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Technical Assistance on Strengthening the Regulatory Framework of the Water Sector: *real-time multi-basin operations in Viet Nam*

Activity

**Recommendations for Advancing
River Basin Governance in Viet Nam**

*An overview of the Italian
River Basin Authority System
AUBAC's case study*

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Preface

The Italian Agency for Development Cooperation (AICS) is pleased to introduce this technical report, developed by the CIMA Research Foundation in close collaboration with the Department of Water Resources Management (DWRM), under the Ministry of Agriculture and Environment of Viet Nam. The report is part of the project “Technical Assistance on Strengthening the Regulatory Framework of the Water Sector: Real-Time Multi-Basin Operations in Viet Nam,” funded by the Italian Cooperation and implemented by CIMA over the past two years.

This document provides a valuable contribution to the ongoing dialogue between Italian and Vietnamese institutions on integrated water resource management. It presents an overview of Italy’s River Basin District Authorities, with particular reference to the Central Apennines Basin Authority (AUBAC), and shares insights that may support Viet Nam’s efforts to implement its 2023 Law on Water Resources - drafted with technical support from AICS Hanoi in specific provisions - and to strengthen the role of River Basin Organizations.

Italy and Viet Nam, despite their geographical distance, face similar challenges in water resource management. Both countries are marked by complex topographies, densely populated river basins, and growing exposure to hydrogeological risks such as floods, landslides, and droughts, increasingly intensified by climate change. These common challenges highlight the importance of basin-scale governance, multi-sectoral coordination, and data-driven planning. Italy’s experience - built over decades of legal reforms and alignment with European Union directives - offers useful lessons for Viet Nam’s institutional development in this sector.

As the Italian Agency for Development Cooperation, AICS is proud to support initiatives that promote resilience, sustainability, and inclusive governance. We commend the technical expertise and commitment demonstrated by CIMA and DWRM throughout this project, and we trust that the recommendations contained in this report will make a meaningful contribution to Viet Nam’s path toward integrated water resource management and climate resilience.

We extend our sincere thanks to all partners involved in this initiative, particularly DWRM and CIMA Research Foundation, for their dedication, expertise, and collaboration. It is our hope that this document will serve both as a technical reference and as a foundation for continued dialogue and cooperation between our two countries.

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Table of Contents

Introduction7

1. Legal and institutional framework for water resources management in Italy.....8

1.1 Legal framework.....8

European level.....9

State level.....9

1.2 Institutional framework11

Roles and responsibilities.....12

1.3 Coordination mechanisms.....14

2. River Basin District Authorities in Italy16

2.1 Legal status and territorial organization.....16

River basin districts17

Governance bodies.....18

Transboundary water cooperation.....18

2.2 Planning tools of River Basin District Authorities.....19

2.3 Stakeholder engagement and public participation21

3. River Basin District Authority of Central Apennines - AUBAC22

3.1 Organizational Structure.....23

3.2 AUBAC’s Financial Model.....24

3.4 AUBAC’s Innovation and Digitalization.....24

4. Progresses and challenges of River Basin District Authorities in Italy.....26

5. Comparative insights between Italy and Vietnam28

5.1 Introduction.....28

5.2 The Role of River Basin Organizations under the 2023 Water Law.....29

5.3 Comparative insights.....30

Key Observations32

6. Recommendations for advancing Viet Nam's River Basin Governance.....33

6. Sources of Law in Italy.....36

7. References.....38



Introduction

This document is intended to provide the Vietnamese Department of Water Resources Management (DWRM), under the Ministry of Agriculture and Environment, with an overview of the institutional and operational structure of River Basin District Authorities (RBDAs) in Italy, with particular emphasis on the functioning of the River Basin District Authority of the Central Apennines (AUBAC).

It builds on the DWRM delegation's visit to AUBAC in May 2025, conducted as part of a study tour organized within the project "Technical Assistance on Strengthening the Regulatory Framework of the Water Sector: Real-Time Multi-Basin Operations in Viet Nam", funded by the Italian Agency for Development Cooperation (AICS) and implemented by CIMA Research Foundation.

Viet Nam has been proactively advancing its river basin governance to address increasing challenges related to water security, flood risk management, climate change and sustainable development. In recent years, the country has implemented substantial legal and institutional reforms aimed at decentralizing water resource management and strengthening inter-provincial coordination. A major milestone in this trajectory is the 2023 Law on Water Resources, which lays a legal foundation for integrated, basin-scale governance and for the enhanced role of River Basin Organizations (RBOs), enabling them to support water planning and allocation, monitor resource conditions and coordinate with a wide range of stakeholders.

In this context, the Italian experience may offer valuable insights as Italy's River Basin District Authorities function as institutional platforms for multi-level coordination, aligning European and national environmental objectives with regional water/land-use and risk reduction planning and strategies. This comparative experience can help inform Viet Nam's ongoing efforts to consolidate the institutional design, and operational capacity of its RBOs, contributing to the development of a more effective water governance system.

1.

Legal and Institutional Framework for Water Resources Management in Italy

1.1 Legal Framework

Water resource governance in Italy is articulated through a complex legal and institutional framework that integrates national priorities with the strategic orientations of the European Union. This structure is designed to support an integrated and sustainable approach to water management, primarily organized at the river basin scale. While the system aims to overcome administrative fragmentation and ensure operational coherence across territorial jurisdictions, it must also accommodate the plurality of actors and jurisdictions that characterizes the Italian institutional landscape.

The governance of water resources is structured according to a system of “shared competence” between the State and the Regions. This institutional arrangement reflects a multilevel legal architecture, wherein the State defines the overarching principles through framework legislation – most notably the Legislative Decree No. 152/2006 (Environmental Code). Within this framework, the Regions are entrusted with legislative and administrative responsibilities, implementing policies that adhere to national standards while responding to the specificities of their respective territories and managing the integrated water service in practice.

This distribution of responsibilities is grounded in Article 117 of the Italian Constitution, the core regulatory provision, which attributes exclusive jurisdiction to the State in matters such as environmental protection and the determination of essential service levels. In parallel, the Regions exercise concurrent competence over land use planning and the regulation of local public services, thereby contributing to a differentiated yet coordinated model of water governance.

Over time, this legal system has evolved through a combination of national laws and European regulations, creating a strategy designed to ensure coordination across sectors and administrative levels, while safeguarding the hydrographic integrity of each river basin district. Below are the key legislative instruments that define Italy’s water

management system, limited to those explicitly related to the river basin scale, and neglecting complementary and sector specific laws.

European Level

EU Water Framework Directive (2000/60/EC):

- Establishes a common approach to water resource management across all Member States.
- Introduces the concept of river basin scale management, surpassing administrative boundaries.
- Creates an obligation for Member States to prepare River Basin Management Plans (River Basin Management Plans), updated every six years.
- Establishes an involvement of the public and stakeholders in decision-making processes.
- Transposed into Italian law through Legislative Decree No. 152/2006, Part Three.

Floods Directive (2007/60/EC):

- Establishes a common framework to reduce and manage the risks that floods pose to human health, the environment, cultural heritage, and economic activities.
- Promotes a coordinated and integrated approach to flood risk management at the river basin level, including cooperation between Member States and third countries.
- Creates an obligation for Member States to prepare:
 - Preliminary flood risk assessment: identify areas potentially at risk.
 - Flood hazard and risk maps: depict flood extent and exposed elements.
 - Flood Risk Management Plans (FRMPs): include measures for prevention, protection, and preparedness, updated every six years
- Foresees the active involvement of citizens and stakeholders in planning and consultation processes.
- Transposed in Italy through Legislative Decree No. 49/2010, in coordination with Legislative Decree No. 152/2006 (Environmental Code).

EU Directive 2020/2184 – Quality of Water Intended for Human Consumption:

- Revises and updates Directive 98/83/EC,

introducing key innovations to ensure safe and accessible drinking water.

- Promotes the protection of human health from the adverse effects of water contamination.
- Improves universal access to drinking water, including for vulnerable groups.
- Introduces a risk-based approach across the entire water supply chain, including risk assessment for domestic distribution systems (e.g., Legionella, Lead).
- Transposed in Italy through Legislative Decree No. 18/2023.

EU Regulation 2020/741 – Water Reuse for Agricultural Irrigation:

- Sets minimum requirements for the safe reuse of treated wastewater, promoting circular economy and climate resilience.
- Ensures environmental and public health safety
- Promotes the reduction of pressure on freshwater resources.
- Encourages reuse of reclaimed water in agriculture, defining reclaimed water and its quality classes (A, B, C, D).
- Sets minimum quality parameters (e.g., Escherichia coli, turbidity, BOD5).
- Mandates a Risk Management Plan for each reuse system, with monitoring and reporting obligations every 6 years (and annually for non-compliance).
- Applicable since 26 June 2023 (implementation underway).

State Level

Legislative Decree No. 152/2006 (Environmental Code):

- Incorporates the EU Water Framework Directive (2000/60/EC) and, as amended by Legislative Decree No. 49/2010 (see below), the EU Floods Directive (2007/60/EC) into national legislation.
- Introduces River Basin Management Plans, addressing water quality, quantity, and ecological status in an integrated manner and promoting public participation.
- Entrusts the River Basin District Authorities with planning responsibilities at river basin level,

- including River Basin Management Plans and Flood Risk Management Plans.
- Assigns the Regions the responsibility of drafting Water Protection Plans, adapting strategies to local conditions.
 - Regulates the Integrated Water Service, which includes water abstraction, conveyance, distribution, sewage collection, and wastewater treatment for civil uses.
 - Encompasses key dimensions such as:
 - Climate change adaptation
 - Biodiversity and habitat protection
 - Flood risk and coastal zone management
 - Pollution prevention
 - Coordination with land use planning

Law 28 December 2015, n. 221 - modifies some parts of the Legislative Decree 152/2006, especially regarding basin planning and water body protection.

- Establishes the new setting of the River Basin District Authorities, whose personnel, instrumental and financial resources are defined through the guidelines contained in Ministerial Decree no. 294 of 25 October 2016.
- Introduces innovative measures to strengthen environmental safeguarding, like River Contracts, which are voluntary participatory governance tools for integrated management of river basins, involving local authorities, citizens, and associations.
- Addresses several aspects of the Integrated Water Service, which include abstraction, conveyance, distribution, sewage, and wastewater treatment.

Legislative Decree No. 49/2010 (Flood)

- Transposes the EU Floods Framework Directive into national law.
- Requires Flood Risk Management Plans for each river basin districts.
- Defines the Competent Authorities for Flood Risk as the administrative bodies and organizations tasked to enforce the laws within the administrative division of each river basin districts.
- Tasks River Basin District Authorities to coordinate and draft the Flood River Management Plans.

Legislative Decree 39/2023 – Law n. 68/2023 (Drought Decree):

- Contains specific measures to mitigate drought risk, by increasing the resilience of hydraulic systems to climate changes.
- Establishes a “control room” for the water crisis, under the Presidency of Council of Ministers to coordinate and monitor efforts at a national level.
- Appoints an Extraordinary Commissioner to handle urgent interventions related to water scarcity.
- Includes specific provisions for facilitate reuse of wastewater for agriculture, desalination plants, reservoir management.
- Establishes the Permanent Observatories for the water uses for each River Basin District Authority, to support the integrated management of the water resources.

Legislative Decree No. 1/2018 (Civil Protection Code):

- Identifies primary risks affecting the country, including seismic, volcanic, tsunami, hydro-geological/hydraulic, extreme weather, droughts and forest fires
- Defines the Civil Protection Service as a public utility service that safeguards life, physical integrity, property, settlements, animals, and the environment
- Assigns duties related to civil protection among national, regional and local authorities, emergency services and volunteer bodies, all coordinated by the Civil Protection Department under the Presidency of the Minister’s Council.

1.2 Institutional Framework

Water governance in Italy is structured across territorial levels, enabling both centralized strategic direction and localized implementation.

This multilevel system ensures coherence with EU obligations while allowing flexibility to address diverse hydrological and socio-economic contexts.

Governance Level and Principal Bodies	Responsibility
State	• Defines national policy and strategic goals • Transposes and monitors compliance with EU directives • Allocates funding • Provides scientific and technical guidance through the Ministry of the Environment and the Energy Safety and other Ministries, supported by agencies such as the Italian Institute for Environmental Protection and Research and the Italian Regulatory Authority for Energy, Networks and Environment • Coordinates water-related risk preparedness and response via the Civil Protection Department.
River Basin District Authorities	• Operate at the river basin district level. • Oversees the development and update of River Basin Management Plans and related sub-plans, coordinating with other competent authorities (administrative regions, reclamation and irrigation consortia, etc.) and facilitating integrated water resource management across administrative boundaries. • Collate and harmonize monitoring data on water bodies supplied by the Regions within their river basin district for planning reasons.
Administrative Regions	• Implement national policies, adapt them to local needs, and align regional water protection plans with River Basin Management Plans objectives. • Oversee regional environmental agencies that monitor water bodies and other environmental parameters. • Establish the administrative framework (Optimal Territorial Areas – ATO) and corresponding consortium of Governing Entities for domestic water services, including water abstraction, conveyance, and domestic supply, as well as for wastewater collection and treatment (Integrated Water Service, SII).
Municipalities /Provinces and governing entities of the optimal territorial areas for the water services (EGATO)	• Within each Optimal Territorial Area (ATO), Municipalities are grouped into a consortium of Governing Entities called EGATO, which tender the Integrated Water Service and supervise the Operator that manages drinking water supply and wastewater treatment. In some cases, Provinces take on the role of EGATO, while in a few cases individual Municipalities continue to directly manage parts of the water network. Municipalities are responsible for local flood risk preparedness and emergency response.

Roles and Responsibilities

Ministry for the Environment and Energy Security (MASE)

Role: Strategic policy direction, legal oversight, and national coordination

- Ensures EU directives transposition (e.g., Water Framework Directive and Floods Directive) and compliance with EU standards.
- Coordinates the Strategic Environmental Assessment (SEA, in Italian “VAS”) procedure at the national level for River Basin District Authorities and Regional territorial planning documents, organizing consultations among relevant stakeholders including Ministries and issuing the reasoned opinion that precedes final approval.
- Submits River Basin Management Plans and Flood Risk Management Plans developed by River Basin District Authorities to the Council of Ministers for adoption by Decree of the Prime Minister, once the Strategic Environmental Assessment is finalized.
- Collaborates with Regions and River Basin District Authorities to promote integrated water cycle management and coherence between national and local policies.
- Provides technical guidance through the Italian Institute for Environmental Protection (ISPRA).
- Oversees the integrated water service, which includes abstraction, purification, distribution, and treatment.

Ministry of Infrastructure and Transport (MIT) and Ministry of Agriculture, Food Sovereignty and Forests (MASAF)

Role: Complementary to MASE in water resource management, and in water infrastructures planning and coordination.

- MIT is responsible for the management of large dams and reservoirs, as well as the National Reservoir Plan. It plans, manages and monitors water sector investments, for ordinary and extraordinary interventions.
- MASAF collaborates in planning the agricultural use of water, promoting efficient and sustainable irrigation techniques, and safeguarding water

resources for agriculture

- Both contribute to the objectives of the National Recovery and Resilience Plan

River Basin District Authorities

Role: Planning and coordination at the river basin district level

- Act as a coordination hub among different levels of government, ensuring that national and regional policies are complementary.
- Prepare, update and implement the River Basin Management Plans and Flood River Management Plans, as required by EU Water Directive and Italian legislation.
- Provide opinions on the environmental impact of land-use changes, spatial planning, and projects affecting hydraulic safety, including risk reduction measures, as well as on water permits, in line with their River Basin Management Plans and Flood River Management Plans.
- Coordinate data collection from Regions, utilities and consortium on water-availability/exploitation for planning purposes.
- Chair Permanent District Observatories on water uses, which publish drought assessments and propose temporary mitigation measures jointly defined with the stakeholders.
- Facilitate stakeholder consultations and public participation through different instruments, including the Permanent District Observatories on water uses.
- Collaborate with scientific institutions and contribute to EU reporting obligations.

Italian Institute for Environmental Protection and Research (ISPRA)

Role: National-level scientific and technical support

- Develop standardized indicators, methodologies, and datasets.
- Coordinate with Regional Environmental Protection Agencies (ARPAs) and provide guidance for harmonized environmental assessments.
- Support MASE and River Basin District Authorities with technical analyses

Regional Governments and Autonomous Provinces

Role: Territorial implementation of environmental policy and monitoring

- Enforce and implement River Basin Management Plans/Flood River Management Plans measures within their jurisdiction.
- Regulate land use and manage water resources.
- Operate Regional Environmental Protection Agencies for monitoring water status and environmental parameters.
- Manage early warning activities through their functional centres
- Fund and execute risk reduction measures like prevention and restoration projects
- Adopt and enact regional civil protection plans.
- Organize administrative, territorial, and operational aggregation for the Integrated Water Service (covering domestic water abstraction, conveyance, and supply, as well as wastewater collection and treatment).
- Designate governing entities (EGATO) that tender and supervise the integrated water service operators

Reclamation and Irrigation Consortia

Role: Local operational management of water in agricultural/rural areas

- Operate and maintain drainage and irrigation networks.
- Contribute to flood protection and hydrogeological defense.
- Align local infrastructure projects with district-level planning.

Italian Regulatory Authority for Energy, Networks and Environment (ARERA)

Role: National - level regulation on water service provision

- Defines appropriate service quality standards, both general and operator-specific, for water abstraction and distribution throughout Italy.
- Establishes clear, transparent pricing systems based on predefined criteria.
- Promotes the protection of users' and consumers' interests.

- Holds legislative power and can impose sanctions,

Department of Civil Protection

Role: Risk management and emergency preparedness

- Leads national coordination on preparedness and response activities of flood risk and on water crises across all administrative levels
- Coordinates and ensures the functioning of the network of Functional Centers dealing with early warnings for hydrometeorological risks.
- Cooperates with regional and River Basin District Authorities on defining risk reduction measures plans
- Develops national-level risk scenarios and contingency plans
- Establishes mandatory national guidelines and oversees the receipt, validation, and cataloguing of regional civil-protection plans.
- Takes part in relevant national committees for risk reduction. Is a member of the Permanent District Observatories on water uses led by River Basin District Authorities, coordinates the Technical Group for Monthly and Seasonal Forecasts that gives a national overview on water availability, and chairs the Crisis Coordination Panel during water crises to align emergency measures.

Stakeholders and Civil Society

Role: Participation and local knowledge integration

- Include local authorities, universities, businesses, and citizens. Participate through public consultations and voluntary agreements like River Contracts.
- Offer critical input for sustainable planning, aligning interventions with community needs.
- Local authorities manage territorial planning and civil protection activities within their own jurisdiction, by enacting municipal protection plans and disseminating early warnings.

1.3 Coordination Mechanisms

Italy's multilevel water governance system relies on continuous coordination among national, regional, and district-level institutions. The River Basin District Authorities serve as central coordinating bodies at the river basin district level and work closely with a range of actors across administrative boundaries. However, the implementation of water policies and measures is largely carried out by regional and local authorities, who are closer to contexts of their areas.

The system is supported by both common funding and technical coordination frameworks, which help maintain coherence while allowing for local adaptation. Regarding water related risk, civil protection authorities at all territorial levels play a key role in ensuring preparedness and coordinated responses during emergencies, such as floods and water crises.

Below we illustrate the key coordination mechanisms through which River Basin District Authorities collaborate with the main actors in water governance, noting that these mechanisms cover only a part of each institution's broader mandate.

European Union → National and subnational actors:

The EU shapes water governance in Italy by issuing legally binding directives (e.g., Water Framework Directive, Floods Directive) and offering technical coordination frameworks (e.g.: Common Implementation Strategy for the Water Framework Directive), which Italy's central government transposes in national laws, subsequently overseeing their implementation. Furthermore, the EU co-finances water-related initiatives (e.g.: LIFE, Horizon Europe).

MASE →River Basin District Authorities and Regions:

The Ministry of the Environment and Energy Security plays an important role in supervising the seven River Basin District Authorities, it allocates national/EU co-funding. It chairs the "Permanent Institutional Conference" of five of the seven River Basin District Authorities, where Regions and River Basin District Authorities negotiate River Basin Management Plans/Flood River Management

Plans contents and terms for their adoption, and coordinates the Strategic Environmental Assessment of the River Basin Management Plans/ Flood River Management Plans, issuing the final opinion that precedes their formal approval by the Council of Ministers.

ISPRA → River Basin District Authorities and Regional Environmental Protection Agencies and Regions:

ISPRa coordinates the System for Environmental Protection (SNPA) that federates the 21 Regional Environmental Protection Agencies. It provides scientific guidance, standardized methodologies, and technical indicators that support consistent and comparable environmental assessments across districts. It works closely with both the River Basin District Authorities and regional authorities, and, on behalf of MASE, submits to the EU key data they produce such as ecological status, abstractions, wastewater.

River Basin District Authorities → Regions:

River Basin District Authorities define strategic planning documents for water management priorities for each river basin district. These frameworks are operationalized by regional authorities through specific actions. Additionally, they provide binding opinions to Regions and Reclamation and Irrigation Consortia on river works and large abstractions, either prior to or following the granting of the concession. River Basin District Authorities chair Permanent Observatories on Water Uses that, during dry spells, propose coordinated restrictions and mitigation measures to Regions and key actors for formal enactment.

Regions → River Basin District Authorities:

Regional governments are responsible for implementing the objectives outlined in district-level plans, such as River Basin Management Plans, through regional Water Protection Plans and other sector plans affecting water resources (water-service plans, rural-development plans, etc.), that must align with the goals set by River Basin District Authorities. They are also responsible for supervising the water monitoring activities carried out by Regional Environmental Protection Agencies, for ensuring environmental quality control, and

for supervising the provision of water services. Additionally, they play an essential role in managing flood risk, civil protection, and early warning systems, by operating the decentralized Functional Centers for real-time hydro-meteorological alerting in coordination with the Civil-Protection Department, elements that are included in the part B of the Flood River Management Plans drafted by River Basin District Authorities.

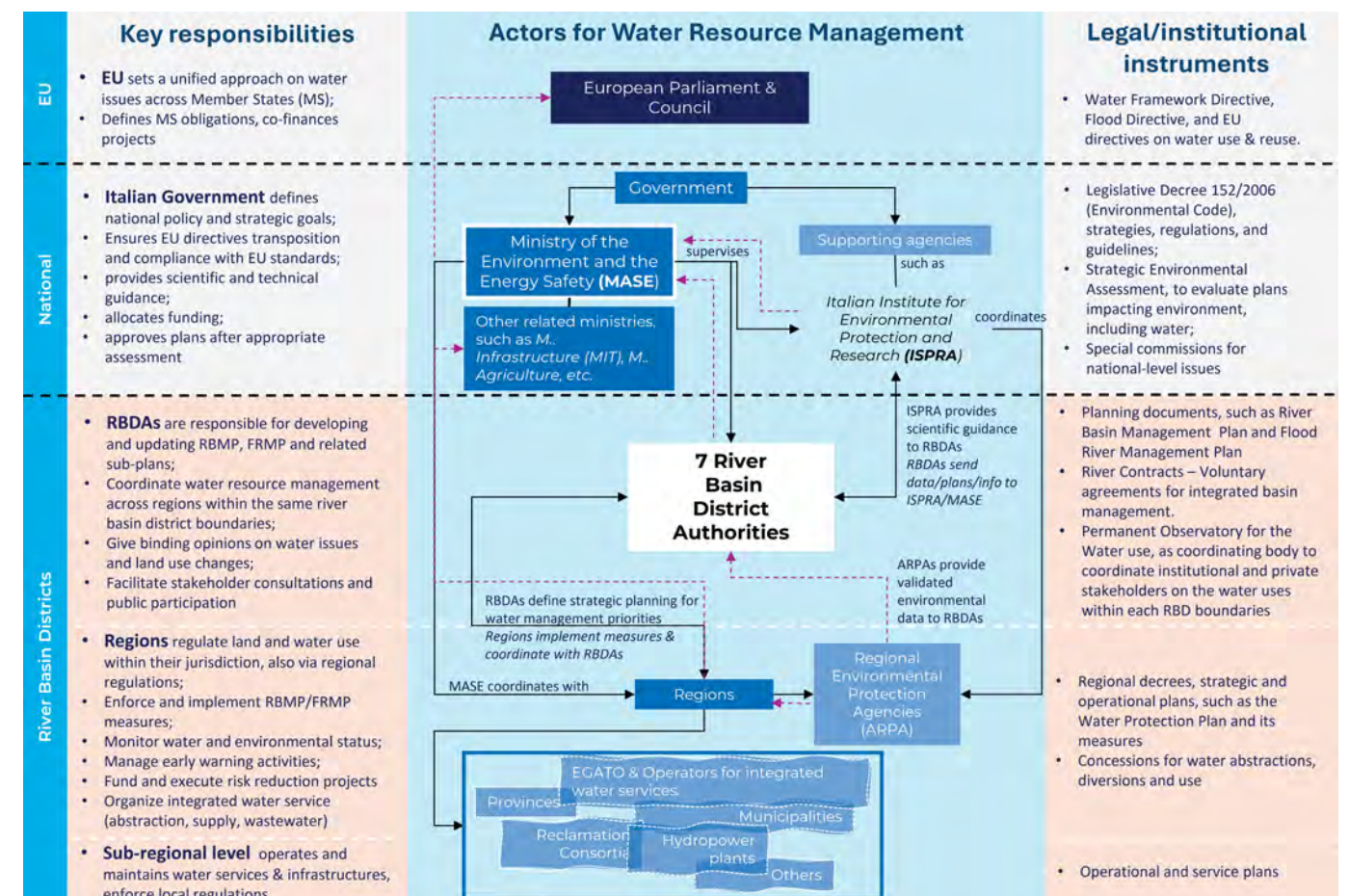
**Regional Environmental Protection Agencies →
River Basin District Authorities:**

Regional Environmental Protection Agencies provide validated technical data on water quality/quantity, ecological status, and pollution levels.

These inputs are important for both planning and monitoring and reporting activities led by the River Basin District Authorities. Furthermore, their data feed Functional-Centers for early warnings.

Department of Civil Protection → All Levels:

The Department of Civil Protection collaborates with River Basin District Authorities, regions, and municipalities to develop emergency-preparedness plans, early warning systems, and risk mitigation strategies. It plays a key role in coordinating responses to flood events, landslides, and water crises, ensuring alignment with national disaster resilience goals.



2.

River Basin District Authorities in Italy

2.1. Legal status and territorial organization

The River Basin District Authorities in Italy are public entities established under national legislation to ensure integrated, coordinated, and sustainable water resources management at the river basin district level. Their creation and functions are governed primarily by Legislative Decree No. 152 of 2006 (Environmental Code) which transposes the principles and requirements of the EU Water Framework Directive (2000/60/EC) into national law.

Under Article 63 of the Environmental Code, River Basin District Authorities are assigned technical, planning, and decision-support responsibilities, particularly for the development, review, and implementation of River Basin Management Plans and Flood Risk Management Plans, the latter one as defined in the Legislative Decree No. 49/2010. These instruments form the legal and operational backbone of water governance in Italy at river basin level, aligning with EU directives on water quality and water-related risk reduction.

River Basin District Authorities function as inter-institutional coordination platforms, facilitating collaboration between national, regional, and relevant stakeholders. Their mandate is to ensure coherence across environmental planning, spatial development, and hydrogeological risk management, especially in areas where administrative boundaries intersect with natural hydrological systems. River Basin District Authorities operate under the guidance (ex-ante) and supervision (ex-post) of the Ministry for the Environment and Energy Security.

They act as the principal coordinating authorities for:

- Strategic planning at the basin scale, including the integration of water resource management with land-use and civil protection policies.
- Data collection across Regions and stakeholders that are part of the river basin district for planning and reporting purpose, in line with the technical standards defined by ISPRA, and via the Permanent District Observatory for water

uses to monitor criticalities.

- Stakeholder engagement and public participation at river basin level, as mandated by both national law and the EU Framework Directives.

River basin districts

Italy is divided into seven river basin districts, each managed by a dedicated River Basin District Authority. These districts typically encompass multiple sub-basins and include various regions, water utilities, and reclamation and irrigation consortia, all coordinated through bodies such as the Permanent Institutional Conference and the Permanent Observatory on Water Uses. A single administrative region may be split between two river basin districts. In such cases, the regional government must ensure its water-management and land-use comply with the requirements of each district for the corresponding territory.

A special case applies to the main islands, Sicily and Sardinia, where the administrative boundaries align with those of the respective river basin districts.

Each River Basin District Authority is responsible for strategic management of both surface and groundwater systems within its district. The planning approach is based on natural hydrological boundaries, rather than administrative borders, ensuring a more coherent and effective approach to water governance. The districts areas are as follows:

1. Eastern Alps
2. Po River
3. Northern Apennines
4. Central Apennines (AUBAC)
5. Southern Apennines
6. Sardinia
7. Sicily

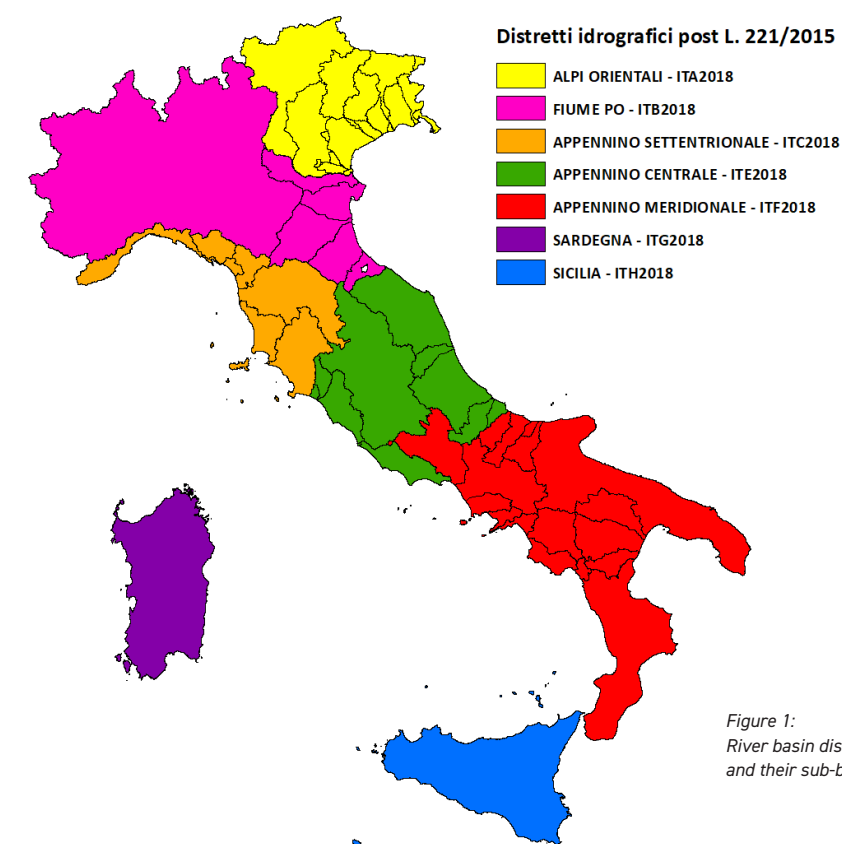


Figure 1:
River basin districts
and their sub-basins

Governance Bodies

The governing bodies of the River Basin District Authority are established under Article 63 of Legislative Decree 152/2006 and are regulated both by this provision and by the Authority's Statute. At their head stands the Secretary General, while governance is primarily exercised through two main bodies:

- **Permanent Institutional Conference:** Primary decision-making body of each River Basin District Authority, composed of ministers and regional presidents. It is responsible for adopting basin plans and technical guidelines, approving statutes and budgets, and monitoring implementation.
- **Operational Conference:** Technical-advisory body chaired by the Secretary General and composed of representatives from both State and Regions. It provides expert opinions.

In addition to the core governance structure, each River Basin District Authority includes a Technical-Operational Secretariat, chaired by the Secretary General, which supports the drafting of the district basin plans and their respective sections. Legal and financial oversight is provided by the Boards of Auditors.

The Ministry of the Environment and Energy Security provide overarching strategic guidance and coordination across the system. It chairs the Permanent Institutional Conference, appoints key officials - including the Secretary Generals who lead each authority, members of the Operational Conference, and the Boards of Auditors - and approves both the organizational acts and annual budgets of the authorities.

Regarding the legal and organizational framework, the statutes defining the structure and composition of five River Basin District Authorities were initially approved in 2018 and updated in 2024. Notably, the River Basin District Authorities of Sicily and Sardinia - due to the special autonomy granted to these Regions - established their

own statutes and organizational structures through their respective regional governments. Nonetheless, the Ministry of the Environment and Energy Security continues to retain strategic oversight and coordination responsibilities.

With the enactment of Legislative Decree No. 39/2023, "Urgent provisions for tackling water scarcity and for strengthening and upgrading water infrastructures," the Permanent Observatory on Water Uses within each River Basin District Authority was formally established as a central body. Its role is to monitor water availability and usage across each basin through regular data collection and reporting, with the aim of identifying mitigation measures to address potential water shortages.

Transboundary Water Cooperation

In districts with international watercourses, such as the River Isonzo/Soča, which flows between Italy and Slovenia - authorities engage in transboundary water cooperation through the participation at international river commissions through bilateral/multilateral agreements with neighboring countries. These collaborative efforts are supported by international frameworks such as the UNECE Water Convention, which Italy has ratified, reinforcing its commitment to sustainable and cooperative transboundary water management. Transboundary areas of cooperation include:

- Joint monitoring and data sharing
- Harmonization of water status assessment methods
- Cross-border coordination of water management planning
- Emergency response coordination for floods and droughts

2.2. Planning tools of River Basin District Authorities

The plans that respond to the obligations set out by European Directives include:

River Basin Management Plan (RBMP)

Core planning document under EU Water Framework Directive 2000/60/EC, Legislative Decree 152/06 and subsequent amendments, and its implementing decrees. Updated every 6 years. The general objective is to maintain or restore a water body to a qualitative state that deviates only "slightly" from conditions free of anthropogenic impact. It sets out:

- Status assessment of all inland surface, transitional, coastal waters and groundwater
- Environmental objectives for water bodies
- Monitoring networks and methods
- Pressures and impacts on water bodies
- Protected areas
- Economic analysis of water use
- Programs of measures to reach good water status
- Stakeholder participation frameworks
- Institutional responsibilities

Flood Risk Management Plan (FRMP or PGRA in Italian)

Developed under EU Directive 2007/60/EC and transposed in Italy by D.Lgs. 49/2010. It aims to reduce flood risks through prevention, protection, and preparedness, in coordination with national and regional authorities. Updated every 6 years, it includes:

- Findings from the preliminary flood risk assessment, which identifies areas at significant risk.
- Flood hazard maps and flood risk maps.
- Objectives for flood risk management, adapted to local and regional contexts.
- A summary and prioritization of risk reduction measures, organized into two main sections:
 - Section A: Focus on prevention and protection strategies (e.g., structural measures, land-use restrictions).
 - Section B: Focus on preparedness, emergency response, recovery, and post-event analysis.

It is hierarchically binding with respect to territorial/urban planning and at river basin scale it operates in synergy with existing PAI.

Flood Risk Management Plans (FRMPs)

The Part B of the Flood Risk Management Plans contain elements from the Civil Protection Planning

- **Hydraulic territorial control**
implemented through effective regional and provincial structures and collaboration with stakeholders
- **Forecasting, monitoring, surveillance, and alert systems**
established via a network of decentralized functional centers
- **Regulation of outflows**
managed through reservoir control plans
- **Support for the activation of Civil Protection Plans**



Examples from FRMP of Po River Basin District Authority:

https://www.adbpo.it/PDGA_Documenti_Piano/PGRA2015/Sezione_B/Relazioni_Regioni/Parte_B_Regione_Emilia-Romagna.pdf

2.3. Stakeholder Engagement and Public Participation

Furthermore, following the implementation of national laws, River Basin District Authorities have at their disposal other plans or sub-plans, such as:

Geological and Hydrological Asset Plan (PAI)

Plan document under the D.Lgs. 152/2006.

Addresses hydrogeological risks such as landslides, erosion, flooding, and soil instability. It establishes:

- Risk zoning and hazard mapping
- Land-use restrictions in high-risk areas
- Guidelines for structural and non-structural risk mitigation
- Legal and regulatory constraints in territorial planning to reduce exposure and vulnerability

Water Balance Plan

It can be integrated into the River Basin Management Plan or presented as a complementary tool. It focuses on the operational aspects of water resource use and addresses:

- Water abstraction and allocation
- Balancing availability with current and future demand
- Rules for drought periods and prioritization of uses
- Management of reservoirs and artificial storage
- Intersectoral coordination (e.g., irrigation, agriculture, energy production, urban supply)

Sediment Management Plan

Designed to reconcile flood risk prevention with the ecological restoration of river environments. Key objectives and focus areas include:

- Improvement of morphological and ecological conditions of rivers, in line with EU Water Framework and Flood Directives (2000/60/EC and 2007/60/EC).
- Reduction of flood risk through informed interventions on sediment dynamics.
- Management of river corridor structure, including:
 - Longitudinal and cross-sectional profiles of riverbeds.
 - Sediment transport continuity and deposition.
 - Interactions between hydraulic and civil infrastructures and river morphology.

Coastal Management Plan

Provides a strategic framework for safeguarding coastlines as part of basin planning according to Legislative Decree 152/2006. The “programming, planning, and integrated management of coastal defense interventions and coastal settlements” is the prerogative of the Regions, as a result of administrative decentralization. Core aspects of this plan include:

- Mitigation of coastal vulnerability and exposure to rising sea levels, stronger storm surges, and sediment supply reduction.
- Strategic planning of coastal defense interventions, aimed at combining environmental sustainability with disaster risk reduction, in accordance with Directive 200/60/CE and 2007/60/CE.

Italian water governance emphasizes inclusive, transparent, and participatory planning, as mandated by Legislative Decree 152/2006 and the European Water Framework Directive (2000/60/EC).

In line with these regulations, River Basin District Authorities are required to engage the public throughout the entire planning cycle. While public participation does take place, its extent and quality vary significantly across districts, depending on factors such as political will, available resources, and the Authority's communication capacity.

River Basin District Authorities are required to ensure meaningful public involvement throughout the entire planning cycle, from early drafts to final implementation. Participation tools and mechanisms include:

- Public consultations, allowing citizens and organizations to provide feedback on draft plans and environmental reports.
- Stakeholder forums and roundtables, where relevant stakeholders such as municipalities, environmental NGOs, businesses, academic institutions, and water utilities, can discuss priorities and challenges.
- Open access to planning documents via institutional websites, enabling transparency and traceability of decision-making.
- Environmental education and awareness initiatives, which help build a culture of shared responsibility and participation.
- Response reports, which summarize how public input has been considered and integrated into final planning documents.



Tevere River - Wikimedia

3.

River Basin District Authority of Central Apennines - AUBAC

AUBAC operates within a river basin district marked by a combination of multiple physical, hydrological, and socio-economic features. The district encompasses predominantly mountainous terrain dominated by the Apennine range, where steep gradients contribute to pronounced hydrological variability. Major river systems, such as the Tiber and Aterno-Pescara, experience significant seasonal fluctuations, rendering the area vulnerable to both water scarcity and flooding.

From an administrative perspective, the district spans several regions and provinces, each with its own planning frameworks and governance culture. This diversity demands robust interregional coordination and the harmonization of policy instruments across jurisdictions. The territory also includes numerous protected natural areas and UNESCO World Heritage Sites, underscoring the need to embed environmental protection and landscape conservation in basin-level planning.

AUBAC's governance strategy is attuned to a region defined by small to medium-sized towns, rural economies, and historically embedded infrastructure systems. Its planning processes aim to balance competing demands - particularly the need for agricultural water use - with the imperative to maintain ecological flows and sustain vital ecosystem services.



AUBAC
Autorità di bacino distrettuale
dell'Appennino Centrale

3.1. Organizational Structure

AUBAC is structured into specialized technical and administrative departments, each responsible for different components of basin governance. The governance board includes representatives from the Ministry for Environment and Energy Security, regional governments, and local entities, promoting multi-level coordination.

Key departments include:

Hydraulic Risk Management Department

Responsible for planning and managing hydraulic risk (e.g., geological and hydrological asset plans, flood risk management plans), including conducting strategic environmental assessments. Ensures alignment with basin objectives and defines both structural and non-structural measures. Provides environmental evaluations for territorial planning, including land development proposals and updates of hazard and risk maps. Collaborates with land reclamation consortia.

Landslide Risk Management Department

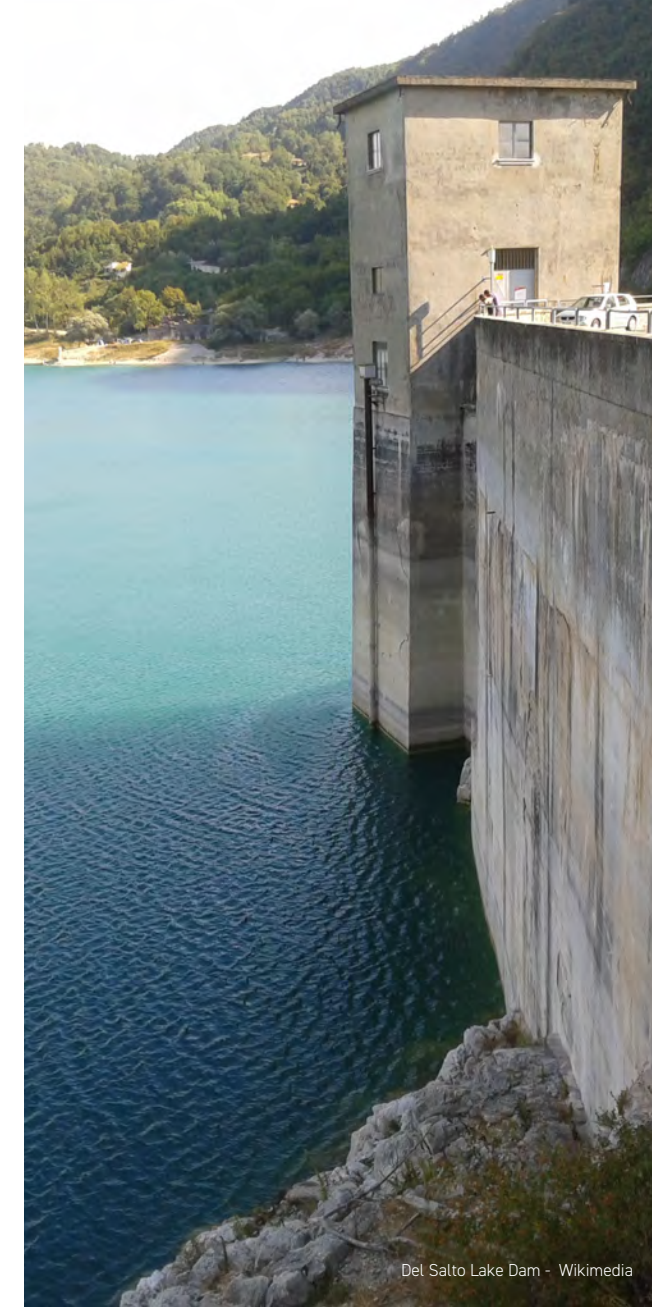
Oversees landslide risk planning, ensuring consistency with basin-level strategies. Defines mitigation strategies and assesses environmental compatibility of territorial transformation projects and updates landslide hazard maps.

Water Resource Management Department

Manages protection and sustainable use of water resources, addressing drought, soil degradation, and desertification through district-level planning (e.g., water and sediment management). Oversees water balance, permits for water use, and strategic environmental assessments. Integrates environmental policies with agriculture, industry, and other sectors, and leads special projects and international collaborations. Coordinates a permanent observatory on water use.

Sustainable Land Use and Ecosystem Services Department

Monitors land use, soil sealing, and ecological soil health. Aligns environmental strategies with sectoral policies, contributes to sediment management, supports river contracts, and participates in international working groups.



Del Salto Lake Dam - Wikimedia

Information Systems and Digital Technologies Department

Manages the Authority's digital infrastructure, including information systems, cybersecurity, and web platforms.

Environmental Observatory and Climate Change Department

Collects and analyzes environmental and climate data. Develops climate risk scenarios, adaptation strategies, and promotes environmental education and communication on climate and sustainability.

Remote Sensing and Spatial Information Department

Implements and manages cartographic and geographic information systems. Acquires and analyzes spatial data (from ground, aerial, UAV, and satellite sources) to support planning activities.

3.2. AUBAC's Financial Model

The financial model of AUBAC is designed to ensure both stability and adaptability in supporting its strategic planning and activities. AUBAC operates through a diversified and multi-source funding strategy, which include:

National Government Allocations

AUBAC receives direct funding from the Italian central government, primarily through the Ministry of the Environment and Energy Security. These allocations support institutional functions, staffing, and regulatory responsibilities, including implementation of national laws and directives on water and environmental protection.

Regional Contributions

Regions within the district contribute financially to AUBAC's planning and implementation activities. Regional co-financing often supports interventions tailored to specific territorial needs, such as hydrogeological risk mitigation or local water infrastructure.

European Union Funding Programs

AUBAC actively participates in EU funding instruments, aligning its strategic objectives with broader European goals for environmental sustainability, innovation, and resilience. These include:

- European Regional Development Fund (ERDF) - infrastructure and territorial cohesion projects.
- LIFE Programme - nature and climate action.
- Horizon Europe - research and innovation in areas such as Digital Twins, climate adaptation, and integrated water management.

Project-Based Co-Financing

AUBAC regularly enters partnerships with public and private stakeholders, including water utilities, universities, research centers, and companies, to co-finance specific projects. These collaborative efforts often focus on:

- Technological innovation
- Data sharing and integrated monitoring systems
- Climate adaptation pilots
- Community-based risk management and river contracts

3.3. AUBAC's Innovation and Digitalization

Innovation is a pillar of AUBAC's mission, enabling the authority to address increasingly complex challenges in water governance, climate adaptation, and ecosystem protection. As environmental risks become more dynamic and interlinked due to climate change, land use pressures, and shifting hydrological patterns, AUBAC has embraced digital transformation as a strategic tool for resilience, transparency, and informed decision-making.

AUBAC's digital and innovation strategy focuses on the development and integration of technologies, data-driven platforms, and interoperable tools that enhance both operational efficiency and stakeholder engagement. Key innovations include:

Digital Twin

AUBAC has developed an advanced Digital Twin for the Central Apennine hydrographic district. This interactive digital replica integrates real-time data from various sources, including terrestrial and satellite remote sensing, GIS, IoT devices, and artificial intelligence. The system enables:

- **Access to maps and data** related to hydrogeological risk planning (e.g., landslides, flood risks, areas affected by fires), water protection and management (e.g., hydrographic basins, major derivations, chemical and ecological status of water bodies), and climatic and hydrological conditions for predicting water scarcity scenarios.
- **Monitoring and analysis** of natural phenomena (e.g., climatic parameters, hydrogeological data) and human activities (e.g., land use, and water consumption).
- **Simulation of behaviors and future scenarios**, aiding in planning and decision-making processes.
- **Continuous updates** from external real-time data and major databases facilitate the detection of anomalies and the simulation of future scenarios.
- **Integration with virtual and mixed reality systems** enhances understanding and remote collaboration.

The Digital Twin also plays a strategic role in developing the district's water balance, allowing for continuous monitoring of the supply-demand relationship and early identification of potential water scarcity scenarios. For this purpose, the platform includes:

- **Monitoring tools** for civil and irrigation water consumption, developed in collaboration with water service managers and reclamation consortia.
- **Georeferenced mapping** of water derivation concessions, digitalization of water and irrigation schemes, identification of users and served territories.
- **Online data collection and access** for monthly withdrawals and related uses contribute to the district's water balance.
- **Integration of meteorological and hydrological parameters** to assess the supply-demand relationship and identify potential water scarcity scenarios.



4.

Progresses and challenges of River Basin District Authorities in Italy

Over the past decades, River Basin District Authorities in Italy have made considerable progress in building a modern and adaptive water governance framework. Their efforts have contributed significantly to the institutionalization of integrated water resources management at both national and regional levels in Italy.

One of the key achievements has been the establishment of a coherent and legally binding planning system, centered around instruments such as River Basin Management Plans and Flood Risk Management Plans. These tools have enabled more systematic coordination across administrative boundaries, introducing a strong basin-based governance model at national level. A vital contribution to this process has come from ISPRA, which played a leading role in standardizing technical procedures and harmonizing methodologies across River Basin District Authorities and Regional Environmental Protection Agencies.

Another important result has been the gradual strengthening of stakeholder engagement through public consultations, participatory forums, and transparent data-sharing platforms, although with differentiation across River Basin District Authorities (Fasoli et al., 2021). However, despite these advances, several challenges remain on the agenda, and are progressively being addressed through institutional, technical, and policy efforts:

Fragmented responsibilities and overlapping mandates

In some cases, the persistence of dispersed competencies between national and regional governments has led to governance gaps or redundancies, complicating coherent policy implementation (Rossi and Benedini, 2020). Moreover, coordination among sectors deploying water resources is still challenging, though the establishment of the Permanent Observatories of the Water Uses represents a significant step forward.

Data fragmentation and interoperability gaps

Although digital platforms have expanded significantly, water-related data remain, at times, scattered across institutions, formats, and systems.

Uneven stakeholder engagement

While legal frameworks ensure public participation, the depth and consistency of stakeholder involvement still vary across regions and planning cycles.

Intensification of hydrological extremes

The increasing frequency and severity of droughts, floods, and other extreme events driven by climate change pose major challenges to existing planning frameworks. Adaptive planning, real-time monitoring, and early warning systems are being progressively strengthened to improve responsiveness and resilience.

Financial constraints

Inadequate or unstable funding can limit the capacity of River Basin District Authorities to adopt long-term strategies and invest in innovation.

Municipal water services reform

The slow restructuring of local water utilities continues to impact service efficiency and exacerbate water losses. This, in turn, affects basin-wide planning objectives.



Po River - Wikimedia

5.

Comparative insights between Italy and Vietnam

5.1. Introduction

Vietnam is advancing toward integrated water governance with the enactment of the Law on Water Resources (No. 28/2023/QH15), effective 1 July 2024, and the establishment of River Basin Organizations (RBOs) under the Ministry of Agriculture and Environment (MAE). Since April 2024, as part of a comprehensive government reorganization, MAE has consolidated functions previously held by both MONRE and MARD, providing a single institutional home for water management and protection, irrigation and disaster prevention.

Vietnam has **3,450 rivers and streams** at least 10 km long, distributed across 106 river basins which can be grouped into the **Northern, North Central, South Central, Southeast, and Mekong regions**. Each has distinct hydrological and socio-economic contexts requiring basin-specific management strategies.

The 2023 Law on Water Resources sets out comprehensive provisions on water allocation, protection, risk reduction, and the responsibilities of water-related stakeholders. Decree 53/2024/ND-CP operationalizes the Law, detailing implementation and assigning duties to MAE, provincial authorities, and river basin organization (RBO).

The National Water Resources Plan 2021–2030, Vision 2050 (Decision 1622/QD-TTg) sets out strategic priorities aligned with basin-level and national planning under the new framework.

The law is grounded in nine guiding principles (Article 3 of the Law on Water Resources):

- Protect sovereignty and national interests; ensure water security and fair access.
- Manage water holistically-quantity and quality, surface and groundwater, upstream and downstream-integrated with other natural resources.
- Use a basin-based approach aligned with administrative management; clearly define state responsibilities across sectors (irrigation, hydropower, urban/rural water supply).
- Prioritize prevention; link protection of water quantity/quality with forest, aquatic resources, and water-ecosystem functions.

- Require declaration/registration/licensing; allocate and use water per regulation/distribution plans and master plans; promote integrated, multi-purpose, economical, efficient use.
- Align management with natural laws/conditions and cultural-socioeconomic contexts, market mechanisms, and development levels.
- Plan and implement measures to prevent/mitigate water-related harms; balance national-regional-local-sectoral interests; combine modern science with traditional practices.
- Ensure all sectoral/master plans and projects match water availability and functions, protect resources, maintain minimum flows, and respect groundwater thresholds.
- Recognize shared rights and responsibilities: agencies, organizations, and individuals all have duties in managing, protecting, allocating, restoring, and using water, and in preventing/mitigating harms.

Furthermore, the law promotes a transition from administrative to economic regulation, using:

- Permitting and Allocation systems tied to basin limits.
- Economic Tools such as abstraction and discharge fees.
- Compliance Mechanisms combining inspection, penalties, and digital monitoring.

These reforms respond to increasing demands on water resources due to rapid development, climate pressures, and transboundary dynamics. They establish a basis for an integrated, data-driven, and participatory approach to river basin governance.

5.2. The Role of River Basin Organizations under the 2023 Water Law

Under the 2023 Law on Water Resources, River Basin Organizations (RBOs) will serve as the coordination and advisory mechanisms for the integrated management of water resources across administrative boundaries. RBOs will function as multi-stakeholder coordination platforms, bringing together national agencies, provincial authorities, utilities, and civil society to address water challenges within each basin. Their responsibilities will include:

- Coordinating the preparation and implementation of river basin management plans, aligning them with national and provincial development priorities.
- Advising water allocation and protection, including environmental flow maintenance and pollution control.
- Supporting drought and flood preparedness through joint basin operations and scenario-based planning.
- Facilitating dialogue, stakeholder participation, and conflict resolution among provinces and sectors sharing basin resources.
- Overseeing data integration, reporting, and dissemination through the National Water Resources Information System (NWRIS).
- Providing technical input and policy recommendations to MAE for long-term planning and investment decisions.

Through these functions, RBOs will play a pivotal role in transforming water governance from fragmented, sector-based management into a coordinated, evidence-driven, and participatory system.



5.3. Comparative insights

Vietnam and Italy provide two distinct yet comparable models of river basin governance. Both countries share geographic diversity, multiple administrative levels, and the need to balance water for agriculture, environment, and socio-economic development, ensuring i water security, ecosystem health, and sustainable growth. Italy's experience - developed over several decades through alignment with the EU directions and

national priorities - offers valuable lessons for Vietnam as it operationalizes its 2023 Law on Water Resources and establishes River Basin Committees under the Ministry of Agriculture and Environment.

The following comparative analysis examines legislative, institutional, financial, and participatory dimensions to identify areas of convergence and opportunities regarding River Basin Organizations.

	Vietnam River Basin Organisation System 2023–2025	Italy River Basin District Authorities System
Legislative Framework	Law on Water Resources (No. 28/2023/QH15) – effective July 2024 – consolidates water protection, allocation, and restoration serves as the legal foundation for the establishment of RBOs, which is detail regulated by Decree 53/2024/ND-CP	Legislative Decree 152/2006 – transposing the EU Water Framework Directive (2000/60/EC) – regulates water protection and management across multiple territorial levels, establishes River Basin District Authorities for basin-level management.
Institutional bodies in the Water Governances	Intersector body regulated under the Decision 23/2023/QĐ-TTg (issued 18 Sep 2023; effective 10 Dec 2023) on intersectoral coordination bodies in which assist the PM in studying, directing, and coordinating solutions to important cross-sector issues regarding water; they do not exercise state management functions.	Ministry for the Environment and Energy Security (MASE): Integrated management of water, environment and energy. Ministry of Infrastructure and Transport: dams and extraordinary interventions Ministry of Agriculture, Food Sovereignty and Forests: irrigation and rural systems Civil Protection Department: full disaster-risk management cycle
Institutional Leadership at River Basin level	River Basin Organizations (RBOs) monitor, coordinate the activities related to protection, regulation, distribution, development, extraction and use of water resources, prevention and mitigation of harmful effects caused by water. Departments of Agriculture and Environment (DAEs) manage at the province implementation.	Seven River Basin District Authorities oversee integrated water resource management planning under MASE's oversight and technical coordination of ISPRA; Regions implement programs and organize water services, ARPAs carry out monitoring.
Planning System	Multi-tiered: (1) National Water Resources Plan, (2) River Basin Plans, (3) Provincial and Thematic Plans (drought, salinity, quality). Integration with socio-economic and land-use planning is required.	Hierarchical structure consistent with the EU WFD: (1) River Basin Management Plans (RBMPs) and Flood Risk Management Plans (FRMPs) with thematic plans, (2) Regional Water Protection Plans (for water resources) and Civil Protection Plans (for flood and other risks), (3) Optimal Territorial Areas Plans for water services. Integration with socio-economic and land-use planning is required at different territorial levels
Planning Integration	MAE ensures inter-sectoral alignment in water use, allocation, protection and preventing the water risks of prevention and combat across agriculture, environment, and climate adaptation policies.	All plans integrate ecological status, risk management, and sustainable development as mandated by EU law. RBD plans directly influence land-use and development policies in line with climate change adaptation strategies.

Sources of Finance	Primarily state budget allocations of MAE, provincial levels. Support by international donors etc.	RBDAs are funded through national and regional transfers and EU funds. User-based fees (water tariffs, abstraction charges, discharge taxes), collected by Regions and Water Service Operators, sustain water services and water interventions.
Financial Management	Centralized through MAE.	RBDAs have administrative and financial autonomy, though MASE oversights annual budgets through the Boards of Auditors; transparent budgets ensure operational sustainability.
Stakeholder Involvement and coordination	RBOs institutionalize participation through committee operational mechanisms. Civil society and private actors have advisory roles.	Public participation at river basin level is mandatory at every planning stage, involving relevant stakeholders, including industry and NGOs. Coordination among administrative levels occurs through institutional boards composed of representatives of national, regional, and local administrations. Permanent Observatories for Water Uses serve as technical and coordination hub for monitoring water use, especially during drought and water scarcity conditions
Role in disaster risk management	Under the Law on Water Resources (2023), MAE has a role in the prevention of disasters of natural origins, with the DWRM department being responsible for formulating and implementing plans for water resource regulation and allocation in cases of drought and water scarcity.	In the prevention phase, RBDAs are responsible for preparing FRMPs (EU Floods directive 2007/60/CE), containing flood hazard and risk maps and risk reduction measures, developed in collaboration with Civil Protection Authorities. Measures addressing water scarcity and drought risks are incorporated into the RBMPs. During water-related emergencies, RBDAs coordinate with Civil Protection to provide data, analysis, and technical support for response and recovery actions.
Standing Offices / Basin Secretariats	MAE/DWRM plays roles as a standing office.	Each River Basin District Authority maintains a permanent secretariat with technical, administrative, and legal divisions.
Information and Monitoring Systems	National Water Resources Information System (NWRIS) centralizes real-time data collection and forecasting. Supported by MAE's digital dashboards and provincial data networks.	National Environmental Information System (SINA), managed by ISPRA, centralises data on environment and water bodies collected by ARPAs/regions. Each RBDA maintains basin-specific monitoring and information systems (see AUBAC). Real-time data collection and forecasting, including meteorological and hydrometric data, are performed by the decentralized functional centres, part of the national civil protection system. MyDEWETRA (developed by CIMA and used by the Civil protection department) centralizes these data for hydrometeorological risk management.
Policy Orientation	Emphasizes integration, climate resilience, transparency, and equity. Phase (2023–2030) focuses on institutional consolidation and financing diversification.	Prioritizes ecological status improvement, sustainability, and efficiency. Guided by precautionary and polluter-paying principles.

Key Observations

Institutional Integration:

Italy's River Basin District Authorities operate with greater functional autonomy and have long-established coordination mechanisms across ministries and administrative regions.

Financial Mechanisms:

Italy's RBDAs rely on a combination of central and regional transfers and project funding representing a partially mature and diversified financing model. In contrast, Vietnam's evolving system is still reliant on state budgets and external funding.

Stakeholder Participation:

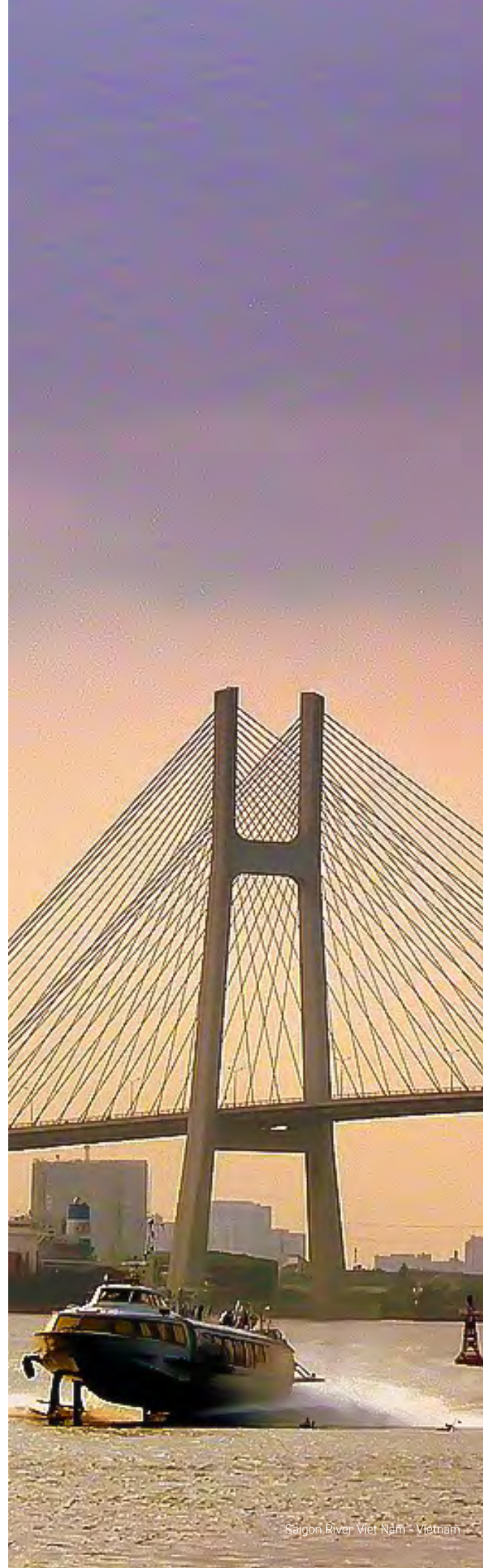
Both frameworks emphasize participatory governance. Vietnam's 2023 Law embeds consultation requirements; Italy's model ensures deep-rooted, legally binding participation aligned with the EU Water Framework Directive, complemented by institutional boards and Permanent Observatories on Water Uses.

Data and Monitoring Systems:

Vietnam's National Water Resources Information System (2024 onward) parallels Italy's data frameworks (SINA, ARPAs, myDEWETRA). Both focus on transparency and real-time management, with Italian system related to the civil protection services more institutionalized.

Planning and Policy Alignment:

Italy's established RBMPs and FRMPs offer a mature example of linking basin plans to broader climate, land, and biodiversity objectives. Vietnam's ongoing reforms aim to achieve similar coherence by 2030.



Saigon River Viet Nam - Vietnam

6.

Recommendations for advancing Viet Nam's River Basin Governance

Italy's experience with River Basin District Authorities offers valuable insights for the Government of Viet Nam as it advances efforts to strengthen integrated water resources management. This experience is the result of a long and ongoing institutional process shaped by the challenges of coordinating across diverse geographic, climatic, and administrative contexts—conditions that closely parallel those found in Viet Nam.

The following integrated recommendations and lessons draw from Italy's institutional and operational practices and are intended to support the development and enhancement of River Basin Organizations (RBOs) under Viet Nam's Ministry of Agriculture and Environment (MAE) framework.

1. Institutional and Legal Framework

Building on the 2023 Water Law and implementing regulations that already define the functions and mandates of RBOs, it is advisable to develop a clear and efficient coordination mechanism with well-defined procedures, decision rules, and explicit accountability for all stakeholders.

Such a framework should prevent overlap, strengthen vertical coordination between central, provincial, and basin institutions, and establish measurable indicators for performance and compliance.

Recommendation

Autonomy and Accountability: Gradually increase operational and financial autonomy for River Basin Committees. Each committee should have an empowered technical secretariat and clear accountability lines to MAE.

2. Integrated and Adaptive Planning

Develop robust coordination and monitoring instruments to support the implementation of River Basin Management Plans and Flood Risk Management Plans that integrate water quality, quantity, risk management, and land-use coordination.

These plans should be binding, data-driven, and periodically updated to reflect evolving climatic and socio-economic conditions. Integration with Viet Nam's broader goals on climate adaptation,

disaster risk reduction, and sustainable development is essential.

Recommendation

Basin-level plans should adopt adaptive management cycles similar to Italy's six-year EU planning framework, ensuring continuous monitoring, review, and stakeholder participation.

3. Multi-Level and Cross-Sectoral Coordination

Foster effective coordination among central, provincial, and local governments, as well as between sectors such as domestic water supply, agriculture, energy, industry, and ecosystems. Instruments similar to Italy's "*Permanent Observatory for Water Uses*" could be established for each RBO to facilitate dialogue and conflict resolution. Additionally, consider forming inter-ministerial working groups and a national steering mechanism, to guide coordinated responses to droughts, floods, and other basin-wide emergencies.

Recommendation

Stakeholder Permanence: Institutionalize basin observatories or multi-sectoral forums to ensure continuous stakeholder engagement and accountability beyond project cycles.

4. Stakeholder Participation

Design inclusive mechanisms for public participation, ensuring meaningful engagement of service providers, scientific institutions, local communities, and civil society throughout the planning and implementation process. Stakeholders should be involved in the diagnostic and planning phases through implementation, monitoring, and evaluation.

Recommendation

Public consultation in basin planning should be mandatory and transparent, with published responses to feedback, similar to Italy's formal consultation under the EU Water Framework Directive.

5. Financing and Cost Recovery

Diversify funding sources beyond central government allocations. Viet Nam's RBOs can explore co-financing mechanisms involving international organizations, public-private

partnerships (PPP), and user contributions (utilities, industries, and irrigation users) to enhance financial autonomy and stability.

The system should encourage reinvestment of collected fees into basin protection, monitoring, and restoration activities.

Recommendation

Cost Recovery and Incentives: Introduce equitable water-use and discharge fees, applying the "polluter pays" and "user pays" principles. Ensure that revenues directly support basin management and data infrastructure.

6. Technical Capacity and Data Infrastructure

Strengthen institutional capacity at both national and basin levels by adopting real-time monitoring platforms, scenario planning tools, and interoperable databases.

A centralized, MAE-led National Water Resources Information System (NWRIS) should harmonize data from provinces, RBOs, and other sectors to enable transparent, evidence-based decision-making.

Recommendation:

Data Integration: Strengthen interoperability between MAE's systems and provincial monitoring networks to achieve transparency and accountability.

Capacity and Partnerships: Foster partnerships with universities, research institutes, and international partners for training, modeling, and technology transfer.

7. Governance and Long-Term Sustainability

Institutionalize basin-level governance through permanent secretariats and cross-sectoral observatories, ensuring that coordination mechanisms are not dependent on individual projects or donors.

Long-term sustainability depends on maintaining technical expertise, continuity of data collection, and predictable financial flows.

Recommendation:

Stable basin governance requires legal permanence and dedicated funding streams, ensuring that RBOs remain functional and effective across political cycles.



Quang Nguyen Vinh

6. Sources of Law in Italy

The definitions and terms provided below aim to foster a shared and consistent understanding of the topics addressed in the present document, in particular the hierarchy of normative sources within the Italian legal system.

Superior Sources

- **Supreme Principles of the Constitution:** Fundamental and non-derogable values that guide the entire legal system (e.g., human dignity, democracy, equality).
- **Primacy of European Law:** The principle that European Union law takes priority over national laws of member states. If a national law conflicts with EU law, the EU law must be followed.

Constitutional Sources

- **Constitution:** The fundamental law of the Italian State, which came into force in 1948.
- **Constitutional Laws:** Provisions that amend or supplement the Constitution; they require a special legislative procedure for approval.
- **European Law:** Norms originating from the European Union, such as:
 - **Primary law:**
 - Treaties: Agreements between member states that define how the EU operates.
 - **Secondary law:**
 - Regulations: Legal acts that are binding in all member states.
 - Directives: Legal acts that set goals all member states must achieve. However, each country can choose how to implement them through its own national laws.
 - Decisions: Legal acts that apply directly to specific individuals, companies, or member states and are fully enforceable without needing national implementation
 - Recommendations and Opinions: non-binding legal acts that express a suggest a course of action, but do not have legal force and do not create obligations for member states or individuals.
- **International Law:** Norms derived from international treaties and customs accepted by the international community.

State Sources

- **Primary Sources:**
 - **Ordinary Laws:** Approved by Parliament, they regulate matters not reserved to the Constitution.
 - **Law Decrees:** Legislative acts issued by the Government in urgent situations, with immediate effect but must be converted into law within 60 days.
 - **Legislative Decrees:** Acts issued by the Government under delegation from Parliament, which sets criteria and limits.
- **Primary Sources**, on matters not within the exclusive legislative power of State:
 - **Implementing Legislative Decree:** A decree issued by the Government to apply a framework law, based on specific delegation from Parliament
 - **Statutes of Ordinary Regions:** Fundamental laws adopted by ordinary regions in Italy, defining their organization and functions, within constitutional limits
 - **Regional Law:** Legislative acts passed by regional councils, regulating matters within the region's legislative competence.
 - **Autonomous Province Laws:** Laws enacted by the autonomous provinces (e.g., Trento and Bolzano), with enhanced legislative powers granted by the Constitution and special statutes.
- **Secondary Sources (Administrative Law)**
 - **Government Regulations:** Rules adopted by the Government to implement laws.
 - **Ministerial Regulations:** Issued by individual ministries to regulate technical or sector-specific matters.
 - **Regulations of Public Bodies:** Rules adopted by local or public entities for their internal organization.

Customary Law

- **Custom:** Behaviour repeated over time with the belief that it is legally binding. It is a residual and non-exclusive source of law.



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Main regulations as reported in the document

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