrangements within the country. However, the National Disaster Management Agency functions as the operational branch responsible for disaster management and drought-related issues. It is overseen by the deputy prime minister's office, which includes the National Disaster Management Department. The prime minister has the authority to declare a state of emergency during crisis.

Based on the Disaster Management Act of 2006 and the National Disaster Risk Management Policy of 2011, numerous agencies and coordination mechanisms at the community level are involved in disaster and emergency management. These include Tinkhundla, National Disaster Management Agency, technical advisory groups, the private sector, the Baphalali Swaziland Red Cross Society, non-governmental organizations, government departments, the Centre for Emergency Preparedness and Response for Public Health Security, police and emergency services, media, United Nations (UN) agencies, multilateral and bilateral agencies, and donors.

However, the NDP openly highlights that the country's practical disaster management approach is reactive and centred on crisis management, facing several challenges related to decentralization, finance and coordination, among others. Crucially, there is, at least, no drought-specific unit or department. Therefore, in collaboration with the National Disaster Management Agency, the NDP must address the challenges identified to ensure the smooth, efficient and effective functioning of disaster management institutions and the coordination mechanism. It is advisable to recommend establishing a drought-focused department or unit staffed by interdisciplinary personnel, with adequate budget and logistical support. This should be complemented by the development of integrated drought management-focused programmes, operational guidelines and manuals.

2.1.4. Ghana

Ghana has undertaken several initiatives to support proactive drought management and to build resilience and preparedness. Nevertheless, drought remains a significant issue for the northern and coastal savannah regions of the country, and it is increasingly affecting the transitional zones as well (Tefera *et al.*, 2025).

2.1.4.1. Findings from a multicriteria assessment of the Ghana National Drought Plan

Figure 20 presents the results of the assessment of the main criteria and their related subcriteria for Ghana.

FIGURE 20. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR GHANA

Monitoring, forecasting and impact assessment	Drought risk and vulnerability	Gender consideration	Vulnerable people and sphere standard	Drought communication and response actions	Drought mitigation and response actions	Recommendations and implementation actions	Required actions at various stages
Drought indices	Drought risk and vulnerability assessment	Membership of taskforce	Vulnerable people consideration	Drought communication protocol	National water resource monitoring and impact assessment	Priority implementation actions	Pre-drought
Drought monitoring, forecasting and data collection	GIS-based mapping	Reflection in NDP basic contents	Sphere standard consideration	Declaration of drought condition	Development of new and alternative water resources	Updates and revisions	During drought
Drought severity in all relevant sectors	Drought risk areas and/or locations			Communication and coordination guidelines	Water conservation practice, public education and awareness creation		Post-drought
Drought impact assessment methodology				Drought response actions	Prioritization of water supply for all people at affordable price		
					Legislation and land use planning		

Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Ghana

Ghana's NDP shows a positive outlook on the importance of better integrating drought considerations into the regulatory environment. In relative terms, the assessed performance of Ghana's main criteria highlights strong aspects of the NDP preparation, including drought communication and response actions, recommendations, and implementation actions, as well as legislation and land-use planning, as described:

- **Monitoring, forecasting, and impact assessment:** The four subcriteria of drought indices – drought monitoring, forecasting and data collection, drought severity in all relevant sectors, and drought impact assessment methodology – are all thoroughly addressed in the NDP.
- **Drought risk and vulnerability:** The main criterion is effectively addressed through its subcriteria, which include drought risk and vulnerability assessment, GIS-based mapping, and the identification of drought-prone areas or locations.
- **Drought mitigation and response actions:** Of the five subcriteria, only the subcriterion of legislation and land-use planning has been adequately addressed in the NDP, while national water resource monitoring, impact assessment, and the development of new and alternative water resources are covered to a lesser extent.
- **Drought communication and response actions:** The criteria are sufficiently covered by all the subcriteria. The NDP proposes a communication programme with diverse publication outlets (e.g. television, radio, journalist training) to communicate drought events to all stakeholders, responding to the specified communication objectives. It combines communication with education programmes to strengthen understanding and awareness on both sides of the communication channels.
- **Recommendations and implementation actions:** The NDP outlines the key intervention areas necessary for enabling IDM, including the development of institutional frameworks, legal frameworks, land-use planning frameworks, monitoring and assessment techniques, information management and communication, education and training, science and methodology, and financial mechanisms. As a result, the subcriterion of priority implementation actions is adequately addressed while the subcriterion for updates and revisions is considered to a lesser extent.

Identified areas that need strengthening

The assessment indicates that the three main criteria – gender consideration, vulnerable people and sphere standard, and required actions at various stages – are not addressed at all, so their respective subcriteria require complementary information. Furthermore, the subcriterion (prioritization of water supply for all people at an affordable price) within drought mitigation and response actions is also not included in the NDP.

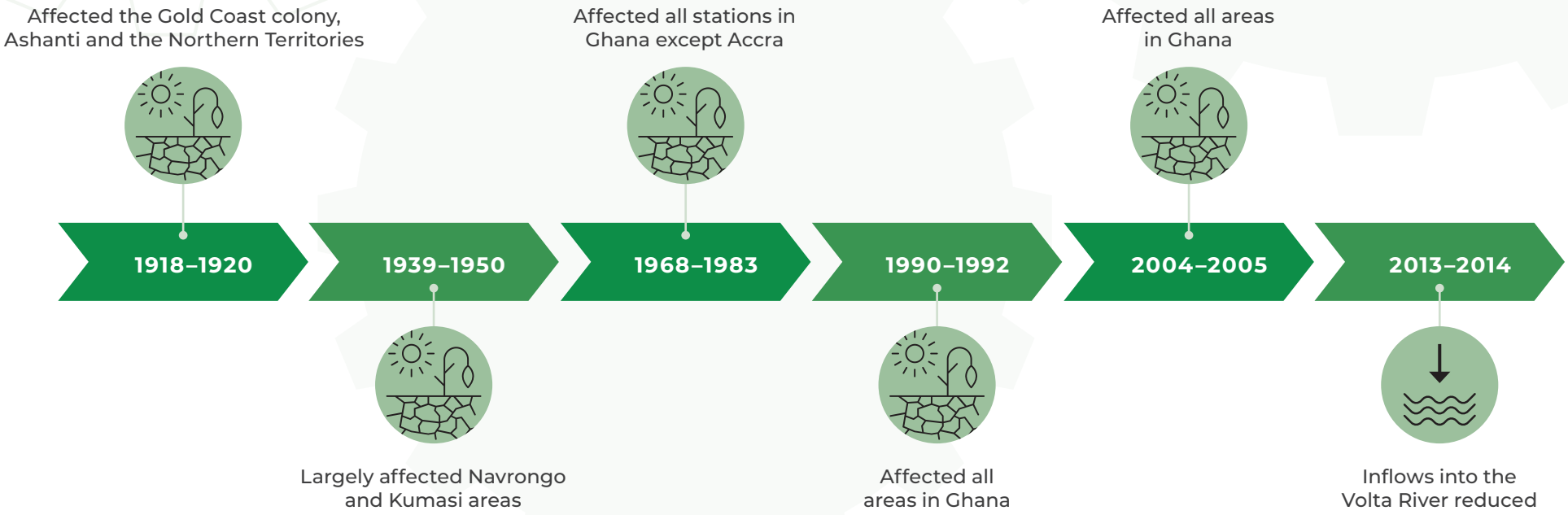
Assessed performance of the additional criteria

Based on the assessment, most of the additional criteria are well prepared. The subcriteria examining the purpose, scope, goals and objectives, as well as national water laws, drought mitigation strategic planning issues, and organizational overview, are among those adequately covered. However, it is advisable to reconsider the subcriteria focusing on access to safe water, as this is not covered, and the importance of the NDP was not assessed.

2.1.4.2. Findings from the identification and mapping of affected sectors in Ghana

Ghana's economic sectors are vulnerable to the impacts of climate change, particularly due to extreme events such as drought. This situation had a detrimental effect on the lives and livelihoods of local communities and has broader implications for the national economy. Data indicate that Ghana's direct economic losses from drought reached USD 95 million in 2020. If appropriate proactive measures are not implemented, these losses are expected to rise to over USD 325 million annually by 2050.

FIGURE 21. TIMELINE OF THE MAJOR DROUGHT EVENTS IN GHANA



Source: Authors' own elaboration.

Beyond food and water availability, drought in Ghana affects health, energy production, coastal regions and urban areas, as shown in Figure 22. The systemic impacts of drought extend throughout the agriculture-water-energy nexus, resulting in nationwide shortages of food, water and energy. Figure 22 shows examples of impacts and associated adaptation measures for the main sectors affected by drought in Ghana.

FIGURE 22. AFFECTED SECTORS AND ADAPTATION MEASURES FOR GHANA

DROUGHT IMPACTS AND MITIGATION EFFORTS					
SECTOR	**Water**	**Agriculture**	**Forestry and biodiversity**	**Health**	**Energy**
IMPACT	Hydrological imbalances, reduced availability of freshwater, decrease in inflows into the lakes and reservoirs.	Decline in crop productivity, decrease in fish stock, increase in risk to crop and livestock pests and diseases.	Land degradation and desertification, biodiversity loss and frequent bushfires.	Adverse impact on farmers' mental health, rise in waterborne diseases, respiratory illnesses, and malnutrition.	Reduction in power generation resulting in power rationing and revenue losses.
RESPONSE	Preserving/conserving water resources, making water accessible for domestic, agricultural, industrial and commercial use and energy production.	Capacity building for farmers, acquisition of alternative livelihood skills, and documenting best practices.	Priority actions driven by community- and ecosystem-based adaptation.	Raising awareness, enhancing and strengthening policies and laws, and upgrading existing health facilities and equipment	Increase in the use of off-grid alternative energy resources and efficient domestic appliances.

Source: Authors' own elaboration.

Ghana's NDP emphasizes that a national drought plan is crucial for the social and economic well-being of Ghanaians, as key sectors of Ghana's economy, such as water, agriculture, health and energy, are vulnerable to drought affecting overall livelihoods. However, a significant obstacle in drought communication is the lack of an integrated early warning system that addresses the needs of all sectors. There are no reports of systematic soil moisture and carbon monitoring programmes. Consequently, a mechanism for distributing drought information through radio, television, mobile phones and other communication channels should be established to ensure communities can take precautionary measures to mitigate the impacts of drought.

2.1.4.3. Findings from the policy stocktaking for Ghana

The NDP of Ghana recognized various policies, strategies and programmes related to drought. This relationship is analysed at global, regional and national levels, reflecting objective reality. The stocktaking of the legal and policy documents identified 13 international protocols, conventions and agreements, 5 regional and subregional documents, and 49 national policy documents, including legislation, plans, policies and strategies, as shown in Box 5.

Box 5. Ghana policy framework

International conventions, agreements and treaties:

- Bonn Challenge;
- Paris Agreement on Climate Change;
- Sendai Framework for Disaster Risk Reduction;
- United Nations Convention to Combat Desertification;
- United Nations Framework Convention on Climate Change treaty and the Kyoto Protocol;
- Agreement on the Conservation of Nature and Natural Resources;
- Convention on the Conservation of Migratory Species of Wild Animals;
- Convention on Biological Diversity;
- Agenda 2030 for Sustainable Development;
- Convention on Wetlands of International Importance, especially as Waterfowl Habitat;
- International Disaster Response Law;
- Montreal Protocol; and
- World Health Organization operational framework for building climate resilient health systems.

Regional and subregional documents:

- Permanent Interstate Committee for Drought Control in the Sahel;
- World Meteorological Organization Convention;
- Africa Forest Landscape Restoration Initiative;
- Great Green Wall for the Sahara and Sahel Initiative; and
- African Convention on the Conservation of Nature and Natural Resources.

National policies, strategies and legislation:

- National Riparian Buffer Zone Policy for Managing Fresh Water Bodies;
- National REDD+ Policy;
- Ghana Forest Landscape Restoration Strategy, 2016–2040;
- Ghana Forest and Wildlife Policy;
- Long-term National Development Plan of Ghana, 2018–2057;
- Environmental Protection Act, 2025;
- National Climate Change Policy, 2013;
- National Disaster Management Organisation Act, 1996;
- National Action Programme to Combat Desertification and Drought, 2002;
- National Irrigation Policy, Strategy, and Regulatory Measures, 2011;
- National Environment Policy;
- Ghana Agriculture Sector Investment Programme, 2014;
- National Climate Change Adaptation Strategy, 2010–2020;
- Water Resources Commission Act, 1996;
- National Integrated Water Resources Management Plan, 2012;
- Ghana Rainwater Harvesting Strategy, 2016;
- Water Sector Strategic Development Plan, 2012–2025;
- National Climate-Smart Agriculture and Food Security Action Plan of Ghana, 2016–2020;
- Ghana Forest Plantation Strategy, 2016–2040;
- National Biodiversity Strategy and Action Plan, 2016;
- Ghana Renewable Energy Master Plan, 2019;
- Ghana National Energy Policy, 2021;
- Second Coordinated Programme of Economic and Social Development Policies, 2021–2025;
- Ghana Meteorological Agency Act, 2004;
- Technical Guidelines for Integrated Disease Surveillance and Response in Ghana;
- Public Health Act;
- National Guidelines for Health Care Waste Management in Ghana;
- National Policy and Guidelines for Infection Prevention and Control;
- Standard Treatment Guidelines, 2017;
- National Strategy for Water, Sanitation, and Hygiene-Infection Prevention and Control in Healthcare Facilities;
- Ghana Policy and Strategy on Digital Health, 2023–2027;
- National Policy on Non-Communicable Diseases;
- National Nutrition Policy for Ghana;
- Ghana Hydrological Authority Act;

- National Water Policy;
- Water Sector Development Strategic Plan, 2012–2025;
- Dam Safety Regulations, 2016;
- Water Use Regulations, 2001;
- Nationally Determined Contributions, 2020–2030;
- Ghana National Climate Change Master Plan Action Programmes for Implementation, 2015–2020;
- Food and Agriculture Sector Development Policy;
- Ghana Livestock Development Policy and Strategy;
- Land Degradation Neutrality Target Setting Programme, 2017;
- Medium-Term National Development Policy Framework, 2022–2025;
- Ghana's Plan of Action for Disaster Risk Reduction and Climate Change, 2011–2015;
- Forestry Development Master Plan, 2016–2036;
- Water Charter for the Volta River Basin, 2018;
- National Land Policy; and
- National Seed Policy.

Source: Authors' own elaboration.

The stocktaking of various documents across Ghana clearly indicates that the five sectors affected by drought – water, agriculture, ecosystems, energy and health – are well represented in their respective policy documents. Ensuring these national policies align with regional and international agreements signifies progress in addressing familiar challenges and agendas.

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2.1.4.4. Findings from cross-matching the relevance of drought in the policy frameworks of Ghana

Based on the stocktaking, the documents were classified into three categories according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 23.

FIGURE 23. CLASSIFICATION OF POLICY DOCUMENTS IN GHANA

13 International commitments

5 Regional commitments

49 National policy documents

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• Long-term National Development Plan of Ghana, 2018 –2057 • National Disaster Management Organisation Act 1996	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalized)	Short term
	• Ghana's Plan of Action for Disaster Risk Reduction and Climate Change, 2011–2015	Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol	Short term
	• National Action Programme to Combat Desertification and Drought, 2002 • Ghana Agriculture Sector Investment Programme, 2014	Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports)	Short term
	• National Climate Change Adaptation Strategy, 2010–2020 • National Integrated Water Resources Management Plan, 2012 • National Climate Change Policy, 2013	Conducting an impact assessment of planned drought-related actions	Medium term

Reflection on drought	National policies	Recommendations	Time frame
	• Water Sector Development Strategic Plan, 2012–2025 • National Climate-Smart Agriculture and Food Security Action Plan of Ghana, 2016–2020 • Medium-Term National Development Policy Framework, 2022–2025 • Second Coordinated Programme of Economic and Social Development Policies, 2021–2025 • Ghana Rainwater Harvesting Strategy, 2016 • Land Degradation Neutrality Target Setting Programme, 2017 • Water Charter for the Volta River Basin, 2018 • Ghana Meteorological Agency Act, 2004		
Group 2: recognizing drought with no priority actions	• Environment Protection Act, 2025 • National Environment Policy • Water Resources Commission Act, 1996 • Ghana Forest and Wildlife Policy • Ghana Forest Plantation Strategy, 2016–2040 • Forestry Development Master Plan, 2016–2036 • Ghana Renewable Energy Master Plan, 2019 • National Riparian Buffer Zone Policy for Managing Fresh Water Bodies	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Facilitating the identification of drought-related priority actions Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports) Conducting impact assessment of planned drought-related actions	Short term Medium term Medium term Medium term Medium term

Reflection on drought	National policies	Recommendations	Time frame
	• Ghana Forest Landscape Restoration Strategy, 2016–2040 • National Nutrition Policy for Ghana • National Water Policy • Food and Agriculture Sector Development Policy • National Seed Policy • National Biodiversity Strategy and Action Plan, 2016; • Ghana National Climate Change Master Plan Action Programmes for Implementation, 2015–2020		
Group 3: Not recognizing drought with no priority actions	• National REDD+ Policy • Ghana National Energy Policy, 2021 • National Irrigation Policy, Strategy, and Regulatory Measures, 2011 • Technical Guidelines for Integrated Disease Surveillance and Response in Ghana • Public Health Act • National Guidelines for Health Care Waste Management in Ghana • National Policy and Guidelines for Infection Prevention and Control • Standard Treatment Guidelines, 2017 • National Strategy for Water, Sanitation and Hygiene-Infection Prevention and Control in Healthcare Facilities • Ghana Policy and Strategy on Digital Health, 2023–2027	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize) Advocating for the recognition of drought Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Medium-term Long-term Long-term Long-term

Reflection on drought	National policies	Recommendations	Time frame
	• Water Sector Development Strategic Plan, 2012–2025 • National Policy on Non-Communicable Diseases • Ghana Hydrological Authority Act • Dam Safety Regulations, 2016 • Water Use Regulations, 2001 • Nationally Determined Contributions, 2020–2030 • Ghana Livestock Development Policy and Strategy • National Land Policy		

Source: Authors' own elaboration.

Under Group 1, Ghana has a broad set of policies that explicitly recognize drought and define concrete actions across water management, agriculture, land restoration, climate adaptation, and disaster risk reduction. Key instruments include the National Action Programme to Combat Desertification and Drought (2002), the National Climate-Smart Agriculture and Food Security Action Plan (2016–2020), and the Ghana Agriculture Sector Investment Programme (2014). Development-oriented frameworks such as the Long-Term National Development Plan (2018–2057), the Medium-Term National Development Policy Framework (2022–2025), and the Second Coordinated Programme of Economic and Social Development Policies (2021–2025) also integrate drought within broader economic planning. The National Climate Change Policy (2013), National Adaptation Strategy (2010–2020), and Plan of Action for Disaster Risk Reduction and Climate Change (2011–2015) demonstrate a consistent emphasis on resilience. However, despite strong coverage in development and disaster management, Group 1 policies show limited treatment of environmental aspects such as ecosystem restoration and biodiversity management, which weakens the integration of environmental sustainability within drought resilience strategies. Coordination among agencies and better linkage between development and environmental policies remain essential to ensuring effective implementation.

Group 2 policies acknowledge drought but do not include specific priority actions. These include the Environmental Protection Act (2025), the National Environment Policy, and several forestry and water-related frameworks such as the Ghana Forest and Wildlife Policy, the Ghana Forest Plantation Strategy (2016–2040), and the National Water Policy. Energy, agriculture and nutrition frameworks, including the Ghana Renewable Energy Master Plan (2019), Food and Agriculture Sector Development Policy, and National Nutrition Policy,

also reference sustainability but do not link it to drought explicitly. These frameworks contribute to creating an enabling environment for resilience but remain regulatory and programmatic rather than operational. Without concrete drought measures, they cannot effectively support the preparedness and response mechanisms established under Group 1.

Group 3 policies do not recognize drought, despite covering sectors that are highly vulnerable to its impacts. These include the National Irrigation Policy (2011), the Ghana Livestock Development Policy and Strategy, and several water-related instruments such as the Water Use Regulations (2001), Dam Safety Regulations (2016), and the Ghana Hydrological Authority Act. Health-sector frameworks, including the Public Health Act, the National Guidelines for Health Care Waste Management, and the Standard Treatment Guidelines (2017), also overlook the potential effects of drought on disease outbreaks, sanitation and water availability. This lack of integration limits the ability of the irrigation, livestock and health sectors to anticipate and manage drought impacts.

Overall, Ghana demonstrates strong progress in developing comprehensive policy frameworks that address drought, particularly in Group 1, where drought is embedded in development, agricultural and disaster management agendas. However, the limited environmental integration in Group 1, the lack of operational measures in Group 2, and the absence of drought considerations in key productive and social sectors in Group 3 indicate that mainstreaming remains incomplete. Strengthening coordination mechanisms and embedding environmental sustainability and drought resilience within all policy domains will be essential for a coherent, cross-sectoral approach to national drought management.

2.1.5.1. Findings from a review of the institutional responsibilities for Ghana

In Ghana, the Environmental Protection Authority (EPA) is responsible for managing interventions related to desertification and coordinating drought activities. However, the policy analysis found that the EPA's responsibilities remain unclear, as the country lacks a comprehensive disaster risk management strategy or a designated agency, which hampers the implementation of the IDM approach. This needs to be addressed and clarified during the review of the NDP. Apart from the EPA, the Drought Management Plan and the NDP identify the National Disaster Management Organization, its council and committees, from the national to the district level, as responsible for managing drought. Besides these, there are no drought-specific regulations, strategies or programmes. As a result, systematic and integrated management has not been sufficiently embedded into the institutional mechanisms.

Consequently, drought is regarded as one of the natural disasters to be managed by the National Disaster Management Organization, the mandated body responsible for overseeing overall disaster risk management and emergency response. The institutional setup at strategic and policy levels is suitable, as the drought management framework is based on and integrated within the national authorities responsible for disaster risk management. Most relevant sectoral agencies are, in principle, included in the coordination mechanisms of the National Disaster Management Organization, EPA, and water sector actors. Therefore, it is crucial to oversee how drought is managed within these integrated institutions and assess their capacity to implement technical solutions locally.

Box 6. Country-specific policy recommendations in Ghana

In April 2025, the Environmental Protection Authority (EPA) of Ghana, in collaboration with the Food and Agriculture Organization of the United Nations (FAO), convened a national workshop to review and support the implementation of Ghana's National Drought Plan. The workshop gathered key stakeholders and institutional

representatives to assess the alignment of the NDP with national regulatory frameworks, recognizing this as a critical step for operationalizing drought-related agendas across key sectors such as environment, health, water and agriculture. Through participatory dialogue sessions, participants identified policy gaps, clarified institutional mandates, and proposed adjustments to strengthen coherence with national development objectives. The consultation emphasized actionable recommendations tailored to Ghana's context, including strengthening institutional mandates, enhancing coordination mechanisms, raising public awareness, integrating indigenous knowledge, and developing sector-specific drought management plans.

The recommendations were structured into three main groups. The first group focused on data integration and monitoring, calling for harmonized data systems, long-term funding for sectoral monitoring, and feedback mechanisms. The second group addressed coordination and policy for resource allocation, advocating for stronger institutional coordination, stakeholder engagement, and improved land tenure systems, particularly for vulnerable groups. The third group emphasized research and knowledge management, recommending adaptive research frameworks, drought-specific capacity-building, and documentation of indigenous knowledge. These outcomes underscore a phased approach. Some measures can be implemented immediately, such as awareness-raising and data harmonization, while others require longer-term policy reforms and investments. Overall, the process aimed to position the NDP as a unifying framework for mainstreaming drought risk management into Ghana's national planning and fostering a coherent policy environment.

Source: Authors' own elaboration.

2.1.5. Grenada

Grenada's membership in the Drought Initiative marked a significant shift towards proactive, risk-based disaster management from the previously inadequate reactive and post-hazard strategies. The country has recognized the importance of a comprehensive approach and stakeholder involvement to address vulnerabilities, including drought. To effectively manage drought events, different ministries at multiple levels of administration must develop the necessary skills and resources. However, progress in reducing the country's drought vulnerability has been hindered by insufficient infrastructure, unreliable rainfall data, and a low level of integrated water resource management.

2.1.5.1. Findings from a multicriteria assessment of the Grenada Drought Management Plan

Figure 24 presents the results of the assessment of the main criteria and their related subcriteria for Grenada.

FIGURE 24. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR GRENADA

Monitoring, forecasting and impact assessment	Drought risk and vulnerability	Gender consideration	Vulnerable people and sphere standard	Drought communication and response actions	Drought mitigation and response actions	Recommendations and implementation actions	Required actions at various stages
Drought indices	Drought risk and vulnerability assessment	Membership of taskforce	Vulnerable people consideration	Drought communication protocol	National water resource monitoring and impact assessment	Priority implementation actions	Pre-drought
Drought monitoring, forecasting and data collection	GIS-based mapping	Reflection in NDP basic contents	Sphere standard consideration	Declaration of drought condition	Development of new and alternative water resources	Updates and revisions	During drought
Drought severity in all relevant sectors	Drought risk areas and/or locations			Communication and coordination guidelines	Water conservation practice, public education and awareness creation		Post-drought
Drought impact assessment methodology				Drought response actions	Prioritization of water supply for all people at affordable price		
					Legislation and land use planning		

Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Grenada

The Grenada performance assessment presents a mixed outlook on the criteria for the multicriteria assessment for the drought management plan. Grenada's key strengths include drought communication and response actions, drought risk and vulnerability assessment, monitoring, forecasting, impact assessment, and gender considerations, as outlined:

- **Monitoring, forecasting and impact assessment:** The drought management plan of Grenada provides detailed information related to drought. It describes drought indices, monitoring and forecasting, as well as the assessment of drought severity across relevant sectors and its impacts.
- **Drought risk and vulnerability:** The only subcriterion included in the drought management plan under this main criterion is the identification of drought risk areas or locations.
- **Drought communication and response actions:** This main criterion covers drought communication protocols, the declaration of drought conditions, drought response measures, and guidelines for communication and coordination.

Identified areas that need strengthening

Despite some strong points, the Grenada criteria for the multicriteria assessment of the drought management plan reveal some gaps. The subcriteria fall under the main criteria, such as drought risk and vulnerability assessment, gender considerations, vulnerable populations, sphere standards, drought mitigation and response actions, recommendations and implementation actions, and required actions at various stages.

Assessed performance of the additional criteria

The additional criteria for Grenada show a different picture from the main criteria assessment, as most of the subcriteria for the former have substantial supporting information, while only a few require further details. According to the assessment, the subcriteria regarding the introduction of the ten-step process, the importance of the NDP, access to safe water, and the assignment of responsibility need additional information.

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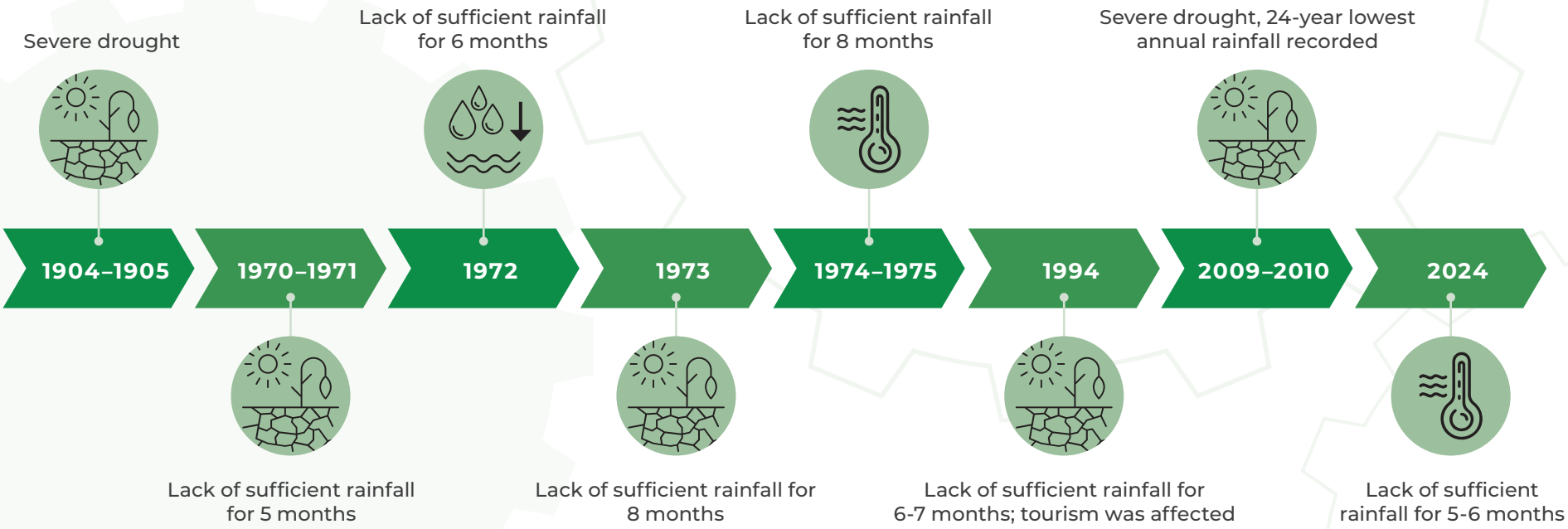
2.1.5.2. Findings from the identification and mapping of affected sectors in Grenada

Based on annual water balance, flow accumulation, mean annual temperature, soil drainage, and moisture supply capacity information, Grenada is said to have experienced several drought events since 1900 (Collymore *et al.*, 2016), as presented in Figure 25. Drought events in Grenada exhibit different geographical patterns depending on their severity and type. While the domestic water supply is mainly affected in Carriacou and Petite Martinique, as well as the southern and southeastern parts of the mainland, agricultural drought has impacts in Carriacou and Petite Martinique, along with the northeastern, eastern and southeastern regions of the mainland.

FIGURE 25. TIMELINE OF THE MAJOR DROUGHT EVENTS IN GRENADA



Source: Authors' own elaboration.

In Grenada, hydrological drought poses a significant threat to all sectors, as the country has limited freshwater resources and most economic sectors depend heavily on water availability, including tourism, which is the leading source of revenue. There is a default water scarcity because of increasing and competing demands from all sectors, mainly tourism and the agri-food industries. Drought worsens the already bad water situation. This reliance on water resources led Grenada to adopt the concept of integrated water resources management. Developing the water sector is viewed as a crucial measure to withstand climate hazards, including drought. Figure 26 illustrates examples of impacts and corresponding adaptation measures for the main sectors affected by drought in Grenada.

Grenada has experienced severe cases of low rainfall, particularly in the smaller dependencies, over the past century. Although the severity of the dry season and drought events varies across the country, it is generally most pronounced in the Carriacou and Petite Martinique dependencies. Based on the country's experience, drought affects many economic sectors in Grenada, as shown in Figure 22, and in a Small Island Developing State, the impacts of drought quickly cascade. This means that drought effects on one sector immediately influence others, and the concentration of natural resources, economic activities and inhabited areas amplifies the spread of drought impacts.

FIGURE 26. AFFECTED SECTORS AND ADAPTATION MEASURES FOR GRENADA

DROUGHT IMPACTS AND MITIGATION EFFORTS				
SECTOR	**Water**	**Agriculture**	**Forestry and biodiversity**	**Health**
IMPACT	Decline in groundwater reserves, reduced water quality through increased turbidity and water stress.	Causing food insecurity, affecting people's livelihoods and decline in livestock production.	Forest fires, increased water shortages for tourism and loss of ornamental plants	Increase in waterborne and infectious vector-borne diseases, malnutrition and poor sanitation.
RESPONSE	Rehabilitating/repairing existing water catchment areas and making rainwater harvesting and storage mandatory for all new buildings.	Providing technological options to ensure food security, capacity building, and developing a food and nutrition security warning system.	Identifying potential new sites and assessing the vulnerability of other relevant tourism infrastructure.	Establishing climate-sensitive disease surveillance and control, and enhancing vector control capacities at the community level.

Source: Authors' own elaboration.

2.1.5.3. Findings from the policy stocktaking for Grenada

Grenada's drought management plan outlines policies relevant to drought, from international to national levels. The review of legal and policy documents identified 8 international protocols, conventions and agreements, and 17 national policy documents, including legislation, plans, policies and strategies, as shown in Box 7.

Box 7. Grenada policy framework

International conventions, agreements and treaties:

- Convention on Biological Diversity;
- Montreal Protocol;
- Convention on the Protection of the Ozone Layer;
- United Nations Convention to Combat Desertification;
- United Nations Framework Convention on Climate Change (UNFCCC);
- Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat;
- Paris Agreement; and
- Kyoto Protocol.

National policies, strategies and legislation:

- National Sustainable Development Plan, 2020–2035;
- Water Policy, 2019;
- National Climate Change Adaptation Plan;
- Second National Communication to the UNFCCC, 2017;
- Gender Equity Policy and Action Plan, 2014–2024;
- National Climate Change Policy, 2017–2021;
- Draft Agriculture Drought Management Plan, 2016.
- Grenada National Hazard Mitigation Policy, 2003;
- Country Document on Disaster Risk Reduction for Grenada, 2014;
- National Agriculture Plan;
- Road Map Toward Integrated Water Resources Management Planning for Grenada
- Health Sector Strategic Plan, 2016–2025;
- Water Resources Master Plan.
- Gender Equality Policy and Action Plan;
- National Disaster (Emergency Powers) Act, 1984;
- Forest Policy Strategic Plan, 2001–2011; and
- National Disaster Plan, 2005.

Source: Authors' own elaboration.

Grenada recognizes the water sector as crucial for mitigating the effects of drought. This highlights the importance of drought management, which is also reflected in some sectoral policies, strategies, plans, and the institutional framework proposed for managing drought. However, a comprehensive national drought management policy or strategy is absent. Drought is increasingly incorporated into strategic frameworks, including those related to

disaster risk management, climate change, water resource management, and, more recently, land management. This sector-specific approach offers several advantages, such as properly acknowledging drought within affected sectors and utilizing resources and achievements from other areas. Nonetheless, an independent policy or strategy would help avoid the risk of siloed drought management.

2.1.5.4. Findings from cross-matching the relevance of drought in policy frameworks of Grenada

Based on the stocktaking, the documents were classified into three categories according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 27.

FIGURE 27. CLASSIFICATION OF POLICY DOCUMENTS IN GRENADA

18 International commitments

16 National policies and plans

1 Legal documents

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• National Sustainable Development Plan, 2020–2035 • The Water Policy, 2019 • National Climate Change Adaptation Plan • Second National Communication • Gender Equity Policy and Action Plan, 2014–2024 • The National Climate Change Policy, 2017–2021 • Agriculture Drought Management Plan, 2016 (draft)	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports) Conducting an impact assessment of planned drought-related actions	Short term Short term Short term Medium term
Group 2: Recognizing drought with no priority actions	• Grenada National Hazard Mitigation Policy, 2003 • Country Document on Disaster Risk Reduction for Grenada, 2014	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Facilitating the identification of drought-related priority actions	Short term Medium term

Reflection on drought	National policies	Recommendations	Time frame
	• The National Agriculture Plan • Road Map Toward Integrated Water Resources Management Planning for Grenada	Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions	Medium term
		Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports)	Medium term
		Conducting impact assessment of planned drought-related actions	Medium term
Group 3: Not recognizing drought with no priority actions	• Health Sector Strategic Plan, 2016–2025 • Water Resources Master Plan • Gender Equality Policy and Action Plan • National Disaster (Emergency Powers) Act, 1984 • Forest Policy Strategic Plan, 2001–2011	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize)	Medium-term
		Advocating for the recognition of drought	Long-term
		Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method	Long-term
		Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Long-term

Source: Authors' own elaboration.

Under Group 1, Grenada's policies explicitly recognize drought and include priority actions that address water management, agriculture, sustainable development and climate adaptation. The National Sustainable Development Plan (2020–2035), the Water Policy (2019), and the National Climate Change Adaptation Plan establish a strong foundation for resilience by integrating drought considerations into national planning. The draft Agriculture Drought Management Plan (2016) demonstrates a direct effort to operationalize these priorities in the agricultural sector. Climate-related instruments such as the National Climate Change Policy (2017–2021) and the Second National Communication to the UNFCCC (2017) further strengthen

institutional awareness of drought as a climate-induced hazard. However, as a Small Island Developing State, Grenada depends on a centralized implementation across limited institutional capacities and resources. Fragmented actions across sectors could undermine the benefits of these otherwise comprehensive frameworks.

Group 2 policies acknowledge drought but lack specific or actionable measures. These include the National Hazard Mitigation Policy (2003), the Country Document on Disaster Risk Reduction (2014) and the National Disaster Plan (2005), along with sectoral instruments such as the National Agriculture Plan and the Road Map Toward Integrated Water Resources Management. These frameworks demonstrate awareness of drought as a threat to national development and livelihoods, but they remain broad in scope. The absence of defined implementation measures limits their practical impact, especially in a small island context where drought management must be closely linked to disaster preparedness, water security and food production to be effective.

Group 3 policies do not reference drought, even though they govern sectors directly affected by its impacts. The Health Sector Strategic Plan (2016–2025), the Water Resources Master Plan, the Forest Policy Strategic Plan (2001–2011), the Gender Equality Policy and Action Plan, and the National Disaster (Emergency Powers) Act (1984) all address resilience or sustainability in general terms but overlook drought as a cross-cutting risk. This lack of integration reduces opportunities to link drought management with health systems, ecosystem conservation, and emergency response mechanisms, which are vital in small island settings where sectoral interdependencies are strong.

Overall, Grenada demonstrates significant progress in integrating drought into national development and climate policies under Group 1, which is a key achievement for a small island state facing increasing climate variability. Strengthening coordination between water, agriculture and disaster management frameworks and ensuring that all sectors incorporate drought risk into planning and operations will be essential for building a coherent and resilient national response.

2.1.5.5. Findings from a review of the institutional responsibilities for Grenada

The Government of Grenada made efforts to foster a radical change in a proactive, multisectoral and comprehensive disaster risk management approach. The country acknowledges the need for a comprehensive strategy and the participation of diverse parties in addressing its vulnerabilities, including drought. The drought management plan proposes a wider collaboration among institutional actors to involve all stakeholders. Thus, Grenada collaborates and coordinates with regional and international organizations to manage disaster risks. The National Disaster Management Agency leads in disaster risk management activities at the national level while also providing technical services at the local and community levels.

Some sectoral agencies (agriculture, water, irrigation, health) are delegated to perform drought-related activities, especially when drought emerges. The National Disaster Management Agency has the mission to reduce the loss of life and property within Grenada, Carriacou and Petite Martinique by ensuring that adequate preparedness, response and mitigation measures are in place to deal with the impact of the hazards.

The drought management plan also outlines its proposed drought management structure, which is headed by the Ministry of National Security. This ministry delegates such responsibilities through the National Disaster Center, guided by the National Disaster Management Agency. Several subcommittees, including those for tourism, agriculture, water, and Carriacou and Petite Martinique, support the National Disaster Center. It is also connected to early warning systems, monitoring, risk assessment and educational outreach.

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2.1.6. Guyana

Guyana's geography and historical development of settlements have made it one of the most vulnerable countries to climate change, and the country's diverse landscape results in varying impacts of drought. The government has undertaken several initiatives to promote proactive drought management, aiming to build resilience and preparedness. The Guyana National Drought Mitigation and Adaptation Plan aims to establish such measures and align management practices with international standards. The preparatory process for the NDP ensured the inclusion of multiple stakeholders and sectors, as the adverse impacts of drought extend across regions and require the involvement of different institutions.

2.1.6.1. Findings from a multicriteria assessment of the Guyana National Drought Mitigation and Adaptation Plan

Figure 28 presents the results of the assessment of the main criteria and their related subcriteria for Guyana.

FIGURE 28. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR GUYANA

Monitoring, forecasting and impact assessment	Drought risk and vulnerability	Gender consideration	Vulnerable people and sphere standard	Drought communication and response actions	Drought mitigation and response actions	Recommendations and implementation actions	Required actions at various stages
Drought indices	Drought risk and vulnerability assessment	Membership of taskforce	Vulnerable people consideration	Drought communication protocol	National water resource monitoring and impact assessment	Priority implementation actions	Pre-drought
Drought monitoring, forecasting and data collection	GIS-based mapping	Reflection in NDP basic contents	Sphere standard consideration	Declaration of drought condition	Development of new and alternative water resources	Updates and revisions	During drought
Drought severity in all relevant sectors	Drought risk areas and/or locations			Communication and coordination guidelines	Water conservation practice, public education and awareness creation		Post-drought
Drought impact assessment methodology				Drought response actions	Prioritization of water supply for all people at affordable price		
					Legislation and land use planning		

Need for complementary information — All required information available

Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Guyana

Guyana is one of the countries that has demonstrated largely positive results in the assessed performance of the main criteria. The NDP shows strong aspects in a number of main criteria, including monitoring, forecasting, impact assessment, drought risk and vulnerability, drought mitigation and response actions, drought communication and response actions, recommendations, implementation actions, gender considerations, vulnerable people, and sphere standards, as described:

- **Monitoring, forecasting and impact assessment:** All subcriteria under this main criterion are well covered, as it presents comprehensive numerical data, digital maps, drought outlooks, alert levels, historical and current drought bulletins, Standardized Precipitation Index as the chosen drought indicator, and time series analyses, alongside drought severity graphs.
- **Drought risk and vulnerability:** This main criterion is also adequately addressed as the NDP recommends a comprehensive vulnerability assessment encompassing social, physical, environmental, economic and political factors, as well as gender considerations. Maps are vital for evaluating national land degradation and drought. The NDP also highlights the usefulness of maps for the national assessment on land degradation and drought.
- **Drought mitigation and response actions:** The NDP states that four institutions are responsible for monitoring water resources. It outlines measures to manage water supply, such as rainwater harvesting, water storage and technologies, along with public education, awareness initiatives and outreach programmes. The NDP also provides details on various legislations related to the management of water resources and land.
- **Drought communication and response actions:** The NDP thoroughly discusses the existing drought communication protocol, which encompasses monitoring and early warning, risk assessment, mitigation, and response measures. It explains the drought early warning system, the declaration of drought conditions, the stages of communication and coordination, the use of information and communication technology (ICT), the information dissemination mechanism, and drought response measures, including gaps in drought communication and response actions.
- **Recommendations and implementation actions:** The main criterion was well met, as the NDP includes the priority implementation actions along with updates and revisions. Specifically, it offers targeted information and advice for local communities and relevant sectors, including agriculture, water and health. It also proposes a drought monitoring framework that is essential for IDM.
- **Gender consideration:** The subcriterion on reflection in NDP basic content was well covered, as gender is considered in several sections. Examples include integrating gender into drought risk and vulnerability assessments and GIS mapping; implementing recommended actions; and a list of ten key actions to ensure a gender-responsive approach throughout the integrated drought risk management planning process, as well as the Guyana Drought Early Warning System Protocol.
- **Vulnerable people and sphere standard:** The consideration of vulnerable people is thoroughly addressed under this main criterion. The National Drought Mitigation and Adaptation Plan (NDMAP) presents priority actions in the water sector for vulnerable communities and explores the feasibility of well drilling to establish a water source for them. It also outlines the organizational responsibilities for drought management in Guyana, which include support for vulnerable populations, as well as a commitment to enhancing the resilience of vulnerable communities and ecosystems to improve their lives.

Identified areas that need strengthening

Although the main criteria showed a positive outlook on the adequacy of the subcriteria, some areas need improvement, such as gender considerations in taskforce membership and all subcriteria for various actions at different stages. Additionally, information on sphere standard considerations also needs to be provided.

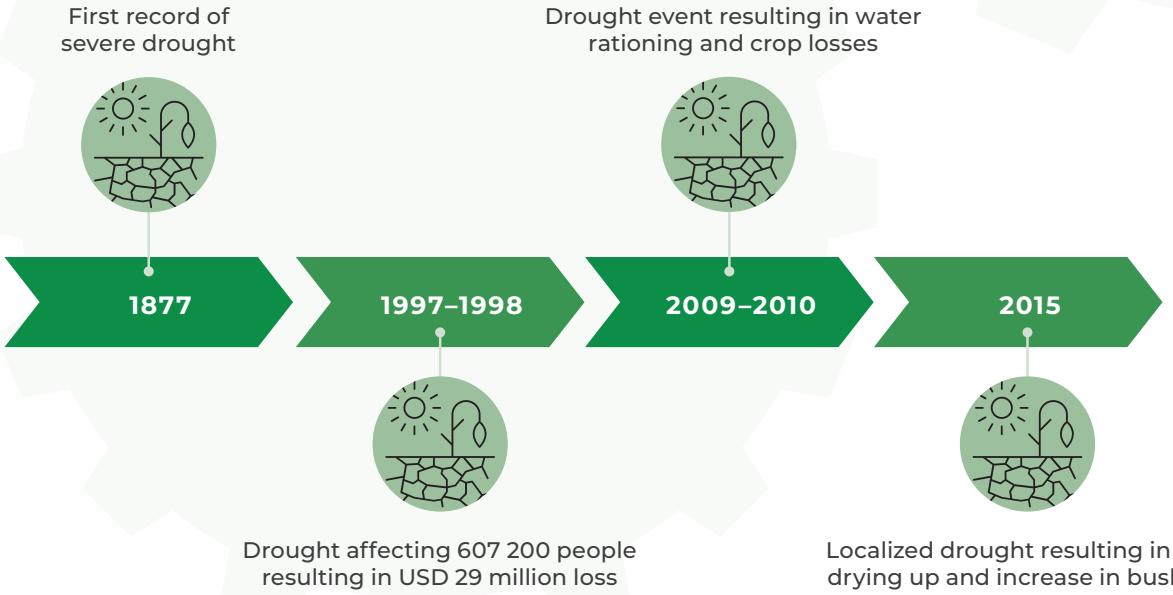
Assessed performance of the additional criteria

The assessment of additional criteria provides a different perspective compared to the main criteria. According to the assessment, half of the subcriteria lack sufficient information or have none at all, including the entire additional criterion concerning the overview of drought in the country, the subcriterion on introducing the ten-step process, and access to safe water. These areas will need more comprehensive information. In contrast, the other half of the subcriteria have abundant information, such as purpose, scope, goals, and objectives, national water laws, drought mitigation strategic planning issues, and the entire additional criterion regarding organization and assignment of responsibilities.

2.1.6.2. Findings from the identification and mapping of affected sectors in Guyana

Guyana clearly recognizes the importance of integrated drought management, yet drought is inherently part of the design and implementation of disaster risk management programmes. Incorporating drought into disaster risk management policies is viewed as a resource-effective strategy in countries exposed to multiple and simultaneous hazards, as in Guyana. Drought impacts differ across Guyana's geography, with the most populated areas, such as the coastal regions, being the most vulnerable. Historical records show that Guyana has experienced drought events since 1877 (Figure 29). At times, drought has affected up to 80 percent of the population, leading to water stress, food insecurity, and adverse impacts on key sectors, including agriculture.

FIGURE 29. TIMELINE OF THE MAJOR DROUGHT EVENTS IN GUYANA



Source: Authors' own elaboration.

One of the challenges identified in the NDP is that historical records of drought impacts in Guyana are either non-existent or currently inaccessible. The absence of historical data poses a significant obstacle to effective planning. Therefore, it is recommended that Guyana restore historical data and establish a data collection and monitoring programme to gather information on drought and its effects across sectors. Creating a systematic dataset can help define drought conditions and inform suitable mitigation measures. State-of-the-art monitoring systems (e.g. automated stations) are recommended to support local authorities in building capacity and decentralizing responses. Figure 30 provides examples of impact data and related adaptation measures for the main sectors affected by drought in Guyana.

FIGURE 30. AFFECTED SECTORS AND ADAPTATION MEASURES FOR GUYANA

DROUGHT IMPACTS AND MITIGATION EFFORTS					
SECTOR	**Water**	**Agriculture**	**Forestry and biodiversity**	**Health**	**Education**
IMPACT	Degradation of water resources, declining water supply for domestic and commercial use, and dropping groundwater tables, causing saltwater intrusion.	Reduced water supply for irrigation, livestock loss, reduced forage, saltwater intrusion, increased soil salinity, and low crop productivity.	Reduced soil moisture, soil degradation, soil erosion, and increased risk and severity of forest fires. Forest degradation harms biodiversity and ecosystem services.	Food and nutrition insecurity; reduced air quality; poor sanitation and hygiene, as well as compromised food preparation quality, lead to sporadic cases of disease.	Closure of schools due to unhealthy heat, shortage of food, or water for learners; students travelling miles to access water often neglect school attendance.
RESPONSE	Rainwater harvesting, conservancy management, drainage and irrigation, and promoting integrated water resources management.	Crop diversification and introduction of new varieties, shade house cultivation, aquaculture and drip and sprinkler irrigation.	Improving knowledge on the climate vulnerability of ecosystems and biodiversity, and enforcing climate-resilient laws, policies and regulations.	Improving communities' access to clean water and sanitation facilities, reducing water- and vector-borne diseases, public education and awareness-raising.	Educational curriculum capturing drought agenda and remedial action to improve preparedness from a young age; formal education targeting farmers, policymakers and the media.

Source: Authors' own elaboration.

2.1.6.3. Findings from the policy stocktaking for Guyana

The NDP of Guyana recognized various policies, strategies and programmes related to drought. This relationship is analysed at the international and national levels, reflecting objective reality. The stocktaking of the legal and policy documents identified 7 international commitments and 32 national policy documents, including policies, legislation and strategies, as shown in Box 8.

Box 8. Guyana policy framework

International conventions, agreements and treaties:

- Paris Agreement (Framework Convention on Climate Change);
- Convention on Biological Diversity, 1992;
- Kyoto Protocol to the Framework Convention on Climate Change, 2005;
- Montreal Protocol on Substances that Deplete the Ozone, 1989;
- Nagoya Protocol, 2014;
- United Nations Convention to Combat Desertification, 1996; and
- Vienna Convention for the Protection of the Ozone Layer, 1988.

National policies, strategies and legislation:

- Climate Change Action Plan, 2001;
- Disaster Risk Management Policy, 2013;
- Drought Early Warning System Protocol, 2015;
- Early Warning System Framework, 2013;
- Green State Development Strategy: Vision 2040 (Vol. I);
- Guideline for Incorporating Integrated Disaster Risk Management in Environmental Management, 2013;
- Multi-Hazard Disaster Preparedness and Response Plan-Guyana, 2013;
- National Action Plan to Combat Land Degradation 2015, aligned to the UNCCD, 2008–2018;
- National Adaptation Plan, 2019;
- National Biodiversity Strategy and Action Plan, 2015;
- National Climate Change Policy and Action Plan 2020–2030;
- National Forest Plan, 2019;
- National Integrated Disaster Mitigation Implementation Strategy for Guyana, 2013–2022;
- National Integrated Disaster Risk Management Plan for Guyana, 2013–2022;
- National Land Degradation Neutrality Targets, 2017;
- National Land Use Plan, 2013;
- Policy Recommendations, Financial Mechanism and Implementation;
- Revised National Forest Policy Statement, 2018;
- Disaster Risk Management Bill, 2019 (draft);

- Environmental Protection Act, 1996;
- National Strategy for Agriculture, 2013–2020;
- Water and Sewage Act, 2002, Part VI;
- Water and Sanitation Sector Strategic Plan, 2017–2021;
- Water Strategic Plan, 2021–2025;
- Health Vision 2020: A National Health Strategy for Guyana, 2013–2020;
- Poverty Reduction Strategy paper, 2011–2015;
- National Tourism Policy (draft);
- Food and Nutrition Security Strategy, 2011;
- Energy Strategic Plan of Guyana, 2016–2020;
- Drainage and Irrigation Act (Cap. 64:03);
- Education Sector Plan, 2021–2025; and
- Tourism Strategic Action Plan: 2018–2025 (draft).

Source: Authors' own elaboration.

The stocktaking revealed that Guyana needs to enhance its planning for drought within its disaster risk management policies. Besides the Poverty Reduction Strategy paper, most of Guyana's national policies and strategies, including their proposed priority actions, focus on specific sector challenges or agendas. Regardless of their scope and level of commitment, some of the proposed actions help address drought-related risks. This suggests that a more comprehensive and systematic section on drought management should be incorporated into the national disaster risk management policies. Policies and strategies related to climate change and water issues can be utilized to develop and support drought management policies or strategies.

2.1.6.4. Findings from cross-matching the relevance of drought in policy frameworks of Guyana

Based on the stocktaking exercise, the documents were classified into three categories according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 31.

FIGURE 31. CLASSIFICATION OF POLICY DOCUMENTS IN GUYANA

7 International commitments

28 National policies, plans and strategies

4 Legal documents

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• Water and Sewage Act, 2002, Part VI • National Strategy for Agriculture, 2013–2020 • Multi-Hazard Disaster Preparedness and Response Plan-Guyana, 2013 • Early Warning System Framework, 2013 • National Climate Change Policy and Action Plan, 2020–2030 • Water Strategic Plan, 2021–2025 • Poverty Reduction Strategy paper, 2011–2015 • National Action Plan to Combat Land Degradation 2015, aligned to the UNCCD, 2008–2018	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalized) Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports) Conducting an impact assessment of planned drought-related actions	Short term Short term Short term Medium term

Reflection on drought	National policies	Recommendations	Time frame
Group 2: Recognizing drought with no priority actions	• Disaster Risk Management Bill, 2019 • National Integrated Disaster Risk Management Plan for Guyana, 2013–2022 • Environmental Protection Act, 1996 • National Adaptation Plan, 2019 • Climate Change Action Plan, 2001 • Drought Early Warning System Protocol, 2015 • Disaster Risk Management Policy, 2013 • National Integrated Disaster Mitigation Implementation Strategy for Guyana, 2013–2022 • Guideline for Incorporating Integrated Disaster Risk Management in Environmental Management, 2013 • Draft National Tourism Policy	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Facilitating the identification of drought-related priority actions Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports) Conducting impact assessment of planned drought-related actions	Short term Medium term Medium term Medium term Medium term
Group 3: Not recognizing drought with no priority actions	• Water and Sanitation Sector Strategic Plan, 2017–2021 • National Land Degradation Neutrality Targets, 2017 • National Forest Plan, 2019 • Food and Nutrition Security Strategy, 2011 • Education Sector Plan, 2021–2025 • Energy Strategic Plan of Guyana, 2016–2020	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize) Advocating for the recognition of drought Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method	Medium term Long term Long term

Reflection on drought	National policies	Recommendations	Time frame
	• National Biodiversity Strategy and Action Plan, 2015 • National Land Use Plan, 2013 • Green State Development Strategy: Vision 2040 (Vol. I) • Policy Recommendations, Financial Mechanism and Implementation • Revised National Forest Policy Statement, 2018 • Health Vision 2020: A National Health Strategy for Guyana, 2013–2020 • Tourism Strategic Action Plan, 2018–2025 • Drainage and Irrigation Act (Cap. 64:03)	Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Long term

Source: Authors' own elaboration.

Under Group 1, Guyana's policies explicitly recognize drought and include priority actions that address water resource management, agriculture, disaster preparedness and climate adaptation. The Water and Sewage Act (2002), the National Strategy for Agriculture (2013–2020), and the Water Strategic Plan (2021–2025) establish a strong institutional basis for managing water resources under variable climatic conditions. Climate-related frameworks such as the National Climate Change Policy and Action Plan (2020–2030) and the National Action Plan to Combat Land Degradation (2015) align drought management with broader environmental and development goals. Instruments such as the Multi-Hazard Disaster Preparedness and Response Plan (2013), the Early Warning System Framework (2013), and the Poverty Reduction Strategy paper (2011–2015) further demonstrate Guyana's effort to integrate drought resilience into national planning. However, as these instruments are distributed across multiple sectors and institutions, their effectiveness depends on the establishment of clear linkages between drought preparedness, water governance and agricultural productivity.

Group 2 policies acknowledge drought but lack concrete actions for implementation. These include the Disaster Risk Management Bill (2019), the National Integrated Disaster Risk Management Plan (2013–2022), and

the National Adaptation Plan (2019). Supporting documents such as the Environmental Protection Act (1996), the Climate Change Action Plan (2001), and the Drought Early Warning System Protocol (2015), provide regulatory or procedural guidance but do not define operational measures or institutional responsibilities. While these frameworks strengthen the policy foundation for disaster management, they remain largely strategic and are not equipped with implementation mechanisms or resource allocation provisions. As a result, they contribute to awareness but have a limited practical impact on reducing drought vulnerability.

Group 3 policies do not reference drought, even though they address sectors with high exposure to drought impacts. These include the Water and Sanitation Sector Strategic Plan (2017–2021), the National Forest Plan (2019), and the National Land Use Plan (2013), as well as cross-sectoral strategies such as the Green State Development Strategy: Vision 2040, the Food and Nutrition Security Strategy (2011), and the Education Sector Plan (2021–2025). Environmental and energy-related frameworks, such as the National Biodiversity Strategy and Action Plan (2015), the Energy Strategic Plan (2016–2020), and the Revised National Forest Policy Statement (2018), also fail to link their sustainability or productivity goals to drought risk. The Health Vision 2020 (2013–2020) and the Tourism Strategic Action Plan (2018–2025) overlook drought as a potential threat to health outcomes and economic activities. This lack of integration limits the ability of these sectors to anticipate and mitigate the indirect effects of drought on livelihoods and ecosystems.

Overall, Guyana's policy landscape shows progress in integrating drought considerations within key water, agriculture and climate frameworks under Group 1. For a country with high vulnerability to both climatic and hydrological extremes, improving coordination among water, agriculture and disaster management policies, and extending drought integration into forestry, land use and health sectors will be essential for achieving an effective, multisectoral drought resilience strategy.

2.1.6.5. Findings from a review of the institutional responsibilities for Guyana

Guyana has undertaken several activities to promote proactive drought management and to build resilience and preparedness. The country has gradually shifted from a reactive to a proactive approach, adopting comprehensive disaster risk management. The institutional mechanisms in Guyana are firmly grounded in participatory methods, including bottom–up approaches to involve stakeholders and decentralized authorities. However, the country does not have an independent drought management agency; instead, drought is regarded as one of the natural disasters managed by the Civil Defense Commission, which leads disaster risk management activities at the national level and offers technical services at the regional, local and community levels.

The NDP shows that there are more than ten agencies with direct or indirect responsibility for drought management in the country. However, responsibilities for these agencies are disproportionately allocated as each agency has a specific mandate. To promote and facilitate a more coordinated approach, the Guyana Drought Early Warning System Protocol has recommended the establishment of a Drought Committee chaired by the Civil Defense Commission. The primary function of this committee is to receive the hydrometeorological service warnings about possible drought events and decide where the evidence justifies the dissemination of warnings to the country. The NDP emphasizes that stakeholders representing the views of women and minority groups in institutional mechanisms for drought planning and implementation will be considered in the implementation plan to ensure membership is cross-cutting and inclusive. Some of these groups include the Water Users Association, which comprises farmers; the National Toshaos Council, which represents the interests of Indigenous Peoples; Women Across Differences, a network of women and women's organizations; and youth organizations.

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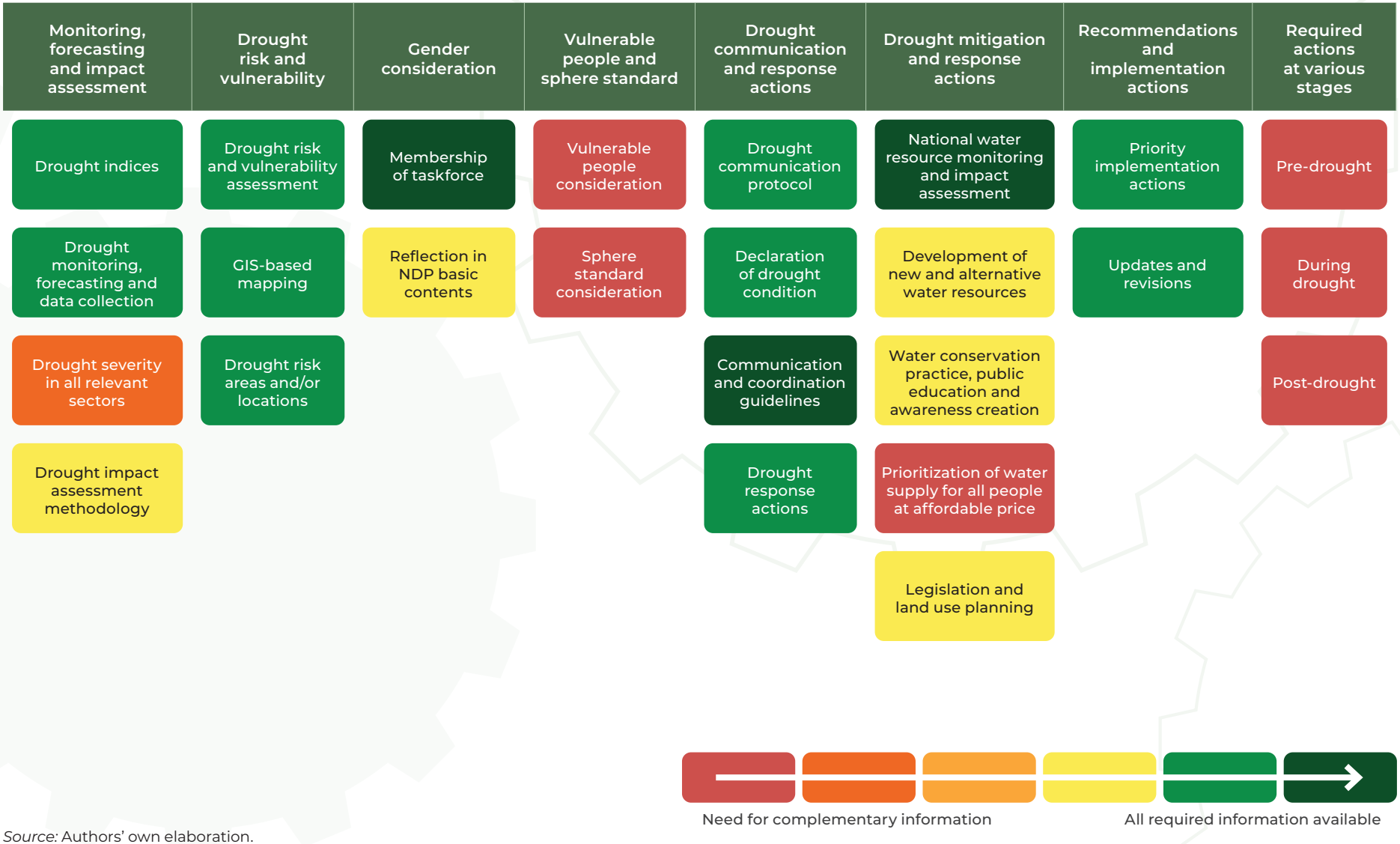
2.1.7. Mali

Mali has recently initiated efforts towards integrated disaster risk management by issuing a decree on the National Strategy for Disaster Risk Reduction. The NDP highlights the importance of a multisectoral and multistakeholder approach to drought management. Although progress has been made in implementing disaster risk management, Mali still primarily relies on emergency operations. Disaster management continues to be carried out through contingency and emergency plans, which are mainly reactive, focusing more on humanitarian responses. The National Contingency Plan sets emergency trigger indicators based on food security status, but this emergency planning does not ensure long-term food security.

2.1.7.1. Findings from a multicriteria assessment of the Mali National Drought Plan

Figure 32 presents the results of the assessment of the main criteria and their related subcriteria for Mali.

FIGURE 32. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR MALI



Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Mali

The Mali NDP presents a mixed picture based on the multicriteria assessment results. In relative terms, the assessment highlights Mali's strengths in areas such as monitoring, forecasting, impact assessment, drought risk and vulnerability, gender considerations, drought communication and response actions, recommendations, and implementation actions, as well as drought mitigation and response actions, as detailed:

- **Monitoring, forecasting and impact assessment:** Two of the four subcriteria are comprehensively addressed in the NDP, particularly drought indices, as well as drought monitoring, forecasting and data collection.
- **Drought risk and vulnerability:** This main criterion is sufficiently addressed. The risk assessment involves reviewing historical events, their impacts on various sectors, and relevant risk maps. The NDP emphasizes stakeholder-specific analysis of vulnerability, including the quantification of the number of communities affected by social and economic impacts.
- **Gender consideration:** The description of the ten-step process shows strong gender awareness, and the taskforce responsible for planning and implementation includes two women's organizations and their representatives. The NDP incorporates other essential elements of gender consideration.
- **Drought mitigation and response actions:** The national water resource monitoring and impact assessment are well covered under this main criterion, while the development of new and alternative water resources, as well as the water conservation practices, and public education and awareness creation are covered to a lesser extent.
- **Drought communication and response actions:** All subcriteria under this main criterion are adequately addressed. The communication protocol outlines the responsible entities and specifies the actions to mitigate impacts, as well as the communication channels with various stakeholders. The final communication channel is decentralized to the community level. The protocol phases communication and actions into pre-drought, during drought, and post-drought episodes.
- **Recommendations and implementation actions:** The Mali NDP is comprehensive regarding updates, revisions and priority implementation actions, which include a list of short-, medium-, and long-term activities assigned to responsible organizations. The timeline covers the implementation period of the NDP until 2025.

Identified areas that need strengthening

Although key strengths in the assessed performance of the main criteria for Mali have been identified, two main criteria – vulnerable people and sphere standards – as well as actions required at various stages of drought, necessitate adequate information to ensure the NDP is well prepared for action. Furthermore, subcriteria, such as prioritizing water supply for all people at an affordable price, legislation and land-use planning, drought severity in all relevant sectors, and drought impact assessment methodology, also require sufficient information.

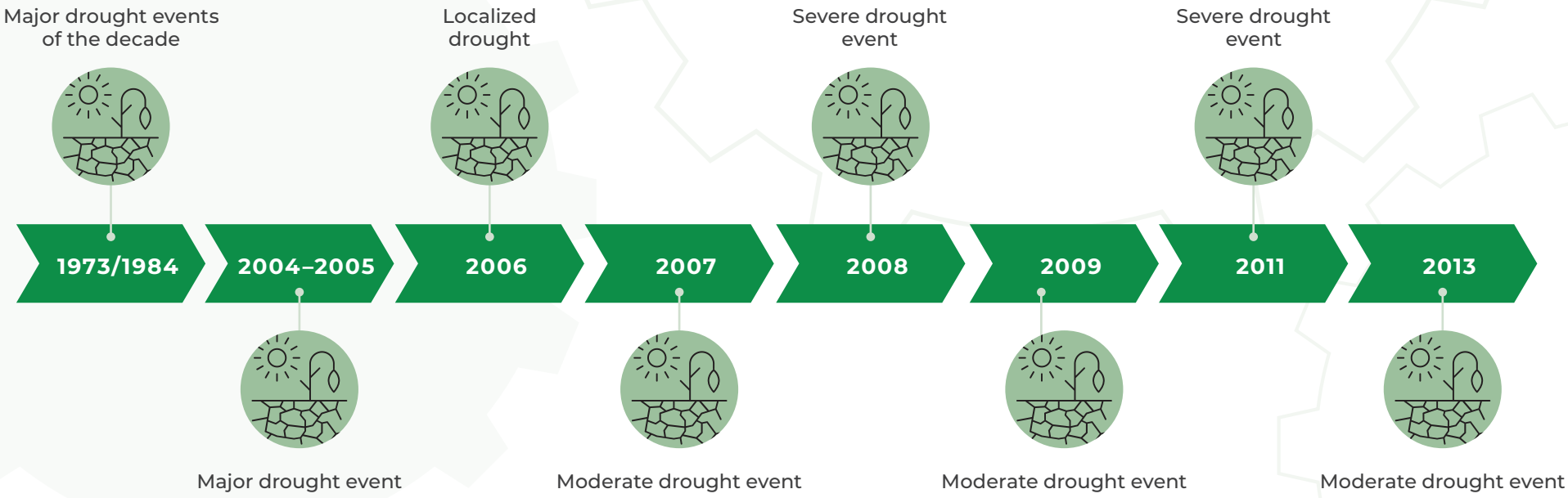
Assessed performance of the additional criteria

The performance concerning additional criteria shows a very positive outlook, as almost all subcriteria are adequately addressed. In particular, the chapter on the relationship with other plans and policies is relevant within the context of the policy alignment exercise. The Mali NDP outlines a range of appropriate plans and policies at national, regional and international levels. The NDP includes the Great African Green Wall initiative, which represents international efforts to combat desertification and the impacts of climate change in the Sahel. Beyond international commitments, the NDP lists four legal instruments, including the Code of Water and the Law on Land Management. The NDP also emphasizes the importance of a multisectoral and multistakeholder approach to drought management.

2.1.7.2. Findings from the identification and mapping of affected sectors in Mali

In Mali, drought is one of the most complex natural disasters because it affect various sectors, limiting access to basic services in different intervention areas. Mali has long faced challenges caused by drought, as shown in Figure 33. Historical records indicate that cereal production was significantly affected by drought, with major drought events in 1973 and 1984 leading to food security crises and severe famine in the Sahel (Figure 33). Climatic and environmental data reveal a noticeable change over the past 40 years caused by due to shifts in precipitation.

FIGURE 33. TIMELINE OF THE MAJOR DROUGHT EVENTS IN MALI



Source: Authors' own elaboration.

Identifying affected sectors is the initial step in understanding who should be involved in policy alignment. Mapping these sectors highlights not only their importance but also the order of priority based on the level of impact on them. For a comprehensive analysis, the Mali case offers an overview of drought events and the affected sectors. Figure 34 presents examples of impacts and related adaptation measures for the main sectors affected by drought in Mali.

FIGURE 34. AFFECTED SECTORS AND ADAPTATION MEASURES FOR MALI

DROUGHT IMPACTS AND MITIGATION EFFORTS				
SECTOR	**Water**	**Agriculture**	**Ecosystem**	**Health**
IMPACT	Water stress, early drying of water points, high cost of water, conflicts, and poor water quality.	Decrease in crop yields, pest infestation, poor yield of livestock, high fatality rate, decreased fish stocks, and food insecurity.	Reduced vegetation, intensification of wildfires, loss of biodiversity, and degradation of wetlands.	Nutrition insecurity, malnutrition, epidemics, and psychological and physical tensions.
RESPONSE	Improving watershed management, increasing water supply, control of surface water, boreholes, aquifer recharge, and flood water harvesting.	Intercropping, higher density of cowpea, pest and disease forecast, suitable crop / short cycle, improved varieties, diversification, agrometeorological information, intensive livestock.	Environmental protection through legislation, forest protection, sensitization and organization of campaigns to preserve natural resources.	Prevention campaign, vaccination campaigns, temporary closure of public places, observation of climate-sensitive diseases.

Source: Authors' own elaboration.

2.1.7.3. Findings from the policy stocktaking for Mali

The Mali NDP outlines policies relevant to drought contexts across international and subnational levels. The stocktaking process identified 19 international, regional and subregional commitments, protocols, and programmes, and 32 national policy documents, including legislation, plans, programmes and strategies, as shown in Box 9.

Box 9. Mali policy framework

International, regional and subregional commitments, protocols and programmes:

- Bamako Convention;
- Cartagena Protocol;
- Comprehensive African Agriculture Development Programme;
- Convention on Biological Diversity;
- ECOWAS Agricultural Policy and the Agricultural Policy;
- Forest Convergence Plan for West Africa;
- Freshwater Strategy 2017-2021;
- Great Green Wall Initiative;
- Nagoya-Kuala Lumpur Additional Protocol;
- Nagoya Protocol;
- Pan-African Agency of the Great Green Wall Convention;
- Priorities Resilience Countries of the Global Alliance for the Resilience Initiative;
- Rome Principles for Sustainable Global Food Security;
- Rotterdam Convention;
- Sub-regional Action Programme to combat desertification in West Africa and Chad;;
- The United Nations Collaborative Program on Reducing Emissions from deforestation and forest degradation in developing countries (REDD+);
- United Nations Convention to Combat Desertification;
- United Nations Framework Convention on Climate Change; and
- Vienna Convention for the Protection of the Ozone Layer and Montreal Protocol on Substances that Deplete the Ozone Layer.

National policies, strategies and legislation:

- Strategic Plan for the Development of Meteorology, 2018–2027;
- National Policy on Climate Change;
- National Integrated Water Management Plan;
- Strategic Framework for Economic Recovery and Sustainable Development;
- National Adaptation Action Programme to Climate Change;
- National Investment Plan in the Agriculture Sector, 2014;
- National Proximity Irrigation Programme;
- Implementation Strategy and Action Plan for the Great Green Wall of Mali;

- Water Resource Monitoring and Evaluation Strategy;
- Law on the Water Code;
- Agricultural Orientation Law;
- National Policy of Climate Change 2011, complemented by its strategy and action plan;
- National Forest Policy;
- National Water Policy;
- National Policy on Sanitation;
- Strategic Framework of Investment in Sustainable Land Management;
- National Strategy Adaptation of the Forestry to Impacts of Climate Change;
- Development Strategy of Renewable Energies;
- National Adaptation Programme of Action, 2007;
- National Multi-Risk Disaster Preparedness and Response Contingency Plan;
- Health and Social Development Plan;
- National Food and Nutrition Security, 2019-2028;
- National Energy Policy;
- Agricultural Development Policy;
- National Gender Policy document;
- Fisheries and Aquacultures Master Plan, 2006;
- National Strategy for the Development of Rice Farming;
- Vulnerability Profile of Mali, 2005;
- Humanitarian Response Plan of Mali, January–December, 2022;
- Land Policy;
- National Strategy for Reduced Risk of Disasters; and
- National Development Strategy for Drinking Water Supply.

Source: Authors' own elaboration.

Mali has prioritized water in its agenda, implementing various policies, strategies and plans for its management. This commitment has significantly improved water management during drought events. Key policy documents include the National Water Policy, the National Integrated Water Management Plan, the National Food and Nutrition Security Strategy, and the Strategic Framework for Economic Recovery and Sustainable Development. The country has also established important disaster management policies, which clearly show progress in implementing disaster risk management. However, the health sector policy framework may benefit from further strengthening.

2.1.7.4. Findings from cross-matching the relevance of drought in policy frameworks of Mali

Based on the stocktaking, the documents were classified into three categories according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 35.

FIGURE 35. CLASSIFICATION OF POLICY DOCUMENTS IN MALI

19 International and regional commitments

30 National policies, plans and strategies

2 Legal documents

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• Strategic Plan for the Development of Meteorology, 2018–2027 • National Water Policy • National Integrated Water Management Plan • National Adaptation Programme of Action, 2007 • National Strategy Reduced Risk of Disasters • Strategic Framework for Economic Recovery and Sustainable Development • National Multi-Risk Disaster Preparedness and Response Contingency Plan	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalized) Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports) Conducting an impact assessment of planned drought-related actions	Short term Short term Short term Medium term

Reflection on drought	National policies	Recommendations	Time frame
	• National Proximity Irrigation Programme • National Adaptation Action Programme to Climate Change		
Group 2: Recognizing drought with no priority actions	• National Policy on Climate Change • National Investment Plan in the Agriculture Sector, 2014 • Health and Social Development Plan • National Food and Nutrition Security, 2019-2028 • Implementation Strategy and Action Plan for the Great Green Wall of Mali • Water Resource Monitoring and Evaluation Strategy	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Facilitating the identification of drought-related priority actions Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports) Conducting impact assessment of planned drought-related actions	Short term Medium term Medium term Medium term Medium term
Group 3: Not recognizing drought with no priority actions	• Law on the Water Code • Agricultural Orientation Law • National Policy on Climate Change, 2011, complemented by its strategy and its action plan • National Forest Policy • National Energy Policy • Agricultural Development Policy • National Policy on Sanitation	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize) Advocating for the recognition of drought Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method	Medium term Long term Long term

Reflection on drought	National policies	Recommendations	Time frame
	• Strategic Framework of Investment in Sustainable Land Management • National Strategy Adaptation of Forestry to the Impacts of Climate Change • Development Strategy of Renewable Energies • National Development Strategy Drinking Water Supply • National Gender Policy document • Fisheries and Aquacultures Master Plan, 2006 • National Strategy for the Development of Rice Farming • Vulnerability Profile of Mali, 2005 • Humanitarian Response Plan of Mali, January–December 2022 • Land Policy	Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Long-term

Source: Authors' own elaboration.

Under Group 1, Mali's policies explicitly recognize drought and include concrete priority actions focused on water management, climate adaptation, and emergency preparedness. The National Water Policy and the National Integrated Water Management Plan establish the foundation for sustainable water use and management of drought-related vulnerabilities. Climate-focused instruments such as the National Adaptation Programme of Action (2007), the National Adaptation Action Programme to Climate Change, and the Strategic Plan for the Development of Meteorology (2018–2027) strengthen national capacities for monitoring, forecasting and early warning. The National Strategy for Disaster Risk Reduction and the National Multi-Risk Disaster Preparedness and Response Contingency Plan treat drought as a major hazard requiring coordinated response mechanisms. At the same time, the National Proximity Irrigation Programme links long-term resilience with improved water access for farmers. These policies demonstrate that Mali has

built a strong institutional base for drought management that combines water governance with emergency response. However, the challenge lies in aligning these frameworks to ensure that short-term humanitarian interventions are aligned with long-term resilience and water security objectives, which is particularly critical in Mali's recurrent emergency context.

Group 2 includes policies that recognize drought but do not reinforce or expand the strong foundations established in Group 1, where drought management is approached through water governance and supported by national climate monitoring systems. Frameworks such as the National Policy on Climate Change, the National Investment Plan in the Agriculture Sector (2014), and the National Food and Nutrition Security Strategy (2019–2028) acknowledge climate variability and vulnerability but fail to translate this recognition into targeted drought actions. The Water Resource Monitoring and Evaluation Strategy, in particular, does not build on the more integrated water management and early warning systems established under Group 1, creating a disconnect between climate monitoring efforts and operational water management. Similarly, the Implementation Strategy and Action Plan for the Great Green Wall of Mali and the Health and Social Development Plan address environmental degradation and community vulnerability but treat drought as a general climatic stressor rather than a specific hazard requiring dedicated measures. As a result, Group 2 frameworks contribute to general environmental and development goals but lack the institutional linkages and practical tools needed to operationalize drought resilience within Mali's broader adaptation and risk management systems.

Group 3 policies do not explicitly address drought, even though they cover critical sectors such as agriculture, forestry, energy and water supply. The Law on the Water Code, the Agricultural Orientation Law, and the National Energy Policy define key resource management principles but fail to incorporate the effects of drought on productivity and resource stability. The Humanitarian Response Plan (2022), while designed for crisis management, does not include preventive drought actions or link with long-term adaptation frameworks. Similarly, the National Policy on Sanitation, the National Development Strategy for Drinking Water Supply, and the National Gender Policy Document overlook drought as a driver of vulnerability. The absence of drought integration in these policies limits Mali's ability to address the root causes of recurring crises, particularly in rural and conflict-affected areas.

Overall, Mali demonstrates a relatively advanced policy foundation in Group 1, where drought is recognized as a critical threat to national security, livelihoods and water resources, and where explicit measures for both preparedness and emergency response are in place. To strengthen its national resilience, Mali needs to improve coordination between water and disaster management institutions; integrate drought risk into agriculture, health and energy policies; and ensure that emergency actions are systematically linked to long-term adaptation and recovery strategies.

2.1.7.5. Findings from a review of the institutional responsibilities for Mali

An analysis of institutional arrangements in Mali indicates that the coordination mechanism is not very effective. The country lacks an independent drought management agency or a dedicated department within any institution focused on drought management. Consequently, when each institution develops its sector-specific policies and strategies, disaster risk management institutions are not involved. Therefore, disaster risk management and the drought agenda are absent from such documents. Drought is classified as one of the natural disasters overseen by the Directorate General of Civil Protection. It is managed through the exact institutional coordination mechanism as disaster response activities. The NDP suggests using the same institutional coordination mechanism employed for executing the National Contingency Plan to coordinate emergency humanitarian interventions.

In Mali, the Food Security Commission is the lead agency for crisis response resulting from natural disasters such as drought. Data on vulnerable populations identified at the municipal level are transmitted to the national level via the district and the region. One challenge in adopting this institutional coordination mechanism for IDM is its temporary nature. The mechanism is only activated during emergency periods and is dismantled once the emergency ends. While using existing mechanisms has many advantages, drought management in Mali requires more permanent institutional structures due to the scale of the impacts. Mali may benefit from establishing an independent drought management agency, given the frequency and broader implications of the observed drought events. Alternatively, a drought department or unit could be created within a disaster risk management institution.

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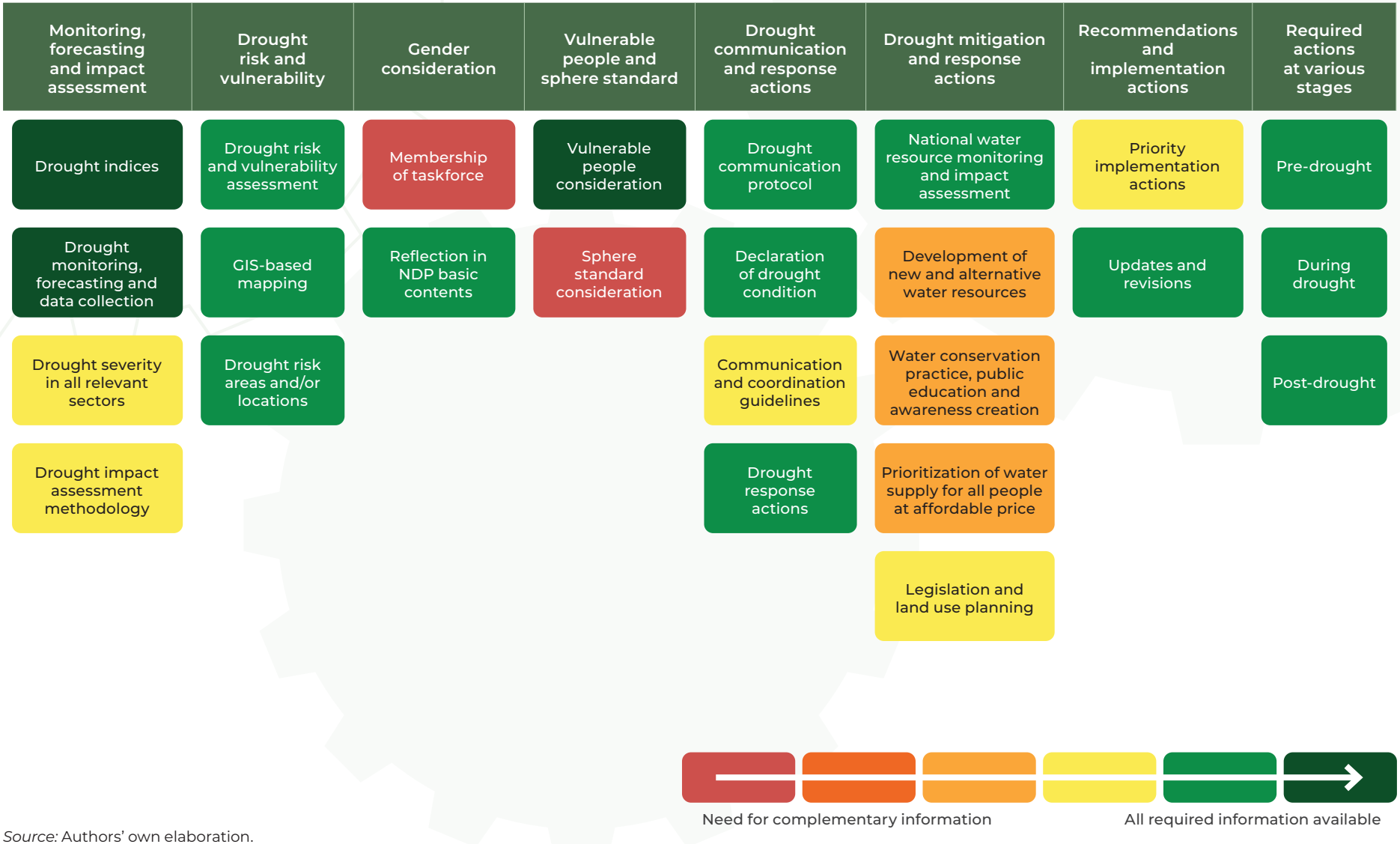
2.1.8. Montenegro

The Government of Montenegro considers the adoption of the NDP as an essential foundation for establishing effective drought management, which will undoubtedly enhance the country's resilience to drought and improve its preparedness for potential drought events. The NDP is the first strategic document at the national level explicitly dedicated to the drought issue. In Montenegro, drought has had negative impacts on the economy, environment and human health. Its occurrence and severity are expected to rise in the future due to decreasing rainfall and rising temperatures, especially during summer and autumn (Popovicki *et al.*, 2023; FAO, 2018a).

2.1.8.1. Findings from a multicriteria assessment of the Montenegro National Drought Plan

Figure 36 presents the results of the assessment of the main criteria and their related subcriteria for Montenegro.

FIGURE 36. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR MONTENEGRO



Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Montenegro

Montenegro has a detailed and comprehensive NDP, which sets a global standard for various plan elements. The strength of the NDP includes monitoring, forecasting, impact assessment, drought risk and vulnerability, drought mitigation and response actions, drought communication and response actions, recommendations, and implementation actions, as well as actions at various stages of drought, as described:

- **Monitoring, forecasting and impact assessment:** The NDP introduces Montenegro's uniquely designed monitoring system, which involves field reporters to observe early impacts. In turn, the model used by Montenegro is refined with ground-truth information.
- **Drought risk and vulnerability:** Montenegro employs multiple combined drought indices to integrate them into risk modelling. The monitoring, drought risk, and vulnerability assessments are included in the Drought Watch tool developed under the Drought Risk in the Danube Region (DriDanube) cooperation.
- **Drought communication and response actions:** All subcriteria under this main criterion are addressed. The communication protocol is clearly outlined and aligned with the stages of drought development, and the communication modality is linked to drought monitoring and early warning.
- **Actions at various stages of drought:** Montenegro is among the few cases where actions are phased into pre-drought, during drought, and post-drought, setting a global standard for other countries. The actions triggered by the drought monitoring and early warning systems are categorized according to the stages of drought.
- **Other strong points:** Under recommendations and implementation actions, both subcriteria of priority implementation actions and updates and revisions are considered, although to a lesser extent, similar to the subcriterion of reflection in the NDP basic content under gender consideration. The subcriterion of vulnerable people consideration is addressed adequately.

Identified areas that need strengthening

Given the strong outlook of the performance discussed, some subcriteria need further information and emphasis to reinforce these aspects in the NDPs. These include drought severity in all relevant sectors, drought impact assessment methodology, membership of the taskforce under gender considerations, sphere standard considerations, and three subcriteria under drought mitigation and response actions.

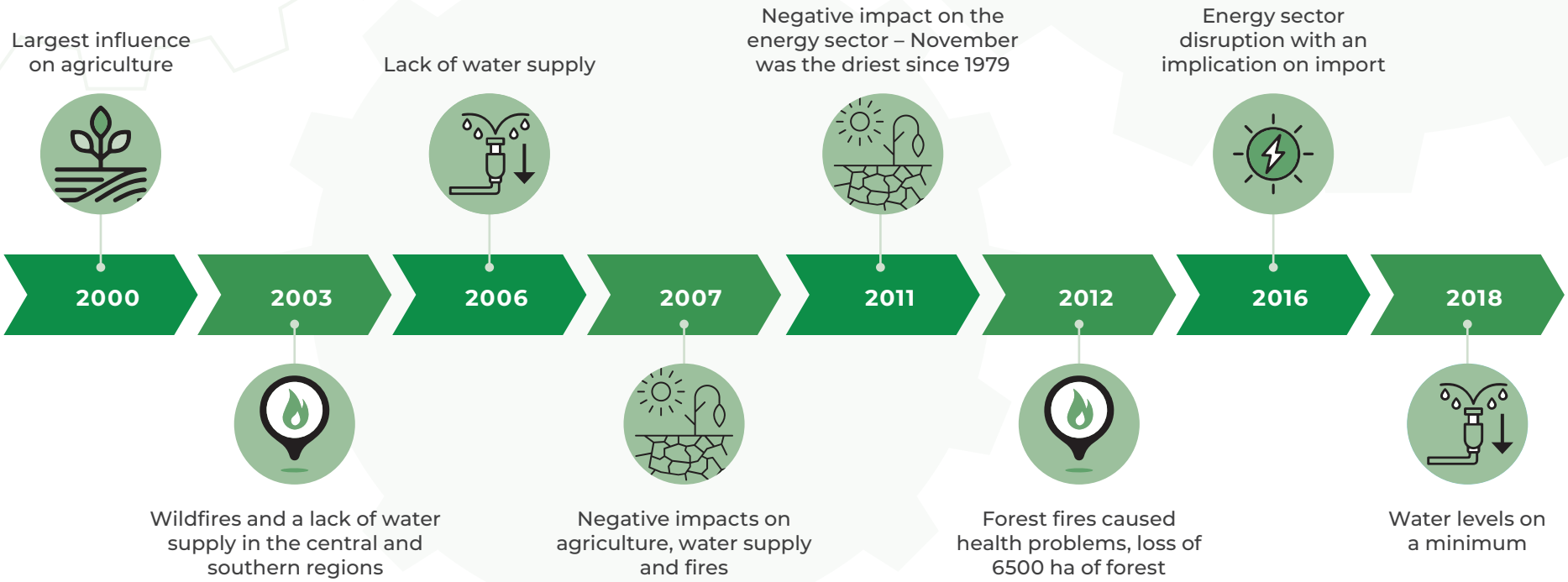
Assessed performance of the additional criteria

Like the main criteria, the performance of the additional criteria is equally satisfactory. The NDP features a comprehensive section on the main plans, policies, strategies and legislation related to drought. Assessing the potential links between the documents and the NDP revealed that the documents recognize the importance of drought, but most of them only address it indirectly. Many list drought events alongside other disasters; therefore, drought is not explicitly emphasized. What needs strengthening under the additional criteria are the subcriteria related to the introduction of the ten-step process and access to safe water.

2.1.8.2. Findings from the identification and mapping of affected sectors in Montenegro

Drought events in Montenegro have been more frequent since the 1990s, with four major drought events occurring between 2003 and 2011 (Figure 37). The 2011 drought evolved into a significant social and economic challenge that affected the entire country, resulting in an extreme hydrological deficit in the Zeta-Bjelopavlici region, a key agricultural area of Montenegro.

FIGURE 37. TIMELINE OF THE MAJOR DROUGHT EVENTS IN MONTENEGRO



Source: Authors' own elaboration.

Based on the analysis of available data on drought occurrences in Montenegro, including their intensity and effects, it can be concluded that various sectors are vulnerable and have been exposed to the impacts of drought. The effects are evident in agriculture, energy, water, forestry and health, which are the most critical sectors for Montenegro's economy. The vulnerability of these sectors will have significant consequences on the country's local and national socio-economic landscape. Figure 38 provides examples of impact data and related adaptation measures for the main sectors affected by drought in Montenegro.

FIGURE 38. AFFECTED SECTORS AND ADAPTATION MEASURES FOR MONTENEGRO

DROUGHT IMPACTS AND MITIGATION EFFORTS					
SECTOR	**Water**	**Agriculture**	**Ecosystem**	**Health**	**Energy**
IMPACT	Reservoir and lake water levels have decreased, along with reduced flow from springs. Water quality is affected by factors such as salt concentration, etc.	High livestock mortality rates, reduced milk yield, crop damage resulting in huge losses, plant diseases, and decreased stock weights.	Increased number and severity of fires, endangerment of overall flora and fauna, increased stress to endangered species and damage to habitats.	Mental and physical stress, reductions in nutrition, poor air quality resulting in increased respiratory ailments, and waterborne diseases like diarrhea.	A decrease in electricity production and energy supply results in increased energy imports, negatively impacting the economy.
RESPONSE	Harmonizing the relevant laws and regulations on water protection sources; surface water monitoring and implementation of the spatial plan; applying an integrated approach to water resources and systems management.	Engagement of a network of reporters for agrometeorological monitoring; improving the agroforestry sector; building and upgrading irrigation and drainage systems.	Establishing cross-sector monitoring of forest ecosystems, upgrading early warning systems for fires and hydrometeorological hazards, promoting afforestation, and building capacity in sustainable forestry.	Strengthening the health system's ability to adapt to climate change and improving early warning systems for the population with health problems; strengthening health monitoring systems related to the potential impacts of climate change.	Rehabilitation of existing power plants, construction of new power plants, implementation of the law on energy efficiency, utilization of renewable energy, and significant investments in solar power.

Source: Authors' own elaboration.

2.1.8.3. Findings from the policy stocktaking for Montenegro

The Montenegro NDP outlines policies related to drought, from international to subnational levels. The stocktaking of legal and policy documents identified 7 international conventions, agreements and treaties, 3 regional and subregional documents, and 25 national documents, including legislation, policies, plans, frameworks and strategies, as shown in Box 10.

Box 10. Montenegro policy framework

International conventions, agreements and treaties:

- United Nations Framework Convention on Climate Change;
- Paris Climate Agreement;
- United Nations Convention to Combat Desertification;
- Kyoto Protocol;
- Convention on Biological Diversity;
- Montreal Protocol on Substances that Deplete the Ozone, 1989; and
- Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits.

Regional and subregional documents:

- Sectoral Agreement with the European Union;
- European Union Water Framework Directive; and
- Danube River Protection Convention.

National policies, strategies and legislation:

- Poverty Reduction Strategy paper;
- National Adaptation Plan and the National Climate Change Policy and Action Plan;
- Strategy for the Development of the Agriculture and Rural Areas, 2015–2020;
- Fisheries Strategy of Montenegro 2015–2020 with Action Plan;
- National Strategy for Sustainable Development;
- National Strategy for Climate Change by 2030;
- National Forest Policy;
- National Strategy with the Development Plan of Forests and Forestry for the Period 2014–2023;
- National Action Plan for combating desertification;
- National Strategy on Regional Development, 2014–2020;
- River Basin Management Plans;
- Strategic Environmental Assessment;
- Surface and Ground Water Monitoring;
- National Strategy for Disaster Risk Reduction with Dynamic Activity Plan for the period 2018–2023;
- Law on Protection and Rescue, 2016;
- National Plan for Protection and Rescue from Extreme Meteorological Phenomena;
- Energy Development Strategy of Montenegro until 2030;

- Decision on Making Strategic Environmental Impact Assessment for National Energy and Climate Plan;
- Regulation on Conditions, Manner, and Dynamics of Implementation of Agricultural Policy Measure;
- Law on Environment;
- Law on Waters, 2018;
- Fresh Water Fisheries Law;
- Water Management Strategy until 2035;
- National Strategy with Action Plan for transposition, implementation and enforcement of the EU Acquis on Environment and Climate Change 2016–2020; and
- Law on Protection against Negative Impacts of Climate Change, 2019.

Source: Authors' own elaboration.

Although the key sectors are not adequately covered in the list of policy documents, potential opportunities still exist that could support drought risk management efforts through sector-specific actions aligned with drought strategies. It is essential to acknowledge that, while the NDP was still under development, many of the country's drought-related policies and strategies were outdated, having been in place since their approval, with others likely to emerge in due course. Therefore, the NDP implementation process should promote policy alignment through coordination and engagement with sectoral agencies. Given the vulnerability of the energy sector in Montenegro and its significant implications for the national economy, it is expected that the energy policy documents will be enhanced and integrated with drought considerations.

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2.1.8.4. Findings from cross-matching the relevance of drought in the policy frameworks of Montenegro

Based on the stocktaking exercise, the documents were categorized into three groups according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these groups are provided in Figure 39.

FIGURE 39. CLASSIFICATION OF POLICY DOCUMENTS IN MONTENEGRO

7 International commitments

3 Regional commitments

5 Legal documents

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• National Strategy for Sustainable Development • National Forest Strategy	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalize)	Short term
	• National Strategy for Disaster Risk Reduction with Dynamic Activity Plan for the period 2018–2023 • Water Management Strategy until 2035	Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol	Short term
	• Law on Waters, 2018 • Regulation on Conditions, Manner, and Dynamics of Implementation of Agriculture Policy Measures	Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports)	Short term
	• National Adaptation Plan and the National Climate Change Policy and Action Plan • National Strategy for Climate Change by 2030	Conducting an impact assessment of planned drought-related actions	Medium term

Reflection on drought	National policies	Recommendations	Time frame
	• National Strategy with the development plan of forests and forestry for the period 2014–2023 • National Action Plan for Combating Desertification • National Strategy on Regional Development, 2014–2020 • River Basin Management Plans		
Group 2: Recognizing drought with no priority actions	• Strategy for the Development of the Agriculture and Rural Areas, 2015–2020 • National Strategy with Action Plan for transposition, implementation and enforcement of the EU Acquis on Environment and Climate Change 2016–2020 • Law on Protection and Rescue, 2016 • National Plan for Protection and Rescue from Extreme Meteorological Phenomena • Law on Protection against Negative Impacts of Climate Change, 2019	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Facilitating the identification of drought-related priority actions Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports) Conducting impact assessment of planned drought-related actions	Short term Medium term Medium term Medium term Medium term
Group 3: Not recognizing drought with no priority actions	• Fisheries Strategy of Montenegro 2015–2020 with Action Plan • Poverty Reduction Strategy Paper • Surface and Ground Water Monitoring • Strategic Environmental Assessment • Energy Development Strategy of Montenegro Until 2030	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize) Advocating for the recognition of drought	Medium term Long term

Reflection on drought	National policies	Recommendations	Time frame
	• Decision on Making Strategic Environmental Impact Assessment for National Energy and Climate Plan	Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method	Long term
	• Law on Environment		
	• Fresh Water Fisheries Law	Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Long term

Source: Authors' own elaboration.

Under Group 1, Montenegro has a comprehensive set of policies and legal frameworks that explicitly recognize drought and define priority actions, particularly in the areas of climate adaptation, water management, forestry, agriculture, and disaster risk reduction. The Law on Waters (2018) provides the main legal basis for sustainable water governance and drought resilience, supported by the Water Management Strategy until 2035 and the River Basin Management Plans. Climate-related instruments such as the National Strategy for Climate Change until 2030, the National Adaptation Plan and Climate Change Policy and Action Plan, and the National Action Plan for Combating Desertification integrate drought within national adaptation and environmental planning. The National Strategy for Disaster Risk Reduction with Dynamic Activity Plan (2018–2023) highlights drought as a major hazard requiring coordinated risk management. In the forestry and agriculture sectors, the National Forest Strategy, the Development Plan of Forests and Forestry (2014–2023), and the Regulation on Agriculture Policy Measures include drought mitigation as part of sustainable resource management.

Group 2 includes frameworks that recognize drought but do not define specific or operational measures. The Strategy for the Development of Agriculture and Rural Areas (2015–2020) and the National Strategy with Action Plan for transposition, implementation and enforcement of the EU Acquis on Environment and Climate Change 2016–2020 acknowledge environmental pressures but treat drought as a secondary issue within broader EU-alignment and agricultural development goals. The Law on Protection and Rescue (2016), the National Plan for Protection and Rescue from Extreme Meteorological Phenomena, and the Law on Protection against Negative Impacts of Climate Change (2019) also reference drought as part of wider climate or disaster risks but lack targeted provisions for mitigation and response. As a result, these frameworks contribute to awareness but fall short of providing clear guidance or mechanisms for operational implementation.Group 3 includes policies that do not explicitly address drought, despite their relevance to water, energy, and environmental management. The Energy Development Strategy until 2030, the Law on Environment, and the Strategic Environmental Assessment establish important directions for sustainable development but overlook drought as a cross-sectoral risk. Similarly, the Fisheries Strategy (2015–2020), the Fresh Water Fisheries Law, and frameworks on Surface and Ground Water Monitoring do not connect ecosystem management or resource use with drought vulnerability. The absence of drought considerations in these policies

limits Montenegro's ability to address the cumulative impacts of prolonged dry periods on ecosystems, agriculture, and energy supply.

Overall, Montenegro has built a solid policy base in Group 1, where legal and strategic instruments, especially the Law on Waters, water and forestry strategies, and national climate frameworks, provide a clear pathway for integrating drought resilience. To strengthen national resilience, Montenegro will need to improve cross-sectoral coordination, ensure the operationalization of EU-aligned strategies with actionable drought measures, and systematically embed drought risk in water, energy, and environmental management frameworks.

2.1.8.5. Findings from a review of the institutional responsibilities for Montenegro

The Montenegro NDP has identified several institutions that are directly or indirectly responsible for managing drought. However, it has been observed that their procedures, communication channels, and coordination mechanisms are weak, and their responses are primarily reactive. This is because there is no formal institutional framework in place to implement the prescribed procedures. To strengthen the institutional frameworks, Montenegro has adopted a participatory approach for drought monitoring and impact assessment, based on a bottom-up method where grassroots actors actively contribute to proactive management.

The NDP emphasizes the importance of community involvement throughout all stages of planning and implementation, with the participatory approach rooted in the contributions of field reporters selected from drought-affected communities. Drought is integrated into the work of various ministries and agencies, from environment to internal affairs, and the NDP recommends utilizing the Inter-Sectoral Drought Advisory Board as a coordination mechanism. The Institute of Hydrometeorology and Seismology, on the other hand, is proposed by the NDP to coordinate the Board, as it has already been involved in drought-related activities, including monitoring and database development.

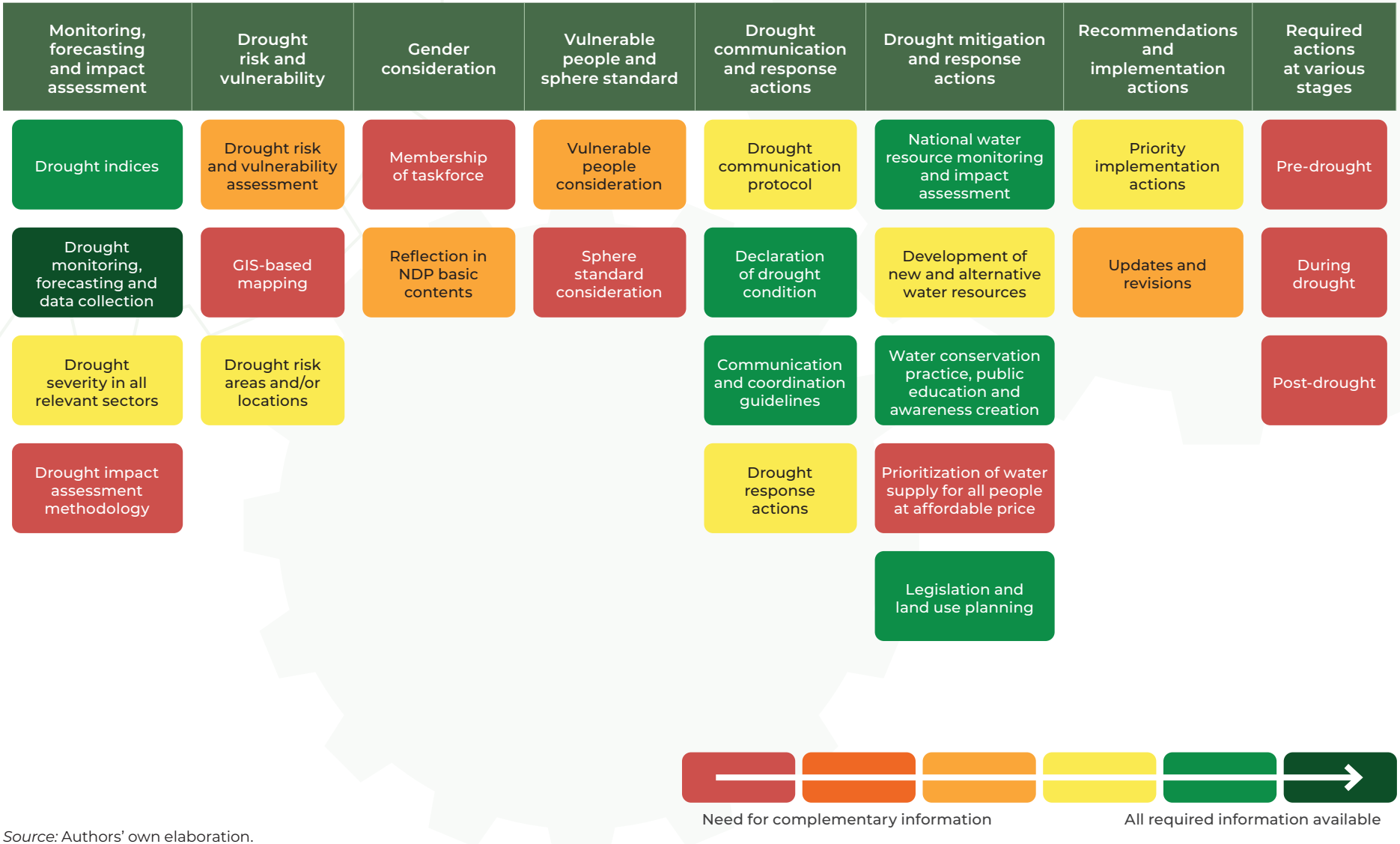
2.1.9. Panama

Panama joined the Drought Initiative in 2019, and its NDP was officially adopted in 2021 by the Ministry of Environment of Panama to build resilience and capacity for managing drought risks effectively. Historically, Panama has responded to hazards mainly reactively, focusing on humanitarian responses and recovery. However, the country is now progressively shifting towards a proactive disaster risk management approach, as shown in some key plans that have been developed. These plans address disaster risks, including drought, through prevention, mitigation and financial management. In 2022, Panama also endorsed the Integrated Water Resource Management Action Plan, following the 2016 National Water Security Plan, to better manage water resources and tackle drought-related issues.

2.1.9.1. Findings from a multicriteria assessment of the Panama National Drought Plan

Figure 40 presents the results of the assessment of the main criteria and their related subcriteria for Panama.

FIGURE 40. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR PANAMA



Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Panama

Panama's NDP includes several strong elements, including monitoring, forecasting, impact assessment, drought mitigation and response actions, and drought communication and response actions as described:

- **Monitoring, forecasting and impact assessment:** The NDP provides a comprehensive approach to understanding drought through multiple indices, each adapted to different timescales and climatic conditions. It includes both the Palmer Drought Severity Index and the Standardized Precipitation Index. The NDP utilizes a vast network of data sources and forecasting tools managed by the Electric Transmission Company, which comprises weather and hydrological models, radar data, and climate variability monitoring. This ensures strong and precise climate analysis through collaborations with regional and international organizations. Although information on drought indices and drought monitoring, forecasting and data collection is sufficiently covered, the coverage of drought severity across all relevant sectors is somewhat limited. The NDP was developed before the creation of the Meteorology and Hydrology Institute of Panama (IMHPA), established in 2021 as the national technical authority in meteorology and hydrology. Thus, the monitoring and forecasting functions are currently coordinated under IMHPA.
- **Drought mitigation and response actions:** The NDP tackles water scarcity and its effects on agriculture and socioeconomic conditions by including a variety of innovative water and soil conservation methods identified by the Ministry of Environment, such as rainwater harvesting and watershed management, customized to local conditions in Panama. The section highlights public education and awareness through campaigns and educational programmes, ensuring that both rural and urban communities are well informed and prepared to manage water resources sustainably. Regarding legislation and land-use planning, the NDP manages environmental issues through legal frameworks and strategic land-use policies.
- **Drought communication and response actions:** The criterion is well addressed by all the subcriteria, although the drought communication protocol and drought response actions are covered to a lesser degree.
- **Other strong points:** Other subcriteria that are addressed (though require additional information) in the NDP of Panama include drought risk areas/locations and priority implementation actions.

Identified areas that need strengthening

Certain key aspects need more detailed and robust information to ensure the NDP is fully effective. These include drought risk and vulnerability, gender considerations, the needs of vulnerable populations, sphere standards, and required actions at various stages of drought.

Assessed performance of the additional criteria

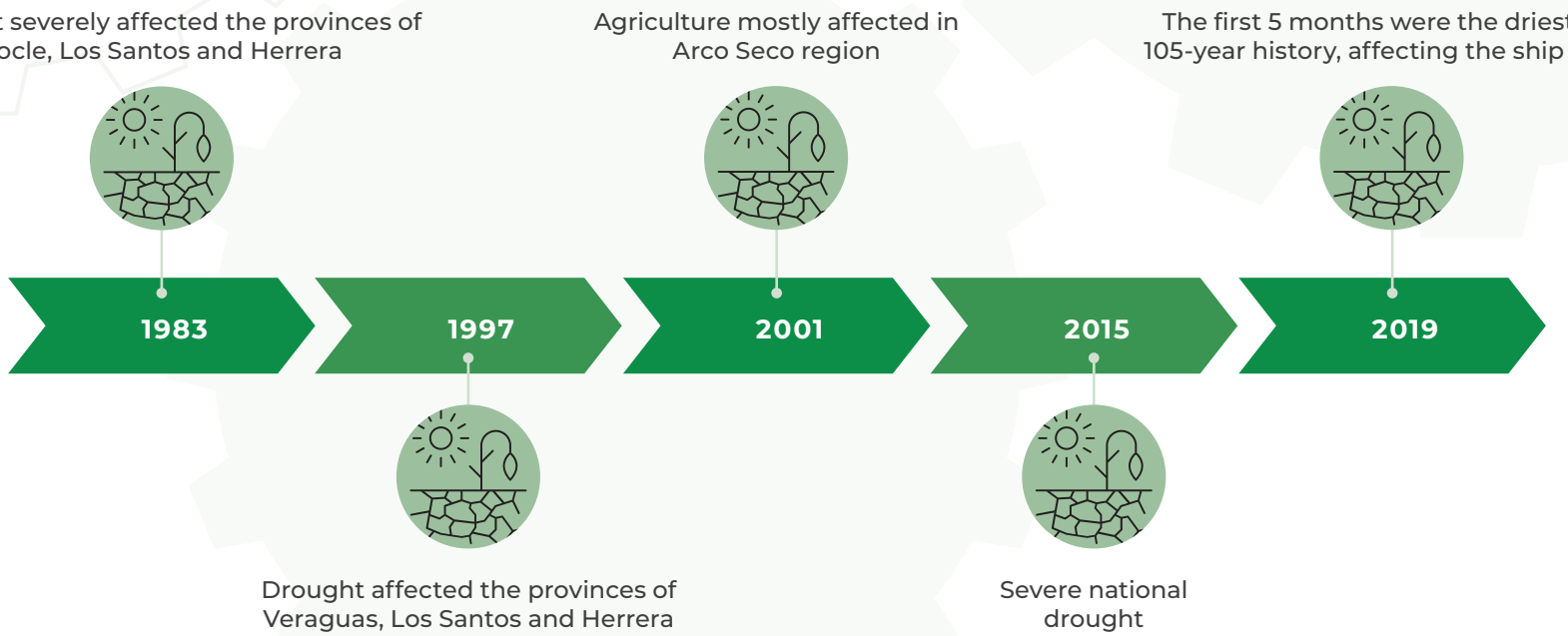
Based on the assessment, most of the additional criteria are supported by substantial information, paving the way for aligning the NDP with the policy environment of other sectors. Certain subcriteria score particularly high, such as those concerning relationships with other plans and policies. For instance, Panama has established several national water laws, including the National Water Security Plan (2015-2050) and the Panama Integrated Water Resource Management Action Plan (2022-2026), as well as other policies and strategies. It plans to contribute directly or indirectly to addressing drought challenges. However, to strengthen the NDP, its background needs to be enhanced with additional information, and the assignment of responsibilities, access to safe water, and the introduction of the ten-step process require further investigation to address current weaknesses.

The Ministry of Environment officially launched the Panama Nature Pledge in 2025 as a national roadmap that unites Panama's commitments on climate, biodiversity, land, oceans, and plastics into a single integrated effort. This instrument consolidates the country's environmental vision. It strengthens the coherence between international commitments and national action, thus providing a complete picture of the political and strategic context in which Panama's drought and water management policies are implemented.

2.1.9.2. Findings from the identification and mapping of affected sectors in Panama

Drought events in Panama are often linked to the El Niño phenomenon, which usually occurs in the final months of the year. This phenomenon causes negative impacts during the subsequent summer, significantly affecting the nation's economic sectors. In recent years, there has been an increase in the hydrological effects of drought events, especially on the Panama Canal Watershed. Drought events have been occurring since the 1980s, and the Arco Seco region is particularly vulnerable. It is also a priority area for addressing issues related to land degradation (Figure 41). The frequent recurrence of drought events in this region highlights the need for ongoing attention and measures to reduce the negative impacts on both the environment and the economy.

FIGURE 41. TIMELINE OF THE MAJOR DROUGHT EVENTS IN PANAMA



Source: Authors' own elaboration.

Considering the increasing impacts of drought due to climate change, a targeted approach is essential for Panama. Although IDM is still evolving, it is evident that greater alignment and coordination across diverse sectors and stakeholders are necessary. Figure 42 presents examples of impacts and related adaptation measures for the main sectors affected by drought in Panama.

The Panama Canal plays a vital role in Panama's economy, serving as a crucial infrastructure for maritime trade and a vital link between the Atlantic and Pacific Oceans. To support its essential economic function, the Panama Canal needs 7.5 billion litres of fresh water each day. However, drought conditions threaten its operation by reducing the water levels in the lakes that supply this water. Drought has also affected ship navigation through the canal, significantly affecting the economy and incomes of local communities. Disruptions in maritime transport have caused setbacks in the global supply chain. Recently, water levels fell so low that transits were reduced by over one-third (from 38 to 24 ships daily between October 2023 and January 2024), leading to considerable global trade disruptions (UNCCD, 2025).

FIGURE 42. AFFECTED SECTORS AND ADAPTATION MEASURES FOR PANAMA

DROUGHT IMPACTS AND MITIGATION EFFORTS					
SECTOR	**Water**	**Agriculture**	**Resilient Cities**	**Health**	**Coastal Areas**
IMPACT	Groundwater exploitation, drying wells, water service interruptions, generalized water stress, and reduced quality.	Disruption of planting schedules, reduced agricultural outputs, an increase in plant pests and diseases, and agricultural fires.	Increased resource demand and a rise in heatstroke events.	Increased food insecurity, undernutrition, dehydration, and increased vector-borne diseases such as Zika and Chikungunya.	Contamination of water sources, disruption of marine ecosystems, and disruption of Panama Canal operations.
RESPONSE	Groundwater management, artificial reservoirs, launching of citizen awareness campaigns, and early warning systems for drought.	Irrigation development, innovative financial and insurance instruments, meteorological monitoring network, agricultural reservoirs, and climate-resistant seeds	Territorial land use plans, innovative urban resilience strategies, and self-assessment tools for municipal authorities.	Closure of inequity gaps in water and sanitation, improvement in urban water services, hygienic toilet development, and improvement of potable water distribution network.	Upgrade of coastal infrastructure; promotion of interinstitutional coordination; protection of coastal and mangrove areas; and development of a climate and hydrological information system.

Source: Authors' own elaboration.

The Panama Canal Authority, which manages the Panama Canal watershed (Chagres River), is currently promoting a reservoir project in the neighbouring Río Indio watershed as a structural adaptation measure. The Panama Canal drought crisis has brought out lessons on the need to anticipate, plan and make decisions based on scientific information. This clearly demonstrates not only the country's adaptive response but also how drought impacts have influenced national planning and water management decisions.

2.1.9.3. Findings from the policy stocktaking for Panama

Panama has made notable efforts to tackle climate change and drought through a series of legislative and organizational measures. This includes aligning national policies with international commitments. The Panama NDP outlines policies, strategies and plans relevant to the drought context, from international to subnational levels. The review of the legal and policy documents identified 4 international conventions and 1 agreement, as well as 14 national documents, including policies, plans and strategies, as shown in Box 11.

Box 11. Panama policy framework

International conventions, agreements and treaties:

- Convention on Biological Diversity of 1992, ratified on 17 January 1995;
- United Nations Convention to Combat Desertification of 1994, ratified on 4 April 1996;
- United Nations Framework Convention on Climate Change of 1992, ratified on 23 May 1995;
- Paris Climate Agreement of 2015, ratified on 12 September 2016; and
- Convention on the Protection and Use of Transboundary Watercourses and International Lakes (1992 Water Convention), ratified in 2023.

National policies, strategies and legislation:

- National Climate Change Policy, 2007;
- Government Strategic Plan (PEG) 2025–2029 (linked to the NDP and other key policy documents);
- National Disaster Risk Management Plan, 2011–2015;
- National Water Security Plan, 2015–2050;
- National Action Programme to Combat Desertification and Drought in Panama, 2015–2025;
- National Action Plan to Combat Land Degradation 2015, Aligned to the UNCCD, 2008–2018;
- National Strategic Plan with State Vision "Panama 2030";
- National Land Degradation Neutrality Strategy, 2018;
- National Climate Change Plan for the Agricultural Sector of Panama, 2018;
- Government Strategic Plan, 2019–2024;
- National Strategy for Climate Change, 2050;
- National Strategic Plan for Science, Technology and Innovation, 2019–2024;

- National Risk Management Policy, 2022–2030;
- Forest Legislation;
- Panama Integrated Water Resource Management Action Plan, 2022–2026; and
- National Food and Nutrition Security Plan, Panama, 2017–2021.

Source: Authors' own elaboration.

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2.1.9.4. Findings from cross-matching the relevance of drought in the policy frameworks of Panama

Based on the stocktaking, the documents were classified into three categories according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 43.

FIGURE 43. CLASSIFICATION OF POLICY DOCUMENTS IN PANAMA

5 International commitments

6 National policies, plans and strategies

10 National plans

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• National Water Security Plan, 2015–2050 • National Action Programme to Combat Desertification and Drought in Panama, 2015–2025 • National Land Degradation Neutrality Strategy, 2018 • National Climate Change Plan for the Agricultural Sector of Panama • National Strategy for Climate Change 2050 • Panama Integrated Water Resource Management Action Plan, 2022–2026 • National Action Plan to Combat Land Degradation 2015, Aligned to the UNCCD, 2008–2018	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports) Conducting an impact assessment of planned drought-related actions	Short term Short term Short term Medium term

Reflection on drought	National policies	Recommendations	Time frame
Group 2: Recognizing drought with no priority actions	• National Disaster Risk Management Plan, 2011–2015 • National Strategic Plan with State Vision "Panama 2030" • Government Strategic Plan, 2019–2024 • National Risk Management Policy, 2022–2030	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize)	Short term
		Facilitating the identification of drought-related priority actions	Medium term
		Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions	Medium term
		Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports)	Medium term
		Conducting impact assessment of planned drought-related actions	Medium term
Group 3: Not recognizing drought with no priority actions	• National Strategic Plan for Science, Technology and Innovation, 2019–2024 • National Food and Nutrition Security Plan Panama, 2009–2015 and 2017–2021 • Forest Legislation • National Climate Change Policy, 2007	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize)	Medium term
		Advocating for the recognition of drought	Long term
		Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method	Long term
		Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Long term

Source: Authors' own elaboration.

Under Group 1, Panama's policies explicitly recognize drought and define concrete priority actions, with a strong focus on water management, climate adaptation and land restoration. The National Water Security Plan (2015–2050) and the Integrated Water Resource Management Action Plan (2022–2026) serve as key frameworks, emphasizing the centrality of water security for national development and the operation of the Panama Canal, one of the country's most critical assets. The National Action Programme to Combat Desertification and Drought (2015–2025), the National Land Degradation Neutrality Strategy (2018), and the National Climate Change Plan for the Agricultural Sector integrate drought risk management with sustainable land use and agricultural resilience. The National Strategy for Climate Change 2050 extends this approach to long-term mitigation and adaptation, promoting cross-sectoral integration. These policies show that Panama views drought not only as an environmental concern but as a strategic issue for national productivity, ecosystem stability and canal operations. However, their effectiveness depends on institutional coordination and the translation of these plans into actionable measures at the regional and local levels.

Group 2 includes frameworks that acknowledge drought but do not assign it concrete priority measures. The National Disaster Risk Management Plan (2011–2015), the National Risk Management Policy (2022–2030), and strategic planning documents, such as the National Strategic Plan with State Vision "Panama 2030" and the Government Strategic Plan (2019–2024), recognize climate-related hazards but address drought only as part of broader disaster or development contexts. These policies emphasize institutional strengthening, national planning, and governance reforms, yet they lack targeted actions for managing drought risks in key sectors such as water resources, agriculture and energy. This limits their practical contribution to resilience-building and reduces their relevance for sustaining Panama's water-dependent economy.

Group 3 comprises policies that do not explicitly reference drought, despite covering areas that are highly vulnerable to its impacts. The Forest Legislation, the National Food and Nutrition Security Plans (2009–2015 and 2017–2021), and the National Strategic Plan for Science, Technology, and Innovation (2019–2024) address sustainability, research, and food systems but fail to connect these issues to water scarcity or drought risk. Similarly, the National Climate Change Policy (2007) predates the country's more recent adaptation agenda and does not reflect the growing urgency of drought management in the national context. The absence of drought considerations in these frameworks weakens Panama's ability to integrate water scarcity into land use, research, and food security planning.

Overall, Panama's Group 1 policies establish a strong foundation for drought resilience by linking water security and climate adaptation to national priorities and the functioning of the Panama Canal. However, the lack of operational measures in Group 2 and the omission of drought in Group 3 reveal significant gaps in mainstreaming across broader development and environmental frameworks. Strengthening coordination between water, land and disaster risk management institutions, and integrating drought into food security, forestry and innovation policies, will be essential to maintaining water availability for multiple purposes.

2.1.9.5. Findings from a review of the institutional responsibilities for Panama

Panama's institutional framework for drought management relies on several entities. The National Civil Protection System is responsible for managing risk and coordinating disaster response, operating under a broad mandate that encompasses prevention, mitigation, preparedness, intervention and recovery. The National Committee to Combat Drought and Desertification, on the other hand, is responsible for addressing desertification and drought. The National Committee assists the Ministry of Environment in the implementation of the UNCCD through the preparation, execution and monitoring of the National Action Programme (NAP) to Combat Desertification and Drought in Panama.

However, the National Committee lacks operational planning that reflects diverse sectoral needs and does not clearly define the roles and responsibilities of its members. This limits its flexibility and effectiveness in supporting programmes and activities related to drought management, as detailed in the NAP. Addressing these gaps is essential to ensure that Panama's drought management strategies are both comprehensive and effectively implemented, thereby increasing resilience and improving drought impact management. Efficient coordination among key institutions, including the National Committee, is vital not only for executing the plan but also for fostering a collaborative approach to enhance drought resilience.

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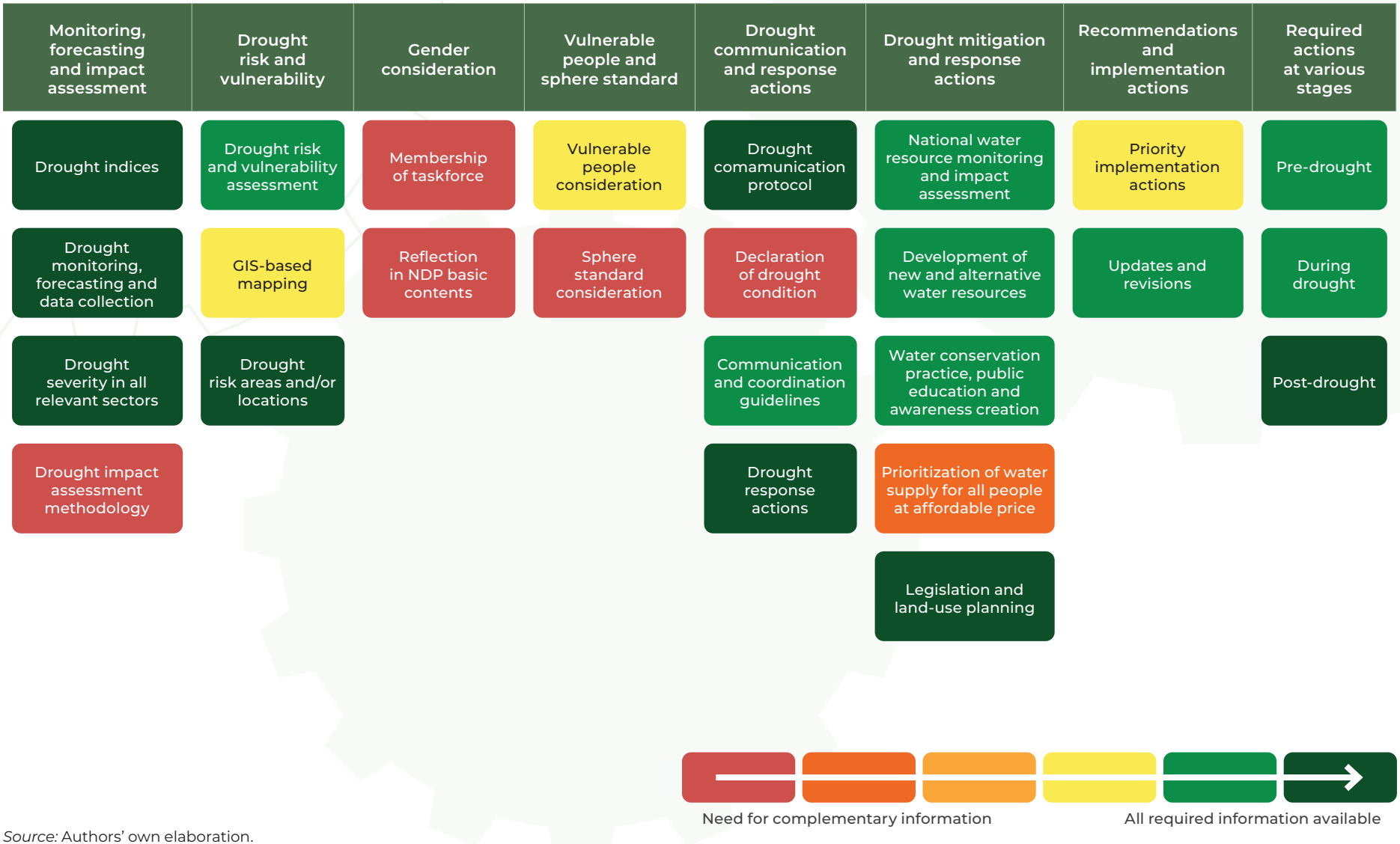
2.1.10. Philippines

The El Niño events became the key factor in shaping policies and institutions for disaster risk management, including drought management in the Philippines. The country has prepared and ratified its NDP and has initiated several measures to promote proactive drought management and enhance resilience and preparedness. El Niño events cause multiple natural disasters and are the primary cause of drought in the Philippines.

2.1.10.1. Findings from a multicriteria assessment of the Philippines' National Drought Plan

Figure 44 presents the results of the assessment of the main criteria and their related subcriteria for the Philippines.

FIGURE 44. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR THE PHILIPPINES



Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for the Philippines

The Philippines' NDP demonstrates a positive outlook on the importance of better incorporating drought considerations into the regulatory environment. The heat map emphasizes the strong aspects of the NDP preparation, such as the criteria related to monitoring and forecasting, drought communication and response actions, required actions at various stages, and drought risk and vulnerability assessment, as explained:

- **Monitoring, forecasting and impact assessment:** The four fundamental drought monitoring indicators are clearly presented, including the percentage of Normal Rainfall Index, the Standardized Precipitation Index, and the Normalized Difference Vegetation Index. The NDP displays meteorological drought through monthly climate assessments and outlooks, seasonal outlooks, and monthly drought and dry spell assessments. Drought severity across all relevant sectors is also outlined.
- **Drought risk and vulnerability:** The NDP adequately addresses the subcriterion of drought risk areas and locations by emphasizing the geographical location defined by boundaries, where drought risk is suspected or observed. The NDP demonstrates that the country is well advanced in conducting multidimensional vulnerability assessment with multiple indicators.
- **Drought communication and response actions:** The communication protocol, coordination guidelines, and drought response measures are thoroughly addressed with an action plan that clearly outlines publication outlets and responsibilities. The NDP emphasizes that information and communication are crucial to ensuring that drought-affected individuals are at the centre of humanitarian action, as without these, they cannot access services or make informed decisions for themselves and their communities.
- **Recommendations and implementation actions:** Under this main criterion, updates and revisions are thoroughly covered. The NDP states that regular updating and revision of the drought plan will ensure agricultural productivity and sustainability through sustainable practices, strengthen resilience in water resource management and supply, and improve food security, nutrition, and the delivery of health services, among other benefits.
- **Other strong points:** The Philippines' multicriteria assessment reveals additional strong points for several subcriteria, including vulnerable people consideration, all subcriteria under the required actions at various stages of drought, and subcriteria for drought mitigation and response actions.

Identified areas that need strengthening

The review identified, several areas that need strengthening. These include the drought impact assessment methodology, membership of the taskforce, reflection in the NDP's basic contents, consideration of sphere standards, declaration of drought conditions, prioritization of water supply for all people at an affordable price, GIS-based mapping, and key implementation actions. The comprehensive presentation of the NDP requires that the gaps be considered and addressed.

Assessed performance of the additional criteria

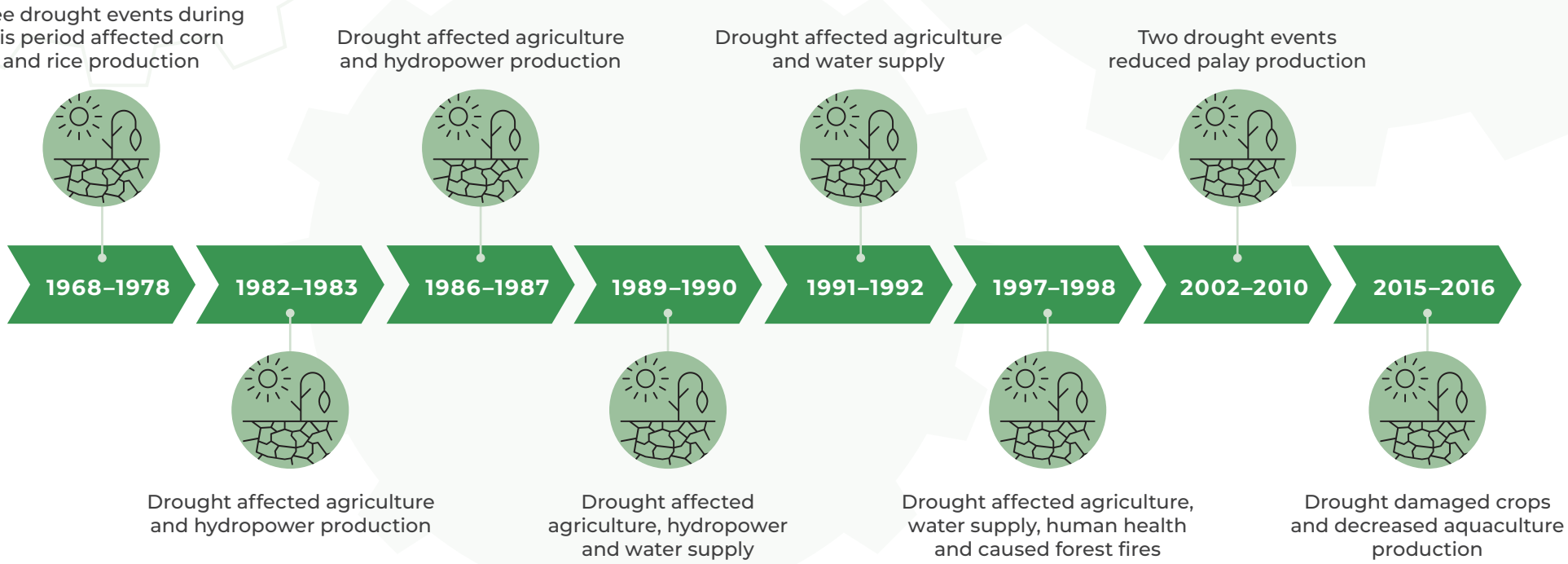
Like many other NDPs, the NDP of the Philippines lacks references to access to water, the importance of the NDP, and the introduction of the ten-step process. However, the presentation of other subcriteria, such as the national water law, historical drought occurrence, organization overview, and assignment of responsibility, has been supported by extensive information, which paves the way for and encourages steps to align the NDP with the policy environment of other sectors. The NDP highlights that the government's responses to past drought events have included activities aimed at monitoring the onset and impacts of El Niño and understanding the effects on the water and agriculture sectors, which are generally reactive.

2.1.10.2. Findings from the identification and mapping of affected sectors in the Philippines

The Philippines has experienced drought and its impacts since the early 1990s in various parts of the country. Historical drought data from 1960 to 2020 showed that rice and corn production were most frequently affected. Unlike other tropical countries, the Philippines has been significantly affected by recurrent drought events (Figure 45).

The Philippines has experienced 12 episodes of weak, moderate and intense El Niño over the past 50 years, linked to drought events with adverse socio-economic impacts. Agriculture remains the primary and sole source of income for many impoverished rural communities in the country. Specifically, subsistence farming and fishing are the main livelihoods for most households (IFAD, 2023). Based on previous drought events triggered by El Niño, the most vulnerable sectors of the economy include agriculture, water, energy, environment, natural resources and health.

FIGURE 45. TIMELINE OF THE MAJOR DROUGHT EVENTS IN THE PHILIPPINES



Source: Authors' own elaboration.

The Philippines faces various hazards, including typhoons, floods, drought events, cyclones and storms; therefore, integrating drought management with other hazards requires a flexible planning approach. The country is already implementing an institutional mechanism that adopts a cluster approach for disaster risk management and drought management. This cluster approach, based on the pillars of disaster management, recognizes the need for emergency responses, rehabilitation and recovery. If extended to the formulation of technical solutions, it would support the development of an action plan suitable for managing multiple hazards.

In response to a severe drought, the Government of the Philippines, through the National Disaster Risk Reduction and Management Council, oversees various actions as the drought unfolds. Several actions should be implemented in the Philippines during a drought, with multiple groups responsible for specific tasks. These actions in response to drought include rehabilitating irrigation networks to enhance efficiency; conducting a widespread information campaign, such as daily media briefings; enforcing water rationing; intensifying leak repair programmes;, monitoring water quality; carrying out cloud seeding operations; and ensuring hydropower generation remains at its respective minimum allowable capacities (Figure 46).

FIGURE 46. AFFECTED SECTORS AND ADAPTATION MEASURES FOR THE PHILIPPINES

DROUGHT IMPACTS AND MITIGATION EFFORTS					
SECTOR	**Water**	**Agriculture**	**Ecosystem**	**Health**	**Energy**
IMPACT	Drying up dams, reducing inflows, causing shortages for domestic water and irrigation supply, which resulted in water rationing, restricting of daily supply and cutting off of irrigation water in some areas.	Reduced crop production, especially rice; declined livestock and poultry production; degraded aquatic ecosystems; and altered the hydrological regimes of fish habitats.	Degradation of ecosystems, plant and animal mortality, including endangered species, red tide outbreaks and fish kills, forest fires, coral bleaching, dam sedimentation and river siltation.	Increased prevalence of diseases due to malnutrition, reduced access to potable water, leading to waterborne diseases.	Hydropower generation losses amount to several hundred million Philippine pesos, affecting several other sectors.
RESPONSE	Improvement of monitoring and forecasting systems for drought, quality improvement of surface and groundwater, and enhancement of knowledge and capacity for integrated water resources management (IWRM).	Application of risk transfer and social protection mechanisms, establishment of early warning systems for fisheries and agriculture, introduction of low water use crops and efficient farming practices.	Restoration of mangrove forests, integrated watershed management programmes, *ex-situ* conservation measures, and enforcement and monitoring of environmental laws.	Training of health personnel and community workers in climate change and disaster risk reduction considerations and launching of health surveillance systems.	Implementing the national renewable energy programme, adopting off-grid, decentralized energy systems, promoting and developing financing mechanisms.

Source: Authors' own elaboration.

In the Philippines, several policy documents advocate for structured, proactive, multisectoral and multihazard action plans, including responses to drought and other disasters. As a result, disaster risk management frameworks increasingly require greater flexibility from the NDP to incorporate drought management alongside multihazard strategies. Separating drought from disaster risk-related policies and institutions would weaken efforts to promote an integrated, cluster-based approach to addressing drought.

2.1.10.3. Findings from the policy stocktaking for the Philippines

The NDP of the Philippines defines the policies relevant in the drought context, and these range from international to subnational contexts. The stocktaking of the legal and policy documents identified 12 international conventions, agreements and treaties, 4 agreements, 1 memorandum of understanding at the regional and subregional level, and 21 national policy documents, plans, frameworks and strategies, as shown in Box 12.

Box 12. Philippines policy framework

International conventions, agreements and treaties:

- Paris Agreement on Climate Change;
- United Nations Convention to Combat Desertification;;
- United Nations Framework Convention for Climate Change;
- Agreement on the Conservation of Nature and Natural Resources;
- Convention on the Conservation of Migratory Species of Wild Animals;
- Convention on Biological Diversity;
- Agenda 2030 for Sustainable Development;
- Convention on Wetlands of International Importance, especially as Waterfowl Habitat;
- International Disaster Response Law;
- Kyoto Protocol;
- Montreal Protocol; and
- REDD+.

Regional and subregional documents:

- Agreement on the network of aquaculture centres in Asia and the Pacific;
- Agreement for the establishment of a Centre on Integrated Rural Development for Asia and the Pacific Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific;
- Agreement for the establishment of a Centre on Integrated Rural Development for Asia and the Pacific;
- Memorandum of understanding between the Government of Brazil and the Government of the Philippines on the cooperation in the field of agriculture; and

- ASEAN Agreement on Disaster Management and Emergency Response.

National policies, strategies and legislation:

- National Livestock Program, 2012–2016;
- National Water Crisis Act, 1995;
- Philippine Water Supply and Sanitation Master Plan, 2019–2030;
- Philippines Energy Plan, 2018–2040;
- Biodiversity Strategy and Action Plan, 2015–2028;
- National Climate Change Action Plan, 2011–2028;
- National Wetlands Action Plan of the Philippines for 2011–2016;
- Philippine Disaster Risk Reduction and Management Act, 2010;
- Disaster Risk Reduction Management Framework, 2011;
- National Disaster Risk Reduction and Management Plan, 2011–2028;
- National Framework Strategy on Climate Change, 2010–2022;
- Philippine Clean Water Act of 2004;
- Free Irrigation Service Act;
- Water Code, 1976;
- Gender Equality and Women's Empowerment Strategic Framework, 2019–2025;
- Plan of Action for Nutrition, 2017–2022;
- Infant and Young Child Feeding Strategic Plan of Action for 2011–2016;
- The National Ecotourism Strategy and Action Plan, 2013–2022;
- Strategic National Action Plan for Disaster Risk Reduction, 2009–2019;
- Updated Philippine National Action Plan to Combat Desertification, Land Degradation and Drought, 2010–2020;
- Master Plan for Climate Resilient Forestry Development, 2016.

Source: Authors' own elaboration.

The Philippines has a comprehensive policy framework for disaster risk reduction and management, which includes drought. Due to its exposure to various climate hazards, the Philippines considers drought alongside other disasters. Disaster risk reduction functions as the main sector, coordinated within an overarching institutional structure. This integrated approach helps leverage resources and develop mutual solutions, but drought also needs to be sufficiently recognized or emphasized in all documents.

2.1.10.4. Findings from cross-matching the relevance of drought in policy frameworks of the Philippines

Based on the stocktaking exercise, the documents were classified into three categories according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 47.

FIGURE 47. CLASSIFICATION OF POLICY DOCUMENTS IN THE PHILIPPINES

12 International commitments **5 Regional commitments** **10 National policy documents**

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• National Climate Change Action Plan, 2011–2028 • National Framework Strategy on Climate Change, 2010–2022	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalize)	Short term
	• Updated Philippine National Action Plan to Combat Desertification, Land Degradation and Drought, 2010–2020	Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol	Short term
	• Master Plan for Climate Resilient Forestry Development, 2016 • National Disaster Risk Reduction and Management Plan, 2011–2028	Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports)	Short term
	• National Water Crisis Act, 1995	Conducting an impact assessment of planned drought-related actions	Medium term
Group 2: Recognizing drought with no priority actions	• Philippine Clean Water Act of 2004 • Free Irrigation Service Act	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize)	Short term

Reflection on drought	National policies	Recommendations	Time frame
	• Philippine Water Supply and Sanitation Master Plan, 2019–2030 • Water Code, 1976 • Philippines Energy Plan, 2018–2040 • Biodiversity Strategy and Action Plan, 2015–2028 • Strategic National Action Plan for Disaster Risk Reduction, 2009–2019	Facilitating the identification of drought-related priority actions	Medium term
		Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions	Medium term
		Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports)	Medium term
		Conducting impact assessment of planned drought-related actions	Medium term
Group 3: Not recognizing drought with no priority actions	• Gender Equality and Women's Empowerment Strategic Framework, 2019–2025 • Plan of Action for Nutrition, 2017–2022 • Infant and Young Child Feeding Strategic Plan of Action for 2011–2016 • National Livestock Program, 2012–2016 • National Wetlands Action Plan of the Philippines for 2011–2016 • Philippine Disaster Risk Reduction and Management Act, 2010 • Disaster Risk Reduction Management Framework, 2011 • National Ecotourism Strategy and Action Plan, 2013–2022	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize)	Medium term
		Advocating for the recognition of drought	Long term
		Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method	Long term
		Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Long-term

Source: Authors' own elaboration.

Under Group 1, the Philippines has established a strong policy and institutional framework that explicitly recognizes drought and includes clear priority actions across climate, water, forestry and disaster management. The National Climate Change Action Plan (2011–2028) and the National Framework Strategy on Climate Change (2010–2022) set the long-term vision for adaptation and resilience, identifying drought as a key climate hazard requiring proactive measures. The Updated National Action Plan to Combat Desertification (2010–2020) and the Master Plan for Climate Resilient Forestry Development (2016) strengthen the link between drought, land degradation and sustainable forest management, promoting ecosystem-based solutions. On the disaster side, the National Disaster Risk Reduction and Management Plan (2011–2028) lists drought as a priority hazard, underscoring the need for coordinated, multisectoral response mechanisms. The National Water Crisis Act (1995) further highlights the country's recognition of water scarcity as a national security concern. These instruments together reflect the Philippines' awareness of drought as a multidimensional challenge that intersects with other climate-related hazards. However, in a highly disaster-prone country frequently affected by typhoons, floods and drought events, the effectiveness of these frameworks depends on balancing emergency response with long-term drought preparedness and inter-agency coordination.

Group 2 includes key regulatory and planning frameworks that recognize drought but do not assign it concrete priority actions. Water governance instruments, such as the Philippine Clean Water Act (2004), the Water Code (1976), and the Philippine Water Supply and Sanitation Master Plan (2019–2030), address water quality, service delivery and irrigation, but treat drought as an implicit rather than explicit risk. The Free Irrigation Service Act and the Philippine Energy Plan (2018–2040) similarly acknowledge environmental stresses but do not operationalize drought resilience in their respective sectors. The Biodiversity Strategy and Action Plan (2015–2028) and the Strategic National Action Plan for Disaster Risk Reduction (2009–2019) recognize climate variability but subsume drought under broader environmental or hazard categories. These frameworks provide essential regulatory and policy direction, but the absence of specific drought measures limits their contribution to targeted risk reduction and resource management in a context where multiple hazards interact.

Group 3 includes social, environmental and development policies that do not explicitly reference drought even though they govern sectors highly exposed to its impacts. These include the Plan of Action for Nutrition (2017–2022), the National Livestock Program (2012–2016), and the National Ecotourism Strategy and Action Plan (2013–2022), all of which focus on livelihoods and economic growth without linking them to drought-related risks. Similarly, the Gender Equality and Women's Empowerment Strategic Framework (2019–2025) overlooks the gendered dimensions of drought impacts on rural and agricultural livelihoods. Two key disaster governance frameworks, the Philippine Disaster Risk Reduction and Management Act (2010) and the Disaster Risk Reduction Management Framework (2011), do not explicitly address drought management despite the country's exposure to recurring dry spells associated with El Niño events. This omission represents a critical gap, as the multidisaster context of the Philippines requires comprehensive integration of slow-onset hazards like drought alongside more immediate threats such as floods and storms.

Overall, the Philippines demonstrates strong policy recognition of drought in Group 1, where climate, water and disaster frameworks integrate it into national adaptation and preparedness planning. However, Group 2 and Group 3 reveal gaps in operationalization and mainstreaming, particularly in sectors such as water governance, agriculture and social development. In a country facing overlapping hazards, effective drought management depends on its integration into broader disaster risk reduction and development planning, ensuring that slow-onset crises receive the same strategic attention as rapid-onset disasters.

2.1.10.5. Findings from a review of the institutional responsibilities for the Philippines

Drought is considered one of the natural disasters previously managed by the Office of the Civil Defense, the lead implementing arm of the National Disaster Risk Reduction and Management Council with the primary mission of administering a comprehensive disaster risk reduction and management programme, among others. The Office of the Civil Defense is under the chair or the Department of National Defense. There is an ongoing transition to a new institutional structure, where the National El Niño Team becomes the operational arm of the National Disaster Risk Reduction and Management Council. There are sectoral agencies that are accountable to the vice-chair and are tasked to lead on the various phases of drought (prevention and mitigation, preparedness, response, rehabilitation and recovery). Several technical departments provide support based on their technical expertise. They include the National Water Resources Board, the Department of Agriculture, the National Irrigation Administration, the Bureau of Soils and Water Management, the Department of Environment and Natural Resources, and the Climate Change Commission (CCC) (GoP, 2019).

The establishment of the National El Niño Team as an entity responsible for the translation of the policy into operation is a significant step towards the integrated management of disasters. The institutional structure is layered both vertically and horizontally. Regarding the horizontal layers, the national coordination is decentralized into regional (subnational) and local coordination. However, some critics maintain that the risk management and identification of potential impacts are not yet fully devolved at the local level. The vertical clusters include the key areas: food security, water security, energy security, health security and public safety. The vulnerability and impact assessment confirmed that drought affects all key areas in the Philippines, so integrating drought management measures into all areas is important to mitigate the risks. Each key area follows the same pillars of disaster management: prevention/mitigation, preparedness, response, and rehabilitation and recovery.

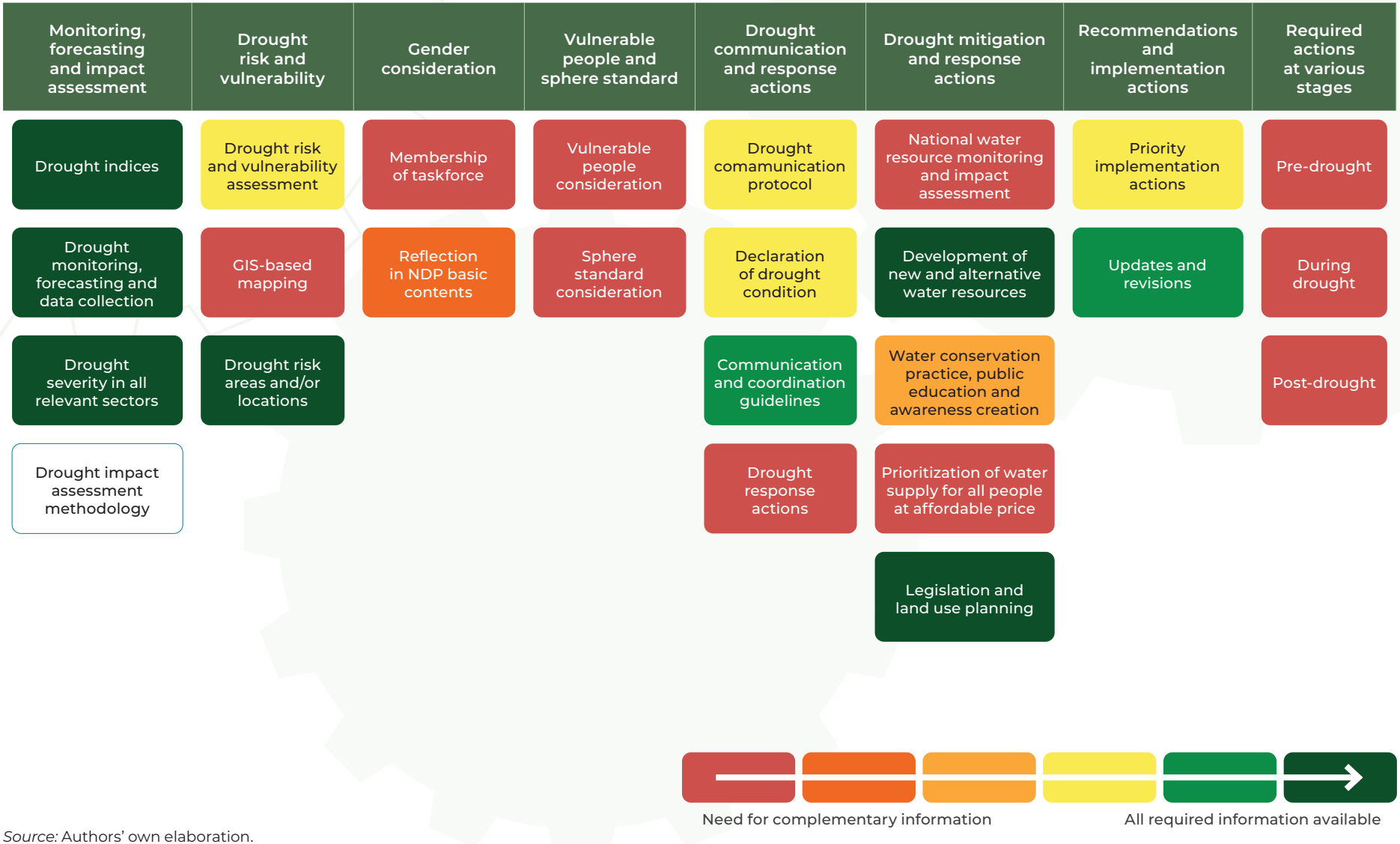
2.1.11. Sri Lanka

Recently, drought mitigation efforts in Sri Lanka have lacked long-term strategies and a systematic approach, which should include proper land and crop management and recognize the impact of drought on land. The Sri Lanka NDP highlights that land degradation increases vulnerability to drought, while the National Action Programme for the UNCCD recognizes the impact of drought on land. The country has implemented several initiatives to promote proactive drought risk management and build resilience and preparedness. The NDP aims to establish these initiatives and actions while aligning management practices with international standards.

2.1.11.1. Findings from a multicriteria assessment of the Sri Lanka National Drought Plan

Figure 48 presents the results of the assessment of the main criteria and their related subcriteria for Sri Lanka.

FIGURE 48. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR SRI LANKA



Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Sri Lanka

As shown in Figure 48, the assessment results highlight certain strong aspects of the NDP preparation, particularly in the subcriteria related to monitoring and forecasting, impact assessment, drought risk and vulnerability assessment, and gender considerations, as explained:

- **Monitoring, forecasting and impact assessment:** Basic drought monitoring indicators are well presented, including the Standardized Precipitation Index, the Moisture Availability Index, the Normalized Difference Vegetation Index, and the Vegetation Condition Index. The International Water Management Institute (IWMI) has developed a satellite data-based drought monitor to cover the island and feed the Disaster Management Centre, creating maps every 10 days.
- **Drought risk and vulnerability:** The NDP defines the geographical area within boundaries where drought risk is suspected or observed, demonstrating that the country has made significant progress in using GIS maps. For example, the NDP has presented maps of water sources and drought-prone areas, including the monthly drought maps of Sri Lanka.

Identified areas that need strengthening

During the review of the Sri Lanka NDP, it will be vital for stakeholders to identify areas that need strengthening, especially given the multicriteria assessment results of the Sri Lanka NDP. The assessment reveals that all subcriteria for required actions at various stages, as well as other subcriteria – national water resource monitoring and impact assessment, water conservation practices, public education and awareness, drought response actions, sphere standard consideration, and membership of the task force – are notably weak and lack sufficient information.

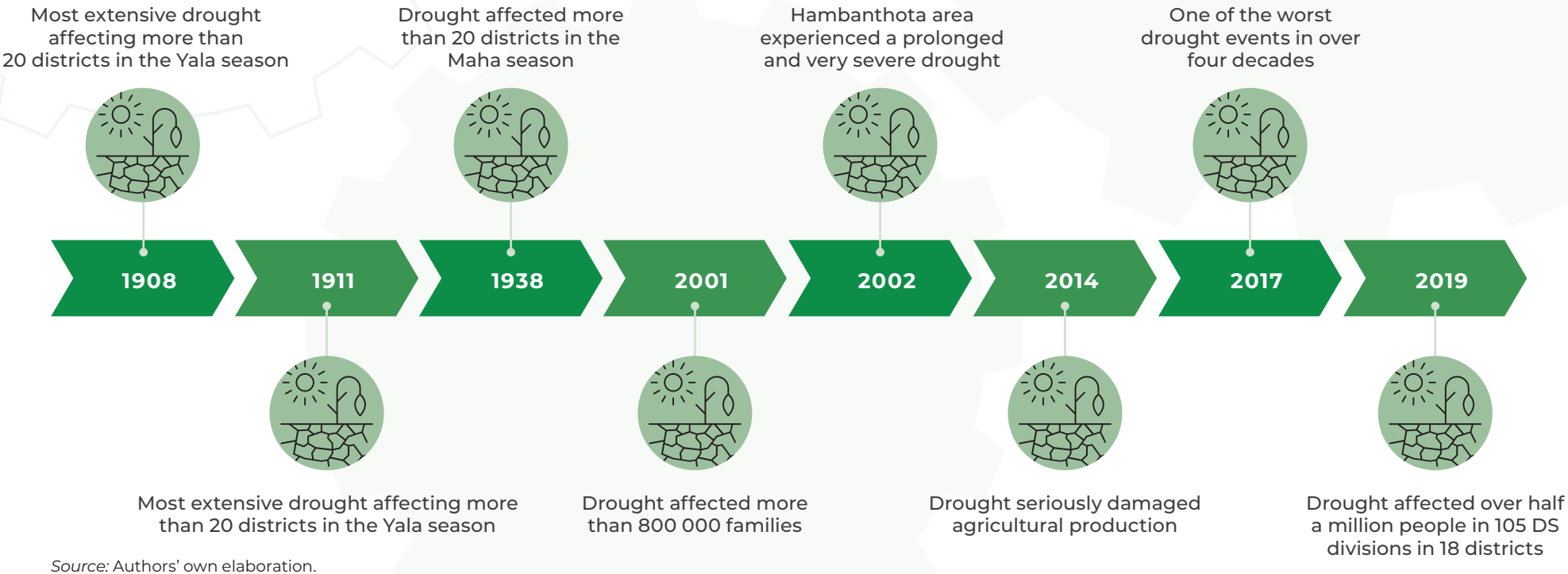
Assessed performance of the additional criteria

The assessed performance of Sri Lanka's additional criteria presents a mixed picture, with some subcriteria performing well and others needing improvement. In the NDP, the subcriteria of national water law, historical drought occurrence, and organizational overview are well supported by extensive information. It effectively facilitates and encourages actions to align the NDP with the policy environments of other sectors. Conversely, there is a lack of reference to these subcriteria: access to safe water, introduction of the ten-step process, importance of the NDP, assignment of responsibility, and understanding of drought.

2.1.11.2. Findings from the identification and mapping of affected sectors in Sri Lanka

Sri Lanka has experienced drought and its impacts for over a century (Figure 49). The drought events of 1908 and 1991 were the most widespread, affecting more than 20 districts during the Yala agricultural season. A similar drought event was reported for the Maha agricultural season of 1938, also affecting 20 districts. Drought was again observed in 2001, affecting over 800 000 families (Manesha *et al.*, 2015). The millennium began with a severe drought in 2001, affecting the dry and intermediate zones. The Hambantota area experienced a prolonged and very severe drought in 2001 and 2002. The drought affected 800 000 families in 2001.[1]

FIGURE 49. TIMELINE OF THE MAJOR DROUGHT EVENTS IN SRI LANKA



Source: Authors' own elaboration.

[1] (http://www.desinventar.lk/)

The adverse impact of drought on various sectors of Sri Lanka has been recognized for decades. Available information indicates that the agriculture and energy sectors are among the most affected, spilling over to other sectors. Due to the drought's impact on agriculture, food security is significantly compromised, forcing the country to import food commodities. Figure 50 illustrates the effects of drought on various sectors and the corresponding adaptation measures.

The purpose of the Sri Lanka NDP is to compile drought-related information and propose coordinated actions by relevant sectors to mitigate the impact of drought in the country. The plan is intended to serve as a working guide for agencies that have the capabilities and resources to develop effective response and mitigation programmes within their areas of jurisdiction.

FIGURE 50. AFFECTED SECTORS AND ADAPTATION MEASURES FOR SRI LANKA

DROUGHT IMPACTS AND MITIGATION EFFORTS				
SECTOR	**Water**	**Agriculture**	**Ecosystem**	**Health**
IMPACT	Reduced water levels in reservoirs, dry water sources, shortage of safe drinking water, and increased water demand.	Insufficient access to water for irrigation, decline in rice production, borderline food insecurity, and decline in economic growth.	Biological changes in species can lead to the desiccation of habitats and a decline in the species' population. High risk of rapid extension and disruption to the ecological process of biodiversity and ecosystems.	Dramatic increase in food insecurity, poor sanitation and health challenges, increase in dengue fever, and hundreds of deaths recorded.
RESPONSE	Implementing watershed management plans, increasing the efficiency of use and reducing losses of irrigation water, and designing strategies to harness periodic surpluses of water in storage facilities.	Developing crop and livestock varieties tolerant to heat stress and drought-resistant to pests and diseases; promoting water-efficient farming methods.	Conducting research studies on climate change impacts on ecosystems and biodiversity, preparing adaptive management programmes for climate-sensitive ecosystems, and preparing recovery plans for highly threatened ecosystems and species.	Establishing disease surveillance programmes, conducting research, developing research institutes' capacity in research on health impacts of climate change, and strengthening the mechanisms for sharing information.

Source: Authors' own elaboration.

2.1.11.3. Findings from the policy stocktaking for Sri Lanka

The Sri Lanka NDP highlights policies associated with drought. It encompasses international, regional and national contexts. The review of legal and policy documents identified 12 international conventions, agreements and protocols, 7 regional and subregional agreements and conventions, and 27 national policy documents, including policies, programmes, plans and strategies, as shown in Box 13.

Box 13. Sri Lanka policy framework

International conventions, agreements and treaties:

- Paris Agreement on Climate Change;
- United Nations Convention to Combat Desertification (UNCCD);
- United Nations Framework Convention for Climate Change treaty and the Kyoto Protocol;
- Agreement on the Conservation of Nature and Natural Resources;
- Convention on the Conservation of Migratory Species of Wild Animals;
- Convention on Biological Diversity;
- Agenda 2030 for Sustainable Development;
- Convention on Wetlands of International Importance, especially as Waterfowl Habitat;
- International Disaster Response Law;
- Kyoto Protocol;
- Montreal Protocol; and
- National REDD+ Investment Framework and Action Plan.

Regional and subregional documents:

- Asia Regional Plan for Implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030;
- South Asia Drought Monitoring System;
- Agreement for the establishment of a Centre on Integrated Rural Development for Asia and the Pacific;
- Convention for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific;
- Agreement on the Network of Aquaculture Centres in Asia and the Pacific;
- Agreement between the State Environmental Protection Administration of the People's Republic of China and the Ministry of Forest and Environment of the Democratic Socialist Republic of Sri Lanka on Cooperation of Environmental Protection; and
- SAARC Agreement on Rapid Response to Natural Disasters.

National policies, strategies and legislation:

- National Action Plan for the Haritha Lanka Programme
- Sri Lanka Comprehensive Disaster Management Programme;

- National Agriculture Policy;
- National Policy Framework of the Government of Sri Lanka;
- National Policy on Protection and Conservation of Water Sources, their Catchments and Reservations in Sri Lanka of 2014;
- National Rainwater Policy and Strategies of 2005;
- Land Degradation Neutrality Target and Measures;
- National Wetland Policy and Strategy;
- Action Plan for Implementing the Convention on Biological Diversity Programme;
- National Watershed Management Policy;
- National Environment Policy;
- National Environmental Action Plan;
- National Adaptation Plan for Climate Change Impacts 2016–2025;
- National Climate Change Policy;
- National Climate Change Adaptation Strategy;
- Nationally Determined Contributions Implementation Plan, 2021–2030;
- Updated Nationally Determined Contributions;
- National REDD+ Investment Framework and Action Plan;
- Technology Needs Assessment and Technology Action Plans for Climate Change Adaptation and Mitigation;
- Third National Communication on Climate Change;
- National Action Plan for Agrobiodiversity Conservation and Utilization;
- National Adaptation Plan for Climate Change;
- National Biodiversity Strategic Plan;
- Disaster Management Act, No. 13 of 2005;
- National Drinking Water Policy;
- National Disaster Management Plan, 2022–2030; and
- National Action Programme for UNCCD.

Source: Authors' own elaboration.

2.1.11.4. Findings from cross-matching the relevance of drought in policy frameworks of Sri Lanka

Based on the stocktaking, the documents were classified into three categories according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 51.

FIGURE 51. CLASSIFICATION OF POLICY DOCUMENTS IN SRI LANKA

12 International commitments

7 Regional commitments

27 National policy documents

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• National Biodiversity Strategic Plan • National Environment Policy • National Climate Change Adaptation Strategy	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalize)	Short term
	• Nationally Determined Contributions Implementation Plan, 2021–2030 • National Disaster Management Plan, 2022–2030	Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol	Short term
	• National Action Programme for UNCCD • National Environmental Action Plan	Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports)	Short term
	• National Adaptation Plan for Climate Change Impacts, 2016–2025 • Updated Nationally Determined Contributions • Third National Communication on Climate Change	Conducting an impact assessment of planned drought-related actions	Medium term

Reflection on drought	National policies	Recommendations	Time frame
	• National Drinking Water Policy • National Action Plan for the Haritha Lanka Programme • Sri Lanka Comprehensive Disaster Management Programme • National Agriculture Policy		
Group 2: Recognizing drought with no priority actions	• National Action Plan for Agrobiodiversity Conservation and Utilisation • National REDD+ Investment Framework and Action Plan • National Adaptation Plan for Climate Change • Disaster Management Act, No. 13 of 2005	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize) Facilitating the identification of drought-related priority actions Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports) Conducting impact assessment of planned drought-related actions	Short term Medium term Medium term Medium term Medium term
Group 3: Not recognizing drought with no priority actions	• Land Degradation Neutrality Target and Measures • National Wetland Policy and Strategy • Action Plan for Implementing the Convention on Biological Diversity's Programme • National Watershed Management Policy • National Climate Change Policy	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize) Advocating for the recognition of drought Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method	Medium term Long term Long term

Reflection on drought	National policies	Recommendations	Time frame
	• National Policy Framework of the Government of Sri Lanka • National Policy on Protection and Conservation of Water Sources, their Catchments and Reservations in Sri Lanka of 2014 • National Rainwater Policy and Strategies of 2005 • Technology Needs Assessment & Technology Action Plans for Climate Change Adaptation and Mitigation	Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Long term

Source: Authors' own elaboration.

Under Group 1, Sri Lanka has developed an extensive set of national strategies and policies that explicitly recognize drought and embed it within priority actions. Climate frameworks, such as the National Adaptation Plan for Climate Change Impacts, the Sri Lanka Comprehensive Disaster Management Programme, the National Agriculture Policy, the National Climate Change Adaptation Strategy, and the updated Nationally Determined Contributions, integrate drought risk into national development and sectoral planning. Environmental instruments like the National Environmental Action Plan, the National Environment Policy, and the National Biodiversity Strategic Plan also acknowledge drought as a driver of environmental degradation, linking it to conservation and sustainable resource use. The National Drinking Water Policy and the National Disaster Management Plan (2022–2030) provide more direct measures, addressing water scarcity and multihazard preparedness. These policies demonstrate Sri Lanka's recognition of drought as both an environmental and socioeconomic challenge, though their impact will rely on how well they are harmonized and implemented across agencies.

In Group 2, examples include the National Action Plan for Agrobiodiversity Conservation and Utilization, the National REDD+ Investment Framework and Action Plan, and overlaps within the National Climate Change Adaptation Strategy and the Disaster Management Act. These instruments emphasize environmental sustainability, biodiversity, carbon management and disaster management but treat drought as a secondary issue, often embedded within broader climate or land-use agendas. While they provide enabling conditions for resilience, their lack of explicit drought-related interventions reduces their effectiveness in building targeted adaptive capacity.

Group 3 policies do not explicitly recognize drought, despite covering areas highly exposed to its impacts. The National Watershed Management Policy, the Land Degradation Neutrality Targets, and biodiversity-related frameworks (e.g. the Convention for Biodiversity Action Plan and Wetland Policy) focus on sustainability and conservation but fail to connect these directly to drought. Similarly, the National Policy on Protection and Conservation of

Water Sources, their Catchments and Reservations in Sri Lanka, the National Rainwater Policy and Strategies, the Technology Needs Assessment and Action Plans and the National Climate Change Policy emphasize adaptation and mitigation but overlook drought as a cross-cutting hazard. This omission highlights a gap in mainstreaming as watershed management, wetlands and land degradation are crucial to reducing drought vulnerability in Sri Lanka.

Overall, Sri Lanka demonstrates strong recognition of drought in Group 1, particularly through climate, biodiversity and disaster management frameworks that assign priority actions. However, Group 2 policies remain limited in operational scope, recognizing drought without translating it into actionable measures, while Group 3 frameworks highlight critical sustainability areas but fail to integrate drought explicitly.

2.1.11.5. Findings from the institutional responsibilities for Sri Lanka

The institutional framework of Sri Lanka reflects the country's geographic and climatic diversity, as well as its natural resource endowment, which requires different layers of responsible institutions. The NDP rightly highlights concerns about the fragmented involvement of agencies in drought management and encourages the implementation of coordination mechanisms to address siloed approaches. However, the country is developing a coordination system to unify institutional responsibilities. The Ministry of Environment, as the focal point of the UNCCD, leads the process to establish a legally recognized mechanism for coordinating drought management based on an agreed modus operandi. The NDP outlines detailed activities to strengthen coordination: organizing policy dialogues to promote IDM; establishing technical groups that collaboratively work on drought mitigation; conducting capacity-building activities focused on mitigation; and promoting integrated monitoring systems among agencies.

Sri Lanka's geographic and climatic diversity geographic and climatic diversity natural resource endowments necessitate different levels of institutional management. Drought management is inherently complex due to the involvement of many stakeholder institutions. As a result of this distinctive institutional structure, more than 25 authorities and types of authorities must be involved in drought management, organized into six categories of stakeholder organizations (Walker *et al.*, 2024).

The NDP highlights the importance of identifying and involving stakeholders specialized in and responsible for managing specific hazards and disasters, along with their related activities. A positive aspect is that the NDP has introduced Disaster Management Committees operating at subnational levels. It also emphasizes the need for coordination with both national and international development partners. Overall, all aspects of integrated drought management activities are overseen through these institutional and coordination mechanisms, from national to subnational levels, to ensure that no one is left behind.

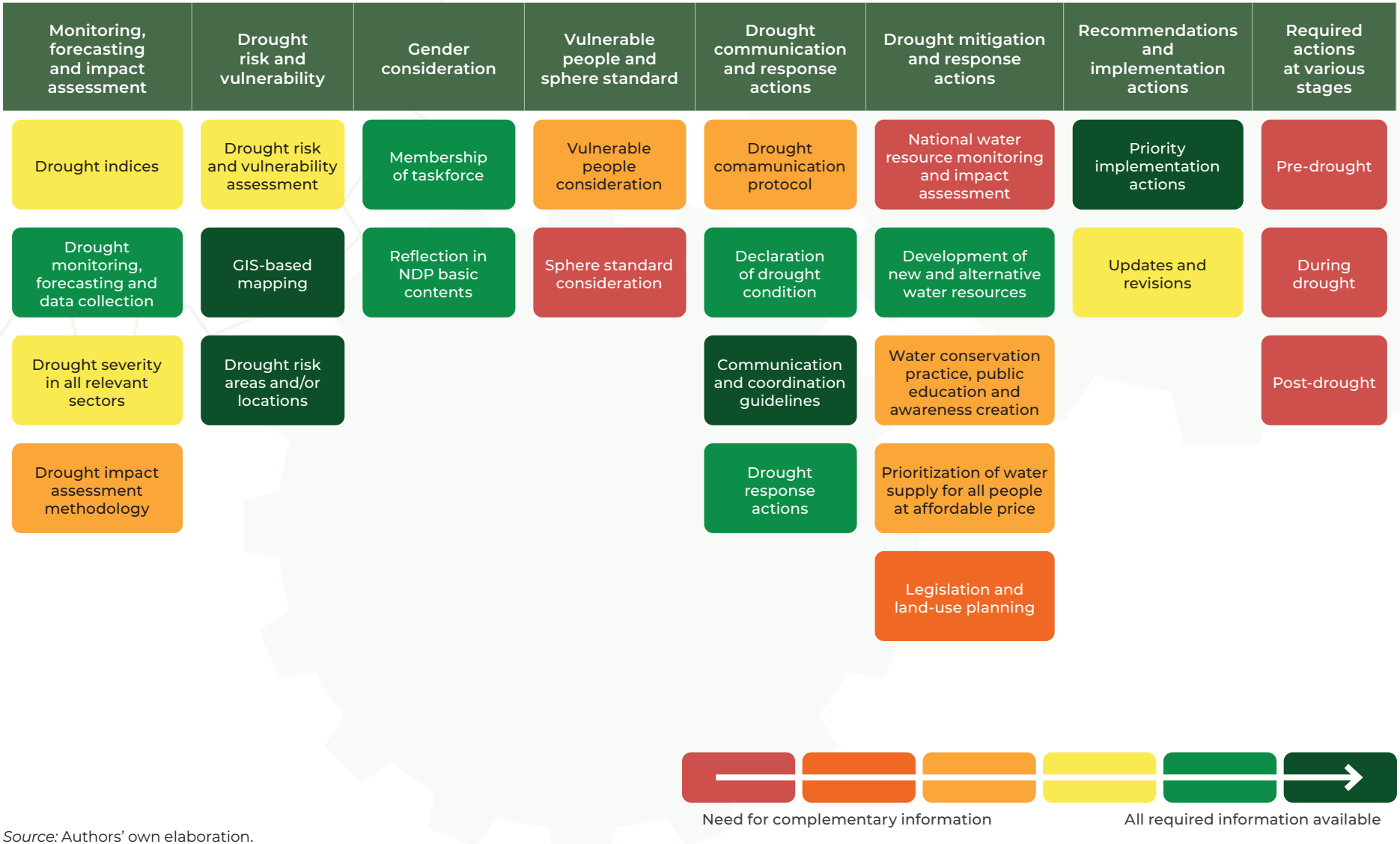
2.1.12. Tunisia

Tunisia began shifting from reactive to proactive drought management in the late 1980s. Previously, drought was seen as a rare and occasional natural hazard, justifying emergency responses as the appropriate method for managing drought events (Louati *et al.*, 2007). The country released its first Drought Management Guide in 1999. This guide is a key document in Tunisia, created to support the practical application of drought management and can be utilized in policy development; however, it requires periodic revisions.

2.1.12.1. Findings from a multicriteria assessment of the Tunisia National Drought Plan

Figure 52 presents the results of the assessment of the main criteria and their related subcriteria for Tunisia.

FIGURE 52. ASSESSED PERFORMANCE OF THE MAIN CRITERIA FOR TUNISIA



Source: Authors' own elaboration.

Identified strengths of the assessed performance of the main criteria for Tunisia

The Tunisia NDP displays a mix of elements, with about half of the subcriteria providing ample information, while the other half lack references to the necessary data. The identified strengths of the NDP include drought risk vulnerability, gender considerations, considerations for vulnerable people, drought communication and response actions, priority implementation actions, and the development of new and alternative water sources. A few are briefly explained:

- **Drought risk and vulnerability:** The NDP offers quantified, science-based projections of potential impacts and vulnerability to drought events. It emphasizes agriculture as a key focus but also examines the link between agriculture's vulnerability and the upstream and downstream sectors.
- **Gender considerations:** The document clearly emphasizes the importance of gender consideration, highlighting the equality of women and the involvement of vulnerable groups in planning. The NDP also addresses the disproportionately vulnerable situation of women and the impact of drought on gender equality.
- **Drought communication and response actions:** The NDP contains information on drought response actions and some guidelines on communication and coordination. In the absence of a communication protocol, the NDP operates a mechanism with clearly defined responsibilities. Formalizing such a mechanism would enhance the capacity to declare and communicate drought, as well as to mobilize the necessary resources.
- **Recommendations and implementation actions:** The NDP includes a detailed action plan, indicating the objectives of actions, alternative actions, timeline, responsible authorities and relevant existing initiatives.

Identified areas that need strengthening

The subcriteria that require strengthening include all elements under required actions at various stages, national water resource monitoring and impact assessment, sphere standard considerations, drought impact assessment methodology, drought indices, drought monitoring, forecasting, data collection, communication protocols, prioritization of water supply for all people at an affordable price, legislation, and land-use planning. Therefore, during the upcoming review of the NDP, these subcriteria will need adequate information to make the NDP more comprehensive.

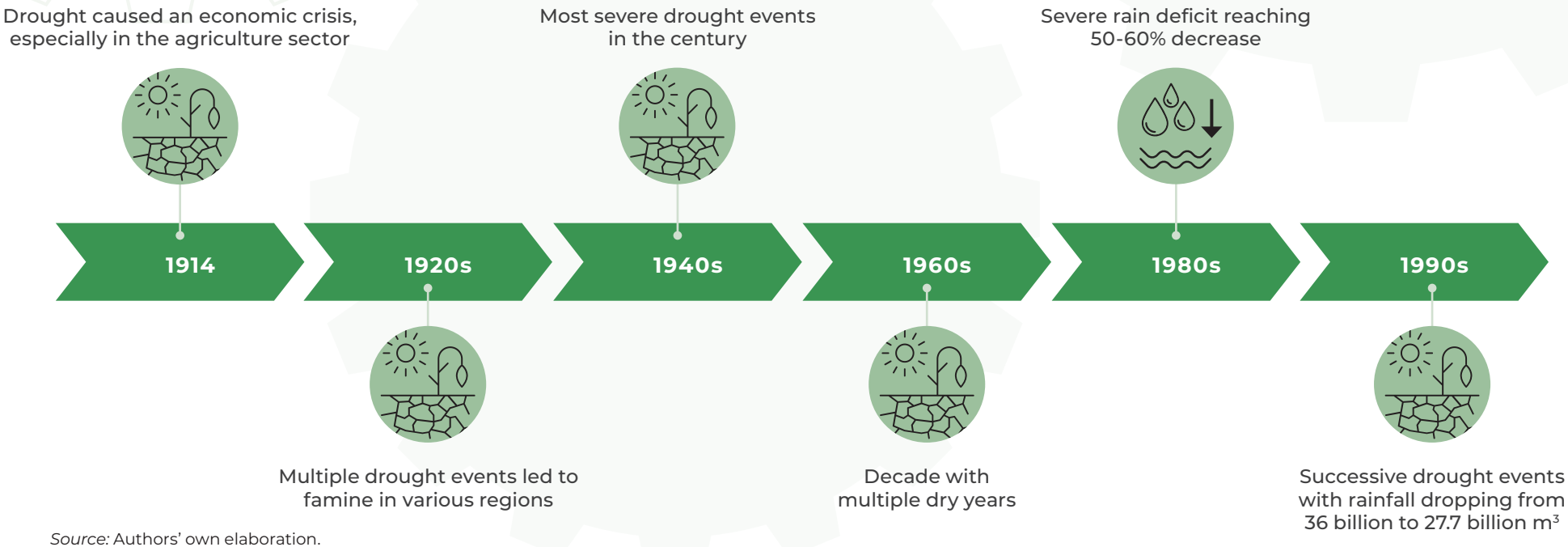
Assessed performance of the additional criteria

The performance on the additional criteria differs from that on the main criteria, as many subcriteria of the main criteria are supported by abundant information, which facilitates and encourages steps to align the NDP with the policy landscape of other sectors. According to the NDP, numerous existing policies relate to drought management, and the plan highlights the need for specific legislation and policy harmonization. It emphasizes that particular events and issues have primarily driven the development of policies and institutional responsibilities. What needs strengthening are the subcriteria related to understanding drought, as well as the purposes, scope, goals and objectives outlined in the background criterion.

2.1.12.2. Findings from the identification and mapping of affected sectors in Tunisia

Tunisia has a long history of drought events, with the first recorded occurrence dating back to the early 20th century (Figure 53). The country experienced its worst drought in 50 years from 1999 to 2002, which mainly affected agricultural producers (FAO, 2018b). Over the past 20 years, there have been ten agricultural seasons with significant losses that necessitated activating the National Guarantee Fund to support farmers. The most recent drought lasted for four agricultural seasons, with deviations from average rainfall reaching as high as 107 percent in some years.

FIGURE 53. TIMELINE OF THE MAJOR DROUGHT EVENTS IN TUNISIA



Source: Authors' own elaboration.

Multiyear drought and overall rainfall variability pose significant challenges for Tunisian agriculture (Verner *et al.*, 2018), which is why efforts on integrated drought management in Tunisia focus on agriculture. However, drought is a cross-sectoral issue in Tunisia. Its impacts are assessed in terms of societal welfare, including the macroeconomy. Some sectors, such as health, have also shown vulnerability; consequently, this sector has already implemented tangible measures to mitigate the impacts. Although agriculture, particularly irrigation, is the most heavily affected sector, other sectors such as water, energy and ecosystems are also affected. Adaptation options in the water sector include desalination plans, wastewater reuse, infrastructure for the conveyance and distribution of reused water, additional facilities to transfer surplus water from the north to central Tunisia, underground water storage, rehabilitation of irrigation schemes, and measures for water and soil conservation. Figure 54 highlights some of the drought impacts and corresponding adaptation measures for these sectors.

FIGURE 54. AFFECTED SECTORS AND ADAPTATION MEASURES FOR TUNISIA

DROUGHT IMPACTS AND MITIGATION EFFORTS					
SECTOR	**Water**	**Agriculture**	**Ecosystem**	**Health**	**Energy**
IMPACT	Groundwater exploitation, drying wells, and restricted access to potable water.	Exposure of cereal production, livestock decline, and reduced olive oil production.	Biodiversity loss, increased frequency and intensity of wildfires, and loss of habitats/ecosystems.	Increased food insecurity, undernutrition and waterborne diseases.	Increasing energy demand and consumption peaks.
RESPONSE	Alternative water sources (desalination, wastewater reuse, etc.), water conservation, and additional sources.	Irrigation development, innovative financial instruments, monitoring and early warning, oasis protection and conservation practices.	Early warning systems, index insurance, and ensuring the optimization of natural resource utilization and ecosystem-based water management.	Early warning systems for health risks, health surveillance, risk mapping, expanding the health system, and awareness raising.	Energy supply diversification, innovative regulatory models, energy saving programmes and capacity-building.

Source: Authors' own elaboration.

2.1.12.3. Findings from the policy stocktaking for Tunisia

The Tunisia NDP defines the policies that are relevant to from within international and subnational contexts. The stocktaking of the legal and policy documents identified 8 international conventions, agreements, 6 regional and subregional commitments, and 12 national policy documents, including legislation, policies, programmes and strategies, as shown in Box 14.

Box 14. Tunisia policy framework

International conventions, agreements and treaties:

- Comprehensive African Agriculture Development Program;
- Convention concerning the Protection of the World Cultural and Natural Heritage ratified on 10 March 1975;
- Ramsar Convention on Wetlands, ratified on 24 March 1981;
- Convention on the Conservation of Migratory Species of Wild Animals ratified on 01 August 1987;
- Convention on Biological Diversity ratified on 15 July 1993;
- United Nations Framework Convention on Climate Change ratified on 15 July 1993;
- United Nations Convention to Combat Desertification ratified on 10 November 1995;
- Paris Climate Agreement, ratified on 10 February 2017.

Regional and subregional documents:

- Barcelona Convention;
- Action Agenda for Water and Financial Strategy in the Mediterranean;
- Water strategy for countries 5+5;
- Arab regional strategies;
- Agenda 2063 for Africa; and
- Sub-Regional Action Programme to combat desertification in the Maghreb, 2011–2020.

National policies, strategies and legislation:

- Water Code Bill;
- Drought Management Guide, 1999;
- National Climate Change Adaptation Policy;
- National Strategy for the Adaptation of Tunisian Agriculture and Ecosystems to Climate Change;
- National Sustainable Development Strategy;
- National Action Program to Combat Desertification;
- Disaster Risk Reduction Policy;
- Water Sector Strategy, 2030;
- Water Sector Strategy, 2050;
- National Strategy for Water and Soil Conservation by 2030;
- National Strategy for the Development and Sustainable Management of Forests and Journey;

- Health Sector Climate Change Adaptation Strategy; and
- National Strategy for the Economic and Social Empowerment of Women and Rural Girls.

Source: Authors' own elaboration.

2.1.12.4. Findings from cross-matching the relevance of drought in policy frameworks of Tunisia

Based on the stocktaking, the documents were categorized into three groups according to the level of recognition of drought and its related priority actions. Examples of policy documents in each of these three groups are provided in Figure 55.

FIGURE 55. CLASSIFICATION OF POLICY DOCUMENTS IN TUNISIA

8 International commitments **6 Regional commitments** **12 National policy documents**

CROSS-MATCHING THE RELEVANCE OF DROUGHT IN POLICY FRAMEWORKS			
Reflection on drought	**National policies**	**Recommendations**	**Time frame**
Group 1: Recognizing drought with priority actions	• Water Code Bill • Drought Management Guide • National Action Programme to Combat Desertification • National strategy for water and soil conservation by 2030 • National Strategy for the adaptation of Tunisian agriculture and ecosystems to climate change	Agency tasked to lead on drought, coordinating with the custodians of the documents (formulated and/or delegated to operationalize)	Short term
		Ensuring that drought-related priority actions are included in the sectoral annual budget and in the monitoring and evaluation protocol	Short term
		Reporting on the achievements in sectoral results frameworks (quarterly, biannual and annual reports)	Short term
		Conducting an impact assessment of planned drought-related actions	Medium term

Reflection on drought	National policies	Recommendations	Time frame
Group 2: Recognizing drought with no priority actions	• National Sustainable Development Strategy • Disaster Risk Reduction Policy • Water Sector Strategy, 2030 • National Strategy for the Development and Sustainable Management of Forests and Journey	Agency tasked to lead on drought coordinating with the custodians of the documents (formulated and/or delegated to operationalize)	Short term
		Facilitating the identification of drought-related priority actions	Medium term
		Reframing the sectoral annual work plan and budget and the monitoring and evaluation protocol by including drought-related actions	Medium term
		Including and reporting on drought-related actions in sectoral results frameworks (quarterly, biannual and annual reports)	Medium term
		Conducting impact assessment of planned drought-related actions	Medium term
Group 3: Not recognizing drought with no priority actions	• National Climate Change Adaptation Policy • Health Sector Climate Change adaptation strategy • National Strategy for the Economic and Social Empowerment of Women and Rural Girls	Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with the custodians of the documents (formulated and/or delegated to operationalize)	Medium term
		Advocating for the recognition of drought	Long term
		Conducting rapid assessment to identify priority actions, and including the priority action in the sectoral annual work plan and budget as transitional implementation method	Long term
		Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process	Long term

Source: Authors' own elaboration.

In Group 1, Tunisia demonstrates a strong recognition of drought as a priority, with policies that directly address water scarcity, agriculture and land management. The inclusion of the Drought Management Guide is particularly significant, as it provides a dedicated framework for coordinating drought preparedness and response, moving beyond general environmental strategies to a targeted operational tool. Alongside the Water Code Bill, the National Strategy for the Adaptation of Tunisian Agriculture and Ecosystems to Climate Change, and the National Action Programme to Combat Desertification, this guide helps ensure that drought is treated as a concrete and immediate risk. It highlights Tunisia's commitment to institutionalizing proactive drought management rather than relying solely on reactive measures. More recently, the Water Sector Strategy 2050 acknowledges increasing aridity and climate impacts and outlines six strategic axes covering governance, water supply and desalination, integrated management and food security, water quality and ecosystems, inclusive territorial development, and improved decision-making processes.

By contrast, Group 2 policies acknowledge drought but integrate it only in broad terms within sustainability, disaster risk reduction, water sector and forestry strategies. While they show awareness of the issue, they lack the operational clarity of Group 1 instruments, meaning that recognition is not matched by action.

In Group 3, policies strengthen resilience in other ways but leave critical social sectors disconnected from drought planning, which undermines the coherence of national responses.

2.1.12.5. Findings from a review of the institutional responsibilities for Tunisia

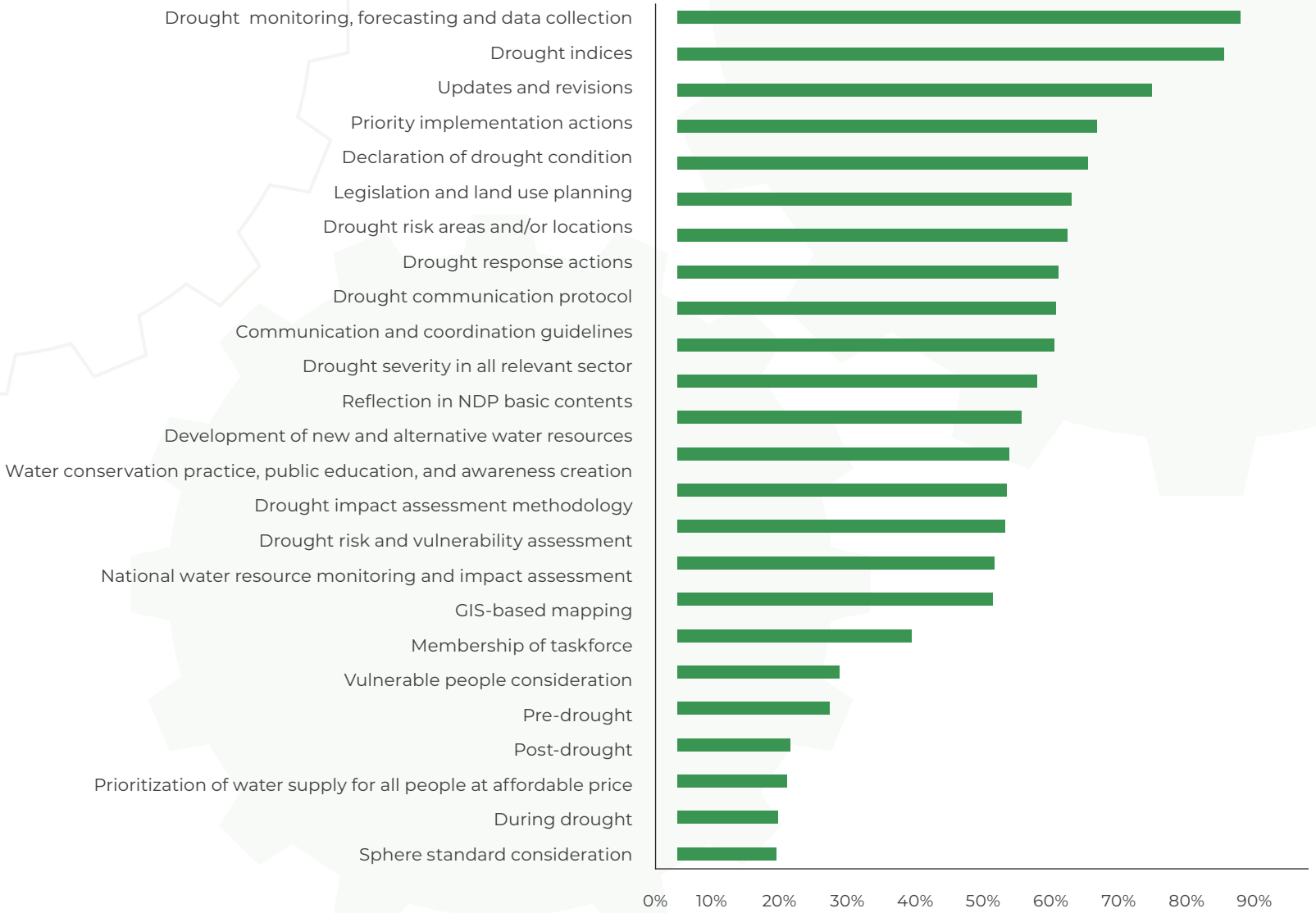
Tunisia lacks an independent agency or unit dedicated to drought management. Other institutional gaps include poor coordination among stakeholders and the absence of reliable, tested drought indicators. Instead, drought is regarded as one of the natural disasters managed by the National Commission for the Fight against Disaster, a technical and operational body under the Minister of the Interior, who is the highest authority. The NDP of Tunisia outlines the proposed institutional mechanisms for drought management, alongside its current coordination frameworks. It also highlights the limitations of existing institutional and coordination structures.

The NDP proposes a drought management mechanism with defined responsibilities to address the limitations of existing institutional and coordination frameworks. Most relevant sectoral agencies are, in theory, included in the water and disaster coordination mechanism. The conceptual structure for government roles in drought monitoring and management exists. However, the roles and responsibilities of each agency become unclear due to the involvement of numerous directorates and their conflicting interests. Many government stakeholders are also not sufficiently engaged in the actual mechanisms of political decision-making.

2.2. Global outlook on the status of policy alignment

Applying the multicriteria assessment to 31 NDPs reveals that while NDPs have made notable progress in developing scientific and technical tools to understand drought, they fall short in addressing the social, humanitarian and equity dimensions of drought management, as shown in Figure 56.

FIGURE 56. AGGREGATE PERFORMANCE OF 31 PLANS IN THE SUBCRITERIA



Source: Authors' own elaboration.

Overall, the strongest performance is seen in the technical and scientific dimensions of drought planning. Indicators such as drought monitoring, forecasting and data collection, and use of drought indices, score the highest, with the first two reaching close to 90 percent. This shows that many NDPs are well equipped to track and measure drought conditions, laying a solid foundation for evidence-based decision-making.

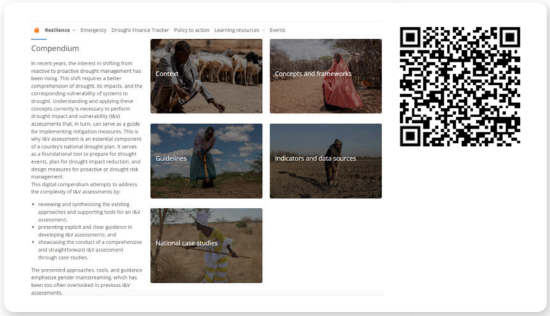
In addition to technical aspects, the chart highlights moderate levels of achievement in several planning and policy-related areas. These include updates and revisions of plans, priority implementation actions, drought declarations, drought risk area identification, legislation and land-use planning, and communication and coordination guidelines. With scores ranging between 50 percent and 70 percent, these results suggest that while most countries have developed frameworks for planning and response, more work is needed to ensure these systems are robust, regularly updated and integrated across different sectors.

On the other hand, the weakest performance is found in areas linked to social considerations and inclusivity. Indicators such as sphere standard consideration, prioritization of affordable water supply, pre-drought, during drought, and post-drought planning, and vulnerable group considerations all score below 30 percent. This shows that the humanitarian and equity dimensions of drought planning are often neglected, leaving gaps in how drought responses protect the most at-risk populations. Similarly, the relatively low performance on membership of taskforces highlights insufficient stakeholder participation in the planning process.

Translating these results in the context of the IDM pillars shows that pillar 2 or the drought risk and impact assessment, is the least well-elaborated in the NDPs. This is partly because the risk components, including hazard, exposure and vulnerability, are context-specific and variable over time. In particular, vulnerability and impact assessments require tailored approaches, calling for specialized expertise.

Box 15. FAO impact and vulnerability assessment compendium

Vulnerability and risk assessment helps to define priorities and develop actions to prevent drought risks and mitigate impacts, as well as to identify vulnerable locations. The Digital Impact and Vulnerability Assessment Compendium, developed by the Food and Agriculture Organization of the United Nations (FAO), aims to simplify the complex process of conducting analyses in line with the concept of IDM pillar 2. The compendium reviews and synthesizes existing approaches and supporting tools; presents explicit and clear guidance for developing the assessments; and showcases successful implementations. It serves as a foundational tool to prepare for drought events, plan for reducing drought impacts, and design measures for proactive drought risk management. The approaches, tools and guidance emphasize gender mainstreaming, which has been too often overlooked in previous assessments.



Source: FAO. Drought impact and vulnerability digital compendium. Available at: https://www.fao.org/in-action/drought-portal/preparedness/vulnerability-and-impact-assessment/compendium-page/en

Regarding the additional criteria, some information consistently remains absent in the NDPs, as indicated in Figure 57. Most plans fail to elaborate on their purpose, scope, goals and objectives. This information is essential for establishing a results framework for the implementation of the NDPs. Without a clear definition of goals and objectives, aligning the NDPs with the objectives of other sectors becomes merely theoretical. Therefore, supplementing the NDPs with a results framework is vital to strengthening their position within sector agendas.

FIGURE 57. NUMBER OF PLANS PROVIDING INFORMATION ABOUT THE ADDITIONAL CRITERIA

Source: Authors' own elaboration.

A positive aspect is that the NDPs follow the definition of organizational structure and responsibilities. Recognizing stakeholder organizations is crucial for policy alignment, as these institutions serve as the operational agents for executing the plans. Nevertheless, some NDPs fail to address the link between water laws and other drought mitigation strategies and planning issues. This suggests that while stakeholders are identified, their active participation in the planning process may not yet be established.

2.2.1. Status of alignment at the global level

The complete analysis of the 12 NDPs highlighted some trends in sector involvement. The aggregate picture shown by Figure 58 demonstrates that certain core sectors, such as water, agriculture, environment, climate change and disaster risk management, are strongly integrated. These sectors are consistently included in both the NDPs and policy instruments, reflecting their central role in managing drought impacts and building resilience. These five sectors are better integrated because they represent the most immediate, measurable and policy-relevant impacts of drought. They also have existing institutional and legal structures that make it easier to mainstream drought management. This is because these sectors are the most directly and visibly affected by drought. Agriculture is the largest consumer of water and absorbs the majority of drought damages, with immediate impacts on crop yields, livestock, food security and rural livelihoods. Because the economic and social costs are so high, agriculture is systematically included in both plans and policies. The environment and climate change sectors are inherently linked to drought resilience. Environmental frameworks often cover land management, reforestation and ecosystem protection, which directly influence drought risk and recovery capacity. The level of alignment is reinforced by the strong commitment of UNCCD Member Countries to Land Degradation Neutrality by setting targets and incorporating them into land use-related regulatory frameworks. Climate change is closely tied to drought, as rising temperatures and shifting rainfall patterns are intensifying drought frequency and severity.

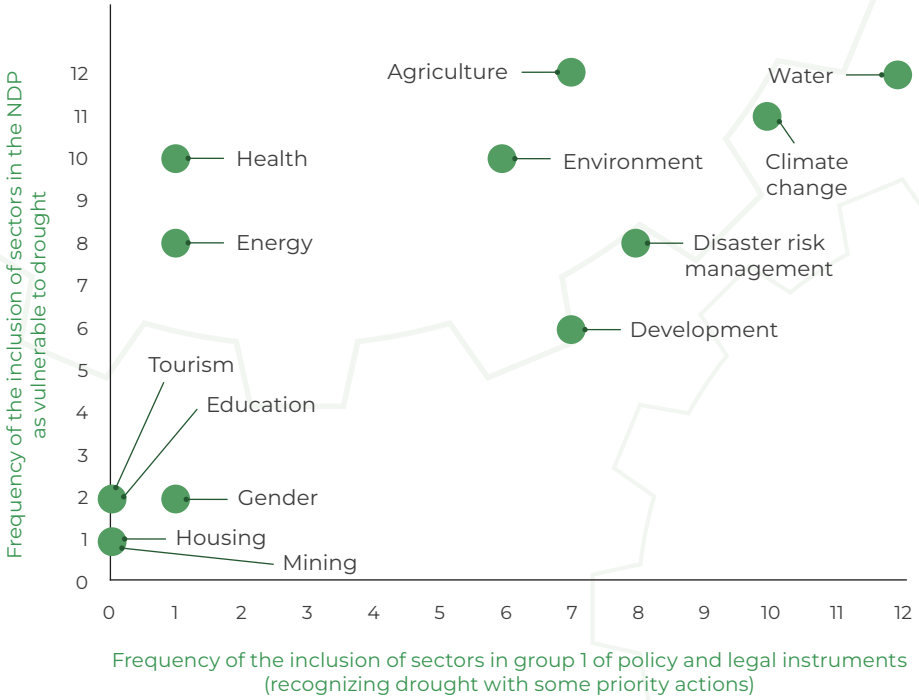
This makes climate change strategies a natural entry point for integrating drought-related actions. Finally, disaster risk management frameworks already provide the institutional mechanisms and required technologies, such as early warning systems, coordination bodies and preparedness strategies, which can be adapted to drought.

The water sector is identified as the most strongly aligned with drought management. This is largely because water is at the core of drought impacts, and water-related policies already provide established mechanisms for resilience. Most water-specific regulatory frameworks include drought-related priority actions, making the sector one of the most advanced in terms of integration. Key measures commonly embedded in water sector frameworks include water conservation, efficiency measures, reserve stocks and water monitoring systems. These appear simultaneously in sectoral policies and NDPs, reinforcing their role in mitigating drought. Strategic actions such as mapping of water reserves and the use of legal instruments like water rationing are recognized as important early responses to drought emergencies. This demonstrates how the water sector provides both technical tools and regulatory mechanisms to reduce risk. Across countries, land and water policies repeatedly converge around coordinated planning, community-based management, and regulatory mechanisms that protect both ecosystems and water reserves, tapping on their mutually reinforcing role in drought resilience.

Analysis also reveals clear gaps in other sectors. Although the impacts of drought on development are globally recognized and addressed, not all countries correlate setbacks with drought events. Health and energy are highlighted as drought-vulnerable in many NDPs but are not equally reflected in sectoral policies. This misalignment suggests that while planners acknowledge their importance, policy commitments have not caught up to ensure practical measures and resources for these sectors.

At the margins, sectors such as tourism, education, gender, housing and mining show very low levels of recognition in both the NDPs and regulatory frameworks. These areas are often affected indirectly by drought or contribute to resilience but remain underrepresented in planning and policy action. The lack of data and analytical frameworks for some of these sectors also makes integration more difficult. Quantifying drought's impact on tourism revenues, educational outcomes or gender-specific vulnerabilities requires more complex and disaggregated data, which is often unavailable in many countries. Without strong evidence, these issues remain underrepresented in both planning and policy frameworks.

FIGURE 58. CROSS-COMPARISON OF THE INCLUSION OF SECTORS IN THE NATIONAL DROUGHT PLANS AND IN GROUP 1 (SECTOR-SPECIFIC POLICY AND LEGAL INSTRUMENTS RECOGNIZING DROUGHT WITH SOME PRIORITY ACTIONS), BASED ON 12 CASE STUDIES



Source: Authors' own elaboration.

2.2.1.1. Drought in the national development context

The assessment highlights that drought is often excluded or underrepresented in national development plans despite being a significant development challenge. When it does appear, drought is usually framed narrowly within the agriculture sector, with little recognition of its wider effects on livelihoods, health, trade and poverty reduction. This limited perspective overlooks the knock-on impacts, such as loss of rural income, reduced access to water and sanitation services, food insecurity, and imbalances in trade. The absence of a broader analysis results in development agendas that do not fully account for the systemic risks that drought poses to economic and social stability.

Including drought in development plans is important because its impacts go far beyond the immediate losses; thus, drought is frequently discussed alongside cascading impacts. Drought undermines food and nutrition security, weakens rural economies, and can destabilize entire regions. It is also a critical barrier to achieving sustainable development goals, particularly in developing countries where vulnerabilities are greatest. By integrating drought considerations into national visions, poverty reduction strategies and other development frameworks, governments can ensure that resilience-building becomes part of broader planning instead of being treated as a stand-alone issue. This approach secures stronger political commitment, justifies the allocation of financial resources, and links national strategies with community-level needs.

The objectives of integrating drought into development plans are multifaceted. First, it helps identify all affected sectors and ensures that their vulnerabilities are acknowledged. Second, it enables the definition of clear priority actions for the pre-drought, during drought, and post-drought phases, thereby improving preparedness and recovery. Third, it clarifies the responsibilities of sectoral agencies, fostering better coordination and avoiding fragmented responses. Finally, it aligns subnational development plans with national drought strategies, ensuring coherence in implementation and accountability.

2.2.1.2. Mitigation measures as evidence of policy alignment

The mitigation measures adopted across different sectors provide a practical lens through which the progress of policy alignment can be assessed. While national drought plans and regulatory frameworks outline strategies and institutional arrangements, it is the concrete responses that demonstrate how effectively these policies are being translated into action. In this sense, mitigation measures serve not only as operational tools for reducing drought risk but also as proxies for the degree of integration and coherence achieved between sectoral policies and national drought agendas. By analysing the measures presented in the 12 case studies, it becomes possible to identify both the strengths of alignment, where policies are clearly reflected in practice, and the gaps, where commitments remain only nominal.

In the water sector, responses are primarily technical and infrastructural. Countries frequently turn to alternative water sources such as desalination, wastewater reuse and rainwater harvesting while also expanding artificial reservoirs or drilling boreholes. Along with supply-side solutions, demand management measures like water conservation campaigns and efficiency improvements are widely promoted. Legal instruments, particularly water rationing, also serve as emergency responses. The nature of these measures shows a balance between immediate interventions, such as rationing, and long-term resilience-building measures, such as water infrastructure.

In an analysis of the concrete mitigation efforts across the 12 case studies, water and environment sectors demonstrate a parallel emphasis on integrated land-water governance, recognizing the mutual dependence of soil health, watershed function, and water security. Actions commonly include integrated water resources management, watershed and catchment rehabilitation, groundwater protection, and the development of alternative water sources. These measures align water-sector policies with land restoration goals, since healthy soils and ecosystems improve water retention, reduce runoff and enhance resilience to water-related disasters.

Additional land use-related sectors like agriculture and environment still need better alignment with drought resilience goals. At the mitigation stage, countries regularly implement measures that improve soil health and restore land, acknowledging that land degradation increases drought vulnerability. Recurring actions include conservation agriculture, crop diversification, climate-resilient seed selection, rangeland management, intercropping and rehabilitation of degraded areas. These actions often co-exist with broader ecosystem-based adaptation interventions such as managing wildfires, restoring wetlands, promoting agroforestry, and enforcing land-use regulations that prevent further degradation. Together, they show that land-related sectors already maintain strong technical entry points for resilience-building, and many national frameworks embed these actions as priority pathways for sustaining ecosystem services.

The agricultural sector emphasizes adaptive farming and risk reduction. Responses include crop diversification, adoption of drought-resistant or short-cycle varieties, improved irrigation systems, and use of agrometeorological forecasting. In many countries, capacity building for farmers and the promotion of climate-smart agriculture are central strategies. These actions reflect a shift from purely reactive responses (e.g. emergency food distribution) towards proactive measures that aim to maintain productivity under variable conditions. Financial innovations such as insurance and credit schemes are also gaining ground, highlighting a trend towards integrating resilience into economic systems as well as farming practices.

For ecosystems and forestry, responses are often restorative and preventive. Reforestation and afforestation programmes, biodiversity monitoring, and ecosystem-based management (e.g. watershed protection, wetland restoration) appear consistently. Countries also emphasize wildfire monitoring and early warning systems. The nature of these responses underscores an understanding that healthy ecosystems act as buffers against drought, and that conservation is not just environmental protection but also risk management for human communities.

In the health sector, responses focus on strengthening resilience through institutional capacity and public health systems. Disease surveillance and early warning systems are frequently mentioned, particularly for waterborne and vector-borne diseases. Governments also invest in health infrastructure, awareness-raising campaigns and sanitation improvements. These measures show an effort to connect climate-related hazards with health preparedness, though they often remain underfunded or fragmented compared to water and agriculture interventions.

The responses listed for the energy sector are generally structural and efficiency-oriented. They include diversification of energy sources, adoption of innovative regulatory models, promotion of energy-saving programmes, and capacity building for sustainable energy management. These measures are not necessarily in line with the sustainability objectives. If hydropower is considered unreliable due to its rainfall dependence, countries might prefer to rely on non-renewable resources. Therefore, strategies within the energy sector must be carefully designed to prevent setbacks to clean energy commitments.

A key conclusion is that responses are becoming more multilayered, combining immediate actions with long-term resilience strategies. The variety of mitigation measures in countries indicates that achieving drought resilience demands substantial investment from all sectors. This is especially true for countries with many mitigation measures in the water and energy sectors, where infrastructure development is a prerequisite. Integrating these measures into multi-objective projects could optimize the investment required. For example, early warning or water monitoring systems serving multiple sectors can respond to the overlapping needs.

2.2.2. Recommendations for integrating drought into the regulatory frameworks

The degree to which sectors recognize and act on drought varies considerably, and this diversity calls for differentiated recommendations. Sectors already acknowledging drought with clear priority actions require measures to strengthen institutional coordination, secure budgets and track results. Where drought is recognized but no concrete actions are defined, the challenge is to bridge the gap between recognition and operationalization by identifying, integrating and monitoring the required actions. In sectors where drought is not recognized at all, the priority lies in building awareness, establishing institutional entry points, and piloting targeted interventions to demonstrate relevance and effectiveness. Grouping the recommendations in this way allows for a stepwise approach that reflects the current level of policy alignment while also providing a pathway for progressive integration of drought resilience across all sectors. The recommendations are universally applicable, regardless of the countries' distinct contexts. They provide a generic framework to move drought higher up on the sectors' frameworks.

Group 1 includes the policies that already acknowledge drought and include concrete actions, so the recommendations focus on consolidating, operationalizing and tracking commitments:

- Agency tasked to lead on drought coordinating with custodians of documents (results on short term): This ensures institutional clarity and avoids fragmentation. By designating a lead agency to work with sectoral custodians, drought actions move from being a written commitment to an operational process with accountability.
- Ensuring that drought-related priority actions are included in the sectoral annual work plan and budget, and the monitoring and evaluation protocol (results on short term): Embedding drought actions in budgets and annual plans secures financial backing and routine oversight, making them part of everyday governance rather than stand-alone projects.
- Reporting on the achievements in sectoral results frameworks (quarterly, biannual, and annual reports; results on short term): This builds transparency and helps track progress consistently. Regular reporting also supports learning, which enables adjustments and evidence-based decision-making.
- Conducting impact assessment of planned drought-related actions (results on medium term): Impact assessments close the policy cycle by showing whether actions are effective. They strengthen accountability and help refine measures for greater efficiency and resilience.

Group 2 policies mention drought but without clear measures. The recommendations aim to move from acknowledgement to action:

- Agency tasked to lead on drought coordinating with custodians of the documents (results on short): This establishes the institutional framework needed to translate recognition into practice, clarifying who drives the process.
- Facilitating the identification of drought-related priority actions (results on medium term): It is a crucial step to move from general recognition to concrete measures. It enables sectors to define specific, actionable interventions relevant to their mandate.
- Reframing the sectoral annual work plan and budget, and the monitoring and evaluation protocol by including drought-related actions (results on medium term): When priority actions are defined, integrating them into budgets and monitoring and evaluation systems ensures they are funded, implemented and tracked, closing the gap between policy and practice.
- Including and reporting on drought-related actions in sectoral results frameworks (results on medium term): Reporting formalizes accountability, creating a paper trail of implementation. It also highlights drought actions within broader sectoral results, helping raise their profile.

- Conducting impact assessment of planned drought-related actions (results on medium term): This ensures that new priority actions are evaluated, helping to refine them and demonstrate their value in contributing to sectoral and national resilience.

Group 3 ignores drought altogether. Recommendations focus on building awareness, establishing entry points and piloting actions:

- Agency tasked to lead on drought identifying and institutionalizing the coordination mechanism with custodians of the documents (results on medium term): The starting point is to create the institutional foundation to include drought. Without coordination, drought risks remain invisible in sectoral planning.
- Advocating for the recognition of drought (results on long term): Advocacy raises awareness within ministries and agencies that may not see drought as relevant. It opens political space for further engagement and action.
- Conducting a rapid assessment to identify priority actions and including the priority action in the sectoral annual work plan and budget as a transitional implementation method (results on long term): A rapid assessment offers evidence of vulnerability and entry points for action. Including even one priority action in annual plans helps build momentum and test feasibility.
- Piloting scenarios of potential priority actions and conducting impact assessment to support the future planning process (results on long term): This provides a low-risk way to experiment with drought-related measures in unfamiliar sectors. Impact assessments generate data to justify scaling up and embedding drought measures more formally in future plans. ■

3 Application areas for leveraging the results

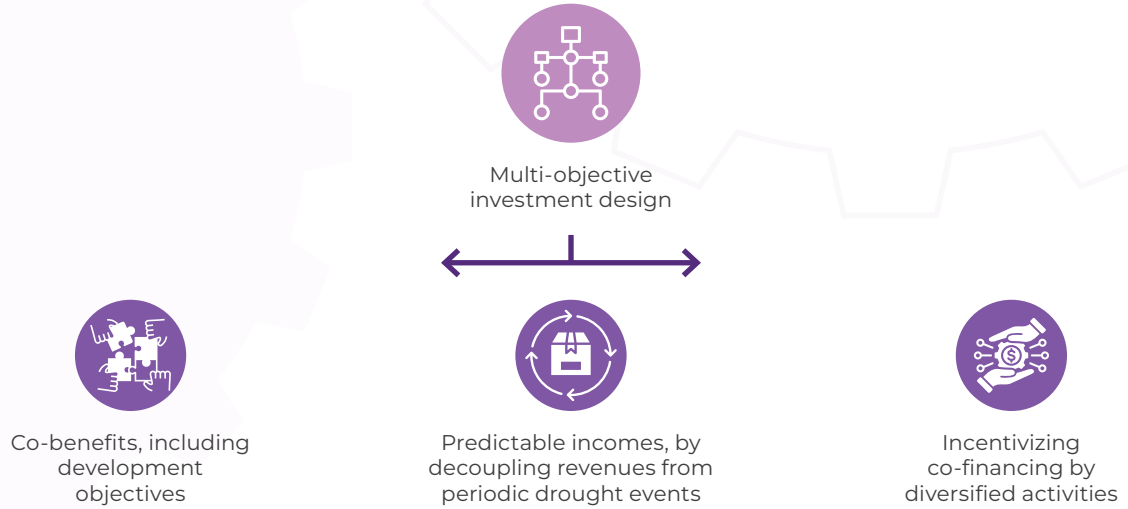
Beyond elevating the importance of drought management in the political agenda, policy alignment helps implement harmonized frameworks in two key ways. First, it guides investment strategies to enhance the benefits of development projects. Second, although policy alignment is primarily a horizontal process, it also triggers vertical alignment by identifying the needs of grassroots stakeholders. Both are essential to achieving the goal of building resilience.

3.1. Implementation of the policy-to-budget principle

Applying the policy-to-budget principle means that once coherent policies and strategies are agreed upon, they must be backed by actual budget allocations to be credible and effective. In practice, this principle ensures that a country's financial resources are aligned with its stated priorities so that aligned policies are not just aspirational but operational. By linking planning to spending, the principle strengthens accountability for results, reduces fragmentation, and improves resource efficiency while also embedding long-term objectives into national financing systems. As highlighted in the UN guidance on sustainable development financing, aligning policies with budgets is essential for delivering durable and coherent outcomes. This is the ultimate step in the process, as allocated budgets are guarantees of effective implementation. The alignment has multiple contributions to the proper implementation of the policy-to-budget principle, as summarized in Figure 59.

From the perspective of investment design, policy alignment is critical because it ensures that financial resources are structured to deliver on multiple objectives simultaneously. By aligning drought objectives with development goals, investments can generate co-benefits that extend beyond resilience outcomes to include social and economic gains. This coherence reduces duplication, leverages shared resources, and strengthens the case for mobilizing finance because one investment contributes to several policy priorities at once. In doing so, policy alignment maximizes the potential benefits of each investment, enhances long-term sustainability, and creates greater value for both development agendas and international commitments.

FIGURE 59. BENEFITS OF THE MULTI-OBJECTIVE DESIGN IN THE IMPLEMENTATION OF THE POLICY-TO-BUDGET PRINCIPLE



Source: Authors' own elaboration.

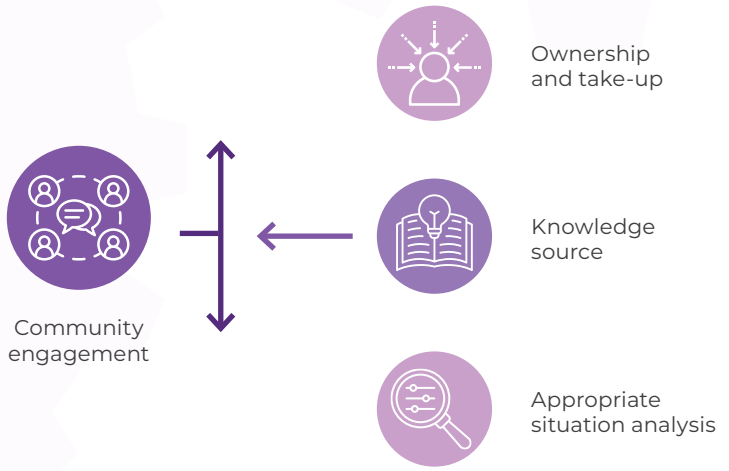
Drought is a recurring and periodical event, which makes it risky to design investments that only yield returns during times of crisis. A multi-objective design is therefore crucial as it ensures that investments remain productive and beneficial even in years without drought. By integrating development objectives such as agricultural productivity, water efficiency and livelihood support alongside drought preparedness, these investments provide continuous value while also building resilience. This approach guarantees that financial resources deliver a steady return, regardless of drought occurrence while still enhancing a country's capacity to respond effectively when drought conditions arise.

Drought financing primarily involves a small group of investors, such as climate funds and development agencies, while private sector interest remains minimal. This is due to the high risks associated with the information scarcity and the unpredictable nature of an individual drought event. Policy alignment can play a pivotal role in unlocking co-financing for investments, as projects that are designed to address multiple objectives are more attractive to a broader range of funders. By demonstrating how one investment contributes simultaneously to national development priorities and international commitments, aligned initiatives can mobilize resources from diverse sources. This alignment also helps to accommodate the fact that different financial institutions have varying risk appetites. While public or multilateral actors may be willing to take on higher risk to deliver global environmental benefits, private investors often seek stable returns. By spreading responsibilities and benefits across partners, co-financed and well-aligned investments can balance these different levels of risk tolerance.

3.2. Stakeholder engagement at all levels

Conducting policy alignment at the national level requires scaling at different stakeholder levels, including grassroots actors. This is because when drought strikes, it is the community, lower-level administration and stakeholders who take immediate actions or responses to mitigate the impacts. Implementing most of the NDP activities also requires the involvement of subnational actors. Therefore, community engagement is critical in the policy alignment process because it ensures that policies and investments are grounded in local contexts, priorities and knowledge. Communities are often the first to experience the impacts of policy decisions, whether related to drought, land use or development, and their participation helps identify practical synergies and trade-offs that may be overlooked at higher levels of planning. Moreover, engaging local stakeholders enhances accountability, facilitates the flow of information, and empowers groups such as women, youth and Indigenous Peoples whose roles are central to sustainable outcomes. In this way, community engagement transforms policy alignment from a top–down exercise into a collaborative process, with multiple iterative benefits as shown in Figure 60.

FIGURE 60. BENEFITS OF STAKEHOLDER ENGAGEMENT



Source: Authors' own elaboration.

Community engagement is essential for conducting a proper situational analysis, as it provides first-hand insights into the social, economic and environmental conditions on the ground, including the impacts of drought. Local knowledge is crucial in conducting vulnerability and impact assessments for drought management plans. Since drought events occur periodically over extended periods, historical information can become outdated or lost as sources of information disappear. Engaging communities in the assessment process can support the development of well-informed intervention strategies. Their participation ensures that the analysis captures the diversity of perspectives and experiences within a community, including those of vulnerable groups who are often most affected by policy decisions. By incorporating this knowledge, situational analyses become more comprehensive and accurate, enabling policymakers to design interventions that are better aligned with local realities and more likely to succeed in practice.

Engaging communities at the early stages of policy alignment helps create a strong sense of ownership. When communities are involved from the outset, they are more likely to view policies not as externally imposed directives but as shared solutions that respond to their own needs and aspirations. This early participation builds trust, strengthens accountability and fosters inclusivity, making communities active partners rather than passive beneficiaries. As a result, the policies and investments developed are more responsive, widely accepted and sustainable, with communities motivated to support, implement and protect the outcomes over the long term.

Community engagement benefits greatly from local knowledge, as it provides context-specific insights that external actors may overlook. Local communities possess a deep understanding of their environment, resource use, seasonal patterns and coping strategies that have been developed over generations. This knowledge can inform policy alignment by identifying practical solutions, highlighting risks, and ensuring that interventions are both culturally appropriate and environmentally effective. By integrating local knowledge into decision-making, policies and investments become more adaptable and resilient.

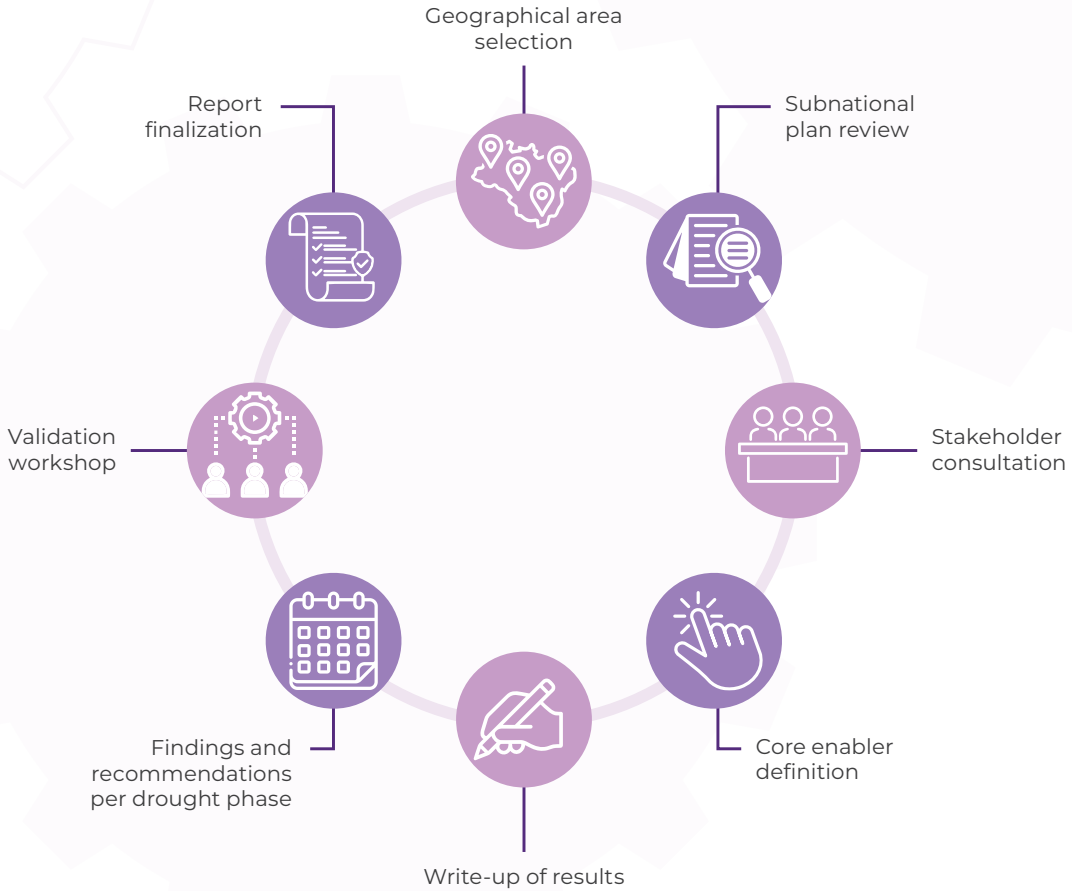
3.2.1. An approach to conduct policy alignment at the subnational level

FAO constructed an approach to bring the policy alignment process to the subnational level by involving communities in the process. The produced guidelines provide the necessary steps to conduct the analysis (Figure 61):

- Select the geographical areas by using drought risk analysis (hazard, exposure, vulnerability) to identify hotspot areas most affected by drought, and define the boundaries clearly (administrative units, watersheds, agricultural zones).
- Gather and review plans by collecting the subnational development plan and all relevant sectoral plans and extracting and classifying drought-related information under the IDM pillars and NDP chapters.
- Consult stakeholders and communities by meeting with government agencies, local authorities and stakeholders to gather their views on community needs before, during and after drought, and holding discussions with communities and leaders in the drought hotspots to capture local priorities and experiences.
- Record recommendations on enablers by asking agencies and stakeholders to propose practical "core enablers" that can bridge community needs with NDP actions (e.g. better coordination, resources or communication systems).
- Organize the information by writing a narrative summary of drought content in the development and sectoral plans, community needs, and recommended enablers, and structuring the narrative around the IDM pillars and the three drought phases (pre-drought, during drought, post-drought).
- Formulate findings and recommendations by identifying gaps and opportunities and developing actionable recommendations, grouped into short-, medium-, and long-term priorities, and assigning them to responsible agencies.

- Validate by sharing draft findings with government agencies, stakeholders and communities in a consultation workshop and collecting feedback to strengthen accuracy, ownership and credibility.
- Finalize the report by incorporating inputs, finalize conclusions and recommendations, and prepare the alignment report with annexes and references for future use. ■

FIGURE 61. STEPS OF THE SUBNATIONAL POLICY ALIGNMENT PROCESS



Source: Authors' own elaboration.

4 Conclusions

Effective drought management depends on embedding its objectives into existing regulatory frameworks and creating the institutional, operational, and financial conditions needed for coordinated multisectoral responses. Unlike broader policy coherence approaches, which primarily aim to balance trade-offs and avoid contradictions between policies, drought policy alignment focuses on raising drought as a priority within sectoral and development agendas. This ensures that resilience-building measures are consistently mainstreamed into national frameworks, making drought visible as a systemic development challenge rather than an isolated technical issue.

Addressing both the planning and implementation phases is essential for advancing policy alignment in drought management. In the planning phase, alignment helps ensure that drought is recognized as a cross-cutting priority and embedded into the design of national drought plans in a way that reflects sectoral needs and development goals. In the implementation phase, alignment becomes a vehicle for translating these plans into concrete actions by integrating drought priorities across sectoral frameworks, strengthening institutions, and mobilizing resources. By engaging both phases, policy alignment evolves from shaping the quality of plans to guiding their uptake and implementation. This dual focus is essential. Without coordination during planning, drought can go unnoticed in development priorities, and without alignment during implementation, even well-crafted plans may be overlooked.

The global outlook on the status of policy alignment indicates that the process is advancing unevenly, with clear strengths but also significant gaps in integrating drought into development agendas. The NDPs are generally well developed in their technical dimensions, particularly in relation to monitoring systems, forecasting capacities and the use of drought indices, which provide a strong scientific basis for action. However, the alignment process also reveals shortcomings. Social and equity considerations are often underdeveloped; institutional coordination mechanisms remain weak; and the role of vulnerable groups is insufficiently addressed. These gaps limit the extent to which drought management is fully integrated into broader development priorities, which means that while technical preparedness is improving, the linkages with poverty reduction, livelihood security and long-term resilience in national agendas are still incomplete. Within national regulatory frameworks, drought is most visible in the agriculture and water sectors, reflecting their direct exposure and established institutional structures while other critical areas, such as health, energy, education, gender, and tourism, are weakly engaged or absent, leaving major dimensions of development policy disconnected from drought objectives. At the same time, countries emphasize land-related actions, partly through the target-setting for Land Degradation Neutrality, as central pillars of drought resilience, acknowledging that sustainable land use is a decisive entry point for drought resilience. This demonstrates that strengthening land-use governance can serve as a unifying mechanism to bridge sectoral gaps. To close these gaps, recommendations highlight differentiated approaches depending on the status of recognition in each sector. Where a drought plan is already operationalized, stronger coordination, dedicated budgets and systematic reporting are needed to sustain commitments. Where it is recognized but not acted upon, targeted actions and a monitoring mechanism should be embedded in sectoral plans. Finally, where drought is absent, awareness-raising, institutional entry points and pilot initiatives can demonstrate relevance and create momentum. These steps provide a roadmap for progressively strengthening the integration of drought into development agendas, ensuring that both national plans and sectoral frameworks reinforce one another in building systemic resilience.

Beyond elevating the importance of drought management on the political agenda, policy alignment supports the implementation of harmonized frameworks in two key ways: it guides investment strategies to maximize the benefits of development projects, and it fosters vertical alignment by bringing in the needs of grassroots stakeholders. At the subnational level, this means translating national drought priorities into local development agendas, ensuring that strategies respond to the needs of communities that are most exposed to drought impacts. In the area of investment design, policy alignment supports the creation of projects that pursue multiple objectives at once, making them more cost-effective and more attractive to co-financing agencies with different risk appetites. Policy alignment needs to be understood as a continuous and adaptive process. As climate change increases the frequency and severity of drought events, regular reviews will be crucial to maximize the benefits of drought-related actions. ■

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Annex

Definitions of the criteria and subcriteria of the multicriteria assessment framework

Background: additional criteria #1

Purposes, scope, goals and objective	Introduction of the ten-step process
The logical framework of national drought plans (NDPs) works towards the pre-defined purposes, scopes, goals and objectives. In terms of purpose, the NDP discusses its dedication or devotion. It reflects on why it is needed to be in place. It sets out a guiding mechanism whereby government and stakeholders, both national and international, can effectively and systematically assess drought risks, vulnerabilities and impacts and develop mitigation actions and programmes as well as drought disaster response options/actions, including resource mobilization. In conclusion, it shows the countries' preparedness to mitigate drought impacts and respond during drought disasters. In terms of scope, the NDP indicates what should be considered and what should be the extent of coverage. The scope indicates what the plan would cover in relation to drought and its adverse impact, detailing the geographical area, vulnerable communities and sectors, involvement of authorized institutions, and relevant stakeholders. The goal is the long-term positive impact that the plan intends to achieve. It is an achievable outcome that is generally broad and longer in term and is expected to be seen after the NDP implementation. The objective of the NDP clarifies the path that is taken to attain the goal. It is shorter in term and defines measurable actions to achieve an overall goal.	The presentation of the ten-step process of the planning mechanism is necessary to understand how the NDP considered the recommended planning steps. The model NDP suggested the reduction of ten steps to right steps, which are considered mandatory during the planning. The acknowledgement of the ten-step process is not sufficient though. The demonstration of how the NDP complies with this process is key to understanding the grounding.

Relationship with other plans and policies: additional criteria #2

National water laws	Mitigation strategies and planning
The alignment of NDP with national priorities – especially with water-related policies, strategies, plans and laws – is paramount. Alignment starts with taking stock of the existing and foreseen national documents, which results in a list and synthesis of objectives. Alignment can be demonstrated through the assessment of the position or significance of drought in the given document. The alignment spans the entire logical framework, from means of action plan to goals and objectives. The alignment depicts how the NDP adopts the existing national documents. It also investigates the common focal points in the institutional arrangements.	The NDPs take account of the existing impact mitigation strategies and planning results. The goal of NDPs is not to craft a plan from scratch but to synthesize the knowledge and means at hand and make use of them. Most of the countries have already constructed different plans, strategies or policies on drought mitigation and planning. Leveraging and integrating the results and recommendations into the NDP is a necessary step to make a comprehensive and integrated plan.

Importance of national drought plan	Access to safe water
Drought and drought risk management are positioned at different levels of the objectives and priorities of different sectors. The overall definition of the importance of the NDP is articulated as high-level objective and sector or system-specific objective.	Access to safe water is a fundamental human right, and sufficient emphasis on this aspect cannot be overlooked. A review of the national progress on access to safe water is necessary to understand the existing situation and need for development. The situational analysis paves the way for the essential results of the planning, which is the action plan on drought mitigation and response.

Overview of drought: additional criteria #3

Historical occurrence	Understanding of drought
Understanding the historical occurrence and trends of drought events provides lessons learned from the success and failures of drought management strategies. A description of the historical occurrence is a benchmark for future management strategies. It provides on overview of the nature of drought events and their impacts. It also shows valuable experience on what management issues should be strengthened in the future to minimize the impacts.	Definitions of drought are elastic. No two areas are alike when it comes to the definition of drought. However, the drought community has multiple and broad definitions, i.e. meteorological, agricultural, hydrological, etc. Clarifications are required to understand how drought is perceived and which definition is applicable in the context of the country. Drought definitions are necessary to provide the correct terminology across the document. Definitions aligned to the country context and historical occurrence make the NDP straightforward and well grounded.

Drought impacts by sector
Drought affects multiple sectors and systems at the same time. The sector-wide assessment of drought impacts is required to understand the severity of the occurrence of drought. The presentation of drought impacts by sector describes the affected area (including ecosystems), communities and economic activities. It gives a better understanding of the interconnectedness of drought impacts. It also showcases how drought impairs the productivity and performance of sectors. This multipronged approach establishes the priorities and the logical order of the action plan (UNCCD *et al*. 2019).

Organization and assignments of responsibilities: additional criteria #4

Organizational overview	Assignment of responsibility
Drought must be managed through a multidisciplinary organizational mechanism. Good organizational setting responds to the "multi" nature of the drought and allows stakeholders to coordinate harmoniously. The concrete definition of actors and the establishment of reporting lines are of key importance to manage drought across organizations with different mandates. The organizations of drought management involve stakeholders at all levels, from the grassroots to the high-level institutions. Organizational overview might involve non-conventional actors, such as academia and non-governmental institutes, to leverage all potential resources.	Drought management involves many actors from different levels. While setting up the organizational hierarchy, the following questions are answered: who, where, when and what. Clearly defined responsibilities are mandatory to coordinate drought management. The definition includes reference to the alignment of responsibilities to streamline the roles and avoid redundancy. In most cases, responsibilities might be transferred to the grassroots level.

Monitoring, forecasting and impact assessment: main criteria #1

Drought indicators and indices (score range: 0–2)	**Drought monitoring, forecasting and data collection (score range: 0–2)**
Indicators are meteorological, hydrological or biophysical variables, such as precipitation, temperature, streamflow, groundwater and water storage levels, and soil moisture, describing the drought conditions. Indices are computed numerical metrics of drought severity, often using the combinations of meteorological, hydrological or biophysical indicators. Indices provide quantitative information about the severity, timing, duration and extent of a drought. Indicators and indices are applied to assess the drought event and eventually to trigger actions. Each country must define the indicators and indices that are most suitable to describe drought conditions in the country's context (World Meteorological Organization and Global Water Partnership, 2016).	Data generation and collection are the prerequisites of early warning systems that aim to track, assess and deliver relevant, real-time or predicted information, concerning climatic, hydrologic and water supply conditions and trends. Early warning systems generally have both a monitoring (including impacts) and a forecasting component. The monitoring can include the integrated process of systematic data collection and process of parameters, i.e. precipitation, temperature, soil moisture, streamflow, snowpack, groundwater, impacts, etc. The forecasting function is incorporated to predict the probability of drought using specified and context-tailored algorithms. Forecasting is paramount in increasing preparedness as it gives lead time to stakeholders for response thus minimizing the drought impact risk (World Meteorological Organization and Global Water Partnership, 2016; United Nations Secretariat of the International Strategy for Disaster Reduction, 2007).

Drought severity in all relevant sectors (score range: 0–2)	**Drought impact assessment methodology (score range: 0–4)**
Severity is the index to characterize the drought event, based on duration, intensity, geographical extent, magnitude, affected communities, and other relevant parameters. Severity, called also 'magnitude', describes the accumulated deficit over the entire duration of the drought and its entailed impacts (Vogt *et al.* 2018). Severity considers both direct and indirect impacts on different sectors. Severity must be defined in clearly defined categories (i.e. the range from low to high) to measure the relative predicted damage. This can inform decision-makers on the magnitude of required intervention.	Impact assessment methodologies are required to assess how drought events affect dimensions, sectors, areas etc. (UNCCD et al. 2019). Drought is usually associated with several and distinct impacts that result from a reduction of water availability during a drought period or episode. Drought can directly affect a wide range of water-dependent users in different sectors. It also has a spill over or indirect effect on other sectors, i.e. those who rely on hydropower. Therefore, the disaggregated, sector-wide assessment is required to obtain a comprehensive and complete impact assessment. Drought impacts can be also predicted if sufficient information is available prior to the occurrence, such as water availability, productivity of ecosystem, livelihoods, incomes, etc. Impact assessments must emphasize the rigor and appropriateness of the methodology to respond to context-specific drought events. As the definition of drought is dynamic and the types of impacts vary widely, the approach and methodology framework must be clearly defined and correlated to the features of the application area.

Drought risk and vulnerability: main criteria #2

Drought risk and vulnerability assessment (score range: 0–5)	Geographical informations system-based (GIS-based) mapping (score range: 0–2.5)
Drought risk is the likelihood of incurred damages and losses, often measured as the combined effect of hazard and vulnerability. Hazard is the likelihood of drought occurrence, calculated or predicted through the application of indices and indicators. The vulnerability is the degree to which a system is susceptible to or unable to cope and adapt (Carter *et al.* 2007; UNCCD *et al.* 2019). From the impacts of drought, vulnerability assessment derives the pre-existing factors, such as social, economic, political, physical and environmental factors that are superimposed onto, and exacerbate or mitigate such impacts.	GIS-based analysis is a computerized method that analyses geographical data such as vegetation, climatic parameters, land use, etc. It enables the understanding of drought vulnerable areas, observed impacts, and even risks by analysing the patterns and setting up causal relationships. GIS-based approaches are preferred to make a comparative analysis across subnational, national, or regional levels, highlighting the geographical location of drought risk and vulnerability.

Drought risk areas and/or locations (score range: 0–2.5)
The geographical location defined by boundaries, where drought risk is suspected or observed, is the first step to map drought. The exact locations of drought events under different risk categories are the foundations of the NDP.

Gender consideration: main criteria #3

Membership of drought taskforce (score range: 0–3)	Reflection in the basic contents (score range: 0–7)
The defined balance in membership of drought taskforce between women and men must be clearly stated to understand whether women take roles, challenges and decisions as members. It also reflects on how women membership empowers the actions geared towards the rights, access to and use of resources, learning, participation, decision-making and resilience.	The degree of gender mainstreaming into the relevant narratives of the NDP can be assessed only if all parts of the NDP is gender-responsive. Each assessment, finding, intervention must be supported with gender-disaggregated information to make sure that women are duly represented. To make the NDP systematic and consistent from a gender perspective, a gender mainstreaming approach must be clearly described, and the approach must be reflected over the document.

Vulnerable people and sphere standard: main criteria #4

Vulnerable people consideration (score range: 0–5.5)	Sphere standard consideration (score range: 0–4.5)
In order to maximize the coping strategies of those affected by disasters, mapping and acknowledging the distinct vulnerabilities, needs and capacities of specific groups are essential (Billing and Madengruber, 2005; Wolkin, 2019). While there are well-defined and universally accepted definitions of vulnerable groups, such as women, children, older people, disabled people, people living with HIV/AIDS, unaccompanied minors and ethnic minorities, the term "vulnerable" can be relative in the context of the area and nature of the risk. It must be defined whether there is a policy that requires the execution of risk assessments and risk-reduction exercises for vulnerable people in NDP's areas.	The minimum standards are defined by the Humanitarian Charter and Minimum Standards in Disaster Response (Sphere Association, 2018). The commitments should be described based on how they guarantee essential processes and organizational responsibilities to enable quality and accountability in achieving the minimum standards in case of a drought event. All key response actions must be explained, and if available, the protocol of sphere indicators must be annexed.

Drought communication and response action: main criteria #5

Drought communication protocol (score range: 0–2.5)	Declaration of drought condition (score range: 0–2.5)
The drought communication protocol provides information on drought-related disaster communication practices and procedures. This protocol is intended to provide guidelines for best practices. The purpose is to assist communication-related activities, including communication within the community and with the media and public. It is developed to provide guidance to officials in delivering an effective, efficient, timely, comprehensive, and factual or reliable message before, during and after emergencies, thus mitigating potential damages and health risks. All stakeholders should be aware of the communication mechanism to facilitate the emergency procedures.	Disaster declaration is a formal statement by the nominated, responsible organization when the drought and its adverse impact as disaster is foreseen. Official declaration is called to alert all stakeholders, and to call upon and propose the right interventions. Declaration must be triggered by certain conditions that indicate the high probability of the event. The responsible organization, triggers, communication channels, and outreach strategy are necessary information to support early action.

Communication and coordination guideline (score range: 0–2.5)	Drought response actions (score range: 0–2.5)
The scope of the guideline reaches beyond the communication protocol, as it defines the strategy of harmonized communication and coordination to enact implementation. It defines the allocated responsibilities among stakeholder to convey information and organize multi level coordination. This allows the provision of reliable and consistent information through a two-way communication in a timely and targeted manner.	The drought response actions are the backbone of the NDP, in which the preceding sections culminate. The framework of response actions to drought guides the interventions at each stage of the drought event. A response action framework is not equal to resilience because it encapsulates the efforts, such as the provision of assistance or intervention to meet the essential needs of the vulnerable, affected communities and sectors (UNCCD, 2019). This involves both structural and non-structural measures, which can be used by decision-makers, sectors and communities to reduce the impacts of drought. Priority must be given to policies and actions that diversify and modernize agriculture and broader economies; provide safeguards for land and water resources; improve understanding of drought risk; and build adaptive capacities. Many specific options are available for different economic sectors to rebalance supply and demand of water resources (based on different trigger levels), and to better manage the land and biodiversity to enhance resilience to drought.

Drought mitigation and response action: main criteria #6

National water resource monitoring and impact assessment (score range: 0–1.5)	Development of new and alternative water sources (score range: 0–3)
An account of national water resources, including the strategic reserves, requires historical data and continuous monitoring. Most often, national water resource monitoring reflects on the water balance, contrasting the demand and supply. Scenarios are generated to measure the impact of drought on the account of water resources under different trajectories. The impact assessment of drought on water resources shows the resilience and preparedness to mitigate the risk.	Development includes the new construction, rehabilitation and upgrade of water infrastructure to improve access to conventional and alternative resources as strategic reserve. Development of water resources refers to the unexploited and available quantities.

Water conservation practice, public education and awareness creation (score range: 0–3)	Prioritization of water supply for all people at affordable price (score range: 0–1.5)
The provision of access to updated practices, knowledge and awareness is necessary to enhance water management and improve resilience, in light of the recent and future water balances. With more efficient water management, the probability of water scarcity and magnitude of drought impacts can be mitigated.	The prioritization of water sources for multiple purposes to meet essential needs must be strategized without implying unreasonable cost. Increased cost of water would easily lead to a widening systematic inequality among stakeholders and communities. This would entail the risk of crowding out poor and vulnerable communities. Essential water demand must be satisfied equally for all, and prioritization of water supply must prove the approach to this.

Legislation and land-use planning (score range: 0–1)
Policies and institutional mechanisms must be in place to enforce, account and protect land rights. Land planning provides different options, which includes the consideration of long-term economic, social and environmental objectives, thus potentially advising on risk-averse uses.

Recommendation and implementation actions: main criteria #7

Priority implementation actions (score range: 0–7)	Updates and revisions (score range: 0–3)
Priority implementation actions refer to measures that are recommended to implement the NDPs in relation to the three pillars of drought management. The proposed priorities depend on the gaps and constraints identified for an implementation of the NDPs. They may be indicated for the short, medium and long term, covering priorities in terms of political, institutional and legal levels; organizational and operational levels; drought management action; financing; and technologies.	The iterative nature of planning requires the update, revision, and adjustment of plans according to the changes. Regular update and revision are vital to respond to rapidly changing conditions from both sides of cause and effect. It responds to the dynamics of drought and maintains preparedness, while providing recommendations for future betterment.

Required actions at various phases of drought: main criteria #8

Pre-drought actions (score range: 0–4)	During-drought actions (score range: 0–3)
A suite of actions is required before the onset of drought, which can be triggered by forecasting. The lead time to improve preparedness should entail several actions related to the mitigation of impacts. The actions should enhance the preparedness level under different, projected scenarios of disaster outcomes.	A suite of actions during the drought event should address emerging needs and provide real-time response related to water and humanitarian issues.

Post-drought actions (score range: 0–3)
A suite of post-drought actions should support recovery and rehabilitation to strengthen communities and restore losses. The action framework targets “at least as well as” or “better off” levels of conditions, compared to the pre-crisis period. A post-drought action plan also includes evaluation of the pre-drought and during drought actions to generate lessons learned for future actions.

As drought impacts cut across sectors, fragmented policies can undermine even the most robust planning efforts. Aligning national drought plans with existing policy and regulatory frameworks creates a coherent direction of action — strengthening coordination, improving governance, and ensuring that drought resilience is anchored within national development priorities.

This publication provides a structured methodology and country experiences that support governments in identifying gaps, enhancing coherence, and embedding drought considerations into policies shaping water, agriculture, climate, ecosystems, disaster risk management and other relevant sectors. By advancing policy alignment, countries can elevate drought resilience on the national agenda and translate commitments into effective, multisectoral action.

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