



GEF/UNDP/ASEAN Project on Reducing Pollution and Preserving Environmental Flows in the East Asian Seas through the Implementation of Integrated River Basin Management (IRBM) in ASEAN Countries

Guidebook on the State of River Basin Reporting

for Local Governments and River Basin
Organizations in the East Asian Seas Region





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Acronyms

AMS	–	ASEAN Member States
ASEAN	–	Association of Southeast Asian Nations
BOD	–	Biological Oxygen Demand
COD	–	Chemical Oxygen Demand
DO	–	Dissolved Oxygen
GAD	–	Gender and Development
GDP	–	Gross Domestic Product
GESI	–	Gender Equality and Social Inclusion
GHG	–	Greenhouse Gas
GWP	–	Global Water Partnership
ICM	–	Integrated Coastal Management
IRBM	–	Integrated River Basin Management
IGES	–	Institute for Global Environmental Strategies
IWRM	–	Integrated Water Resources Management
KMGBF	–	Kunming Montreal Global Biodiversity Framework
M & E	–	Monitoring and Evaluation
MRC	–	Mekong River Commission
NGO	–	Non-Government Organization
PEMSEA	–	Partnerships in Environmental Management for the Seas of East Asia
pH	–	Potential of Hydrogen
PRF	–	PEMSEA Resource Facility
RBO	–	River Basin Organization
TWG	–	Technical Working Group
SDGs	–	Sustainable Development Goals
SDSSEA	–	Sustainable Development Strategy for the Seas of East Asia
SFDRR	–	Sendai Framework for Disaster Risk Reduction
SOC	–	State of the Coasts
SORB	–	State of River Basin Report
UNESCO	–	United Nations Educational, Scientific and Cultural Organization
UNFCCC	–	United Nations Framework Convention on Climate Change
USD	–	United States Dollar
WHO	–	World Health Organization
WWF	–	World Wide Fund

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ASEAN Member States Focal Agencies

- Cambodia: Department of Water Quality Management, Ministry of Environment
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- Lao PDR: Department of Water Resources, Ministry of Natural Resources and Environment

- Malaysia: Department of Irrigation and Drainage, Ministry of Energy Transition and Water Transformation
- Philippines: National Water Resources Board and Environmental Management Bureau, Department of Environment and Natural Resources
- Vietnam: Pollution Control Department, Ministry of Natural Resources and Environment

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Background

The Guidebook on the State of the River Basin (SORB) Reporting System is intended for local governments and/or river basin organizations in the East Asian Seas region currently or planning to implement integrated river basin management (IRBM)/integrated water resources management (IWRM) programs.

The Guidebook provides guidance to local governments and/or river basin organizations in establishing a regular monitoring and evaluation (M&E) and reporting mechanism. It discusses the requirements, the basis and importance of implementing and sustaining the SORB reporting system.

Although the Guidebook was developed for application in river basins in the East Asian Seas Region, the contents are generic, and users are advised to make modifications according to their local situation and capacity. The intention is not to prescribe, but to help river basin managers and coastal managers, local planners and constituent stakeholders to develop and employ a systematic M&E tool within the context of an IRBM/IWRM program. It is therefore essential to understand its linkages to the different activities and outputs generated throughout the process of IRBM/IWRM development and implementation.



Introduction

The **State of River Basin (SORB) reporting system** is an operational tool that local governments and river basin organizations can use in the M & E and reporting of their IRBM or IWRM programs. For local governments/river basin organizations that are about to initiate their IRBM/IWRM programs, the SORB can be used as a tool to determine baseline conditions and priorities to be addressed in an IRBM/IWRM program. For local governments/river basin organizations who have IRBM/IWRM programs in place, the SORB can be used as a tool to measure and report progress and impacts of IRBM/IWRM implementation.

The Guidebook is divided into four sections:

Section 1 introduces IRBM/IWRM as a strategy for sustainable development of river basins, the associated watershed and adjacent marine and coastal areas and the SORB reporting system and its applications in an IRBM/IWRM program;

Section 2 presents the indicators for the SORB reporting system and the process of selecting the indicators;

Section 3 details the steps in developing the SORB report; and

Section 4 presents the applications of the SORB report in the development and implementation of an IRBM/IWRM program.

The tools and materials that can be used in developing the SORB report for a given river basin are discussed in the Annexes.

1

Sustainable Development of River Basins, Associated Watersheds and Adjacent Coastal and Marine Areas through Source to Sea Management



1.1 Integrated River Basin Management and Integrated Water Resources Management

Water security plays a critical role in sustaining livelihoods, ensuring sustainable socioeconomic growth, maintaining healthy ecosystems, protecting human health, and ensuring resilience against water-related disasters. To achieve water security, it is vital to protect vulnerable water systems, mitigate the impacts of water-related hazards such as floods and droughts, safeguard access to water functions and services, and manage water resources in an integrated and equitable manner (UNESCO, 2023). The pressures from population growth, urbanization, industrialization, and climate change have led to severe degradation of water quality and ecosystems globally. Urbanization, for instance, is often directly linked to environmental degradations, including the quality of water, air, and noise. It is predicted that by 2050, 67 per cent of the world's population will be living in urban areas, with the most rapid levels of urbanization taking place in developing countries (Cullis et al., 2019). This urban expansion could severely impact communities reliant on rivers for drinking and economic activities, such as agriculture and fisheries, a challenge observed across many ASEAN countries, thus, obstructing the region's progress towards achieving Sustainable Development Goal 6 (SDG 6), which focuses on ensuring access to clean water and sanitation.

It has been reported that many river basins in the ASEAN region have been severely polluted by the discharge of untreated or partially treated domestic, industrial, and agricultural wastewater, leading to substantial levels of contamination in drinking water sources as well as inland and coastal ecosystems. These severe water degradations have also caused negative economic impacts (Ngoc-Bao, 2021). Consequently, the achievement of SDG 6 in the ASEAN region is not feasible at this moment, due to various anthropogenic and natural factors (Kumar, 2019).

Against this backdrop, sustainable management of river basins and the associated watersheds has become critically important in the region. There is a strong need for an effective and practical framework, along with robust governance and management strategies, for the successful implementation and realization of the IRBM and IWRM approaches in ASEAN countries in support of sustainable development that balances socio-economic development with environmental conservation, ensuring the long-term viability of river basins.

IRBM and IWRM have emerged as internationally recognized and promising multidisciplinary and multisectoral approaches, which view the management of water as part of a system rather than an independent process, to effective and efficient water resources management. IWRM has been defined as *“a process which promotes the coordinated development and management of water, land and related resources in order to maximize economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems”* (GWP, 2020). As a subset of IWRM, IRBM focuses on managing water, land, and related resources within a river basin to maximize economic and social benefits while preserving freshwater ecosystems (WWF, 2003). IRBM involves a coordinated approach that integrates top-down and bottom-up management, strategic planning, and proactive resource use planning. It seeks to balance environmental, social, and economic objectives through stakeholder engagement and a cycle of identification, assessment, planning, implementation, and monitoring (Hooper, 2005). The principles of IRBM include considering the entire river basin as a system, prioritizing key issues through stakeholder consultation, and encouraging public participation in resource management. Collaboration between government entities, NGOs, and individuals is essential for establishing common objectives and conflict resolution (Hooper, 2005).

On a broader scale, IRBM/IWRM programs can be implemented within a source-to-sea system, which is defined as the land area that is drained by a river system, its lakes and tributaries (the river basin), connected aquifers and downstream recipients including deltas and estuaries, coastlines and near-shore waters, the adjoining sea and continental shelf as well as the open ocean. The source-to-sea approach directly addresses the linkages between land, water, delta, estuary, coast, nearshore and ocean ecosystems leading to holistic natural resources management and economic development where the intended outcome is to identify appropriate courses of action to address alterations of key flows, resulting in economic, social and environmental benefits (Matthews et al., 2019).

1.2 Framework for Sustainable Development of River Basins, Associated Watersheds and Adjacent Coastal and Marine Areas through Source-to-Sea Management

Over the past three decades of implementing integrated coastal management (ICM), the practical experiences of PEMSEA in the development and implementation of ICM programs in the East Asian Seas Region have been consolidated into the Framework for Sustainable Development of Coastal Areas through ICM implementation. The Sustainable Development (SD) Framework covers a system of governance and five sustainable development aspects or issue-specific management programs that are critical to achieving the overall goals of sustainable development. The same SD Framework is being applied to IRBM/IWRM as both approaches also require a system of governance and management programs to achieve sustainable development of river basins, the associated watersheds and adjacent coastal and marine areas (**Figure 1**).

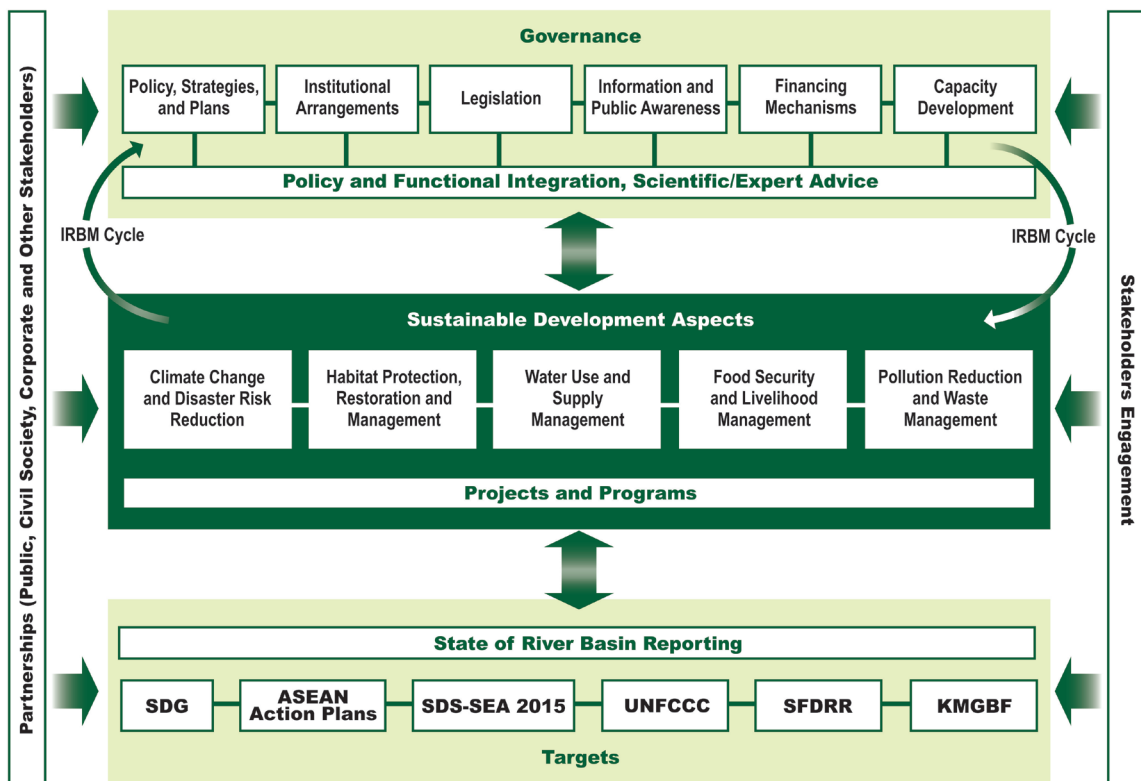


Figure 1. Framework for Sustainable Development of River Basins, Associated Watersheds and Adjacent Coastal and Marine Areas through Source-to-Sea Management

1.2.1 Governance

The Governance component of the SD Framework underscores the integration of policy and strategies in developing specific actions plans to create a policy environment for environmental financing, ecosystem protection and capacity development. It promotes institutional arrangements that facilitate interagency, multisectoral cooperation and collaboration; develops appropriate legislation to ensure policy and functional integration; and provides a legal basis for their enforcement. The key elements of good governance identified in the SD Framework include:

- i. **Policy, strategies and action plans:** establishing and adopting policy reforms, shared visions and missions, long-term strategies and action plans that express intention, direction, targets and timeframe for managing river basins, the associated watersheds and adjacent marine and coastal areas and resources and their sustainable use through an integrated approach.
- ii. **Institutional arrangements:** operationalizing interagency and multisectoral coordinating mechanisms that involve concerned stakeholders in planning, implementing, evaluating and continually improving programs for sustainable development through IRBM/IWRM programs.
- iii. **Legislation:** developing and implementing national legislation and/or local administrative orders, which support new and existing policies that facilitate the effective implementation of IRBM/IWRM.
- iv. **Information and public awareness:** putting into operation communication strategies and plans for ensuring that stakeholders are informed of the scope, benefits and threats to their local ecosystems, and the programs that are being developed and implemented to reduce threats and enhance benefits.
- v. **Financing mechanism:** institutionalizing the measures and means to support conservation of resources and required environmental infrastructure improvements through public- and market-based sources.
- vi. **Capacity development:** incorporating capacity development as an indispensable component of all aspects of sustainable development programs, from inception and implementation to monitoring and evaluation and, in particular, equipping local personnel and managers with the essential technical and management skills to plan and manage coastal areas and resources.

1.2.2 Sustainable Development Aspects

There are five sustainable development aspects/programs identified in the SD Framework, namely: natural and man-made hazards, habitats/biodiversity, water supply, food security, and pollution. These aspects represent the common challenges faced by local governments and communities with respect to protecting and sustaining coastal and marine ecosystem services. These aspects are characterized as follows:

- i. **Climate change and disaster risk reduction:** East Asia and the ASEAN region frequently experience natural and man-made disasters, including earthquakes, tsunamis, tidal storms, flooding, sea level rise, red tides, oil and chemical spills, etc. A first step in the process is to identify and delineate the hazards in the area, the likelihood of a disaster occurring, the potential risks, the likely consequences, and the ultimate impact on the lives and property of coastal inhabitants, as well as ecosystem health.
- ii. **Habitat protection, restoration and management:** Specific habitat management programs are developed and implemented to make adequate protection, conservation and/or restoration of river basins, coastal and marine ecosystem services provided by coral reefs, mangroves, seagrass beds, wetlands and other natural resources.
- iii. **Water use and supply management:** Forward-looking water resource management programs are essential to sustainable development, especially in urban centers where water supply shortages are anticipated. Measures include sound water use policy, tariff systems, water allocation/licensing, water conservation and reuse, protection of water sources, and ensuring the quality, adequate supply and accessibility of water services to all citizens.
- iv. **Food security and livelihood management:** The sustainable supply of fisheries in rivers, lakes and coastal seas is both a target and an outcome of sustainable development, in the context of IRBM/IWRM/ecosystem-based management. Key factors being addressed under this aspect include: (a) food security, especially for the poor, given the role of fisheries as the traditional source of animal protein for the poor; (b) supplemental livelihood programs to reduce overfishing and to increase income from other sources of living; and (c) increased employment/job opportunities as a consequence of protecting and enhancing ecosystem services, including sustainable coastal tourism, sustainable agriculture/aquaculture; sustainable forestry, etc.
- v. **Pollution and waste management:** Pollution reduction, waste management and sanitation are common challenges for every urban and rural setting. Sustainable management interventions entail:

(a) understanding of the sources and characteristics of contaminants and waste materials entering the environment; (b) awareness building and education of the public; (c) policy reforms, legislation, capacity development and innovative, market-based financing instruments; (d) appropriate and affordable technologies; (e) incentive and enforcement mechanisms to promote change; and (f) societal behavioral shifts in consumption and use patterns.

The SD Framework further points out: (a) the application of the IRBM cycle to plan, execute and deliver essential outputs under the governance and sustainable development aspects of the SD Framework, and (b) a State of the River Basin (SORB) reporting system to monitor and assess conditions, responses and trends in river basins and associated watersheds and adjacent coastal and marine areas, for purposes of developing and continually improving IRBM/IWRM programs within the Source-to-Sea management continuum.

Another notable framework that has been developed in the region, specifically for Mekong River, is the Mekong River Basin Indicator Framework, a key product of the Mekong River Commission which provides guidance for the consistent and streamlined approach to data collection, analysis and reporting by key actors and relevant stakeholders of the river basin across five core dimensions (environment, social, economic, climate change and cooperation) with 15 strategic indicators (MRC, 2019). The indicator framework aims targets all actors working on WRM and development across the Mekong Basin. Applicable indicators are considered in the SORB reporting (see Section 2.2)

1.3 State of River Basin Reporting System

1.3.1 State of River Basin Reporting and IRBM/IWRM

There is currently lack of a standard approach and harmonized set of indicators for monitoring, evaluating and reporting the effectiveness of IRBM/IWRM programs and initiatives in the ASEAN region, especially from a governance and management perspectives. This poses a challenge in assessing the performance of IRBM/IWRM efforts, communicate, report, propose adaptive management measures, and compare them across different river basins. To ensure the successful implementation of IRBM/IWRM programs, it is crucial to establish a harmonized or standard set of indicators that are commonly used and accepted regionally through the State of River Basin reporting as a means of: (i) establishing baselines and monitoring and reporting the condition of a river basin over time; (ii) evaluating governance and management

practices; (iii) evaluating the effectiveness of management interventions and their impacts; (iv) identifying adaptive management measures to improve planning and decision-making, and (v) and ensuring accountability and sustainability of monitoring programs that measure the health of the water environment at spatio-temporal scale.

The SORB reporting system is patterned after PEMSEA's State of the Coasts (SOC) reporting system (PEMSEA, 2011). The SORB Reporting System is expected to provide the following benefits to local governments and/or river basin organizations:

- Provides a systematic approach to organizing and presenting multi-faceted information, facilitates multisectoral participation, interaction and awareness building on river basin and water resources governance, and enhances local government/river basin organization leadership among its constituents.
- Provides local governments/river basin organizations with information on changing social, economic and environmental conditions in the river basins, associated watersheds and adjacent coastal and marine areas and outlines the potential impacts and implications of such changes.
- Spells out the perspectives of the community on the benefits and challenges in sustainable river basin and water resources management and the effectiveness of the local government's/river basin organization's IRBM/IWRM programs in deriving benefits.
- Offers recommendations for consideration by the local governments/river basin organizations to address unsustainable trends and emerging problems through improvements in IRBM/IWRM programs.

1.3.2 Objectives of the SORB Reporting System

a. SORB Baseline Report:

- Compile detailed qualitative and quantitative baseline data concerning demographics, socioeconomic and environmental statuses, along with existing management practices within a specific river basin area.
- Evaluate the current governance and management frameworks, and their implementation strategies
- Identify and prioritize critical issues for inclusion in an IRBM initiative/program.
- Set social, economic, and environmental benchmarks to serve as reference points for future SORB reports.
- Highlight significant information deficits to be addressed through subsequent research and/or ongoing monitoring efforts.

b. Updating and Reporting on Ongoing IRBM/IWRM Initiatives/Programs:

- Re-examine the scope of the IRBM/IWRM initiative/program, outlining the management and governance frameworks, along with the implementation strategies that have been established.
- Analyse the degree and success of the IRBM/IWRM program implementation achieved to date.
- Track trends or shifts in the social, economic, and environmental landscape of the river basin, identifying key factors contributing to these changes.
- Evaluate the implications of identified trends on the area and its management.
- Encourage the adoption of adaptive management strategies within IRBM/IWRM program execution to accommodate evolving circumstances.

2

Indicators for State of River Basin Reporting System



2.1 Indicators in IRBM/IWRM programs

Indicators are quantitative/qualitative statements or measured/observed parameters that can be used to describe existing situations and measure changes or trends over time (Duda, 2002). Indicators are developed as tools to make monitoring and evaluation processes operational.

It is important to note that indicators are context-based, meaning their relevance depends on the specific policy question being addressed, and should be selected based on their relevance, measurability, and meaningfulness.

The following basic attributes are considered in the process of indicator selection:

- **Relevance:** The indicators should be aligned with the objectives and goals of IRBM/IWRM programs, as well as the policy and decision-making processes at the priority river basins in the ASEAN and wider East Asian Seas region.
- **Clarity:** The indicators should be easily interpretable and transparent, avoiding ambiguity in their interpretation.
- **Feasibility:** The indicators should be practical to implement considering existing and available resources in the priority river basins.
- **Measurability:** The indicators should be quantifiable and rely on accessible data and information sources.
- **Scientific/statistical reliability:** The indicators should be based on sound scientific principles and methodologies to ensure accuracy and credibility.

- **Comprehensiveness:** The indicators should cover a broad range of relevant aspects of river basin management, including bio-physical, socio-economic, gender, demographic, ecological, governance, and management characteristics.
- **Comparability:** The indicators should facilitate benchmarking of progress, sharing of good practices, and mutual learning among stakeholders responsible for managing different river basins within and beyond country borders.
- **Status and trends over time:** The indicators should be able to present the existing status and demonstrate changes and trends in the conditions of the river basin over time.
- **Stakeholder relevance:** The indicators should be meaningful and address the concerns of various stakeholders involved in river basin management.

2.2 Indicators for the State of River Basin Reporting System

The process of identifying the indicators for the SORB reporting system entailed the engagement of the Institute for Environmental Strategies to facilitate the process of identification of the core indicators as part of the development of the SORB Guidebook.

Extensive literature review of available environmental assessments and monitoring, evaluation and reporting of management programs, particularly those applied in the ASEAN and East Asian Seas Region was conducted at the regional level. At the national and river basin levels, local experts from the six ASEAN Member States were engaged in the conduct national and local consultations and interviews with selected partners and stakeholders focusing on existing efforts, programs, and initiatives to promote and implement the IRBM approach, the current state of the river basin reporting system, data availability and capacity for future implementation of the SORB reporting system. A Technical Review Report, as a supplementary document to this Guidebook, has been prepared consolidating the results of the literature review, consultations and interviews conducted in the six AMS.

A regional workshop that brought together national and local government representatives from the six AMS, university partners and other stakeholders was conducted to present and discuss, validate and build consensus on the core indicators and the process of preparing the SORB reports. National and basin level workshops were conducted in Kampot City, Cambodia and Luang Prabang City, Lao PDR to gather the perspectives of national and local government partners in the implementation of the reporting system specifically for Kampong Bay River Basin in Cambodia and Nam Tha River Basin in Lao PDR.

Based on the results of the extensive literature review, baseline investigations in the priority river basins and the regional, national and local consultation workshops, a total of 32 core indicators were selected based on their applicability in the region; simple and meaningful and are complementary to the indicators identified in relevant international and regional agreements and action plans (e.g., SDGs, UNFCCC, KMGBF, SFDRR, SDS-SEA, ASEAN Action Plans) (see **Table 1**).

Table 1. Relationships of Selected SORB Indicators to Various International and Regional Agreements and Targets.

Regional/ International Agreements	Goals/Targets/Priority Programs	SD Framework	SORB Indicators
Sustainable Development Goals (2030 Targets)	<ul style="list-style-type: none"> • SDG 5: Gender equality • SDG 6: Clean water and sanitation • SDG 11: Sustainable cities and communities • SDG 13: Climate action • SDG 14: Life below water • SDG 15: Life on land • SDG 17: Partnerships 	<ul style="list-style-type: none"> • Policy, strategies and plans • Institutional arrangements • Legislation • Information and public awareness • Financing mechanisms • Capacity development • Climate change and disaster risk reduction • Habitat protection, restoration and management • Water use and supply management • Food security and livelihood management • Pollution reduction and waste management 	<p>[003] Local government development plan [004] Coordinating mechanism [006] Benefits derived from cooperation [007] Enabling legislation [011] Education and public awareness schemes [012] Public participation and mobilization [013] Stakeholder participation and gender equality and social inclusion [015] Sustainable financing mechanisms [017] Availability/ accessibility of capacity development and training [018] Human resource capacity [019-024] Climate change and DRR [025] Status of environmental assets [026-028] Water use and supply management [029-030] Food security and livelihood management [031-032] Pollution reduction and waste management</p>
Sustainable Development Strategy for the Seas of East Asia (2027 Targets)	<ul style="list-style-type: none"> • National policies, legislations and institutional arrangements • Capacity development • Knowledge management • Gender equality and social inclusion • Biodiversity conservation and fisheries management • Climate change adaptation and disaster risk reduction 	<ul style="list-style-type: none"> • Policy, strategies and plans • Institutional arrangements • Legislation • Information and public awareness • Financing mechanisms • Capacity development • Climate change and disaster risk reduction • Habitat protection, restoration and management 	<p>[002] River basin strategy and action plan [003] Local government development plan [004] Coordinating mechanism [006] Benefits derived from cooperation [007] Enabling legislation [011] Education and public awareness [012] Public participation and mobilization [013] Stakeholder participation and gender equality and social inclusion</p>

Table 1. Relationships of Selected SORB Indicators to Various International and Regional Agreements and Targets. (cont.)

Regional/ International Agreements	Goals/Targets/Priority Programs	SD Framework	SORB Indicators
Sustainable Development Strategy for the Seas of East Asia (2027 Targets)	<ul style="list-style-type: none"> • Pollution reduction, waste management and water use management • Sustainable livelihood/ enterprise development • Public and private financing 	<ul style="list-style-type: none"> • Water use and supply management • Food security and livelihood management • Pollution reduction and waste management 	<p>[014] Budget for IRBM [015] Sustainable financing mechanism [017] Availability/ accessibility of capacity development and training [018] Human resource capacity [019-024] Climate change and DRR [025] Status of environmental assets [026-028] Water use and supply management [029-030] Food security and livelihood management [031-032] Pollution reduction and waste management</p>
Kunming-Montreal Global Biodiversity Framework (2030 Targets)	<ul style="list-style-type: none"> • Target 1: Plan and manage all areas to reduce biodiversity loss • Target 2: Restore 30% of all degraded ecosystems • Target 3: Conserve 30% of land, waters and seas • Target 7: Reduce pollution to levels that are not harmful to biodiversity • Target 8: Minimize the impacts of climate change on biodiversity and build resilience • Target 11: Restore, maintain and enhance nature’s contributions to people • Target 14: Integrate biodiversity in decision-making at every level • Target 16: Enable sustainable consumption choice to reduce waste and overconsumption • Target 20: Strengthen capacity building, technology transfer and scientific and technical cooperation for biodiversity 	<ul style="list-style-type: none"> • Policy, strategies and plans • Institutional arrangements • Legislation • Information and public awareness • Financing mechanisms • Capacity development • Climate change and disaster risk reduction • Habitat protection, restoration and management • Water use and supply management • Food security and livelihood management • Pollution reduction and waste management 	<p>[003] Local government development plan [006] Benefits derived from cooperation [007] Enabling legislation [015] Sustainable financing mechanism [017] Availability/ accessibility of capacity development and training [018] Human resource capacity [019-024] Climate change and DRR [025] Status of environmental assets [029-030] Food security and livelihood management [031-032] Pollution reduction and waste management</p>

Table 1. Relationships of Selected SORB Indicators to Various International and Regional Agreements and Targets. (cont.)

Regional/ International Agreements	Goals/Targets/Priority Programs	SD Framework	SORB Indicators
Kunming-Montreal Global Biodiversity Framework (2030 Targets)	<ul style="list-style-type: none"> Target 21: Ensure that knowledge is available and accessible to guide biodiversity action Target 22: Ensure participation in decision making and access to justice and information related to biodiversity for all Target 23: Ensure gender equality and gender-responsive approach for biodiversity action 		
Sendai Framework for Disaster Risk Reduction (2030 Targets)	<ul style="list-style-type: none"> Priority 1: Understanding disaster risk. Priority 2: Strengthening disaster risk governance to manage disaster risk. Priority 3: Investing in disaster risk reduction for resilience. Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction. 	<ul style="list-style-type: none"> Policy, strategies and plans Institutional arrangements Legislation Information and public awareness Financing mechanisms Capacity development Climate change and disaster risk reduction 	<p>[003] Local government development plan [006] Benefits derived from cooperation [007] Enabling legislation [015] Sustainable financing mechanism [017] Availability/ accessibility of capacity development and training [018] Human resource capacity [019-024] Climate change and DRR</p>
UNFCCC/Paris Agreement	<ul style="list-style-type: none"> Reduce global greenhouse gas emissions to hold global temperature increase to well below 2°C above pre-industrial levels and pursue efforts to limit it to 1.5°C above pre-industrial levels Periodic assessment of progress towards achieving the purpose of this agreement and its long-term goals Provide financing to developing countries to mitigate climate change, strengthen resilience and enhance abilities to adapt to climate impacts 	<ul style="list-style-type: none"> Legislation Financing mechanisms Capacity development Climate change and disaster risk reduction 	<p>[007] Enabling legislation [015] Sustainable financing mechanism [017] Availability/ accessibility of capacity development and training [018] Human resource capacity [019-024] Climate change and DRR</p>

Table 1. Relationships of Selected SORB Indicators to Various International and Regional Agreements and Targets. (cont.)

Regional/International Agreements	Goals/Targets/Priority Programs	SD Framework	SORB Indicators
ASEAN Action Plans	<ul style="list-style-type: none"> • ASEAN Socio-cultural Community Blueprint 2025 • ASEAN Strategic Plan of Action on the Environment • ASEAN Strategic Action Plan on Water Resources Management • ASEAN Strategic Action Plan on Climate Change • ASEAN Regional Action Plan for Combatting Marine Debris 		

The selected indicators for the SORB are organized in accordance with the SD Framework (Figure 2 and 3). The selected indicators provide the basis for measuring current status, changes over time, management responses, targets and impacts of management actions in each of the Governance elements as well as the Sustainable Development Aspects of the SD Framework. Selected strategic indicators from four dimensions (e.g., environment, social, economic and cooperation) from the Mekong River Basin Indicator Framework are included in relevant Governance elements and SD aspects.

2.3 Core indicators for the SORB reporting system

Thirty two (32) core indicators for the SORB reporting system were identified consisting of 18 governance indicators and 14 sustainable development aspects indicators that were considered as essential in evaluating the progress of IRBM/IWRM program implementation. The 32 indicators relate to each of the components of the SD Framework as shown in **Figures 2 and 3**. Detailed descriptions, rationale, data requirements and guide questions for the 32 indicators are given in **Annex 1**.

The data requirements can be satisfied by both primary and secondary data. Primary data consists of basic or raw information or data that is directly collected or generated by relevant agencies or organizations while secondary data is obtained from published sources, such as reports and research papers, and other existing secondary sources.

The core indicators are designed for consistent implementation but can also be subjected to selective use, allowing adaptation to specific local contexts and in consideration of various factors such as data availability, acceptability to stakeholders, feasibility of quantification, and replicability within a river basin.

As implementation of the SORB reporting system progresses, the core indicators can be expanded and may be considered in the succeeding SORB reports.

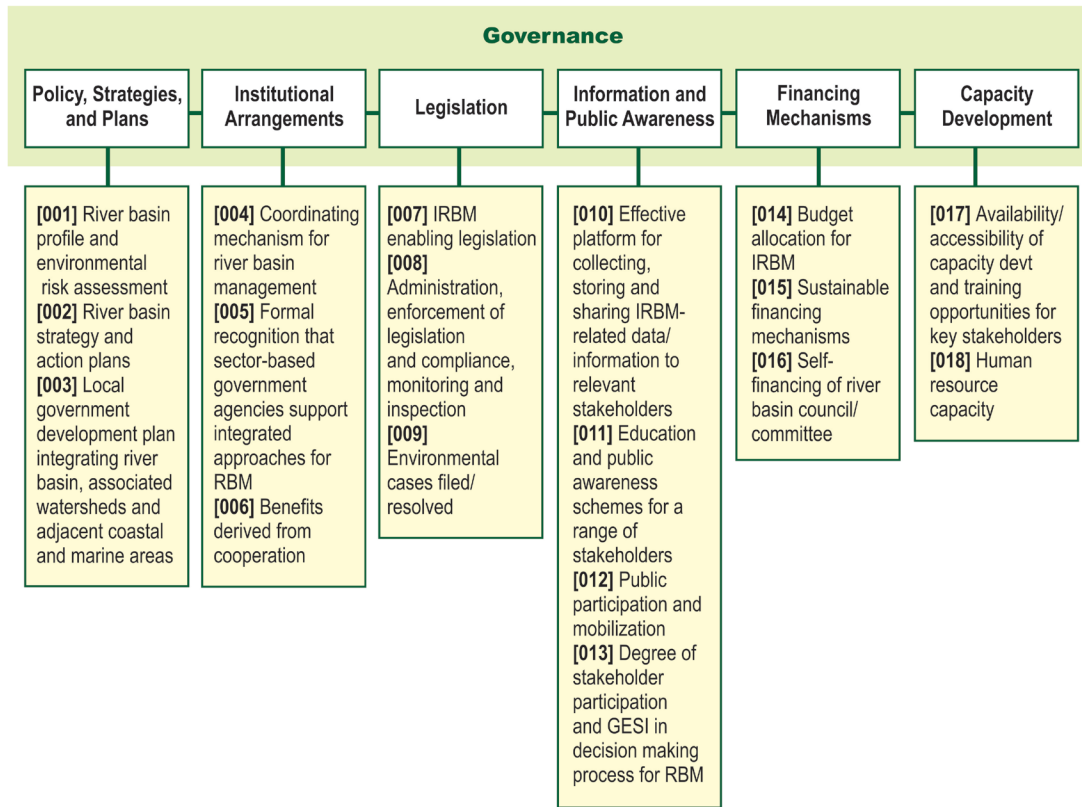


Figure 2. Core Indicators for the Governance Elements of the SD Framework

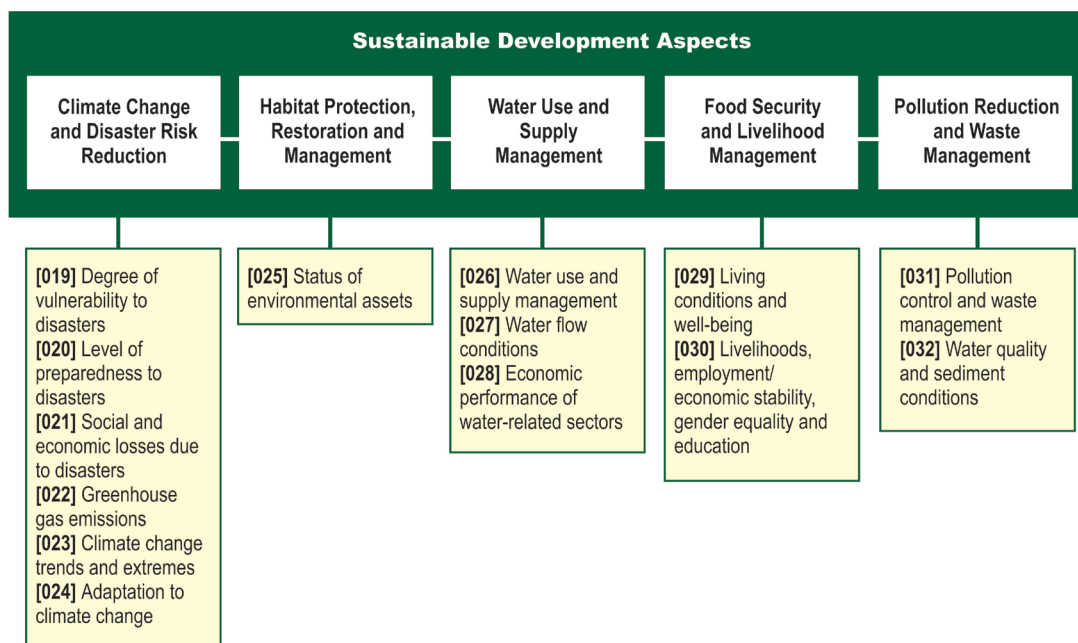


Figure 3. Core Indicators for the Sustainable Development Aspects of the SD Framework

2.4 SORB Reporting Template

To support the SORB reporting process, a standard data input sheet (or SORB reporting template) has been developed to assist local governments and/or river basin organizations efficiently manage and consolidate available data. The template includes two parts:

PART I: General information

Provides basic information on demographic, socioeconomic and biophysical information of the target river basin, associated watershed and adjacent coastal and marine areas, as well as information relevant to the SDGs.

PART II: Status and trends of governance and management indicators

Presents the 32 core indicators for SORB reporting, summarizes the targets and provides information on progress made in meeting the targets. Part II represents a major portion of the SORB report.

Given the extensive data and information required, accomplishing the template is a continuous process, rather than a one-off task. It necessitates regular updates, ideally annually in accordance with the reporting cycle of local governments and/or river basin organizations. It is also important to indicate “no data” where information is not available to identify critical data gaps in relation to the various elements of the SD Framework. For validation purposes, data sources ranging from secondary to primary, including personal interviews should be carefully documented or properly cited.

The template is being tested in seven (7) river basins in Cambodia, Indonesia, Lao PDR, the Philippines, Malaysia and Vietnam under the GEF/UNDP/ASEAN Project on Integrated River Basin Management as part of the baseline SORB reporting. End of project SORB reports are being targeted to be developed depending on available data and information using the same template. Based on the experience in the implementation of the SORB reporting system under the IRBM Project, further improvements will be made on the format and contents.

3

Steps in Developing the State of River Basin Report

The development of the SORB Report follows a structured process consisting of three major stages, namely: (1) inception and initiation of SORB implementation, (2) data gathering, analysis and validation and (3) report preparation and dissemination.

The whole process requires the involvement of relevant stakeholders from national and local government agencies, the academe, the private sector, civil society and non-governmental organizations (NGOs) and other stakeholders with interest on the management of river basins, associated watersheds and adjacent coastal and marine areas. **Figure 4** shows the general steps for the development of the SORB report.

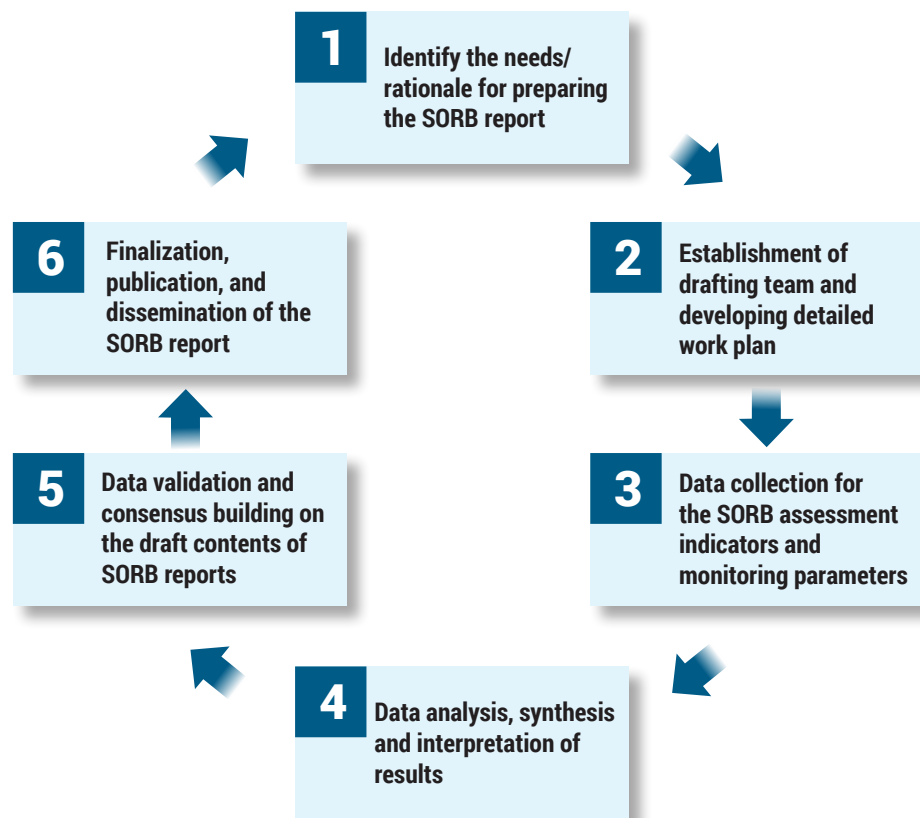


Figure 4. General Steps in Developing the SORB Report.

3.1 Inception and Initiation of SORB Implementation

3.1.1 Organize and conduct an SORB inception workshop

The inception workshop aims to:

- Explain the objectives and methodology to be employed in the SORB reporting system.
- Review the various parameters and indicators in the SORB reporting system.
- Assess the data availability and accessibility of relevant data and information for inclusion in the SORB report, including determining the physical boundaries of the river basin (**Figure 5**) and the baseline year for the initial report, which serves as a reference point for future assessments.

Ideally, workshop participants will include representatives from government (e.g., planning, statistics, environment, agriculture, fisheries, health, disaster, engineering, sanitation and waterworks offices) and nongovernment agencies and organizations, including private sector and academe who manage data repositories or operate as data repository organizations. They can help facilitate in creating data availability maps, highlighting data gaps that can guide primary data collection efforts.

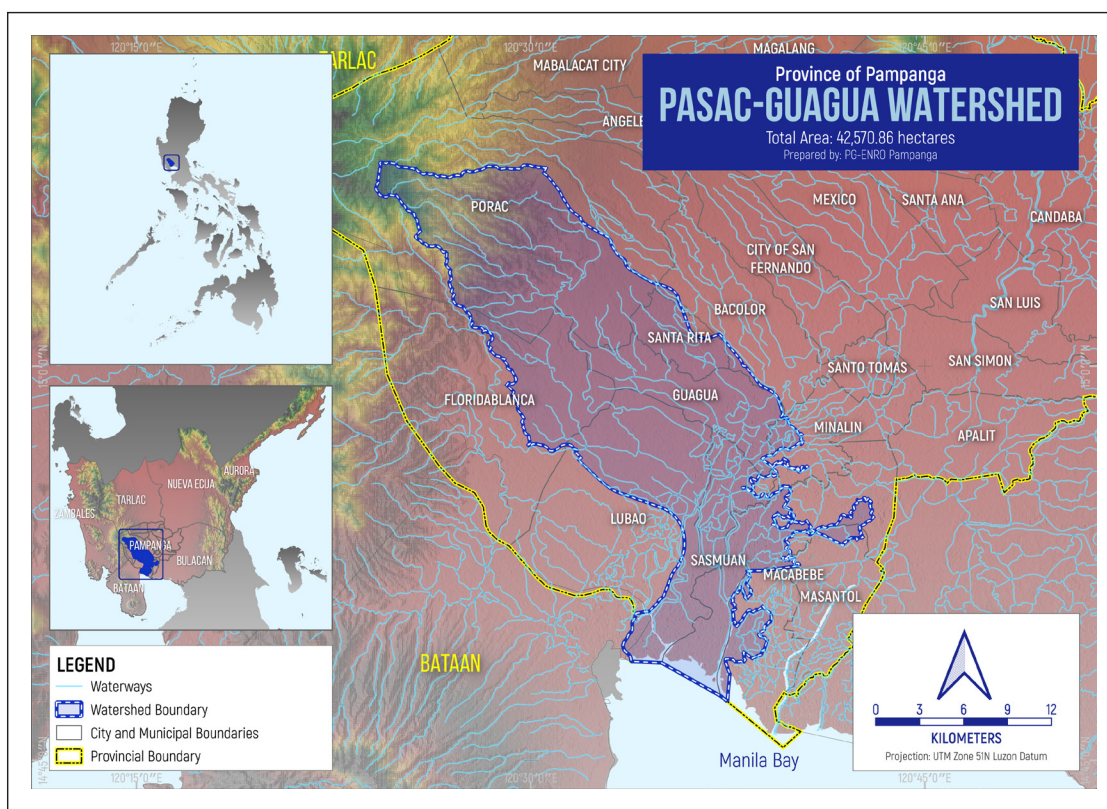


Figure 5. Geographic Scope of SORB Reporting System for Pasic-Guagua Watershed, Pampanga Province, Philippines.



SORB Inception Workshops for (clockwise) Imus Ylang-Ylang Rio Grande Rivers, Cavite (Philippines), Pasac-Guagua Watershed, Pampanga (Philippines), Nam Tha River Basin, Luang Prabang (Lao PDR) and Kampong Bay River Basin, Kampot (Cambodia).

It is very important that participants are familiar with the SORB template and the data requirements for the SORB indicators to facilitate the conduct of the workshop. It is also critical at this stage that stakeholders appreciate the benefits of the reporting system so as to engage them to actively participate and contribute for the development of the SORB report. Participants may be asked to bring with them relevant data/information from their respective agencies for initial assessment. Also, it is helpful if relevant sources of information (e.g., coastal environmental profiles, socioeconomic profiles, coastal management plans, development plans, etc.) are compiled prior to the inception workshop.

A significant proportion of the data/information to be used for the preparation of the SORB report is secondary information gathered mainly from existing databases and information systems in government agencies, research and academic institutions, NGOs and the private sector. Primary data collection should be considered only when little or no information is available from these sources. Critical data gaps identified in the baseline SORB report can be addressed through primary data collection over the course of the IRBM/IWRM program. These data can then be included in succeeding SORB reports. If possible, relevant data/information should be gathered and stored in a multipurpose data management/decision-support system for easy access and enhanced analysis.

3.1.2 Prepare a workplan, schedule and budget for the development and implementation of the SORB reporting system

Please refer to **Table 2** below.

Table 2. Example of a Work Plan for SORB Development and Implementation

Activities	Timeframe	Expected outputs	Responsible agencies/units	Budget (USD)
1. SORB Inception Workshop	(DD/MM/YY)	Stakeholders informed of the objectives and requirements of the SORB reporting system	River Basin Organization or responsible agency	
2. Establishment of Technical Working Group (TWG)	(DD/MM/YY)	Technical Working Group (TWG) established	River Basin Organization or responsible agency	
3. Data gathering	(DD/MM/YY)	Accomplished SORB reporting template	TWG	
4. Data validation - validation workshop - field validation	(DD/MM/YY)	Validated SORB data	TWG	
5. Data analysis, synthesis and interpretation of results	(DD/MM/YY)	Data analyzed	TWG	
6. Drafting of SORB report	(DD/MM/YY)	Draft SORB Report	TWG	
7. Consensus building on the contents of the SORB report with relevant authorities, agencies and stakeholders	(DD/MM/YY)	Updated SORB Report	TWG, RBO, relevant authorities and stakeholders	
8. Publication of SORB Report	(DD/MM/YY)	Published SORB Report	TWG	
9. Dissemination and launching of the SORB report	(DD/MM/YY)	SORB Report disseminated and launched	TWG, RBO, relevant authorities and stakeholders (including media)	
10. Regular Updating the SORB report	(DD/MM/YY)	Second SORB Report preparation initiated	TWG, RBO	

3.1.3 Establish a multi-sectoral Technical Working Group for the development and implementation of the SORB reporting system

Establish a multisectoral Technical Working Group (TWG) to oversee the development and implementation of the SORB reporting system. The creation of a multisectoral TWG is essential due to the diverse sources of data required for SORB reporting, encompassing a broad range of sectors and agencies. It is critical that members of the TWG possess the necessary knowledge, expertise, and access to specific data and information required for SORB reporting to significantly contribute to data collection, analysis, interpretation, and the overall report preparation process.

The TWG can be organized into sector-specific task teams. Each task team can be led by a designated focal agency that includes members from other relevant agencies, facilitating a collaborative approach to addressing specific aspects of the SORB reporting process.

Strategic oversight can be provided to the TWG and Task Teams by the River Basin Organization or similar entity with representation from local governments encompassing the river basin, pertinent national government agencies, and academia.

To support the data management needs of the SORB reporting system, an Integrated Information Management System or a similar existing and operational information management system can be utilized as repository of data and information gathered for the SORB reporting.

3.1.4 Engage a local consultant for technical support

As deemed necessary, a local consultant can be engaged to provide technical support and assistance to the TWG during the development, implementation and adoption of the SORB reporting system by the local government or river basin organization.

3.1.5 Develop and Implement a communication plan

As part of the communication strategy of the local government or river basin organization, develop and implement a communication plan to inform concerned stakeholders and sectors of the value and benefits of implementing the reporting system, the results of the initial/baseline SORB report, and the value of sustaining the reporting system.

3.1.6 Conduct training on SORB reporting system

Identify capacity development/training needs of the local government or river basin organization and the TWG members in order to facilitate the formulation, adoption, implementation and sustainability of the SORB reporting system, and incorporate the identified needs into the capacity development program of the IRBM/IWRM program.

3.1.7 Expected outputs

The expected outputs of this stage are:

- a. TWG for SORB established, including roles and responsibilities of TWG identified;
- b. Detailed work plan, budget and schedule including communication plan for dissemination of SORB information to stakeholders developed;
- c. Initially accomplished SORB template with sources of information identified, and
- d. Potential data gaps identified.

3.2 Data Gathering, Analysis and Validation

3.2.1 Data gathering

The TWG will facilitate the conduct of data gathering by:

- a. Finalizing the SORB reporting template to be used during data gathering, including the indicators and units of measurement, associated checklists, questions, survey forms, etc.
- b. Setting up a database for encoding, storing, retrieving, and analyzing the data and information that will be gathered and utilized as part of the SORB reporting system.
- c. Organizing and conducting a workshop for data gatherers/data providers to review the SORB template, confirm the baseline year, the temporal and spatial coverage, and data collection, recording/transfer and storage procedures, as well as the coverage and schedule for each data gatherer/provider.
- d. Pre-testing the data gathering and recording system.
- e. Coordinating the implementation of the data gathering by the data gatherers/providers and recording of information in the database.

3.2.2 Review and analysis of data

The TWG will review and analyze the information being collected and recorded for the purpose of:

- a. Ensuring consistency in the baseline year, spatial and temporal coverage, indicators, and methods/units of measurement, as well as comprehensiveness of data and information;
- b. Maintaining quality assurance/quality control on data recording;
- c. Identifying gaps in information and/or indicators, and taking measures to overcome such gaps, if possible;
- d. Reviewing information from the baseline year and assessing priority issues and/or significant changes that have occurred in the sustainable development of river basins, associated watersheds and adjacent coastal and marine environment since the startup of the IRBM/IWRM program, as relevant;
- e. Formulating a theme and outline for a baseline/initial SORB report, including the core indicators that will be the focus of the initial report.

3.2.3 Data validation

Based on the previous data analysis and recommendations of the TWG regarding the theme and indicators for the initial/baseline SORB report, the TWG will conduct a data validation exercise, including the following:

- a. As necessary, conduct field validation of data and information through interviews with local agencies, local government officials and nongovernment stakeholders, review of relevant documentation (e.g., plans; strategies; budgets; technical and scientific reports; proceedings) and visits to coastal areas to confirm changes/trends in its development; and
- b. Exploring possible solutions to identified data gaps with relevant stakeholders, including extending the monitoring and reporting system to cover the required indicators for future M&E efforts.

3.2.4 Expected outputs

Expected outputs at this stage are:

- a. A completed SORB template, containing available and validated data and information for the baseline year with spatial and temporal coverage, as agreed to by the TWG;
- b. Summary tables, figures, graphs as input to the preparation of the SORB report
- c. Data gaps identified; and
- d. A database for recording, storing, analyzing and updating SORB data and information.

3.3 SORB Report Preparation and Dissemination

3.3.1 Processes for the dissemination of the report

The TWG will:

- a. Analyze the validated data/information and draft the initial SORB report, in accordance with the theme and outline (see Section 3.4). Data must be presented (e.g., graphs, tables) to clearly indicate trends and/or baseline information. The consistency and duplication of information from among the indicators must be reviewed. In analyzing and interpreting the results, it is relevant to consider how information gathered for each of the indicators is related (e.g., how results of a particular indicator under Governance explain results of indicators in the Sustainable Development Aspects). **Box 1** provides a sample summary of trend results for the SORB indicators.
- b. For IRBM/IWRM programs in place, the guide questions for the core indicators (see Annex A) can serve as basis in the presentation and analysis of results for the indicators. From the results of each indicator, the implications and recommendations are drawn. For river basins preparing the SORB Baseline, the priority issues that need to be addressed in an IRBM/IWRM program must be drawn from the information gathered.
- c. Organize and conduct a stakeholder workshop to review, validate and build consensus on the conclusions and recommendations of the draft SORB report (including the baseline information as appropriate).
- d. Revise/refine the SORB report, including the preparation of an Executive Summary, for submission to the Local Chief Executive, legislative body, and river basin organization.
- e. Disseminate the SORB report to the general public and other relevant stakeholders as indicated in the communication plan.

3.3.2 Development of report recommendations

The TWG will prepare a recommendation to the river basin organization to institutionalize the SORB reporting system for the facilitation of the continual review, evaluation and improvement of the local IRBM/IWRM program, in support of sustainable development of river basin, associated watershed and adjacent coastal and marine areas.

3.3.3 Expected outputs

At this stage, the outputs are as follows:





- a. A draft SORB report;
- b. A final SORB report, as submitted to the Local Chief Executive and legislative body; and
- c. A recommendation for implementing and sustaining the SORB reporting system, as submitted to the river basin organization.

Box 1. Summarizing Trend Results for the SORB

IRBM Code	Indicators	Trend (2000-2024)
GOVERNANCE		
Policy, strategies and plans		
001	River basin profile/Environmental risk assessment	Improving
002	River basin strategy and action plans	Improving
003	Local government development plan, including river basins, associated watersheds and adjacent coastal and marine areas	Improving
Institutional arrangements		
004	Coordinating mechanism for river basin management	Baseline data only or data not conclusive
005	Formal recognition that sector-based government agencies support integrated approaches for river basin management	Improving
006	Benefits derived from cooperation	Improving
Legislation		
007	IRBM enabling legislation	Improving
008	Administration, enforcement of legislation and compliance monitoring and inspection	Improving
009	Environmental cases filed/resolved	Baseline data only or data not conclusive
Information and public awareness		
010	Effective platform/mechanism for collecting, storing and sharing IRBM-related data/information to relevant stakeholders	Baseline data only or data not conclusive
011	Education and public awareness schemes for a range of stakeholders	Baseline data only or data not conclusive
012	Public participation and mobilization	Improving
013	Degree of stakeholder participation and gender equality and social inclusion in decision making process for river basin management	Improving
Financing mechanism		
014	Budget allocation for integrated river basin management	Deteriorating
015	Sustainable financing mechanisms	Improving
016	Self-financing of river basin council/committee	Improving

Box 1. Summarizing Trend Results for the SORB (cont.)

IRBM Code	Indicators	Trend (2000-2024)
Capacity development		
017	Availability/accessibility of capacity development and training opportunities for key stakeholders	Improving
018	Human resource capacity	Improving
SUSTAINABLE DEVELOPMENT ASPECTS		
Climate change and disaster risk reduction		
019	Degree of vulnerability to disasters	Improving
020	Level of preparedness to disasters	Improving
021	Social and economic losses due to disasters	Improving
022	Greenhouse gas emissions	Improving
023	Climate change trends and extremes	Baseline data only or data not conclusive
024	Adaptation to climate change	Baseline data only or data not conclusive
Habitat protection, restoration and management		
025	Status of environmental assets	Deteriorating
Water use and supply management		
026	Water use and supply management	Improving
027	Water flow conditions	Improving
028	Economic performance of water-related sectors	Improving
Food security and livelihood management		
029	Living conditions and well-being	Baseline data only or data not conclusive
030	Livelihoods, employment/economic stability, gender equality and education	Baseline data only or data not conclusive
Pollution reduction and waste management		
031	Pollution control and waste management	Improving
032	Water quality and sediment conditions	Improving

 Improving	 Baseline data only or data not conclusive	 Deteriorating	 No data
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3.4 SORB Report Outline

The SORB report is to be prepared concisely and as informative as possible to guide Chief Executives of local governments, IRBM/IWRM managers and practitioners, coastal communities, and other stakeholders for evaluation, planning and decision-making in the management of river basins, associated watersheds and adjacent coastal and marine areas.

The SOC report contains the following:

- a. **Acknowledgement** – List of individuals, organizations, institutions and those responsible in the preparation of the SOC report.
- b. **Introduction** – Briefly defines IRBM/IWRM, the significance of the SORB reporting system, the scope as well as the target audience of the report.
- c. **Methodology** – Outlines the process conducted in developing the report.
- d. **Summary table for the SORB core indicators** – Presents the key findings for the core indicators considered in the report.
- e. **Executive Summary** – Presents the key findings for each of the Governance components and the Sustainable Development Aspects, including implications and recommendations.
- f. **Study Site** – Briefly describes the site including key socioeconomic and biophysical facts.
- g. **Indicators** – Defines the relevance of indicators in an IRBM/IWRM program and the process of determining the indicators for the report.
- h. **Results of the indicators** – Presents the main results of the SORB as follows.
 - i. Category, which identifies the particular governance element or sustainable development aspect in the Framework for Sustainable Development of river basins, associated watersheds and adjoining coastal and marine areas
 - ii. Name of the indicator
 - iii. Description of the indicator
 - iv. Rationale for using the indicator in the SORB

- v. Data requirements
 - vi. Results which describe the current status, changes over time, management actions and results of management interventions in the area relating to the particular indicator
 - vii. Implications of results and recommendations to respond to changing conditions
 - viii. References including data sources
- i. Conclusions and recommendations** – Overall analysis of results and key recommendations to further strengthen the IRBM/IWRM program.

4

Applications and Updating of the State of River Basin Report



The SORB report provides inputs for the development/updating of:

- a. Strategies and action plans;
- b. Institutional arrangements;
- c. Enabling legislations and enforcement;
- d. Capacity development programs;
- e. Financing mechanisms and environmental investments;
- f. Integrated information management;
- g. Environmental/ecological assessments;
- h. Environmental monitoring programs;
- i. Land- and sea-use zoning; and
- j. Issue- and area-specific management programs.

As a tool for M&E and reporting in IRBM/IWRM programs, the SORB should be updated periodically, preferably in line with the planning cycle of the local government (e.g., three to five years).

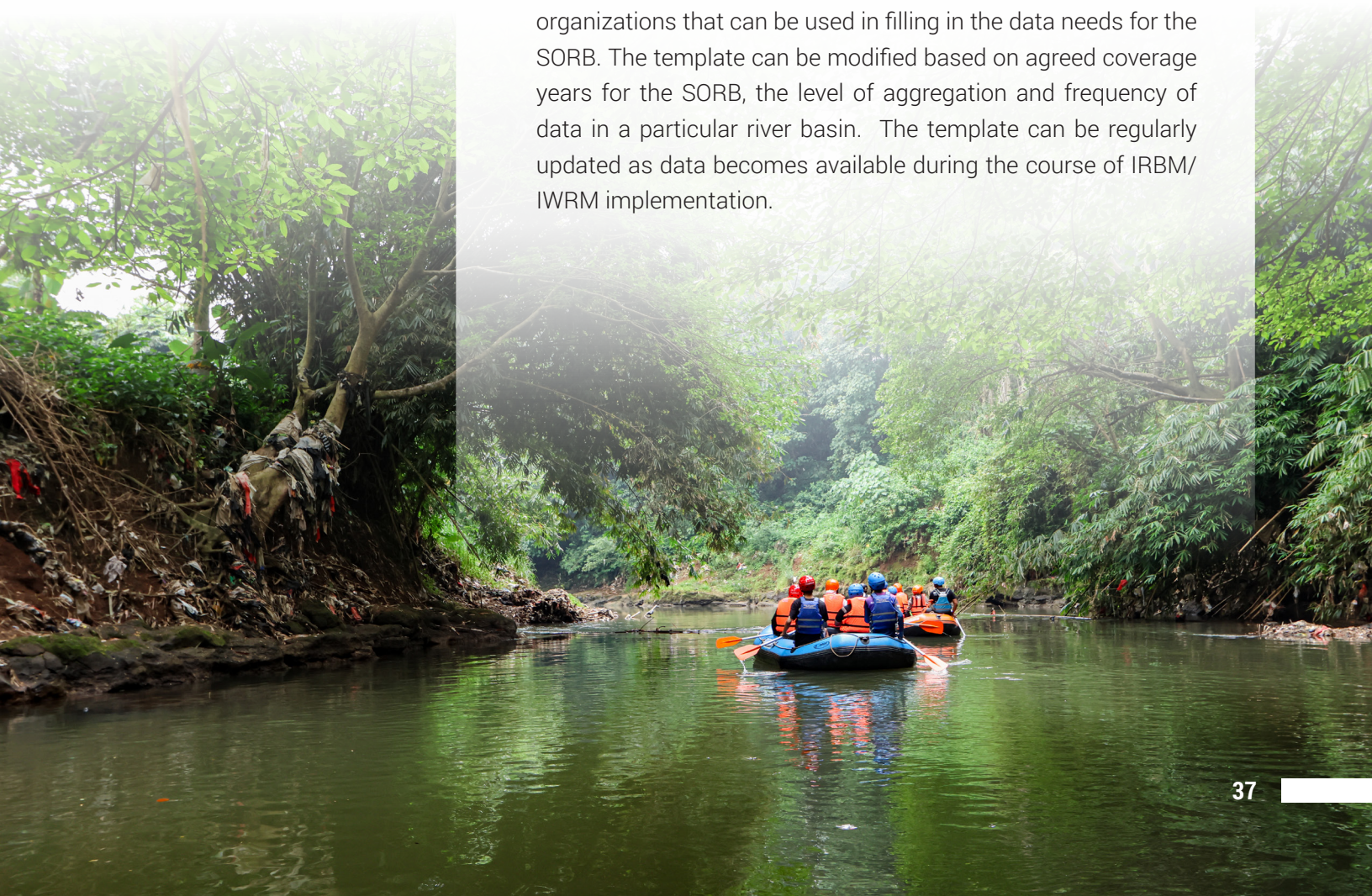
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Annexes

How to Use the Annexes

- a. Annex A contains a detailed description of the 32 core indicators that can be evaluated at the initial implementation of the SORB reporting system. It also provides the rationale of determining each of the 32 core indicators, including specific data requirements. The “guide questions” provided aim to provide guidance in the analysis of the results for each of the indicators, and in drafting the SORB report. Annex A also indicates the need to document all data sources and references, including personal communications for validation purposes.
- b. Annex B contains the SORB reporting template that can serve as guide in gathering the data required for the SORB. Together with the reporting template contained in Annex B, a digital copy of the template can also be provided to local governments/river basin organizations that can be used in filling in the data needs for the SORB. The template can be modified based on agreed coverage years for the SORB, the level of aggregation and frequency of data in a particular river basin. The template can be regularly updated as data becomes available during the course of IRBM/IWRM implementation.



Annex A. Detailed Description and Guide Questions for the SORB Core Indicators

A. Governance

Category	Policy, strategies and plans
[ID] Indicator Name	[001] River basin profile and environmental risk assessment
Description	This indicator shows the availability of river basin profile and results from environmental impact/risk assessment, in order to identify priority issues or threats to sustainable and integrated river basin management, including natural resources management within the basin.
Rationale	Effective river basin management relies on planning that takes into account strategic and scientific assessment of the area, including social, cultural, political, economic, environmental, and policy issues, and the identification of priority concerns for river basin managers and policymakers. This strategic assessment should be the basis for developing strategies and action plans for river basin management.
Data Requirements	<ul style="list-style-type: none"> • Evidence of the availability of river basin profile in the form of published reports/documents/papers • Evidence of available environmental impact/risk assessment report of the river basin • Priority issues identified
Guide Questions	<ul style="list-style-type: none"> • Is the river basin area and its boundaries clearly delineated? • Has a river basin profile and environmental impact/risk assessment report been conducted and prepared? • What major environmental risks have been identified? • What social risks, including those related to gender, displacement of communities, etc, have been identified? • How frequent are these assessments updated? • Specify name and year of publication of this profile and assessment report. Who is the responsible organization? • What is the scope and geographic coverage of the assessment? • Has a document containing relevant site information (physiographic, biological, demographic, socioeconomic, institutional, pollution sources, etc.) been prepared and made available to stakeholders? • Who conducted the baseline data gathering and what information were gathered?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Policy, strategies and plans
[ID] Indicator Name	[002] River basin strategy and action plans
Description	This indicator helps to evaluate the existence, adequacy, and implementation of strategic and action plans for river basin management.
Rationale	It is critical to ensure that strategic planning and actions are in place to address river basin management challenges effectively.
Data Requirements	<ul style="list-style-type: none"> • Existence of a comprehensive river basin strategy document (yes/no) • Year the strategy was last updated (year) • Existence of action plans derived from the strategy (yes/no) and their timeline for implementation • Number of action plans implemented (count) • Percentage of action plan goals achieved (percentage) • Funding allocated for the implementation of action plans (USD) • Diversity of stakeholder groups involved in the strategy and action plan development (count and type of groups) • Mechanisms for public consultation in strategy and action plan development (yes/no) • Reports on progress and evaluation of action plan implementation (yes/no; count of reports)
Guide Questions	<ul style="list-style-type: none"> • How comprehensive is the current river basin strategy in addressing the environmental, social, and economic challenges of the basin? • What are the key goals and objectives outlined in the river basin strategy? • How are action plans derived from the river basin strategy? Are these plans specific, measurable, achievable, relevant, and time-bound? Do action plans contain measures that address the concerns of women and other marginalized sectors? • What mechanisms are in place to monitor the implementation and effectiveness of these action plans? • How is stakeholder input incorporated into the development and revision of the river basin strategy and action plans? Was a GESI analysis done as part of the development or revision process? • What challenges have been encountered in implementing the action plans, and how have they been addressed?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Policy, strategies and plans
[ID] Indicator Name	[003] Local government development plan integrating river basin, associated watersheds and adjacent coastal and marine areas
Description	This indicator examines how local government development plans incorporate river basin management goals and strategies.
Rationale	Promotes the integration of river basin management into local development planning processes.
Data Requirements	<ul style="list-style-type: none"> • Availability of development plan at the provincial/city/municipal/district level (yes/no) • Presence of integration elements related to IRBM in local government development plans (yes/no) • Specific sections/pages in development plans dedicated to river basin management (count) • Year of latest plan revision incorporating integrated river basin management (year)
Guide Questions	<ul style="list-style-type: none"> • To what extent do local governments' development plans incorporate objectives and actions related to integrated river basin management? • How does river basin management considerations integrated into sectors such as water resources, land use, environmental protection, and urban development within the local government plans? • What processes are used to ensure that local development plans are aligned with the broader river basin strategy and action plans? • How do stakeholders, including local communities, engaged in the planning process to ensure their needs and perspectives are considered? Is there a stakeholder engagement plan? Was stakeholder mapping done? • What are the key challenges faced in integrating river basin management principles into local government development plans, and how are these challenges been addressed?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Institutional arrangements
[ID] Indicator Name	[004] Coordinating mechanism for river basin management
Description	This indicator facilitates the evaluation of the structure and effectiveness of coordination mechanisms and arrangements within the river basin, both horizontally among different sectors and vertically across different levels of government.
Rationale	Effective coordination ensures IRBM practices are harmonized across sectors and administrative levels, addressing potential conflicts and fostering cooperation.
Data Requirements	<ul style="list-style-type: none"> • Existence of formal coordination mechanisms, with clear and specific roles and responsibilities of each different entities and stakeholders (yes/no) • Number of meetings held under these mechanisms per year (meetings/year) • Evidence of tangible signs of transboundary/inter-provincial cooperation such as joint protected area declarations, water-sharing policies, local government networks, alliances, etc. • Existence of provincial/national and/or international coordination arrangements (in case of cross-nations river basin) (e.g., dialogues, memoranda of understanding, joint programs of action) between provinces/cities for river basin • Existence of quality control mechanisms to avoid bias in monitoring, planning and management through coordination of a range of central and local governmental agencies, academic and research institutions/universities, and private NGO bodies • Evidence of the presence of an established river basin organization (RBO) and that the RBO has the mandate (which specify authority of RBO to coordinate entities) to ensure they take the 'big picture' in river basin management • Evidence of clear specification of the roles, responsibilities and functions of RBO and roles are distinguished from those of other entities • Existence of guidelines/protocols issued by the RBO to enact natural resources and environment management by local governments
Guide Questions	<ul style="list-style-type: none"> • Are there established coordination bodies for IRBM implementation? • How do these mechanisms facilitate collaboration among different stakeholders? • How inclusive are coordination bodies like RBOs? Are women, indigenous peoples, private sector, etc. represented?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Institutional arrangements
[ID] Indicator Name	[005] Formal recognition that sector-based government agencies support integrated approaches for river basin management
Description	This indicator assesses whether there is formal recognition by the highest levels of government that sector-based government agencies must pursue integrated approaches in relation to river basin management, which includes the establishment of a multi-sectoral coordinating bodies with representation from various government levels, civil society, and the private sector.
Rationale	Formal recognition ensures a commitment to IRBM principles across all sectors and levels of government, fostering a collaborative environment necessary for effective river basin management.
Data Requirements	<ul style="list-style-type: none"> • Official government statements, policies or directives acknowledging the need for integrated approaches • List of diverse members and representatives (male/female) from different stakeholder groups in coordinating bodies • Number of agencies and institutions in the coordinating body which incorporated IRBM implementation plans in their work programs • Number of staff (male/female) allocated by the agencies to support the coordinating body's operation
Guide Questions	<ul style="list-style-type: none"> • Is there a formal recognition from the highest government levels for integrated approaches in river basin management? • What impact has this recognition had on the implementation of IRBM policies and practices? • Is there enough staff to support the coordinating body? Do they have the necessary knowledge and skills?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Institutional arrangements
[ID] Indicator Name	[006] Benefits derived from cooperation
Description	Evaluates the benefits and outcomes of cooperative efforts in river basin management, including joint projects, shared knowledge, and improved conflict resolution among stakeholders.
Rationale	Cooperation among river basin stakeholders enhances the efficiency and effectiveness of water management and conflict resolution.
Data Requirements	<ul style="list-style-type: none"> • Records of cooperative projects/efforts (please specify) • Outcomes from these collaboration efforts (please specify) • Mechanisms for conflict resolution (please specify) • Types of benefits achieved, including particular benefits for women and men (qualitative description) • Stakeholder satisfaction level (% satisfied with cooperation outcomes)
Guide Questions	<ul style="list-style-type: none"> • What are the key benefits derived from cooperation in river basin management? • How has cooperation contributed to the success of IRBM programs/initiatives?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Legislation
[ID] Indicator Name	[007] Integrated river basin management enabling legislation
Description	This indicator assesses the existence and effectiveness of legal frameworks that enable the practice of integrated river basin management. It looks at how laws facilitate the coordination, management, and conservation of river basins.
Rationale	A solid legislative foundation is critical for effective IRBM, providing the legal authority necessary for implementing strategies, enforcing regulations, and engaging stakeholders.
Data Requirements	<ul style="list-style-type: none"> • Existence of specific legislation at either national or provincial/city/municipal/district level to enact or support IRBM implementation (yes/no) • Year of enactment or latest amendment (year) • Legislation specifies functions, structure, financial arrangements and accountability mechanisms for integrated river basin management • Evidence of policy integration (vertical -- from national to local) and functional integration (horizontal -- across sectors)
Guide Questions	<ul style="list-style-type: none"> • What legal frameworks support IRBM? • How does the legislation facilitate IRBM practices and goals? • Is there a clear legal mandate for stakeholder coordination and environmental protection within the river basin? • Is there any evidence of policy integration (vertical -- from national to local) and functional integration (horizontal -- across sectors) to promote/realize IRBM implementation? • Is there legislation on the composition of river basin management structures, i.e., representation of women, indigenous peoples, private sector, etc?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Legislation
[ID] Indicator Name	[008] Administration, enforcement of legislation and compliance monitoring and inspection
Description	This indicator evaluates the mechanisms in place for the administration and enforcement of IRBM-related legislation, including monitoring and inspection activities to ensure compliance.
Rationale	Effective administration and enforcement are essential to ensure that IRBM principles are translated into practice. Monitoring and inspection are necessary to assess compliance with legislation and to identify areas for improvement.
Data Requirements	<ul style="list-style-type: none"> • Frequency of monitoring and inspection of compliance for surface/ groundwater use and extraction and pollution discharge points to ensure compliance with governmental regulations. • Number of compliance inspections conducted per year (inspections/year) • Number of enforcement actions taken against non-compliance with water legislation, including fines, penalties, or legal actions, per year (actions/year) • Percentage of entities (industries, municipalities, etc.) that comply with water-related legislation and regulations within the river basin • Evidences of team/office established for monitoring and inspection (e.g., environmental compliance, etc.)
Guide Questions	<ul style="list-style-type: none"> • How is IRBM legislation administered and enforced? • What mechanisms are in place for monitoring and inspection? • What challenges are encountered in ensuring compliance, and how are they addressed? • How are non-compliance issues handled? Is there a feedback or grievance mechanism for stakeholders to share their concerns?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Legislation
[ID] Indicator Name	[009] Environmental cases filed/resolved
Description	This indicator examines the number and nature of environmental cases filed and resolved within the context of IRBM, including disputes over water usage, pollution incidents, and conflicts between stakeholders.
Rationale	The ability to effectively resolve environmental disputes is a key aspect of IRBM, reflecting the system's capacity to address conflicts and enforce regulations.
Data Requirements	<ul style="list-style-type: none"> • Environmental cases filed per year (cases/year) • Environmental cases successfully resolved per year (cases/year)
Guide Questions	<ul style="list-style-type: none"> • How many reported complaints, violations and penalties related to river basin management have been filed and resolved? • What types of complaints related to river basin management have been filed and resolved? • How effective are the mechanisms for resolving these cases? • Who are filing these cases (women or men)? Have they received capacity building on environmental laws, etc?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Information and public awareness
[ID] Indicator Name	[010] Effective platform/mechanism for collecting, storing and sharing IRBM-related data/information to relevant stakeholders
Description	Evaluates the existence and functionality of platforms or mechanisms for the collection, storage, management, and sharing of IRBM-related information and data to all relevant stakeholders and the public.
Rationale	Efficient data and information management and sharing are fundamental for informed decision-making, stakeholder engagement, and transparency in river basin management.
Data Requirements	<ul style="list-style-type: none"> • Existence of a centralized platform for data collection and sharing (Yes/no) • Number of stakeholders (women/men) with access to the platform • Guidelines on information and data collection, presentation, and exchange; existence of a robust monitoring and evaluation system
Guide Questions	<ul style="list-style-type: none"> • Is there an effective platform or mechanism for IRBM-related data management and sharing? Is it accessible by both women and men? • How do these platforms contribute to stakeholder engagement and informed decision-making?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Information and public awareness
[ID] Indicator Name	[011] Education and public awareness schemes for a range of stakeholders
Description	Evaluates the effectiveness of education and public-awareness programs targeting a broad range of stakeholders, including local communities, industries, and government entities, to increase knowledge and support for IRBM practices.
Rationale	Education and public awareness are crucial for fostering a culture of sustainability and participation among all basin stakeholders, ensuring widespread support and understanding of IRBM principles.
Data Requirements	<ul style="list-style-type: none"> • Number of education and public-awareness programs implemented per year (programs/year) • Range/diversity of stakeholders targeted by these programs (count and type of stakeholder types) • Participation rates • Materials distributed • Feedback from participants
Guide Questions	<ul style="list-style-type: none"> • What education and public-awareness programs are in place to support IRBM? • How do these programs target and engage a diverse range of stakeholders? • What is the reach and impact of these programs on stakeholder understanding and behavior towards river basin management?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Information and public awareness
[ID] Indicator Name	[012] Public participation and mobilization
Description	Measures the extent and effectiveness of public participation and mobilization in decision-making and implementation processes of IRBM.
Rationale	Active and meaningful public participation ensures that the interests and knowledge of local communities are integrated into river basin management, leading to a more sustainable and accepted outcomes.
Data Requirements	<ul style="list-style-type: none"> • Number of public participation events related to IRBM implementation held per year (events/year) • Level of public mobilization achieved • Existence of stakeholder engagement plan to empower local organizations and individuals • Evidence that river basin management plan is driven by bottom-up water sector initiatives with strong NGO and village level management • Evidence of clear specification of private sector involvement and links to basin decision systems
Guide Questions	<ul style="list-style-type: none"> • What mechanisms are in place for public and private sector participation? • How is community feedback incorporated into IRBM planning and actions? Are they able to input into management decisions?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Information and public awareness
[ID] Indicator Name	[013] Degree of stakeholder participation and gender equality and social inclusion in decision making process for river basin managemen
Description	Assesses the level of stakeholder participation in IRBM, focusing on the inclusivity of decision-making processes and the representation of gender balance and marginalized groups.
Rationale	Inclusive participation ensures equity and diversity in IRBM processes, fostering decisions that are fair, representative, and considerate of all community segments.
Data Requirements	<ul style="list-style-type: none"> • Degree of stakeholder participation in decision-making processes (qualitative assessment) • Gender balance in decision-making entities (percentage of female and male participation) • Mechanisms to include marginalized voices
Guide Questions	<ul style="list-style-type: none"> • What is the proportion of women and marginalized groups involved in decision-making? • What measures are in place to ensure gender balance and the inclusion of marginalized and vulnerable sectors? • Are there strategies to enhance their participation? • Is gender analysis being done? Gender and Development (GAD) planning and budgeting? • Are there river council/board policies on harassment/gender-based violence, child protection, equal pay for equal work, unpaid care work, etc. • Is GESI expertise available, i.e. GAD focal point, partner universities that can be tapped for GESI?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Financing mechanisms
[ID] Indicator Name	[014] Budget allocation for integrated river basin management
Description	This indicator measures the financial resources specifically allocated for IRBM activities, reflecting the commitment and capacity of governments and organizations to implement IRBM.
Rationale	Adequate funding is critical for the successful implementation of IRBM strategies and actions, covering necessary research, infrastructure, management, and conservation activities.
Data Requirements	<ul style="list-style-type: none"> • Budget documents detailing allocations for IRBM from various sources (governmental, donor, private sector) (USD/year); • Existence/presence of long-term financial planning for integrated river basin management programs/initiatives • Grants from financing institutions • Loans • Government investment for environmental infrastructure • Co-financing with partner private sector and civil society organization • Other relevant financial planning documents
Guide Questions	<ul style="list-style-type: none"> • What is the annual budget allocation for IRBM, and how does it compare to the needs of the river basin? • Is the annual budget sufficient? Is it secure/received regularly? • How are priorities for funding determined?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Financing mechanisms
[ID] Indicator Name	[015] Sustainable financing mechanisms
Description	Evaluates the presence and effectiveness of sustainable financing mechanisms to support long-term IRBM initiatives, such as grants, loans, government investments, and co-financing arrangements.
Rationale	Sustainable financing ensures that IRBM programs can be maintained over the long term, addressing ongoing and future management needs.
Data Requirements	<ul style="list-style-type: none"> • Evidence of financial mechanisms in place (e.g., grants, loans, environmental user fees); • Documentation on cost-sharing arrangements and transparency mechanisms for revenue streams. • Types of sustainable financing mechanisms identified • Funds generated through sustainable financing mechanisms per year (USD/year)
Guide Questions	<ul style="list-style-type: none"> • What sustainable financing mechanisms are in place for IRBM? • How do these mechanisms support long-term financial sustainability for river basin management efforts?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Financing mechanisms
[ID] Indicator Name	[016] Self-financing of the river basin council/committee
Description	Assesses the financial autonomy of the river council by examining the proportion of its budget funded through national contributions versus its ability to generate its own revenue.
Rationale	Financial autonomy is crucial for the river council's operational independence, allowing for more flexible and responsive management actions.
Data Requirements	<ul style="list-style-type: none"> • Proportion of river council budget funded by national contributions (percentage) • Amount of self-generated revenue per year (USD/year)
Guide Questions	<ul style="list-style-type: none"> • What percentage of the river council's budget is funded by national contributions? Is this allocation secure? • Does the council have mechanisms for generating its own revenue?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Capacity development
[ID] Indicator Name	[017] Availability/accessibility of capacity development and training opportunities for key stakeholders
Description	<p>Evaluates the availability and accessibility of training and capacity development programs for stakeholders involved in IRBM.</p> <p>Examines the ongoing efforts to enhance the skills base of key stakeholders through training and capacity-building initiatives.</p>
Rationale	<p>Building the capacity of stakeholders through training and development programs is essential for empowering them with the necessary skills and knowledge for effective river basin management.</p> <p>Continuous training and capacity-building are vital for keeping pace with evolving IRBM practices, technologies, and methodologies.</p>
Data Requirements	<ul style="list-style-type: none"> • Number of capacity development and training programs available (programs/year) • Sex-disaggregated participation statistics of those who have access to these programs • Feedback on program effectiveness. • Budget allocation for capacity development and research • Evidence that the RBO leadership is well-trained, articulate, responsible and has 'listening skills' • Number of ongoing training and capacity-building programs (programs/year) • Number of stakeholders participating in these programs (participants/year) – male/female • Participant feedback and effectiveness assessments
Guide Questions	<ul style="list-style-type: none"> • What capacity development and training opportunities are available for stakeholders involved in IRBM? • How are these opportunities tailored to meet the needs of different stakeholder groups? • What ongoing training and capacity-building programs/initiatives are available for relevant stakeholders for IRBM implementation? • How do these programs contribute to improving the skills base of key stakeholders?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Capacity development
[ID] Indicator Name	[018] Human resource capacity
Description	Assesses the sufficiency and quality of human resources dedicated to IRBM, including their skills, knowledge, and competencies.
Rationale	Adequate human resource capacity is critical for the effective implementation and sustainability of IRBM initiatives.
Data Requirements	<ul style="list-style-type: none"> • Number of people (women and men) at the provincial/city/municipal/district level trained (formal and informal training) in IRBM. • Level of expertise of personnel involved in IRBM • Gaps in skills and knowledge, training needs assessment
Guide Questions	<ul style="list-style-type: none"> • Do current staff have the necessary skills and capacity for IRBM implementation? • Do staff have safe working conditions? • What are the gaps in human resource capacity?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

B. Sustainable Development Aspects

Category	Climate Change and Disaster Risk Reduction
[ID] Indicator Name	[019] Degree of vulnerability to disasters
Description	Evaluates the vulnerability of the river basins and associated watersheds and adjoining coastal and marine areas to natural disasters, considering factors like population density in flood-prone areas, the state of critical infrastructure, and environmental degradation.
Rationale	Understanding vulnerabilities is essential for targeting interventions and building resilience against natural disasters.
Data Requirements	<ul style="list-style-type: none"> • Vulnerability index (score) • Availability of multi-hazard (landslides, storms, floods) maps (yes/no) (Please specify) • Population living in high-risk areas (% of total population) • Number of people (women, men) relocated or moved away from hazard prone areas
Guide Questions	<ul style="list-style-type: none"> • What areas of the river basin are most vulnerable to disasters, and why? Are women or other marginalized groups more vulnerable? Why? • What factors contribute to this vulnerability? • What steps are being taken to reduce vulnerability and enhance resilience?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Climate Change and Disaster Risk Reduction
[ID] Indicator Name	[020] Level of preparedness to disasters
Description	Assesses the level of preparedness in responding to natural disasters, including the existence of early warning systems, emergency response plans, and community awareness programs.
Rationale	Preparedness minimizes the impact of disasters on communities, infrastructure, and the economy.
Data Requirements	<ul style="list-style-type: none"> • Natural/man-made disaster/environmental emergency response plan available (yes/no) (please specify) • Scope of natural/man-made disaster/environmental emergency response plan (e.g., floods, landslides, earthquakes, oil spill, etc.). (please specify) • Both mitigation and adaptation strategies are clearly identified in the plan (please specify) • Consideration of climate change and disaster risks in relevant infrastructure design and maintenance. (please specify) • Institutional mechanism for the implementation of the emergency response plan (yes/no). (please specify) • Number of trained and non-trained personnel allocated (number of people, women and men) • Early warning system in place (yes/no) • Adequate equipment available (yes/no) • Budget allocation for natural/man-made disaster (USD/year)
Guide Questions	<ul style="list-style-type: none"> • Is the community aware of, and prepared for potential disasters? Were women and men community members consulted in the development of response plans? • What systems are in place for early warning, emergency response, and post-disaster recovery?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Climate Change and Disaster Risk Reduction
[ID] Indicator Name	[021] Socioeconomic losses due to disasters
Description	Quantifies the socio-economic impacts of disasters within the river basin, including loss of life, economic damages, and impacts on livelihoods and infrastructure.
Rationale	Measuring the socio-economic losses from disasters helps to understand their impact on communities and economies and inform recovery and resilience-building efforts.
Data Requirements	<ul style="list-style-type: none"> • Data on economic losses/damages due to natural and man-made disaster incidents (typhoons, storm surges, floods, harmful algal blooms, etc.) (USD) (please specify) • Human (women, men) casualties (number of deaths and injuries) • Displaced persons (number of people displaced, women, men) • Data on infrastructure damage (USD) • Frequency of disaster incidents by type. (please specify) • Number of people (women, men) severely affected by natural/ man-made disaster incidents
Guide Questions	<ul style="list-style-type: none"> • What have been the socio-economic impacts due to losses and damages from recent disasters? Were women and men impacted differently? How? • How many people (women, men) were affected? • What was the economic damage? • How are the disaster risk reduction and management strategies integrated into IRBM implementation?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Climate Change and Disaster Risk Reduction
[ID] Indicator Name	[022] Greenhouse gas emissions
Description	Measures the amount of greenhouse gas emissions attributed to water-related activities, including agriculture, industry, and energy production, as well as assess the environmental impact of these sectors.
Rationale	Identifying the sources and volumes of emissions is essential for developing strategies to reduce the carbon footprint of water-related activities.
Data Requirements	<ul style="list-style-type: none"> • Data on greenhouse gas emissions by water-related sector (tons CO₂-equivalent/year) • Available of mitigation strategies, and progress towards reduction targets (quantitative assessment) (please specify) • Reduction in GHG emissions from baseline (%)
Guide Questions	<ul style="list-style-type: none"> • What is the total greenhouse gas (GHG) emissions from water-related sectors? • Which sectors are the largest emitters? • What strategies are in place to reduce GHG emissions from water-related activities? • How effective are these strategies in reducing the GHG emissions within the river basin?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Climate Change and Disaster Risk Reduction
[ID] Indicator Name	[023] Climate change trends and extremes
Description	Examines the recent trends in climate variables relevant to the river basin, such as temperature and precipitation patterns, and the frequency and intensity of extreme weather events.
Rationale	Understanding climate trends and extremes is crucial for adapting water management practices to changing environmental conditions.
Data Requirements	<ul style="list-style-type: none"> • Changes in average temperature (over a defined period) • Changes in precipitation patterns (% change over a defined period) • Frequency of extreme weather events (number of events/year)
Guide Questions	<ul style="list-style-type: none"> • What trends have been observed in temperature and precipitation over the past decades? • How has the frequency and intensity of extreme weather events changed? • How is the river basin adapting to observed climate change trends and extremes? • What measures are in place to build resilience against future climate change impacts?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Climate Change and Disaster Risk Reduction
[ID] Indicator Name	[024] Adaptation to climate change
Description	Assesses the implementation and effectiveness of adaptation strategies to climate change, including changes in water management practices, infrastructure improvements, and community adaptation measures.
Rationale	Effective adaptation measures are key to reducing the vulnerability of river basins to the impacts of climate change.
Data Requirements	<ul style="list-style-type: none"> • Climate change adaptation strategy documents (please specify) • Reports on adaptation measures, and assessments of adaptation effectiveness. (please specify) • Number of awareness-raising activities for local communities on adaptation measures • Investment in adaptation (USD) (please specify) • Vulnerability level for floods, droughts and storms (please specify) • Flood and drought protection measures in place (please specify)
Guide Questions	<ul style="list-style-type: none"> • What adaptation measures have been implemented in the river basin? What are their outcomes? Have these measures addressed the concerns and priorities of women and other marginalized groups? • What is the effectiveness of these adaptation measures over time?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Habitat protection, restoration and management
[ID] Indicator Name	[025] Status of environmental assets
Description	Assesses the condition of key environmental assets within the river basin, including biodiversity, ecosystems, and natural resources.
Rationale	The conservation and enhancement of environmental assets are central goals of IRBM, reflecting its commitment to sustainability and ecological health.
Data Requirements	<ul style="list-style-type: none"> • Information on the status of biodiversity and abundance (fish, flora and fauna, habitats) (both qualitative and quantitative information/ data) (please specify for each) • Conditions of critical habitats (wetlands, riparian zones), and health of fish communities (both qualitatively and quantitatively descriptions). (please specify for each) • Area of critical habitats protected (km²) • Number of species at risk (count) • Ecosystem health index (score)
Guide Questions	<ul style="list-style-type: none"> • What is the status/condition and actions that have been taken to protect and restore key environmental assets within the river basin? • How is the status of these assets monitored and reported?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Water use and supply management
[ID] Indicator Name	[026] Water use and supply management
Description	Assesses the management and efficiency of water use and supply, including water conservation practices and the distribution of water resources among various sectors.
Rationale	Efficient water use and sustainable supply are foundational to successful IRBM, supporting economic activities and ecosystems.
Data Requirements	<ul style="list-style-type: none"> • Information on water resources availability (please specify) • Existence of water management plans, and conservation strategies (please specify) • Total annual water withdrawal (cubic meters/year) • Water withdrawal by sector (agriculture, industry, domestic; m³/year) • Water efficiency use (% improvement or change over a defined period) in different sectors such as agriculture, industry, and domestic consumption • Existence and clear mitigation and adaptation strategies with concrete action plans (please specify) • Staff allocation for water conservation and management (number of staff, women and men) • Budget allocation for water conservation and management (USD) • Water use per capita (litter per capita per day) • Population with access to improved water sources (% and equivalent people) • Water pricing per cubic meter (USD/m³) • Whether water resource affected by saltwater intrusion (yes/no)
Guide Questions	<ul style="list-style-type: none"> • How is water use efficiency being maximized across different sectors? • What strategies are in place to ensure a sustainable water supply for all users?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Water use and supply management
[ID] Indicator Name	[027] Water flow conditions
Description	Measures the conditions of water flow, including discharge rates, water levels, and velocity profiles, to assess the health and management of the river basin.
Rationale	Understanding water flow conditions is critical for effective water management, disaster risk reduction, and maintaining ecological health.
Data Requirements	<ul style="list-style-type: none"> • Mean annual river discharge (m³/second) • Seasonal variability of water flow (% change) • Frequency of extreme flow events (number of events/year) • Average water levels (m) • Velocity profiles (m/s)
Guide Questions	<ul style="list-style-type: none"> • How did water flow conditions change over time, and what impacts have these changes had? • What measures are in place to manage and mitigate the effects of altered water flow conditions?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Water use and supply management
[ID] Indicator Name	[028] Economic performance of water-related sectors
Description	Evaluates the contribution of water-related sectors to the economy, considering aspects like GDP contribution, employment, and productivity within sectors such as agriculture, industry, and services dependent on water.
Rationale	Understanding the economic performance of these sectors highlights the importance of water resources to economic development and identifies opportunities for sustainable growth.
Data Requirements	<ul style="list-style-type: none"> • GDP contribution by water-related sectors (USD) • Growth rate in water-related sectors (%) • Investment in water infrastructure (USD/year)
Guide Questions	<ul style="list-style-type: none"> • What is the economic contribution of water-related sectors to the GDP? • How many jobs are provided by these sectors? How many jobs for women, for men? How else are women and men economically benefiting? • What is the productivity growth rate in water-related sectors?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Food security and livelihood management
[ID] Indicator Name	[029] Living conditions and well-being
Description	Evaluates the impact of IRBM on the living conditions and wellbeing of the communities, including socioeconomic aspects such as income per person, prevalence of undernourishment, and access to clean water and sanitation.
Rationale	High-quality living conditions and wellbeing are essential outcomes of effective IRBM, indicating a holistic approach to environmental, social, and economic management within the river basin.
Data Requirements	<ul style="list-style-type: none"> • Prevalence of undernourishment (%) • Access to clean water (% of population) • Access to improved sanitation facilities (% of population) • Income level (average income per capita, USD/year) • Number of incidences of waterborne diseases per year (number) • Death rates due to such diseases (number)
Guide Questions	<ul style="list-style-type: none"> • How do living conditions and wellbeing of communities improved as a result of IRBM programs/initiatives? • What specific IRBM actions have contributed to these improvements?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Food security and livelihood management
[ID] Indicator Name	[030] Livelihoods, employment/economic stability, gender equality and education
Description	Assesses how IRBM affects livelihoods, employment, economic stability, gender equality, and education, including metrics on employment rates, gender employment ratios, and literacy rates.
Rationale	IRBM aims to support sustainable livelihoods and promote equitable social outcomes, including gender equality and educational opportunities.
Data Requirements	<ul style="list-style-type: none"> • Employment rate across the basin (% of population) • Average household incomes/expenditure (USD) • Sufficiency of household income and assets • Evidence of legislation and policies on gender equality and social inclusion • Gender employment ratio (ratio of female to male employees) • Literacy rate (% of population, of women and men) • School enrollment rates by gender (primary, secondary, and tertiary levels, %)
Guide Questions	<ul style="list-style-type: none"> • How does IRBM impacted livelihoods and employment of women and men within the river basin? • What role has IRBM played in promoting gender equality and improving educational outcomes?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Pollution reduction and waste management
[ID] Indicator Name	[031] Pollution control and waste management
Description	Evaluates the effectiveness of pollution control measures and waste management practices within the river basin.
Rationale	Effective pollution control and waste management are crucial for protecting water quality, human health, and biodiversity.
Data Requirements	<ul style="list-style-type: none"> • Data on the existence and implementation of pollution management plans, monitoring programs, and resource allocation for pollution control (please specify) • Volume of waste and wastewater properly collected and treated (m³/year) • Compliance rate with national standards for both waste and wastewater (%) • Number of waste management and wastewater treatment facilities (count) • Monitoring programs in place for pollution control (count and please specify) • Budget allocation for pollution control and waste management (USD) • Staff allocation for pollution control and waste management (number of staff, women and men) • Population with access to improved sanitation (number of people; and percentage compared to total population) • Households connected to septic tanks (number of households) • Volume of generated domestic/industrial/agricultural waste, wastewater and septage collected/treated/recycled/reused and properly disposed after treatment (please specify for each item) • Population served by public sewerage system (including both collection and treatment) (number of people; and percentage compared to total population)
Guide Questions	<ul style="list-style-type: none"> • What are the key achievements in pollution control and waste management within the river basin? How effective are they? • How are these efforts coordinated under the IRBM framework?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Category	Pollution reduction and waste management
[ID] Indicator Name	[032] Water quality and sediment conditions
Description	Evaluates water quality and sediment conditions, focusing on compliance with national water quality standards and the impacts of pollutants.
Rationale	Good water quality and sediment management are essential for human health, environmental sustainability, and biodiversity.
Data Requirements	Monitoring data on key water quality parameters (e.g., DO, pH, BOD, COD, nutrients, heavy metals, coliforms, etc.) and sediment characteristics.
Guide Questions	<ul style="list-style-type: none"> • What improvements or deteriorations in water quality and sediment conditions have been observed (based on key physical, chemical, biological parameters)? • How are water quality monitoring and sediment management integrated into IRBM?
Data Sources	Document all data sources and references for each indicator, including the names of individuals and organizations from which data or information was obtained.

Annex B. Template for the State of River Basin Reporting

PART I. GENERAL INFORMATION

I. Information relevant to the river basin/province

(Please provide map showing the whole river basin area, administrative boundaries and other relevant information and other relevant information)

Information	Basin-wide/Province				
Main rivers (please specify)					
Length of the main rivers	km				
Major tributaries, watersheds (please specify)					
	2020	2021	2022	2023	2024
Demographic					
Total population (number of people)					
Population by cities/municipalities (number of people)					
Share of national population (%)					
Population growth rate (%)					
Population living within the river basin (number of people)					
Population density (people/km ²)					
Ethnic groups (please indicate major groups)					
Religions (please indicate major religions):					
Economic indicators					
GDP (USD)					
GDP per capita (USD per capita)					
Contribution of the river basin to provincial GDP by sector:					
Agriculture, fisheries and forestry (%)					
Industry (manufacturing and mining) (%)					
Services (trade and finance) (%)					
Other sectors (please specify) (%)					

Information	Basin-wide/Province				
	2020	2021	2022	2023	2024
Number of manufacturing establishments (by size)					
Small (number, % compared to total number of manufacturing establishments)					
Medium (number, % compared compared to total number of manufacturing establishments)					
Big (number, % compared to total number of manufacturing establishments)					
Number of manufacturing establishments (by type; please specify by types of activity)					
Number of tourists arrivals in the area					
Employment					
Labor force					
Labor force participation rate (%)					
Employment rate (%)					
Unemployment rate (%)					
Underemployment (%)					
Sectoral employment					
Agriculture, fishery and forestry (%)					
Community and social services (%)					
Banking and finance (%)					
Transportation and storages (%)					
Wholesale and retail trade (%)					
Construction (%)					
Electricity, gas and water (%)					
Manufacturing (%)					
Mining and quarrying (%)					
Other sectors (please specify)					

Sustainable Development Goals														
	Basin-wide/Province					National					Targets			Remarks
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	Local	National	SDGs	
Poverty eradication														
Proportion of population below the international poverty line, by sex, age, employment status and geographical location (urban/rural) (currently measured as people living on less than \$1.25 a day)														
Proportion of population living below the national poverty line, by sex and age														
Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions														
Prevalence of undernourishment (% of population that is undernourished)														
Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)														
Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under-5 years of age														
Prevalence of malnutrition (weight for height >+2 or <-2 standard deviation from the median of the WHO Child Growth Standards) among children under-5 years of age, by type (wasting and overweight)														
Average income of small-scale food producers, by sex and indigenous status														
Proportion of agricultural area under productive and sustainable agriculture														

Sustainable Development Goals														
	Basin-wide/Province				National				Targets			Remarks		
	2020	2021	2022	2023	2024	2020	2021	2022	2023	2024	Local		National	SDGs
Achieve universal primary education														
Proportion of children and young people: (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level (in (i) reading and (ii) mathematics), by sex														
Literacy rate of 15-24 years														
Reduce child mortality														
Under-five mortality rate (expressed as rate per 1,000 live births)														
Infant mortality rate (per 1,000 live births)														
Proportion of one-year-old immunized against measles														
Improve maternal health														
Maternal mortality rate (per 100,000 live births)														
Proportion of births attended by skilled health personnel														
Promote gender equality and empower women														
Ratio of girls to boys in primary, secondary and tertiary education														
Ratio of literate women to men, 15-24 years old														
Share of women in wage employment in the non-agricultural sector														
Proportion of seats held by women in national parliaments (local governments)														

PART II. CORE INDICATORS FOR THE STATE OF RIVER BASIN REPORTING

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
GOVERNANCE									
Policy, strategies and plans									
[001] River basin profile and environmental risk assessment									
Evidence of the availability of river basin profile in the form of published reports/ documents/papers (please specify)									
Evidence of available environmental impact/ risk assessment report of the river basin (please specify)									
Priority issues identified (please specify)									
[002] River basin strategy and action plans									
Existence of a comprehensive river basin strategy document (yes/no)									
Year the strategy was last updated									
Existence of action plans derived from the strategy (yes/no) and their timeline for the implementation									
Number of action plans implemented (count)									
Percentage of action plan goals achieved (percentage)									
Funding allocated for the implementation of action plans (USD)									
Stakeholder groups involved in the strategy and action plan development (count of groups)									
Mechanisms for public consultation in strategy and action plan development (yes/ no)									
Reports on progress and evaluation of action plan implementation (yes/no; count of reports)									
[003] Local government development plan integrating river basin, associated watersheds and adjacent coastal and marine areas									
Availability of development plan at the provincial/city/municipal/district level (yes/ no) (please specify)									
Presence of integration elements related to IRBM in local government development plans (yes/no) (please specify)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
Specific sections/pages in development plans dedicated to river basin management (count) (please specify)									
Year of latest plan revision incorporating integrated river basin management									
Institutional arrangements									
[004] Coordinating mechanism for integrated river basin management									
Existence of formal coordination mechanisms, with clear and specific roles and responsibilities of each different entities and stakeholders (yes/no) (please specify)									
Number of meetings held under these mechanisms per year (meetings/year)									
Evidence of tangible signs of transboundary/ inter-provincial cooperation such as joint protected area declarations, water-sharing policies, local government networks, alliances, etc. (please specify)									
Existence of provincial/national and/or international coordination arrangements (in case of cross-nations river basin) (e.g. dialogues, memoranda of understanding, joint programs of action) between provinces/ cities for river basin (please specify)									
Existence of quality control mechanisms to avoid bias in monitoring, planning and management through coordination of a range of central and local governmental agencies, academic and research institutions/ universities, and private NGO bodies (please specify)									
Evidence of the presence of an established river basin organization (RBO) and that the RBO has the mandate (which specify authority of RBO to coordinate entities) to ensure they take the 'big picture' in river basin management (please specify)									
Evidence of clear specification of the roles, responsibilities and functions of RBO and roles are distinguished from those of other entities (please specify)									
Existence of guidelines/protocols issued by the RBO to enact natural resources and environment management by local governments (please specify)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
[005] Formal recognition that sector-based government agencies support integrated approaches for river basin management									
Official government statements, policies or directives acknowledging the need for integrated approaches (please specify)									
List of diverse members and representatives from different stakeholder groups in coordinating bodies (please specify)									
Number of agencies and institutions in the coordinating body which incorporated IRBM implementation plans in their work programs									
Number of staff allocated by the agencies to support the coordinating body's operation									
[006] Benefits derived from cooperation									
Records of cooperative projects/efforts (please specify)									
Outcomes from these collaboration efforts (please specify)									
Mechanisms for conflict resolution (please specify)									
Types of benefits achieved (qualitative description)									
Stakeholder satisfaction level (% satisfied with cooperation outcomes)									
Legislation									
[007] Integrated river basin management enabling legislation									
Existence of specific legislation at either national or provincial/city/municipal/district level to enact or support IRBM implementation (yes/no)									
Year of enactment or latest amendment									
Legislation specifies functions, structure, financial arrangements & accountability mechanisms for integrated river basin management (please specify)									
Evidence of policy integration (vertical-from national to local) and functional integration (horizontal - across sectors) (please specify)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
[008] Administration, enforcement of legislation and compliance monitoring and inspection									
Frequency of monitoring and inspection of compliance for surface/groundwater use and extraction and pollution discharge points to ensure compliance with governmental regulations									
Number of compliance inspections conducted per year (inspections/year)									
Number of enforcement actions taken against non-compliance with water legislation, including fines, penalties, or legal actions, per year (actions/year)									
Percentage of entities (industries, municipalities, etc.) that comply with water-related legislation and regulations within the river basin (%)									
Evidences of team/office established for monitoring and inspection (e.g. environmental compliance, etc.) (please specify)									
[009] Environmental cases filed/resolved									
Environmental cases filed per year (cases/year)									
Environmental cases successfully resolved per year (cases/year)									
Information and public awareness									
[010] Effective platform/mechanism for collecting, storing and sharing IRBM-related data/information to relevant stakeholders									
Existence of a centralized platform for data collection and sharing (yes/no)									
Number of stakeholders with access to the platform									
Guidelines on information and data collection, presentation, and exchange; existence of a robust monitoring and evaluation system (please specify)									
[011] Education and public awareness schemes for a range of stakeholders									
Number of education and public awareness programs implemented per year (programs/year)									
Range of stakeholders targeted by these programs (count of stakeholder types) (please specify)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
Participation rates (please specify)									
Materials distributed (please specify)									
Feedback from participants (please specify)									
[012] Public participation and mobilization									
Number of public participation events related to IRBM implementation held per year (events/year)									
Level of public mobilization achieved (please specify)									
Existence of stakeholder engagement plan to empower local organizations and individuals (please specify)									
Evidence that river basin management plan is driven by bottom up water sector initiatives with strong NGO and village level management (please specify)									
Evidence of clear specification of private sector involvement and links to basin decision systems (please specify)									
[013] Degree of stakeholder participation and gender equality and social inclusion (GESI) in decision making process for river basin management									
Degree of stakeholder participation in decision-making processes (qualitative assessment)									
Gender balance in decision-making entities (% of female participation)									
Mechanisms to include the vulnerable and marginalized sectors									
Financing mechanisms									
[014] Budget allocation for river basin management									
Budget documents detailing allocations for IRBM from various sources (governmental, donor, private sector) (USD/year) (please specify for each source)									
Existence/presence of long-term financial planning for integrated river basin management programs/initiatives (please specify)									
Grants from financing institutions (USD)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
Loans (USD)									
Government investment for environmental infrastructure (USD)									
Co-financing with partner private sector and civil society organization (USD)									
Other relevant financial planning documents (USD)									
[015] Sustainable financing mechanisms									
Evidence of financial mechanisms in place (e.g., grants, loans, environmental user fees) (please specify)									
Documentation on cost-sharing arrangements and transparency mechanisms for revenue streams (please specify)									
Types of sustainable financing mechanisms identified (please specify)									
Funds generated through sustainable financing mechanisms per year (USD/year)									
[016] Self-financing of river basin council/committee									
Proportion of river council (or river coordination committee) budget funded by national contributions (percentage) (% and equivalent amount in USD)									
Amount of self-generated revenue per year (USD/year)									
Capacity development									
[017] Availability/accessibility of capacity development and training opportunities for key stakeholders									
Number of capacity development and training programs available (programs/year)									
Participation statistics of those who access to these programs									
Feedback on program effectiveness									
Budget allocation for capacity development and research									
Evidence that the RBO leadership is well-trained, articulate, responsible and has 'listening skills'									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
Number of ongoing training and capacity building programs (programs/year)									
Number of stakeholders participating in these programs (participants/year)									
Participant feedback and effectiveness assessments (both qualitative and quantitative assessment)									
[018] Human resource capacity									
Number of people at the provincial/city/municipal/district level trained (formal and informal training) in IRBM									
Level of expertise of personnel involved in IRBM									
Gaps in skills and knowledge, training needs assessment									
SUSTAINABLE DEVELOPMENT ASPECTS									
Climate change and disaster risk reduction									
[019] Degree of vulnerability to disasters									
Vulnerability index (score)									
Availability of multi-hazard (landslides, storms, floods) maps (yes/no) (please specify)									
Population living in high-risk areas (% of total population)									
Number of people relocated or moved away from hazard prone areas (number of people)									
[020] Level of preparedness to disasters									
Natural/man-made disaster/environmental emergency response plan available (yes/no) (please specify)									
Scope of natural/man-made disaster/environmental emergency response plan (e.g., floods, landslides, earthquakes, oil spill, etc.) (please specify)									
Both mitigation and adaptation strategies are clearly identified in the plan (please specify)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
Consideration of climate change and disaster risks in relevant infrastructure design and maintenance (please specify)									
Institutional mechanism for the implementation of the emergency response plan (yes/no) (please specify)									
Number of trained and non-trained personnel allocated (number of people)									
Early warning system in place (yes/no)									
Adequate equipment available (yes/no)									
Budget allocation for natural/man-made disaster (USD/year)									
[021] Socioeconomic losses due to disasters									
Data on economic losses/damages due to natural and man-made disaster incidents (typhoons, storm surges, floods, harmful algal blooms, etc.) (USD) (please specify in detail)									
Human casualties (number of deaths and injuries)									
Displaced persons (number of people displaced)									
Data on infrastructure damage (USD)									
Frequency of disaster incidents by type (please specify)									
Number of people severely affected by natural/ man-made disaster incidents (number of people)									
[022] Greenhouse gas emissions									
Data on greenhouse gas emissions by water-related sector (tons CO ₂ -equivalent/year)									
Available of mitigation strategies, and progress towards reduction targets (quantitative assessment) (please specify)									
Reduction in GHG emissions from baseline (%)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
[023] Climate change trends and extremes									
Changes in average temperature (°C over a defined period)									
Changes in precipitation patterns (% change over a defined period)									
Frequency of extreme weather events (number of events/year)									
[024] Adaptation to climate change									
Climate change adaptation strategy related documents (please specify)									
Reports on adaptation measures, and assessments of adaptation effectiveness (please specify)									
Number of awareness-raising activities for local communities on adaptation measures									
Investment in adaptation (USD) (please specify)									
Vulnerability level for floods, droughts and storms (please specify)									
Flood and drought protection measures in place (please specify)									
Habitat protection, restoration and management									
[025] Status of environmental assets									
Information on the status of biodiversity and abundance (fish, flora and fauna, habitats) (Both qualitative and quantitative information/data) (please specify for each)									
Conditions of critical habitats (wetlands, riparian zones), and health of fish communities. (both qualitatively and quantitatively descriptions) (please specify for each)									
Area of critical habitats protected (km ²)									
Number of species at risk (count)									
Ecosystem health index (score)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
Water use and supply management									
[026] Water use and supply management									
Information on water resources availability (please specify)									
Existence of water management plans, and conservation strategies (please specify)									
Total annual water withdrawal (m ³ /year)									
Water withdrawal by sector (agriculture, industry, domestic, m ³ /year)									
Water efficiency use (% improvement or change over a defined period) in different setors such as agriculture, industry, and domestic consumption									
Existence and clear mitigation and adaptation strategies with concrete action plans (please specify)									
Staff allocation for water conservation and management (number of staff)									
Budget allocation for water conservation and management (USD)									
Water use per capita (liter per capita per day)									
Population with access to improved water sources (% and population equivalent)									
Water pricing per cubic meter (USD/m ³)									
Water resource affected by saltwater intrusion (yes/no) (please specify: affected area, time (month/year), salinity level)									
[027] Water flow conditions									
Mean annual river discharge (m ³ /second)									
Seasonal variability of water flow (% change)									
Frequency of extreme flow events (number of events/year)									
Average water levels (m)									
Velocity profiles (m/s)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
[028] Economic performance of water-related sectors									
GDP contribution by water-related sectors (USD)									
Growth rate in water-related sectors (%)									
Investment in water infrastructure (USD/year)									
Food security and livelihood management									
[029] Living conditions and well-being									
Prevalence of undernourishment (%)									
Access to clean water (% of population)									
Access to improved sanitation facilities (% of population)									
Income level (average income per capita, USD/year)									
Number of incidences of waterborne diseases per year (number/year)									
Death rates due to such diseases (number/year)									
[030] Livelihoods, employment/economic stability, gender equality and education									
Employment rate across the basin (% of population)									
Average household incomes/expenditure (USD)									
Sufficiency of household income and assets									
Evidence of legislation and policies on gender equality and social inclusion									
Gender employment ratio (ratio of female to male employees)									
Literacy rate (% of population)									
School enrollment rates by gender (primary, secondary, and tertiary levels, %)									

Indicators	Status					Targets			Remarks
	Basin-wide					Province	National	Regional/ International	
	2020	2021	2022	2023	2024				
Pollution reduction and waste management									
[031] Pollution control and waste management									
Data on the existence and implementation of pollution management plans, monitoring programs, and resource allocation for pollution control (please specify)									
Volume of waste and wastewater properly collected and treated (m ³ /year)									
Compliance rate with national standards for both waste and wastewater (%)									
Number of waste management and wastewater treatment facilities (count)									
Monitoring programs in place for pollution control (count) (please also specify)									
Budget allocation for pollution control and waste management (USD)									
Staff allocation for pollution control and waste management (number of staff)									
Population with access to improved sanitation (number of people and percentage compared to total population)									
Households connected to septic tanks									
Volume of generated domestic/industrial/agricultural waste, wastewater and septage collected/treated/recycled/reused and properly disposed after treatment (cubic meters) (please specify for each item)									
Population served by public sewerage system (for both collection and treatment) (number of people; and percentage compared to total population)									
[032] Water quality and sediment conditions									
Monitoring data on key water quality parameters (e.g., DO, pH, BOD, COD, nutrients, heavy metals, coliforms, etc.) and sediment characteristics									
Water quality monitoring and sediment management integrated into IRBM (please specify)									



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