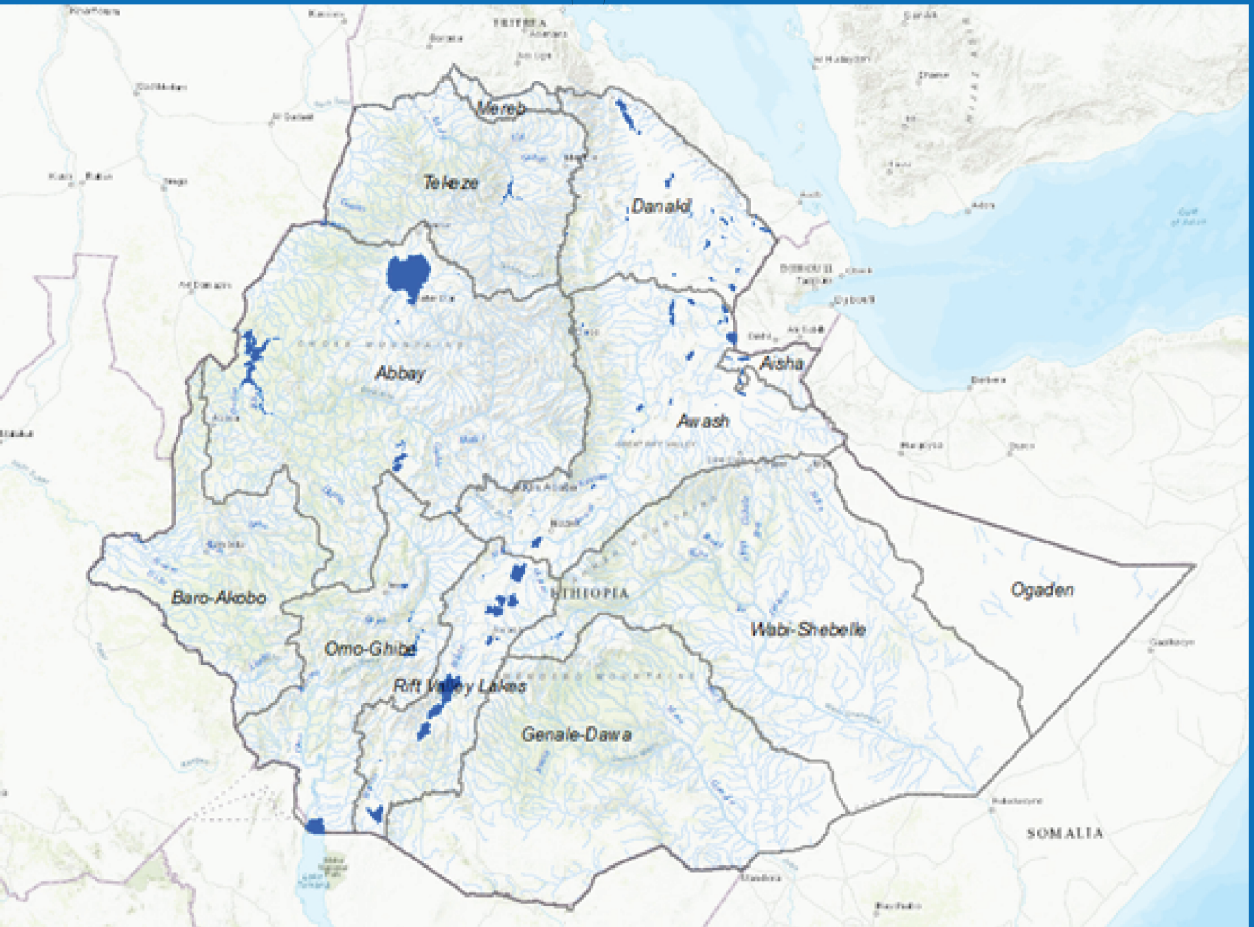


Federal Democratic Republic of Ethiopia Ministry of Water and Energy Water Resources Management Sector

(DRAFT)



Guidelines for Basin Plan Revision

National Integrated Water Resource Management Projects
Coordination Unit

Guidelines for Basin Plan Revision

Prepared by

The National Integrated Water Resource Management Projects Coordination Unit (NIWRMPCU) of the Ministry of Water and Energy (MoWE) with the technical support of Water and Land Resource Centre (WLRC) as part of the Basin Management Support for Resilient, Inclusive Growth and Harmonized Transformation for the National IWRM Program of Ethiopia (BRIGHT) Project. Project Activities and Deliverables

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Addis Ababa, Ethiopia

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Foreword

Ethiopia's water sector policies and strategies are fundamentally rooted in Integrated Water Resource Management (IWRM) principles, emphasizing equitable and sustainable water resource management for maximum economic and social benefit. However, we face significant challenges in effectively implementing IWRM at the basin level. These shortcomings have manifested in critical issues such as water scarcity, pollution, watershed degradation, drought, and floods, highlighting the urgent need for corrective action.

To address these challenges, we must ensure all water resource development, protection, and management activities are fully aligned and integrated with basin plans. Recognizing the hydrological basin as the fundamental planning unit, as stated in our water policy, is crucial for effective management. This approach allows us to balance competing demands, such as flood risk management, environmental preservation, and human needs, while sustainably allocating water resources. A comprehensive basin plan is essential for managing these complexities and safeguarding the health of our rivers.

While the Ministry of Water and Energy (MoWE) made efforts to prepare seven basin plans, inconsistencies in approaches, methods, and time horizons have compromised their effective implementation. Hence, a standardized and framed revision process is very crucial. To achieve this, MoWE and WLRC have developed a comprehensive guideline for basin plan revision, drawing from international best practices.

This guideline addresses the challenges we have encountered in past implementations and incorporates procedures for future improvements. The Guideline is crucial for ensuring an actionable and stepwise basin plan revision process. This document provides a clear roadmap for revising existing plans and ensuring their effective implementation across all basins. It will serve as a foundational standardized document for all future basin plan revision processes.

Finally, I urge all stakeholders to use this guideline to realize a shared vision through a "One basin, one plan" approach for sustainable water resource management to ensure economic efficiency, social equity, and environmental sustainability.

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Acknowledgements

The Ministry of Water and Energy (MoWE) has developed this Basin Plan Revision Guideline to standardize the revision process and strengthen the implementation of Integrated Water Resources Management (IWRM) across all basins.

We extend our sincere gratitude to the Water and Land Resource Center (WLRC) for the technical support and the EKN and EU for their financial support to the Ethiopian water sector. We look forward to their continued engagement. This guideline is a testament to our strong collaborative partnerships within the water sector.

Finally, the Basin Plan Revision Guideline Preparation Team members and all individuals who contributed to this endeavor deserve due appreciation for their hard work, and commitment to producing this essential resource.

MoWE

Water Resources Management Sector

Acronyms

BAO	Basin Administration Office
BHC	Basin High Council
GIS	Geographic Information System
IWRM	Integrated Water Resources Management
KPI	Key Performance Indicators
LULC	Land Use and Land Cover
MELA	Monitoring, Evaluation, Learning, and Adaptation
MoWE	Ministry of Water and Energy
MSP	Multi-Stakeholder Partnership
NGO	Non- Non-Governmental Organizations
NIWRMP	National Integrated Water Resource Management Programme
SDGs	Sustainable Development Goals
SMART	Specific, Measurable, Attainable, Relevant, and Time-bound
ToR	Terms of Reference
WLRC	Water and Land Resource Centre

Definitions of Terms

Basin Plan: means a Strategic water resource management plan that aims to ensure equitable and sustainable use of water within a specific river/lake basin.

Basin Plan Revision: refers to the process of reviewing and updating the water plan for a river/lake basin to adapt to the changing environmental conditions, community needs, or completion of the plan period.

Complete Basin Plan Revision: refers to a comprehensive review and potential significant change to a river /lake basin plan, addressing large-scale issues like climate change impacts, new water usage patterns, or major environmental concerns that have been conducted upon completion of planning years.

Basin Plan Update: refers to smaller adjustments to the basin plan, typically focusing on specific areas or localized problems without drastically altering the overall framework, and is conducted every five years.

Stakeholders: means any individual, group, or organization that is directly affected by or can significantly influence water management decisions within a river/lake basin.

Technical Audit: Conducting a comprehensive assessment/evaluation of the basin plan document, examining its implementation status, mechanisms for stakeholder engagement, and the effectiveness of monitoring and evaluation processes.

Data: refers to the collected information on various aspects of water resources, including water quantity, quality, usage patterns, environmental impacts, social and economic factors, and stakeholder interests, used to inform decision-making and monitor progress towards achieving integrated water management across different sectors within a basin. The data used for both the technical audit and the basin plan revision.

Performance Indicators: are measurable metrics used to track progress and assess the effectiveness of a water/lakes basin management plan, often including factors like water quality improvement, environmental health, compliance with water allocation rules, community engagement levels, and the percentage of planned activities completed within a set timeframe.

Monitoring and Evaluation: is a systematic process of collecting and analyzing data on specific indicator/s to track the progress of water management activities, assess their effectiveness in achieving desired outcomes, identify potential issues, and make informed adjustments to improve the overall IWRM strategy over time.

Executive Summary

Ethiopia has made significant steps in promoting Integrated Water Resources Management (IWRM) through the development of basin plans. However, a critical challenge has emerged in terms of the inconsistent methodologies and processes followed in the basin plan preparation process from basin to basin. This lack of uniformity has resulted in implementation difficulties and, in some cases, the obsolescence of the basin plans before their full implementation according to the endorsed basin plan. Recognizing this issue, the Ministry of Water and Energy (MoWE) has proactively undertaken the development of a standardized Basin Plan Revision Guideline. A dedicated working group, comprising experts in the field, has been established to formulate comprehensive guidelines for the technical auditing and revision of these crucial plans.

The primary objective of the Basin Plan Revision Guideline is to establish a standard and consistent framework for updating existing basin plans, facilitating both updating and complete revisions based on predetermined implementation periods or unforeseen forced factors for the update or complete revision. This standardization is essential for ensuring that all basins follow a common set of best practices, promoting effective IWRM across all basins. Furthermore, this guideline will enhance the adaptability of basin plans in addressing the complex challenges posed by dynamic factors such as population growth, climate change, and evolving socioeconomic conditions. By ensuring sustainable water and land resource management, the guideline aims to strengthen Ethiopia's resilience to these pressures.

The Basin Plan Revision Guideline serves as a strategic compass for the MoWE, providing clear direction on how to conduct basin plan revisions to effectively implement IWRM. It clarifies the critical link between technical audits and revision processes, offering a logical and integrated approach to ensure that revisions are grounded on sound analysis and data. This integrated approach will make more efficient the revision process more efficient and enhance the overall quality of basin plans.

The scope covers the structured update and revision of basin plans, including technical auditing to ensure effective IWRM implementation and address evolving water and land resource challenges.

The Basin Plan Revision Guideline is structured around three key phases: initiation, technical auditing, and revision. The initiation phase focuses on raising awareness, mobilizing resources, building capacity, and securing commitments. The technical auditing phase is a systematic five-step process: establishing the audit team, developing the audit framework, conducting technical auditing, producing the audit report, securing approval, and making a decision on the types of revision required, whether an update or complete revision. The guideline provides clear steps, approaches, and communication strategies for both plan updates and revisions.

The final updated or revised basin plan will undergo rigorous stakeholder and public review. Upon validation, the plan will be submitted to the Basin High Council for approval. Once approved, all water-related development, conservation, and management activities will be conducted in accordance with the revised basin plan. To ensure transparency and facilitate effective implementation, the finalized basin plan will be published and disseminated to all relevant stakeholders.

1. Introduction

1.1. Background of the Basin Plan Revision

A Basin Plan is strategic water resource planning with a long-term vision to implement integrated water resource management within a specific river/ lakes basin. It provides a comprehensive framework for addressing water and land resource related challenges such as water scarcity, pollution, catchment degradation, floods, and droughts. By adopting a holistic approach, the Basin Plan will ensure sustainable water resource availability for current and future demand to various users, safeguard the ecosystem, and promote socio-economic development.

A well-structured Basin Plan serves as a roadmap for decision-making, guiding the development and management of water and land resources to ensure integrated water resource management. Furthermore, it enables stakeholders to collaborate effectively, coordinate all efforts, and prioritize hotspot areas for intervention. By identifying potential risks and vulnerabilities, it allows taking proactive measures to mitigate the impacts of climate change and other external factors. Moreover, it promotes stakeholder participation, transparency, and creates ownership of responsible actors to actively contribute to integrated water resource management.

Given the increasing pressure on water and land resources, the basin plan should be completely or partially revised after a specific implementation period to accommodate dynamic factors in the basin to ensure the relevance and continuity of the basin plan. The basin plan may become outdated due to population growth, socio-economic development, climate change, priority changes, government policy, shifting of land use patterns, and other unforeseen emerging issues. Based on the time frame and the extent of changes of the selected strategic issues in the basin, either minor or major revisions are required to ensure the basin plan's relevancy.

Hence, this basin plan revision guideline is prepared to guide the major and minor basin plan revision process.

1.2. Purpose and Scope of the Basin Plan Revision

1.2.1. Purpose of the basin plan updating and revision guideline

The purpose of basin plan updating and revision, as defined in this guideline, is to ensure the effective and consistent implementation of Integrated Water Resources Management (IWRM) across all river and lake basins. By standardizing the revision process, the guideline aims to rectify inconsistencies in past basin planning approaches. Furthermore, the guideline facilitates both updating and complete revisions to existing plans to adapt to changing conditions and address pressing water and land-related challenges such as water scarcity, watershed degradation, pollution, and other emerging issues. Crucially, it provides comprehensive guidance on assessing the effectiveness of current plan implementation, incorporating new scientific data and information, fostering meaningful stakeholder engagement, and prioritizing interventions in critical hotspot areas in the updated or revised basin plan. This structured approach ensures that basin plans remain relevant, responsive, and effective in achieving sustainable water resource management.

1.2.2. Scope of the basin plan revision

The scope covers the structured update and revision of basin plans, including technical auditing to ensure effective IWRM implementation and address evolving water and land resource challenges.

1.3. Objectives of the Revision

1.3.1. General objective

The overarching objective of this guideline is to establish a transparent and effective stepwise framework for basin plan revision, ensuring its continued relevance and effectiveness, promoting economic efficiency, environmental sustainability, **and** social equity in the basin's water and land resources management.

1.3.2. Specific objectives

The specific objectives of the Basin Plan Updating and Revision Guidelines are:

- To provide a structured and adaptable process for major and minor basin plan revisions

- To ensure the basin plan remains responsive to dynamic factors and emerging issues
- To enhance stakeholder participation and collaboration in the revision process
- To strengthen the basin plan's ability to address key water resource challenges
- To improve the basin plan's role as a roadmap for decision-making

2. Basin Plan Revision Process

Strategically, the basin plan revision process will begin with the Initiation phase, establishing awareness and shared understanding among stakeholders before the Auditing and Revision process starts (Figure 2.1). Then, the technical team evaluates the existing basin plan's implementation status through rigorous technical auditing and an audit report, using the identified performance indicators. Finally, the type of basin plan revision will depend on the summary of the audit report, determining whether a major (complete) or minor revision is required to improve the relevance of the basin plan.

Box 1

For instance, the Murray-Darling Basin Plan's planning cycle demonstrates a structured approach: Initiation laid a robust foundation through defining scope, governance and extensive stakeholder engagement; Technical Auditing (Evaluation) ensures ongoing assessment of the plan's effectiveness via data collection and reporting on water flows, environmental conditions, and socio-economic impacts; finally, Revision utilizes evaluation findings to adapt the plan, addressing emerging challenges like climate change and incorporating new scientific knowledge. This is logical framework and approach used to prepare the Murray-Darling Basin Plan by Murray-Darling Basin Authority. This basin plan revision guideline is based on this model for the basin plan revision process.

This approach will enable the development of a guideline that ensures the engagement of stakeholders from the start, establishing a shared understanding



Figure 2.1. Major phases for Basin plan revision process

2.1. Initiation

The journey toward basin plan technical audit and revision process begins with the crucial initiation phase. This stage sets the foundation for both the technical audit of the basin plan and its revision process. The main purpose of the initiation phase is to create a shared vision on the need for basin plan revision and agree on the key factors that determine the effectiveness of both technical audits of the existing plan and the revision process. The tasks of initiation phase ensure that the process remains focused, well-resourced, and aligned with the needs and values of the stakeholders involved. The following are the key action points in the initiation phase of basin plan revision:

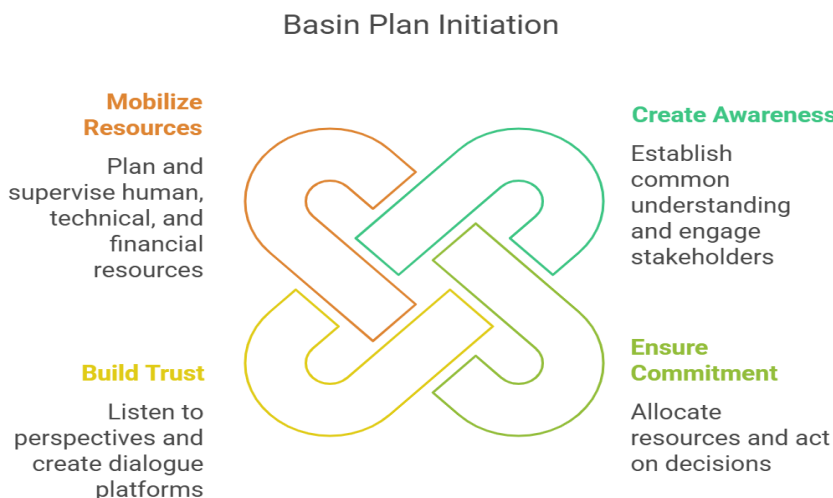


Figure 2.2. Basin Plan Revision Initiation Action Areas

a. Creating Awareness

Awareness creation is a critical first step in the technical audit and revision process of the basin plan. Before initiating this process, it is essential to build a shared understanding among all stakeholders regarding the context, significance, and objectives of the initiative. By implementing a well-structured awareness creation process, stakeholders will be more informed, engaged, and motivated to participate in the revision of the basin plan. This foundational step ensures that the process is not only technically sound but also widely supported and aligned with the broader needs of the community and environment. The task of creating awareness includes, but is not limited to, the following results.

- **Establishing Common Understanding:** The success of the basin plan revision depends on stakeholders' awareness of the challenges faced by the current plan, as well as emerging threats and evolving user needs. This step ensures that all involved parties recognize the necessity of the revision process and actively contribute to meaningful discussions and decision-making.
- **Identifying Key Challenges and Emerging Issues:** A comprehensive awareness campaign should emphasize the key challenges and emerging issues affecting the existing basin plan. These include resource management inefficiencies that compromise sustainability, environmental changes that impact water availability and quality, and shifting socio-economic demands driven by population growth and industrial expansion. Additionally, evolving policy and regulatory frameworks may necessitate alignment with national and international water governance standards. Highlighting these factors ensures stakeholders understand the urgency of revising the basin plan to address current and future challenges effectively.
- **Engaging Stakeholders:** Effective stakeholder engagement is essential for a well-informed and participatory basin plan revision process. This involves involving government institutions to ensure policy alignment and resource allocation, research institutions to provide scientific insights, and water users such as industries, farmers, and households who are directly affected by basin management decisions. Local communities, whose livelihoods depend on the basin, must also be actively involved. To foster awareness and participation, various methods can be utilized, including workshops, public consultations, media campaigns, educational materials, and stakeholder

meetings. These efforts ensure diverse perspectives are considered, leading to a more inclusive and effective revision process.

b. Ensure Commitment

Before initiating the basin plan technical audit and revision process, it is essential to assess and secure the commitment of decision-makers and political leaders, as their support serves as the foundation for a successful revision. The willingness to back the process is crucial for allocating the necessary financial, technical, and human resources required for a comprehensive audit and effective plan revision. Political leaders and key decision-makers play a vital role in driving the process forward, ensuring that the revision remains a priority amid competing policy demands.

Ensuring commitment at the initiation process requires actively engaging stakeholders from various sectors: government agencies, research institutions, water users, and local communities to build consensus and encourage shared ownership of the process. Meaningful stakeholder participation not only strengthens commitment but also enhances transparency, accountability, and long-term sustainability of the revised basin plan.

c. Build Trust:

Establishing trust is a fundamental step in ensuring the success of the basin plan revision process. Before the technical audit and revision begin, it is crucial to foster a sense of ownership among all key stakeholders through open, transparent, and constructive dialogue in the initiation phase. Trust is built when stakeholders feel heard, valued, and respected, which requires creating platforms for meaningful discussions where their perspectives, concerns, and expectations are acknowledged.

This can be achieved through organizing a wider group stakeholders dialogue before the commencement of the revision. A key aspect of this process is actively listening to stakeholders, understanding their priorities, and addressing any apprehensions they may have about the revision's impact on their interests. It includes engaging with government agencies, research institutions, water users, and local communities to ensure that their voices are considered in decision-making. By fostering inclusivity and mutual respect, stakeholders will be more likely to support and contribute positively to the process, ultimately leading to a more effective and widely accepted basin plan revision.

d. Mobilize Resources

For a successful basin plan technical revision, it is essential to allocate sufficient financial, human, and technical resources across all phases of the process. Adequate funding must be approved to cover both the initial technical audit and the subsequent plan revision, ensuring continuity and effectiveness. Without proper resource allocation, the process may face delays, data gaps, or compromised quality, ultimately affecting the basin's sustainable management.

Equally important is mobilizing a skilled and multidisciplinary team with expertise in key areas such as water resource management, environmental science, watershed management, engineering, social sciences, economics, and stakeholder engagement. A diverse team ensures a holistic approach, addressing the complex interconnections between ecological, technical, economic, and social aspects of basin planning.

Beyond human resources, appropriate technical tools and resources play a crucial role. Advanced data analysis techniques, hydrological and environmental modeling tools, and decision-support systems are necessary to assess current conditions, forecast future challenges, and develop a well-informed, adaptable basin plan. These combined resource commitments: the financial, human, and technical, form the backbone of a robust and effective basin plan technical revision, ultimately leading to better water governance and sustainability.

2.2. Basin Plan Technical Auditing

To ensure a structured, transparent, and evidence-based basin plan revision process that leads to integrated water resource management, a comprehensive technical audit is essential. This process, as indicated below (Figure 2.3), begins with the formation of a dedicated, multidisciplinary Basin Plan Revision Technical Team. The team then establishes clear, measurable auditing conditions to serve as benchmarks for evaluating the existing basin plan's implementation status. A rigorous technical audit follows, encompassing data analysis, stakeholder consultations, and field assessments, to identify strengths, weaknesses, and gaps in the plan's implementation, including its stakeholder engagement mechanisms and monitoring and evaluation systems. The audit is conducted in four phases: initiation, technical audit execution, audit report development, and report approval. The resulting comprehensive Basin Plan Audit Report synthesizes these findings, providing the foundation for developing an updated basin plan that addresses identified issues and optimizes water resource management.

How each step is implemented and the processes to be followed are described in detail in the following sections. The technical audit workflow for the existing basin plan is detailed below (Fig. 2.3).

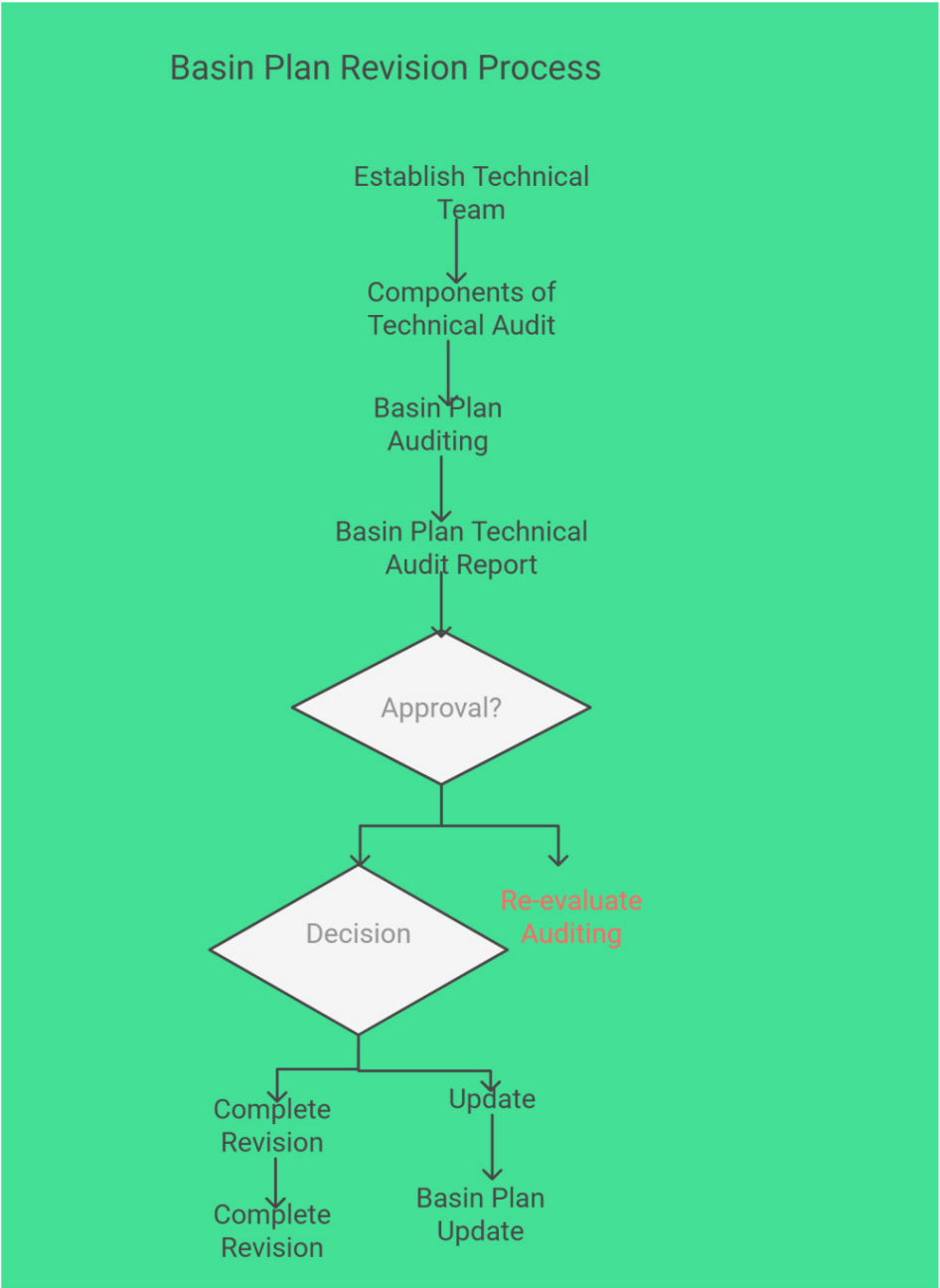


Figure 2.3. Process map for all steps

2.2.1. Establishing a technical audit team

A crucial first step in conducting a basin plan technical audit is the formation of a dedicated technical audit team. This team is responsible for assessing the implementation status of the existing basin plan, identifying gaps, and recommending necessary improvements. To ensure a comprehensive and objective evaluation, the audit team should be composed of representatives from key stakeholders, including government institutions, water users, research organizations, and local communities.

The technical audit team must consist of a skilled and multidisciplinary group with expertise in various fields. Each expert brings a unique perspective and skill set, contributing to a well-rounded assessment of the basin's status and future needs. The following are the major and broad expertise categories required for the basin plan technical auditing.

- a. Water Resources Specialists:** A water resources Specialist plays a critical role in analyzing the basin's hydrological conditions, ecosystem health, and long-term sustainability. They provide expertise on water availability, quality, and distribution, ensuring that the basin's resources are managed efficiently and equitably. Additionally, they assess environmental challenges such as pollution, climate change impacts, and biodiversity conservation, helping to develop strategies that maintain ecological balance while meeting human water demands. This expert leads the overall technical auditing task, and coordinates the overall revision process.
- b. Conservationist:** Conservationists focus on the interaction between land and water systems, ensuring that natural resources are protected and used sustainably. They evaluate the impact of human activities, such as agriculture, deforestation, and urbanization, on the basin's ecosystem. By working alongside engineers, they help design and implement environmentally friendly infrastructure projects, improve irrigation systems, and develop flood control measures that minimize ecological disruption while enhancing water security.
- c. Socio-Economist:** The role of a socio-economist is crucial in assessing how basin management decisions affect local communities, industries, and livelihoods. It analyzes economic factors such as water pricing, resource allocation, and the cost-benefit implications of various management strategies. The insights of a socio-economist ensure that policies and

interventions promote economic growth while remaining socially equitable and environmentally sustainable. By integrating economic data with environmental and social considerations, socio-economists help create balanced policies that benefit all stakeholders.

- d. **Sociologist:** A sociologist ensures that the basin plan revision process is inclusive, participatory, and socially just. They facilitate communication between different stakeholder groups, including government agencies, local communities, industries, and conservation organizations. By conducting surveys, interviews, and public consultations, sociologists help identify the concerns, expectations, and cultural values of different communities.
- e. **Policy and Governance Analyst:** Policy and Governance Analyst plays a critical role in basin plan auditing by ensuring that water management strategies align with legal, institutional, and policy frameworks. The analyst assesses existing regulations, identifies governance gaps, and recommends policy adjustments to enhance sustainable water use, equitable allocation, and environmental protection.
- f. **Infrastructure Specialist:** An Infrastructure Specialist plays a critical role in basin plan revision by assessing, designing, and optimizing water-related infrastructure to ensure sustainable and efficient water management. The specialist evaluates the existing infrastructures, such as dams, reservoirs, irrigation systems, and wastewater treatment facilities to identify areas for improvement, rehabilitation, or expansion. The specialist also collaborates with hydrologists, policymakers, and stakeholders to align infrastructure development with long-term basin management goals.
- g. **Information Management Specialist:** An Information Management Specialist plays a crucial role in basin plan auditing by ensuring the effective collection, organization, analysis, and dissemination of data. The specialist manages Geographic Information Systems (GIS), databases, and decision support tools to integrate hydrological, environmental, and socio-economic information. Additionally, he/she facilitates data sharing, ensures compliance with regulatory standards, and supports transparent decision-making, ultimately enhancing the efficiency and adaptability of basin plan auditing processes.

Each of these experts plays a vital role in shaping a well-informed, scientifically grounded, and socially inclusive basin plan. Their collective efforts contribute

to a more sustainable and resilient water management system that balances environmental protection with economic and social well-being.

The basin plan audit team plays a vital role in evaluating the current basin plan, identifying gaps, and providing recommendations for its revision. The core basin plan auditing functions to be executed by the expert group are mainly: reviewing existing basin plans, developing proposals or audit plans, and identifying key performance indicators as shown in Figure 2.4 below.



Figure 2.4. Basin plan audit functions

Through these core functions, the audit team ensures that the basin plan is rigorously assessed, providing the necessary insights and evidence to guide its improvement and ensure it remains effective in achieving sustainable water management goals.

a. Develop a Revision Proposal

The first function of the audit team is to create a comprehensive proposal for the technical audit of the existing basin plan’s implementation. Based on the objectives set for the audit, the team will develop a detailed technical auditing

plan that outlines the methodologies to be used throughout the process. These methodologies include:

- Data collection techniques, such as document reviews, interviews, site visits, data analysis, and stakeholder consultations, which will provide the team with qualitative and quantitative insights into the current basin plan's performance.
- Technical audit schedule to ensure the audit is completed within the required time frame, with clearly defined milestones.
- Resources required, including financial, human, and logistical resources necessary for conducting the audit.
- Communication plan for progress updates, stakeholder engagement strategies, and protocols for presenting and disseminating audit findings.

In addition, the team will specify the key components of the basin plan that will be evaluated during the audit, which may include:

- The implementation process, ensuring the plan has been executed as intended.
- The monitoring and evaluation system, to assess how well the basin plan has been tracked and reported.
- Stakeholder engagement, evaluating how effectively stakeholders have been involved in the process.
- The progress reporting and feedback system, to determine if the process allows for continuous learning and adaptation.

b. Review the Existing Basin Plan

Before beginning any technical evaluations, the audit team will first gain a thorough understanding of the context of the existing basin plan. This review involves analyzing several critical elements:

- The **vision** of the basin plan is to ensure that it aligns with long-term water resource management goals.
- The **goals and objectives** outlined in the basin plan, is to assess their relevance and alignment with current challenges.
- **Performance indicators**, which measure progress towards achieving the plan's goals and objectives.

- The **action plan**, reviewing the planned activities, timelines, and resource allocation to evaluate their adequacy and feasibility.

The thorough review of the existing basin plan allows the audit team to assess whether the existing basin plan is still relevant to current conditions and whether the initial goals have been achieved or need revision.

c. **Identify Key Performance Indicators**

A crucial function of the audit team is to identify and assess the Key Performance Indicators (KPIs) that measure the success of the existing basin plan. The team will list the KPIs for each strategic issue in the plan, with a focus on the expected outcomes that should be achieved during the implementation period. These KPIs could include:

- Water quality and availability targets
- Sustainable resource management indicators
- Socio-economic indicators related to water usage and access
- Environmental sustainability metrics, such as biodiversity preservation and ecosystem health.

The KPIs will be used to measure progress and assess the success of the basin plan's implementation. By evaluating these indicators, the team will be able to determine where the plan has been successful, where it has fallen short, and where adjustments or revisions are necessary. These KPIs serve as a critical tool in guiding both the audit and the subsequent revision of the basin plan.

2.2.2. Defining auditing framework

The basin plan technical audit team will comprehensively assess various aspects of the basin plan implementation to ensure its effectiveness and alignment with sustainable water resource management principles. The audit process will focus on several key components/or elements, as outlined below in Figure 2.5, which are vital for determining the plan's relevance, completeness, implementation progress or status, and areas for improvement.



Figure 2.5. Basin plan technical audit framework

Hence, the existing basin technical audit team will typically cover the following major components (but, not limited to):

- a. **The Basin Plan Document:** The team will begin by evaluating the content of the basin plan itself. This includes a thorough review of the vision, goals, objectives, measures, and action plans. The goal is to assess whether these elements remain relevant to the basin's current conditions and if they comply with Integrated Water Resource Management (IWRM) principles. The team will check if the plan's guiding principles align with best practices for sustainable water management, considering the evolving challenges of the basin.

Box 2

Integrated Water Resources Management (IWRM) provides a framework for sustainable water management. Here are key IWRM principles (Dublin Principles of 1992) that can serve as a reference for compliance:

- **Holistic Approach:**

- o IWRM emphasizes that fresh water, as finite and vulnerable resources; require integrated and holistic management approaches that recognize the interconnectedness of water, land, and related resources.

- **Participatory Approach:**

- o IWRM promotes the participation of all relevant stakeholders, including women, water users, planners, and policymakers, at all levels to make decisions that reflect the needs and values of those affected.

- **Equitable and Efficient Use:**

- o IWRM seeks to balance the economic, social, and environmental uses of water, ensuring equitable access and efficient allocation through recognizing the economic value of water and promoting water conservation

- **Environmental Sustainability:**

- o IWRM aims to maintain the integrity of water-related ecosystems and ensure the long-term sustainability of water resources.

- **Adaptive Management:**

- o IWRM recognizes that water management is an ongoing process that requires flexibility and adaptation to changing conditions, this includes incorporating new knowledge, monitoring progress, and adjusting strategies as needed.

- **Good Governance:**

- o IWRM depends on transparent and accountable governance structures with clear legal and regulatory frameworks, and good coordination between institutions.

The auditing technical team will check these principles for compliance, to see if the water management practices are meeting the required international standards.

- b. Implementation, Monitoring, and Evaluation** focuses on assessing the effectiveness of the implementation strategy. The audit team will evaluate governance mechanisms, stakeholder awareness, and the clarity of roles and responsibilities, along with the level of ownership and shared vision among stakeholders. They will also review resource allocation, implementation approaches, and the effectiveness of reporting and feedback systems. The aim is to understand how well the strategy supports achieving the plan's objectives and stakeholder engagement. Additionally, the team will assess the monitoring and evaluation (M&E) system, ensuring its effectiveness in tracking progress using clear, relevant indicators and reliable methods for evaluating the plan's implementation.
- c. Engagement and Decision Making** emphasizes the importance of stakeholder involvement for the success of a basin plan. It outlines a process for auditing various aspects of stakeholder engagement, such as the mechanisms used for involving stakeholders from the beginning, their involvement throughout the implementation, and the coordination between stakeholders. The audit team will assess stakeholder capacity, alignment of interests, and the enforcement mechanisms to ensure stakeholder cooperation. Additionally, the decision-making process, including consensus-building and monitoring of the plan's progress, will be evaluated to ensure decisions are made effectively.
- d. Situational Assessment:** The team will conduct a situational assessment to evaluate the achievements of the existing basin plan. This assessment will reference the baseline situation and focus on changes in key areas such as the basin's biophysical characteristics, water resources, socio-economic conditions, and the legal and institutional frameworks. This will allow the team to measure the effectiveness of the basin plan in addressing the basin's evolving challenges.
- e. Resource Management:** The team will assess the resource mobilization strategies for the basin plan, focusing on financial resources, human capital, and other necessary inputs. They will verify whether these resources are being used efficiently and if the strategies are effective in mobilizing the necessary support for implementing the basin's strategic measures. Clear means of verification will be used to assess resource management.

- f. Strategic Priority Issues:** The audit team will evaluate the situational assessment methods, and the model used to identify key strategic issues within the basin. They will review how the issues were prioritized based on participatory approaches, ensuring that the most pressing challenges are being addressed. This process is key for ensuring that the basin plan is responsive to the basin’s most urgent needs.
- g. Data, Information, and Communication** focuses on evaluating the processes for collecting, managing, and sharing data to ensure they support progress tracking and decision-making. The audit team will assess the tools, methods, and structures used for data management and review the data-sharing protocols among stakeholders, including accountability and enforcement mechanisms. Effective communication is also key, so the team will evaluate internal governance and communication systems that facilitate coordination and information flow, as well as the effectiveness of external communication related to the basin plan.
- h. Learning and Capacity Building:** focuses on evaluating the basin plan’s ability to adapt and improve over time. The audit team will assess how the plan incorporates new information, adjusts through regular reviews, and integrates stakeholder feedback. They will also examine how knowledge is shared within the institution to promote continuous learning. The audit will verify how the plan adapts to challenges and incorporates lessons learned. Additionally, the team will evaluate the capacity-building strategies aimed at strengthening stakeholders and institutions, checking the effectiveness of programs designed to enhance coordination and execution of the plan, and whether these programs lead to measurable improvements in behavior and coordination.

Box 3

The iterative planning cycle of the Murray-Darling Basin Plan demonstrate a strong commitment to adaptive management across its core functions. The Murray-Darling Basin Authority uses the following steps for basin plan revision process:

- **Regular Review:**
 - Conducts regular reviews of the Basin Plan and its strategies, analyzing the effectiveness of implemented programs and policies to adapt to changing conditions and new information.
- **Monitoring and Evaluation:**
 - Employs sophisticated monitoring and evaluation systems, continuously refining monitoring networks, data analysis tools, and evaluation methodologies to provide accurate and reliable data for plan assessments.
- **Stakeholder Engagement:**
 - Extensive stakeholder engagement is a cornerstone of the Basin Plan, the MDBA conducting public meetings, workshops, and advisory committee sessions to involve diverse stakeholders, including landowners, water users, and environmental groups.
- **Situational Assessment:**
 - Performs comprehensive situational assessments, utilizing hydrologic modeling, water quality assessments, and ecological surveys to analyze trends, identify threats, and evaluate the impacts of management scenarios.
- **Decision-making:**
 - Provides scientific data and analysis to inform decision-making, while recognizing the roles of various levels of government in final management decisions.
- **Resource Mobilization:**
 - Funding for the Basin Plan is mobilized from diverse sources, the MDBA working to ensure effective resource management and allocation.
- **Strategic Issues:**
 - Prioritizes strategic issues with key stakeholders based on scientific data and stakeholder input, addressing key challenges like water scarcity, environmental flows, and ecological health.
- **Capacity Development**
 - Invests in capacity development, providing technical assistance and training to stakeholders and agencies to enhance their ability to participate in and implement the plan.
- **Data Management:**
 - Manages and disseminates data through various platforms, ensuring accessibility for informed decision-making.
- **Communication:**
 - The MDBA prioritizes clear and accessible communication, utilizing websites, publications, and outreach events to share information with the public and stakeholders.
- **Adaptive Learning:**
 - The Basin Plan embodies an adaptive and learning strategy, the MDBA continuously evaluating management actions and incorporating new scientific knowledge and lessons learned to refine the plan.

2.2.3. Basin plan implementation auditing

The Basin Plan Implementation Auditing process aims to assess the effectiveness of the existing basin plan in achieving its intended goals and objectives. This technical audit provides a systematic evaluation of the plan's implementation status, identifying successes, challenges, and areas for improvement. By examining key aspects such as compliance, performance, emerging trends, strengths, opportunities, and implementation gaps, the audit ensures a comprehensive review of progress and effectiveness. The findings from this assessment will serve as a foundation for refining strategies, optimizing resource allocation, and enhancing the overall sustainability of water resource management within the basin. To achieve these objectives, the technical audit team will undertake the steps illustrated on the figure below (Figure 2.6):

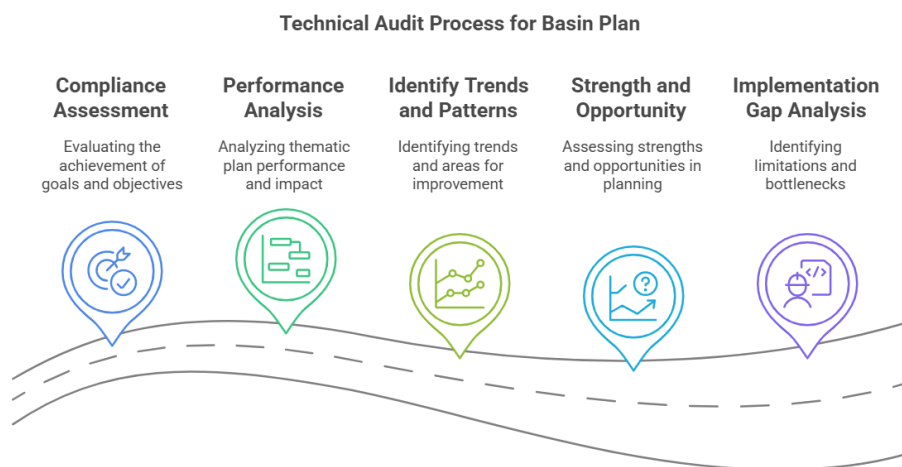


Figure 2.6. technical basin plan auditing steps

- a. **Compliance Assessment:** The evaluation process will assess the extent to which the plan's goals, objectives, and performance indicators have been achieved. This involves a detailed review of the alignment between planned and actual outcomes, ensuring that implementation adheres to the approved framework. Additionally, the level of compliance with the established guidelines, policies, and regulatory requirements will be

thoroughly examined to identify any discrepancies and areas requiring corrective actions.

- b. **Performance Analysis:** A comprehensive analysis of the performance of each thematic plan within the basin will be conducted, with progress measured against the overall basin plan implementation. This assessment will provide insights into the effectiveness of various strategies and interventions. Furthermore, a technical audit will evaluate the impact of implemented measures on water resources, ecosystems, and communities, ensuring that the intended benefits are being realized while identifying any negative consequences that need to be addressed.
- c. **Trend and Pattern Analysis:** To enhance decision-making, data will be gathered from multiple sources, including surveys, questionnaires, interviews, document reviews, site visits, and stakeholder consultations. This information will be analyzed to identify emerging trends, recurring patterns, and deviations from expected outcomes. By recognizing these factors, the evaluation will highlight areas for improvement and support the development of more effective future planning and implementation strategies.
- d. **Strengths and Opportunities Assessment:** An in-depth assessment will be conducted to determine the strengths and opportunities within each thematic area of the basin plan. This analysis will focus on the planning approach, implementation process, and achieved outcomes, using key indicators and verification methods. By recognizing successful strategies and potential areas for enhancement, the evaluation will guide future improvements and optimize resource allocation.
- e. **Implementation Gap Analysis:** The evaluation will identify and analyze gaps in the implementation of the basin plan, addressing areas where progress has been limited or challenges persist. This includes assessing non-compliance issues, inefficiencies, and operational bottlenecks that hinder effective execution. Additionally, institutional and capacity constraints will be examined, along with deficiencies in monitoring and evaluation mechanisms and the availability of technical support. Addressing these gaps will be crucial for improving overall effectiveness and ensuring sustainable water resource management.

The basin plan auditing is expected to be carried out by the collective membership of basin plan implementing parties as a committee representing diverse uses and users dwelling in diverse locations and basin segments. The auditing can also be done by an individual consultant hired by the basin plan implementing parties for the purpose of evaluating the effectiveness and efficiency of operations, projects, and client interactions.

2.2.4. Basin Plan Audit Report

The Basin Plan Technical Audit Report presents the findings and conclusions of a comprehensive evaluation of the existing basin plan. It examines the plan's alignment with current realities, assesses the effectiveness of its implementation, and identifies areas for improvement. The report provides an in-depth analysis of the basin plan's objectives, strategies, and proposed actions, evaluating their relevance, feasibility, and impact. Additionally, it reviews the data used in the plan's preparation, the quality of stakeholder engagement mechanisms, and the effectiveness of monitoring and evaluation systems.

Ultimately, the Basin Plan Technical Audit Report serves as a critical tool for decision-makers, helping to identify gaps, prioritize actions, and guide the revision and enhancement of the basin plan to ensure its continued relevance and effectiveness in addressing evolving water management challenges. The audit team will compile a structured report based on its evaluation of the existing basin plan. This report will provide a detailed assessment of the plan's effectiveness, highlighting successes, challenges, and areas requiring improvement. The key findings of the audit will focus on the following aspects:

- A. **Summarize Key Findings:** The audit team will provide a summary of the key findings from the evaluation of the existing basin plan. This will include an assessment of the strengths and weaknesses in the plan's preparation, implementation, and monitoring and evaluation (M&E) system. The summary will outline where the plan has been effective in achieving its objectives and where there are gaps, inconsistencies, or inefficiencies that need to be addressed. By clearly presenting these insights, the summary will serve as a foundation for informed decision-making in the plan revision process.
- B. **Identify Strategic Issues:** Through a thorough analysis, the team will identify critical strategic issues that must be considered in the basin plan

revision process. These issues will be based on the audit findings and will focus on factors affecting the sustainable management of water resources, institutional capacities, governance structures, stakeholder involvement, and environmental concerns. The team will ensure that the identified strategic issues are specific, actionable, and aligned with the long-term objectives of integrated water resource management (IWRM).

- C. **Prioritize Strategic Issues:** Not all identified issues will have the same level of urgency or impact. The audit team will therefore prioritize the strategic issues by assessing their severity, urgency, and potential impact on water resource management. High-priority issues such as those affecting water availability, ecosystem health, or stakeholder collaboration will be flagged for immediate attention. The team will then provide recommendations on how these issues should be integrated into the basin plan revision process to ensure effective implementation.
- D. **Communication and Consensus Building:** Transparent communication is essential for the successful implementation of audit recommendations. The audit team will compile a well-structured report presenting the findings in a clear and concise manner. This report will be shared with key government institutions, the basin high council, relevant stakeholders, water users, and local communities to ensure broad awareness and participation. Additionally, the team will facilitate consensus-building efforts, engaging stakeholders in discussions about the findings and recommendations. This collaborative approach will help ensure alignment and support for necessary revisions.
- E. **Feedback Mechanism:** To enhance inclusivity and ensure that stakeholder perspectives are incorporated into the basin plan revision, the audit team will establish a clear and accessible feedback mechanism. This mechanism will allow stakeholders to provide input on the audit report, voice concerns, and suggest improvements. Open discussions, workshops, and consultations will be organized to encourage meaningful participation. The team will also ensure that feedback is properly documented, analyzed, and integrated into the decision-making process, fostering a more transparent and accountable approach to water resource management.

By addressing these key findings, the audit report will serve as a valuable tool for improving the basin plan, ensuring that it remains effective, responsive to current

challenges, and aligned with sustainable water management principles. It assesses the progress and effectiveness of implementing a basin plan, typically focusing on water management, environmental outcomes, and stakeholder engagement. The report usually includes the following key sections:

- i. **Executive Summary:** This audit assesses the effectiveness of the Basin Plan in achieving political, environmental, social, and economic objectives and forwarding key action areas and recommendations focused on basin planning, engagement, governance, information, knowledge management, and capacity building.
- ii. **Introduction:** The rationale behind the basin plan and basin plan auditing, the purpose of the basin plan auditing, the scope and objective of the audit, and auditing guiding principles for the audit.
- iii. **Methodology:** The general and specific processes and procedures to deploy for the basin plan audit institution, include data collection, analysis of results, means of verification, reporting, and communication.
- iv. **Water Resource Management Outcomes:** The results obtained by implementing the basin plan _ water resources allocation and efficiency, water use regulations and management instruments, data and information management, and stakeholders' networking and communication.
- v. **Environmental Outcomes:** The result related to biodiversity, river health, and wetlands, environmental flows, ecosystem restoration, flood and drought and invasive species adaptive management, and habitat restoration.
- vi. **Socioeconomic outcomes:** The result obtained in terms of economic inputs, increments in income, level of employment, social and economic empowerments, gender mainstreaming, and social inclusion.
- vii. **Monitoring, Evaluation, and Reporting:** Effective data collection and transparent reporting, monitoring frameworks, identifying gaps in data consistency and accessibility,
- viii. **Challenges and Risks:** The key challenges related to climate change, water availability, stakeholder conflicts, governance issues, political and economic uncertainties, and the level of each risk.
- ix. **Recommendations and Future Directions:** Suggestions on the governance improvements, infrastructure investment, and refined water allocation, policy changes and improvements, environmental and economic priorities, future efforts, and focus areas on resilience, technology use, and adaptable policy frameworks.

- x. **Appendices:** Supporting documents include data analyses, legislative references, a stakeholder consultation list, and context for the findings and recommendations.

2.2.5. Basin plan audit report approval

The approval of the Existing Basin Plan Technical Audit Report marks a critical stage in the process of ensuring the continued relevance and effectiveness of water resource management within the basin to realize IWRM principles. This phase involves a thorough review and careful consideration of the audit findings by key stakeholders to inform the necessary revisions to the existing basin plan.

To promote transparency and foster stakeholder buy-in, the existing basin plan technical audit team prepares a comprehensive and well-structured report that clearly presents the audit findings and recommendations. This report is then presented to decision-makers for approval and to determine the necessary level of revision, whether minor adjustments or a major basin plan revision of the existing basin plan is required. This collaborative and inclusive approach ensures that the revised basin plan effectively addresses the evolving water resource management challenges within the basin while considering the diverse perspectives and concerns of all stakeholders.

The key steps of endorsing basin plan audit report include:

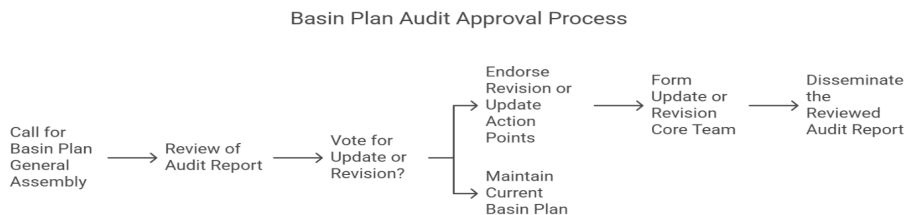


Figure 2.7. Audit report approval process

a. Call for Basin Plan General Assembly

This step involves convening a meeting with key basin-wide stakeholders, including government agencies, local communities, environmental organizations, and basin plan implementers. The purpose is to gather their feedback and considerations regarding the audit findings, ensuring that all

relevant parties have an opportunity to voice their insights and concerns before further actions are decided.

b. Review of Audit Report

During the general assembly, the audit team presents the key steps taken during the audit process, the team involved, and the findings extracted. This step ensures transparency and provides a clear understanding of the strengths, challenges, and compliance status of the basin plan. The assembly also determines whether the next course of action should involve revising or updating the basin plan based on the audit results.

c. Vote for the Update or Revision of Basin Plan

Once the audit findings have been reviewed, stakeholders are invited to express their opinions and vote on whether the basin plan should undergo an update or a complete revision. This democratic process ensures that the decision is based on collective agreement and that the direction taken aligns with stakeholder priorities and regulatory requirements.

d. Endorse the Report

The findings shall be approved by the stakeholder; this step outlines the action points that need to be addressed in the basin plan revision process. This structured approach ensures that the process remains efficient and well-coordinated.

f. Disseminate the Reviewed Audit Report

The final stage involves officially endorsing and sharing the reviewed audit report, along with the approved action points and decisions made. The report is circulated among all relevant stakeholders, serving as a guiding document for implementing the audit recommendations in the basin plan updating and revision process.

5.3. Timeline for Basin Plan Technical Auditing

This section outlines the timetable for the auditing process of the Basin Plan, detailing the stages from the initiation of the audit to its endorsement. The auditing process is crucial for ensuring compliance, assessing the effectiveness of the Basin Plan, and making necessary adjustments based on findings. The

following timeline provides a structured approach to the auditing phases, ensuring transparency and accountability throughout the process.

The outlined timetable serves as a roadmap for the Basin Plan auditing process, ensuring that each phase is completed systematically and efficiently. By adhering to this timeline, the audit team can effectively assess the Basin Plan’s performance and contribute to its continuous improvement. Figure 2.7 below shows the general timetable assigned to the entire process of basin plan technical auditing until the endorsement.

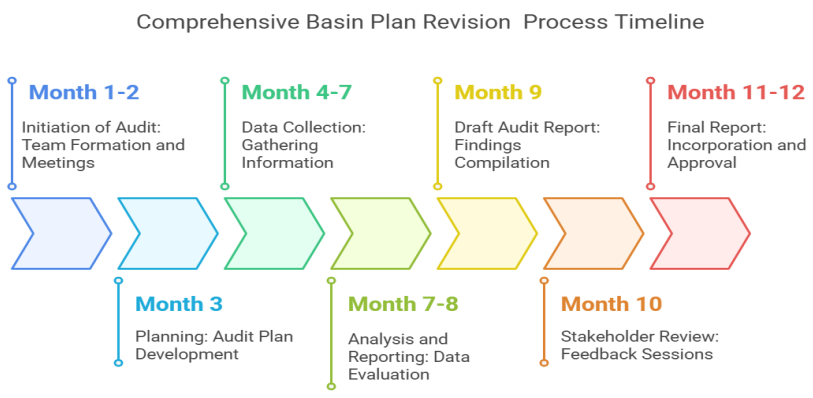


Figure 2.7. Audit report approval process

3. Basin Plan Revision

Basin plan revision shall include a multi-level process designed to ensure the relevance and effectiveness of sustainable water resource management within a specific river or lakes basin. Basin plan relevance is maintained through annual reviews, periodic updates, and complete revisions, tailored to the implementation period and purpose. Annual reviews will function as regular check-ups, allowing for minor adjustments and the integration of newly acquired data, thereby maintaining operational efficiency. Building upon these reviews, basin plan updates, shall be conducted every five years, involving a more focused assessment of specific basin plan components, addressing emerging issues, and

refining strategies to enhance economic efficiency, equity, and environmental sustainability. Finally, every fifteen years, a complete basin plan revision shall be undertaken. Complete revision process shall address fundamental shifts in basin conditions, incorporating major policy changes and the new stakeholder arrangement. The figure 3.1, below illustrates the timeline and generic definition each revision process.

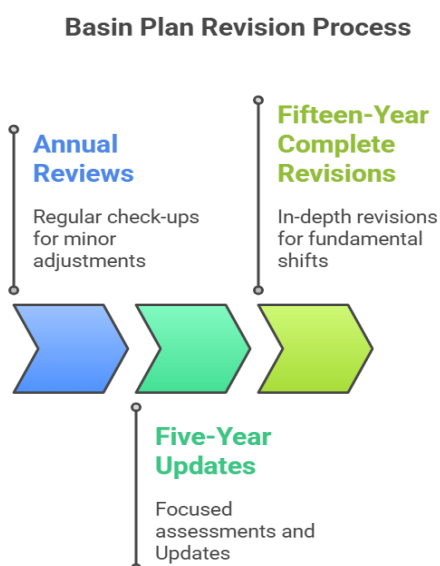


Figure 3.1. Timeline of basin plan revision

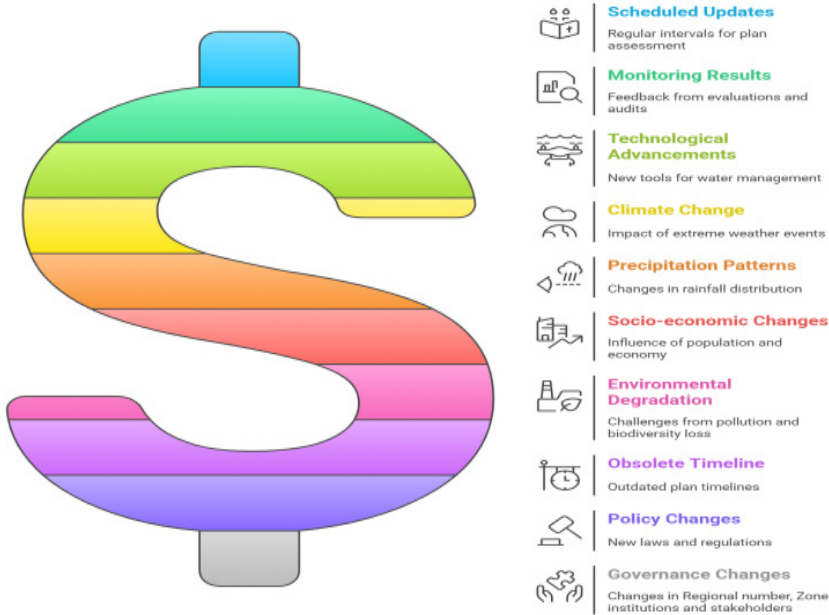
3.1. Conditions for Basin Plan Revision

The necessity for basin plan revisions is driven by the following conditions and forcing factors:

1. Review, feedback, and suggestions of stakeholders;
2. Technical audit report;
3. Periodic (Scheduled periodic update);
4. Scientific and technological Advancements (Improved understanding

- of hydrological processes, advances in monitoring and data collection technologies, development of new water management technologies);
5. Significant climate change (an increase in extreme weather events, such as floods and droughts);
 6. Significant changes or shifts in precipitation patterns (rainfall distribution and intensity)
 7. Socio-economic Changes (Population growth and urbanization, economic development and industrialization, change in agricultural practice, changes in land use patterns, and new initiatives);
 8. Environmental Degradation (water pollution, loss of wetlands, introduction of invasive species, and reduced biodiversity);
 9. Obsolescence of the Basin Plan Timeline (if the predefined implementation period has expired);
 10. Policy and Legal Changes (new or revised water laws and regulations, changes in water allocation policies, environmental standards);
 11. Governance structure changes (new regional state, institutions, and stakeholders)
 12. Significant Shifts of government priorities.

Drivers of Basin Plan Revisions



Note:

Conditions for basin plan revision refer to specific circumstances that necessitate a basin plan update for the existing basin plan. The basin plan revision will go beyond updates for fundamental forcing factors that necessitate the basin plan revision process. The purpose of updating and complete revision is to ensure the basin plan remains relevant and effective in achieving its objectives.

3.2. Conditions for Update and Complete Revision

The basin plan review serves as a crucial, systematic evaluation of the existing basin plan, aiming to assess its effectiveness, to identify gaps in the implementation process, and serve as an input for periodic updates. The Ministry of Water and Energy/ Basin Administration Office, as a legally mandated institution, conducts periodic reviews of the basin plan and coordinates the actions of relevant stakeholders.

A key criterion for a basin plan review is a regularly scheduled evaluation plan, which will be conducted every year based on the identified indicators. If the

monitoring data indicating significant deviations from the planned outcomes, updating the basin plan shall be initiated to ensure compliance and alignment. The updating process shall include making minor adjustments to the existing plan, incorporating new data and information, and refining the strategic issues prioritized during the planning time. Conditions for updates should include incremental changes in hydrological conditions, improvements in scientific understanding of the basin's ecosystem, minor adjustments to priorities, and changes to economic conditions with minor impacts on water resources. Basin plan updates can occur following annual review results or recommendations, according to a predetermined schedule (every five years).

A complete basin plan revision signifies a fundamental restructuring of an existing basin plan. It involves a comprehensive reassessment and, often, a complete preparation of the basin plan. It will be undertaken when the existing plan is obsolete in terms of implementation period or inadequate to address significant changes or emerging challenges within the basin.

A complete basin plan revision process brings a fundamental change to the plan's core elements, including the visions, goals, strategic issues and priorities, measures, and implementation approach. It demands a comprehensive assessment of the basin, from hydrological data and ecological conditions to socioeconomic factors and legal frameworks, together with extensive stakeholder engagement to incorporate diverse perspectives. Crucially, a complete revision shall adopt a forward-looking approach, aiming to develop a sustainable and resilient water management plan capable of adapting to future challenges like climate change, population growth, and economic development, ensuring long-term viability and equitable resource distribution. The major conditions for a basin plan update and complete revision are indicated below in Figure 3.2.

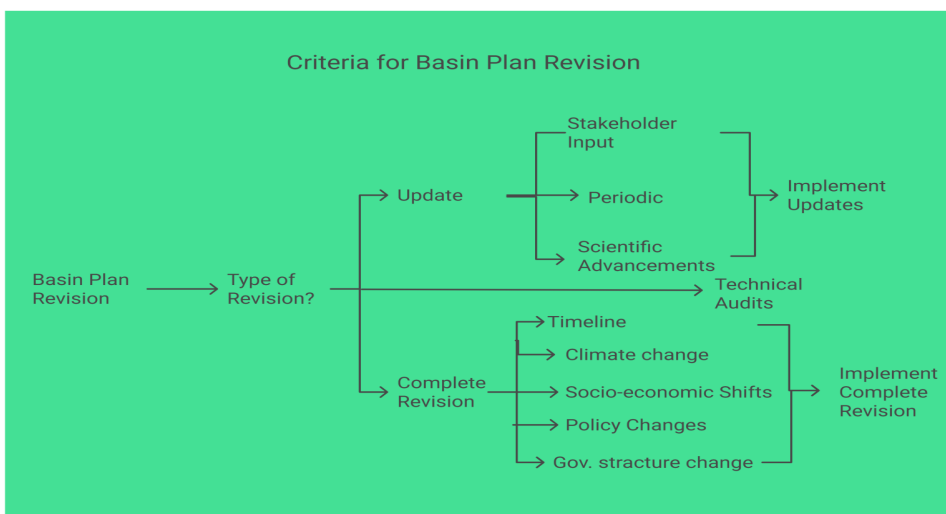


Figure 3.2. Conditions for basin plan update and complete revision

4. Major Issues to Address in the Revision Process

Both revision processes of a basin plan shall focus on addressing major issues of the basin that dictate the appropriate path forward to achieve economic efficiency, equity and environmental sustainability, whether it is update or a complete revision. The main issues required to consider in the update and complete revision are indicated listed below.

4.1. Complete Revision

The basin plan's complete revision should follow the basin plan preparation guideline table of contents. However, to avoid redundancy during the complete basin plan revision process, it's important to acknowledge that certain foundational elements have already been thoroughly addressed in the technical auditing phase and should be taken from the report. The detailed basin plan preparation approach, along with description of the basin itself, including its location, physiography, hydro-climate, hydrology, geology, hydrogeology, soil resources, land use, environmental and ecological descriptions, water-resource development, management, and socio-economic characteristics, are considered to be sufficiently covered by the technical audit.

Therefore, the complete revision process shall proceed with the understanding that these aspects have been adequately assessed, allowing for a focused effort on addressing emerging issues, and it should start from agreed prioritized issues then follow the basin plan preparation guideline as shown in the figure 4.1 below.

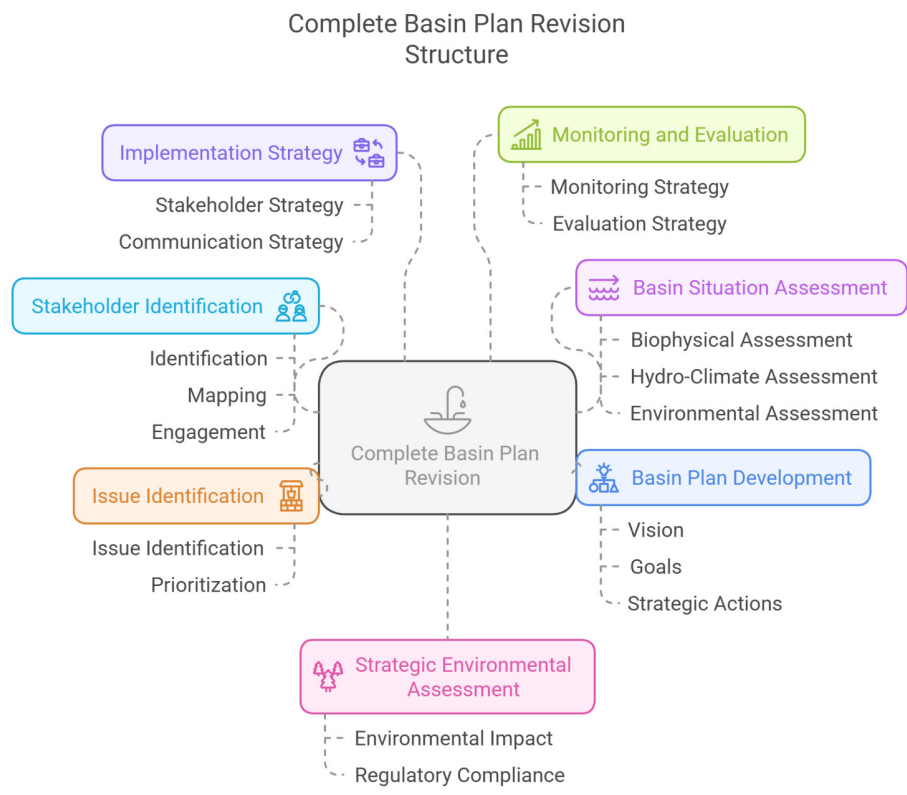


Figure 4.1. Basin plan revision structure

4.2. Basin Plan Update

The basin plan update will be carried out for the existing basin plan before the implementation period is completed based on predefined year to update between the implementation phases. In addition to predefined year of updating the basin plan might be subjected for updating progress due to forced factor mention before in the revision criteria.

In the update process, the fundamental structure of the basin plan and vision are expected to remain the same with the existing plan. The following components of the basin plan shall be reviewed for the updating process:-



Figure 4.2. Components for basin plan update

a. Existing Goals and Objectives:

The relevance of original goals and objectives shall be reassessed to ensure they remain aligned with evolving priorities and emerging challenges. Furthermore, the measurability of objectives and targets shall be updated for effective monitoring and evaluation of the implementation progress. Finally, based on the technical basin plan audit report, the goals and objectives shall be refined and updated, if the goals have not been met, to ensure that the updated plan is both responsive and effective in addressing the basin's current and future needs.

b. Water Resources Assessment:

A comprehensive update of the water resource assessment is required for the basin plan update. This update must incorporate the latest hydrological data,

meticulously reviewing rainfall patterns, river flows, groundwater levels, and overall water availability to reflect current conditions. Simultaneously, a systematic evaluation of water quality data is necessary to identify any emerging pollution issues that may threaten the basin's health. Furthermore, a detailed assessment of current and projected water demands across all sectors: agriculture, industry, domestic use, and the environment is crucial for informed decision-making regarding water allocation.

c. Water Allocation and Management:

A critical aspect of basin plan updates requires assessment of water resource allocation and management, driven by the need to ensure both effectiveness and equity in water distribution. This evaluation should include a comprehensive review of existing allocation systems, and their impact and fairness among different uses and users in the basin, considering the increasing demands and potential resource scarcity. Furthermore, a detailed evaluation of the condition and capacity of existing water infrastructure, including dams, reservoirs, and irrigation systems, is essential to identify any limitations or necessary upgrades. Simultaneously, the efficacy of water conservation and demand management measures requires rigorous assessment to optimize resource utilization and mitigate waste.

Finally, existing drought and flood management thematic plans must be revisited, incorporating updated climate data and hydrological models, to identify areas for improvement and enhance resilience to extreme weather events, ensuring the basin's long-term water security.

d. Environmental and Ecological Considerations

The basin plan update shall include an assessment of ecosystem health, precisely identifying areas of degradation to enable targeted restoration efforts. By addressing these key points, the basin plan update will ensure the protection and enhancement of the basin's valuable environmental and ecological resources.

e. Socioeconomic Factors

Population growth directly impacts water demand and overall resource availability, necessitating updated projections and adaptive strategies. Similarly, economic development, with its associated industrial and agricultural expansion, can create new or exacerbate existing conflicts over water allocation. Land use changes, such as rapid urbanization and deforestation, significantly alter hydrological patterns

and water quality, demanding revised management approaches. Furthermore, ensuring social equity in water resource distribution is very critical, requiring an evaluation of access and benefits across all stakeholder groups. By updating the assessment of these socio-economic factors, the basin plan will effectively respond to evolving societal needs and ensure sustainable and equitable water resource management.

f. Legal and Institutional Framework

To ensure the effective implementation and sustained relevance of a basin plan, a review of legal and institutional arrangements is critical. This is required to assess any new or updated water-related legislation and regulations for alignment and compliance. Additionally, the assessment should include the institutional capacity of those responsible for basin plan implementation is very important to identify any potential gaps in resources, expertise, or coordination process. Furthermore, the new regional and zonal administration should be considered for the engagement processes to foster inclusivity and ensure that diverse perspectives are considered.

g. Monitoring and Evaluation

The basin plan updating process should look into the monitoring and evaluation system technical audit report to see areas for improvement, to ensure that data collection aligns with the basin plan's objectives. Furthermore, the updating process should review the performance indicators, shape them to align with the revised goals and objectives, to reflect the desired outcomes. Crucially, the updated plan should be designed for adaptive management, enabling adjustments based on newly acquired data, thus ensuring the basin plan remains responsive to evolving conditions and effectively addresses emerging challenges.

5. Basin Plan Revision Mechanism

The basin plan implementation mechanism is built on the following six crucial pillars: Stakeholder Engagement, Governance of the Basin Plan Updating Process, Effective Communication, Resource Mapping for Updated Basin Plan Implementation to move from plan to action and Monitoring, Evaluation & Adaptive Management that enable to track progress, learn from our experiences, and adjust the plan as needed. Together, these elements form a comprehensive mechanism for ensuring the basin plan is not just a document, but a living, adaptable tool for sustainable water and land resource management. These mechanisms are detailed below:-

5.1. Stakeholder Engagement

The stakeholder engagement for the overall process of basin plan revision involves participation, dialogue, partnership, and joint vision. In this sense, the multi-stakeholder partnership approach can be one of the frameworks to adapt. The Multi-Stakeholder Partnership (MSP) Approach is a structured framework that fosters collaboration among diverse stakeholders, including government agencies, communities, businesses, and environmental groups to ensure inclusive and effective basin plan revisions. Applying this approach in basin planning helps integrate different perspectives, resolve conflicts, and promote sustainable water resource management. Therefore, the basin plan update or revision takes the following indicated action points in the stakeholder engagement (Figure 5.1).



Figure 5.1. Stakeholder engagement mechanism

5.1.1 Stakeholder identification & mapping

Before revising a basin plan, it is crucial to identify and categorize relevant stakeholders based on their interests, influence, and roles. This includes: Government Authorities (Relevant Federal and Regional Institutions), Community Representatives (farmers, fisher folk, Indigenous groups), Private Sector Players (industries, agribusinesses, and hydropower companies), Environmental Organizations (conservation NGOs, research institutions), and International Development Agencies (if applicable). The stakeholder mapping in this stage ensures an inclusive process, preventing marginalization of key groups and fostering balanced decision-making.

5.1.2. Defining roles & responsibilities for implementation

Each stakeholder group must have a clearly defined role in updating and revising the basin plan and implementing the decisions according. Accordingly, the different entities in the basin can have the roles that include:

- **Public or Government Bodies** leading policy enforcement and provision of regulatory instruments to implement basin planning, update, and revision.
- **Local Communities** ensuring on-the-ground implementation and compliance, contributions for labor and local knowledge in the basin plan update and revision process.
- **Private Sector** investing in sustainable water use practices as a lesson for others to implement new and innovative solutions in water management.
- **CSOs** facilitate the transfer of knowledge and experience in the resource's allocation, basin information, governance, disaster control and adaptations and environmental health monitoring, and other capacity building.

5.1.3. Establishing a collaborative platform

A formal or informal platform should be established where stakeholders can engage in discussions, share knowledge, and co-develop solutions during the process of basin plan update or revision. This can be in the form of Basin High Councils or Basin Councils or Committees representing all major stakeholders, Multi-Stakeholder Dialogues & Forums for transparent decision-making, and Online Platforms & Digital Tools for information sharing and feedback collection. In this case, a well-structured platform helps streamline communication, ensuring all voices are heard and facilitating consensus-building while combining vision and resources for basin plan update or revision works.

5.1.4. Participatory decision-making & consensus building

Revising a basin plan requires broad agreement on key issues such as: water allocation and equitable distribution, climate adaptation and flood management strategies, water quality improvement and pollution control, and sustainable infrastructure development. Implementing participatory methods such as stakeholder workshops, focus groups, and negotiation meetings can be the potential measures to show how the different interests are balanced to shape an effective and to get widely accepted basin plan revision process. It is wise to use this method in the basin plan revision or update to address the competing issues of water users, and to facilitate joint decision-making and conflict resolution.

5.1.5. Integration of science, traditional knowledge & local expertise

The success of basin plan revision or update falls under the integration of scientific measures (e.g., hydrological models for water availability projections), traditional water management practices from indigenous and local communities, and community-based observations on ecosystem changes and climate impacts. This integration ensures application of practical and nature-based solutions, builds trust among stakeholders on the practicality of actions, and encourages continuous learning and growth in the basin plan update, revision, and implementation.

5.2. Governance of the Basin Plan Updating Process

A well-defined governance mechanism ensures transparency, accountability, and efficiency in updating the basin plan. It establishes institutional structures, decision-making processes, and stakeholder responsibilities, ensuring sustainable water resource management while balancing ecological, economic, and social needs. An effective governance mechanism in the basin plan updating process will ensure institutional coordination, legal compliance, financial sustainability, and stakeholder participation. By integrating multi-level governance, scientific monitoring, and adaptive decision-making, the process remains responsive to changing environmental, social, and economic conditions, leading to long-term water sustainability. The elements of governance mechanisms for the basin plan update that should be considered in the process are described below.

5.2.1. Institutional arrangements

Effective governance in basin plan revision relies on a well-defined institutional framework that assigns clear roles and responsibilities to national, regional, and local entities. These institutions work together to ensure sustainable water management, policy alignment, and the successful implementation of the updated basin plan.

- a. **The Basin Administration Office (BAOs)** play a central role in overseeing the revision process, ensuring that all changes align with national policies and regulatory frameworks. It is responsible for enforcing water management regulations and coordinating efforts across different administrative levels.
- b. **The Government agencies** are those at federal and regional levels particularly involved in charge of water, environment, and agriculture, provide the necessary technical expertise and financial support. They contribute to

the development of policies, the implementation of sustainable water-use practices, and integration of environmental conservation measures.

- c. **The Municipalities and local governments** play a key role in engaging communities and ensuring that basin plan revisions reflect the needs of people directly affected by water resource management decisions. They also facilitate the implementation of localized strategies, such as watershed restoration and flood control initiatives.
- d. **The Basin High Council or Councils** serve as multi-stakeholder platforms that bring together representatives from government for harmonization of actions in cross sectors and cross regional matters in the basin plan revision. These councils ensure inclusive decision-making by considering diverse perspectives and balancing competing water needs to address during the process of basin plan update or revision.
- e. **The research institutions and experts** contribute by providing scientific data, hydrological modeling, and impact assessments to support evidence-based planning. The expertise from this group helps in forecasting future water availability, assessing environmental risks, and designing climate-resilient water management strategies that the revised basin plan should address.

5.2.2. Legal and policy frameworks

A robust legal and policy framework provides the foundation for updating and implementing a basin plan by defining clear rules, responsibilities, and standards for water management. National water laws and policies establish the legal basis for water rights, allocation mechanisms, and environmental safeguards, ensuring that water resources are managed equitably and sustainably.

The regulatory guidelines further refine basin governance by setting technical standards for water quality, pollution control, ecosystem conservation, and infrastructure development. These legal and policy frameworks to be referred to for the basin planning, update and revision include:

- a. **Global Conventions and Initiatives** in Water Management provide international principles and agreements for trans boundary water governance. These include agendas and targets like SDG 2030, Africa Agenda 2063, Africa Vision 2025, which promote cooperative water management, environmental conservation, and equitable resource sharing.

- b. **National Water, Environment, and Disaster Policies** outline the legal foundation for water governance within a country. These policies establish water allocation rules, environmental protection measures, and disaster risk management strategies to address issues such as droughts, floods, and pollution.
- c. **Water, Agriculture, Irrigation, Environment, Climate and Investment Proclamations** define specific regulations for managing water resources in relation to key sectors. These proclamations regulate water use in agriculture and irrigation; protect ecosystems, climate financing and set guidelines for investment in water infrastructure projects, ensuring sustainability and economic efficiency.
- d. **Sectoral Mandates and Regulations** clarify the roles and responsibilities of different government agencies and institutions involved in water management. The key sectors worth considering include the water and energy, environment, agriculture, industry, education, and health. These regulations establish the legal basis for enforcement, monitoring, and coordination between sectors such as water resources, energy, agriculture, and land management, ensuring that basin planning aligns with national development goals.
- e. **Customary and Indigenous laws** are essential in recognizing traditional water management practices and ensuring that Indigenous and local communities retain their historical rights over water and related resources usage. Integrating these customary laws into formal governance structures enhances inclusivity and strengthens community-based water stewardship.

5.2.3. Decision-making & approval process

The decision-making and approval process is crucial for ensuring that basin plan updates or revisions are formally endorsed, legally validated, and effectively implemented.

The Basin Plan General Assembly serves as a multi-stakeholder forum where audit findings and proposed revisions are reviewed. This assembly includes representatives from government agencies, local authorities, community groups, private sector stakeholders, and environmental organizations, ensuring an inclusive and transparent discussion. Voting mechanisms are then used to collect stakeholder opinions on whether to approve or reject the proposed updates. This

participatory approach helps build consensus and ensures that decisions reflect the interests of all affected parties.

This step involves legal validation by relevant government bodies, ensuring alignment with national policies, regulatory frameworks, and international agreements where applicable.

Finally, an implementation roadmap is developed, outlining the timeline, key responsibilities, resource allocation, and specific actions required for executing the updates. This roadmap ensures a structured and accountable approach to putting the revised basin plan into action.

5.3. Communication mechanism

Communication is critical for the successful basin plan updating process, to follow a structured approach that ensures transparency and stakeholder engagement. This involves establishing a clear communication mechanism, beginning with the identification of all relevant stakeholders to ensure inclusive participation. The communication mechanism should set well-defined communication objectives to guide the dissemination of information and gather feedback. Key messages regarding the basin plan update should be crafted to clearly convey the purpose, scope, and anticipated outcomes of the revision. Details of the workflow are indicated below in Figure 5.2.



Figure 5.2. Communication steps in the basin plan updating process

5.3.1. Identifying stakeholders

The first step in creating an effective communication strategy for basin plan updates or revisions is identifying and mapping stakeholders. This process involves recognizing key actors who influence or are affected by water resource management decisions. Stakeholders include government agencies, local communities and Indigenous groups who depend on the water resources, private sector representatives especially agriculture and industry, environmental organizations advocating for sustainability, and academics and researchers contributing scientific insights.

5.3.2. Setting communication objectives

Establishing clear communication objectives is essential to guide the entire process of basin plan revision. These goals help ensure that the communication efforts are focused and effective. Key objectives may include:

- Raising awareness about the significance of the revision or update, helping stakeholders understand its necessity and potential benefits;
- Informing stakeholders of key changes in the basin plan and the implications these changes will have on water use, conservation, and management;
- Collecting feedback from stakeholders to refine the plan, ensuring it reflects diverse perspectives and needs;
- Ensuring accountability and transparency by keeping stakeholders informed about the decision-making process, progress, and outcomes of the basin plan update and revision;
- Building consensus and facilitating collaboration among different stakeholders, fostering collective ownership and support for updating and revising the plan and its implementation.

5.3.3. Key Messages of the Update

Developing key messages that are clear, concise, and relevant to different stakeholder groups is essential for effective communication during the basin plan update or revision process. These messages are important for capacitating, informing and engaging stakeholders at various stages and should:

- Explain the objectives of the update or revision, clarifying why changes are necessary and what the process aims to achieve.
- Describe the anticipated outcomes and benefits, such as improved water management, environmental protection, or enhanced community well-being.
- Provide timelines and next steps for stakeholder engagement, outlining key milestones, opportunities for feedback, and when stakeholders can expect further updates.
- Address concerns and common questions, such as how water allocation may change, what safeguards are in place for the environment, and how the revision will impact local communities.

By tailoring these messages to specific stakeholder groups, the communication process becomes more engaging and relevant, ensuring stakeholders are well-informed and actively involved in the basin plan update, revision and implementation of basin plan audit findings for better basin planning process.

5.3.4. Transparency and Reporting

The task of maintaining clear and open reporting practices helps stakeholders are informed, and the process is more likely to garner trust and support. Transparency and reporting are critical to maintaining trust and ensuring accountability throughout the basin plan revision process. The aspects of transparent reporting for the basin plan update and revision include but are not limited to the following key issues:

- Regular progress reports, which provide stakeholders with timely updates on the status of the revision process, including milestones achieved and any challenges encountered;
- Publicly accessible documents, such as draft revisions, audit reports, and meeting summaries, which ensure that all stakeholders have access to relevant information and can track the development of the plan;
- Monitoring and evaluation reports that assess the effectiveness of the communication strategies and stakeholder engagement efforts, ensuring that the process remains inclusive and transparent.

5.4. Resource mapping for updated basin plan implementation

Effective resource mapping is essential for the successful implementation of an updated basin plan. Recognizing that the plan's measures cannot be realized without adequate funding, mapping sustainable financing mechanisms such as water tariffs, the polluter pays principle, initiatives like the Green Legacy, and special funds dedicated to degraded land rehabilitation. To comprehensively assess available resources, a thorough mapping of government project budgets, NGO contributions, and partner involvement within the basin is necessary.

Beyond financial resources, human capital is equally vital. Mapping stakeholder groups, their expertise, and their roles in water management promotes collaboration and empowers local communities. Furthermore, mapping regulatory frameworks and knowledge bases guides investment and informs decision-making. By creating a comprehensive resource inventory, stakeholders gain a shared understanding of the basin's assets and limitations, facilitating efficient resource allocation and ensuring the updated plan's effective implementation.

5.5. Monitoring, Evaluation & Adaptive Management

Once the revised basin plan is implemented, continuous monitoring and adaptive management are essential to ensure long-term effectiveness. This involves: regular progress reports from stakeholder representatives, performance indicators to measure ecological and socio-economic impacts, and adaptive strategies to modify the plan based on new challenges and stakeholder feedback.

In general, applying the MSP approach to basin plan revision enhances transparency, equity, and long-term sustainability by integrating multiple perspectives. By ensuring participatory decision-making, leveraging scientific and traditional knowledge, and fostering shared responsibility, this approach helps create a balanced and adaptable basin management strategy that benefits both people and the environment.

6. Annexes

The updated basin plan should have the following annexes

- Maps:
 - Basin map, land use maps, hydrological maps, etc.
- Tables:
 - Data tables, statistical tables, etc.
- Figures
 - Charts, graphs, diagrams, etc.

References

The updated basin plan should include a reference list cited in the document

