# DRAFT MASTER PLAN

## WATER MANAGEMENT IN THESSALY

IN THE WAKE OF STORM DANIEL

**How to Address Thessaly's Water-Related Agricultural Challenges**

## VOLUME II: WATER MANAGEMENT ORGANISATION

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# Introduction

As already stipulated in Volume I, an integrated approach is key for both water management and flood management. Integration refers to the coordination between water uses from all social and economic sectors and sub-sectors in the design and implementation of any intervention that may have repercussions on the water resources.

All three safety levels (flood infrastructure, governance and emergency response) are required, governed by a strong institutional setting that has executive powers and is responsible for the implementation of the national water policies. As per the European Framework Directives, water management must be based on the hydrological boundaries (i.e., river basins).

The Master Plan for the institutional setting in Thessaly builds on the findings of the fact-finding missions; analysis of the current institutional framework and best practices already in use in E.U. countries regarding integrated water management; and a detailed evaluation based on the EPIC model that is widely used worldwide.

The methodology used to define the requirements for the redesign of the institutional setting for water resources management in Thessaly is described in detail in chapter “Methodology”. The requirements are defined based on the weaknesses of the current management system and lay the foundations for an effective mechanism that will improve water quality, availability and safety.

The analysis is presented in detail in chapter “Institutional framework analysis” with the aim to support a wholistic overview of all aspects regarding water management institutional frameworks.

Chapter “**Error! Reference source not found.**” details the proposed water management organization’s structural design, together with a detailed list of key objectives, tasks and responsibilities, as well as human resource requirements for each organizational unit.

The final chapters of this volume contain an implementation plan detailing the path to make this organization fully functional and elaborates all its responsibilities, together with a budget estimation.

# Methodology

In order to synergize the collective capabilities and resources of existing authorities and organizations and to strengthen and enhance these under the umbrella of a single, strong and competent institutional setting, the methodology focuses on collaboration, leveraging both proven and pioneering strategies to ensure sustainability, efficiency, and resilience in water resource management. Through a series of strategic steps, benchmarking activities and a participatory process, a model has been constructed that addresses the present and future water management challenges of Thessaly that can likely serve as a template for integrated water resource management practices at the national level.

**Methodology steps**

The following sections describe in detail the steps and methodology used for the development of a wholistic proposal for the re-design of Thessaly's water management.

**Evaluation model conceptualization**

Best practices and first-hand knowledge of wholistic water governance was used to formulate the conceptual model, which was developed as follows:

- Preliminary Master Model: A preliminary model was created that integrated wholistic water management principles, compiling all required activities regarding water management.
- Global Master Model: Well-established concepts of flood management from the EPIC model [22] were then incorporated along with best practices of institutions that have successfully been implemented in European countries that pioneered water management. These concepts were then combined with fundamental approaches such as the Plan–Do – Check –Act cycle for ongoing enhancement.

**Existing framework evaluation**

The first step was to thoroughly evaluate the existing institutional setting. This was achieved as follows:

- Analysis of findings from the fact-finding missions: The findings of the fact-finding report related to the institutional setting function were examined thoroughly.

[22] World bank, GFDRR, GWSP, Deltares: An EPIC Response: Innovative Governance for Flood and Drought Risk Management, Greg Browder, Ana Nunez Sanchez, Brenden Jongman, Nathan Engle, Eelco van Beek, Melissa Catera Errea , Stephen Hodgson,

- Analysis of the current institutional setting in Thessaly: The current institutional setting in the Thessaly Region was analyzed and presented in detail to better understand the current situation.
- EPIC evaluation: The process model developed was combined with the EPIC model so as to analyze and evaluate the current water management framework, identifying responsible organizations for each task and pinpointing areas for improvement. The analysis highlighted several gaps and inefficiencies.

**Benchmarking and Model Refinement**

The institutional setting in Greece was compared with best practices being used in other EU countries. These countries were selected as "benchmarks" based on their level of experience and competency to effectively manage water issues. With this benchmark, the division of responsibilities, strengths and weaknesses could be properly ascertained.

**Design of the institutional setting**

The Organizational Framework was designed; the scope and objectives were clearly defined; and the best practices to be incorporated were identified.

**Organization Model Development**

- Conceptualizing and Collecting Input: All pertinent water management areas were identified. Existing frameworks were evaluated and applied legislation, authority responsibilities and best practices were compiled and analyzed.
- Detailed Activity Mapping: Each topic was deconstructed into actionable steps, ensuring a thorough understanding and approach to management activities.
- Structure Formation: All required activities and responsibilities were methodically organized into a coherent structure of departments and units.
- Cataloguing Managerial Functions: The managerial activities essential for effective water management were enumerated and defined, creating the foundation for the organizational structure and operations.
- Administrative Unit Design: The essential administrative units such as finance, HR, quality, and communication were outlined.

**Implementation plan**

In order to ensure the successful implementation of the new organizational model, an Action and Change Management Plan, a strategic action plan, including the institution elaboration plan has been designed and includes change management tactics.

# Institutional framework analysis

**Evaluation model conceptualization**

Towards the effort to model our approach, a “water management” model has been created to list all the required activities, responsibilities, and authorities with the aim to present a wholistic water management approach.

This model is based on the following key elements:

- The EUs legislation regarding water management and flood risk management (EU directives 2000/60 and 2007/60).
- Best practices, models and institutional settings used for water management worldwide.
- Key elements in water management in Thessaly’s region.
- Experts brainstorming sessions.

Based on the above-mentioned analysis the water management key processes have been recognised and catalogued to help facilitate next steps of analysis, evaluation and design.

Those processes are presented in the following paragraph.

**Water management key processes.**

All the key core processes to effectively apply all water management activities have been recognised as a result of the methodology used. Those activities and their interconnections are presented in the following diagram.

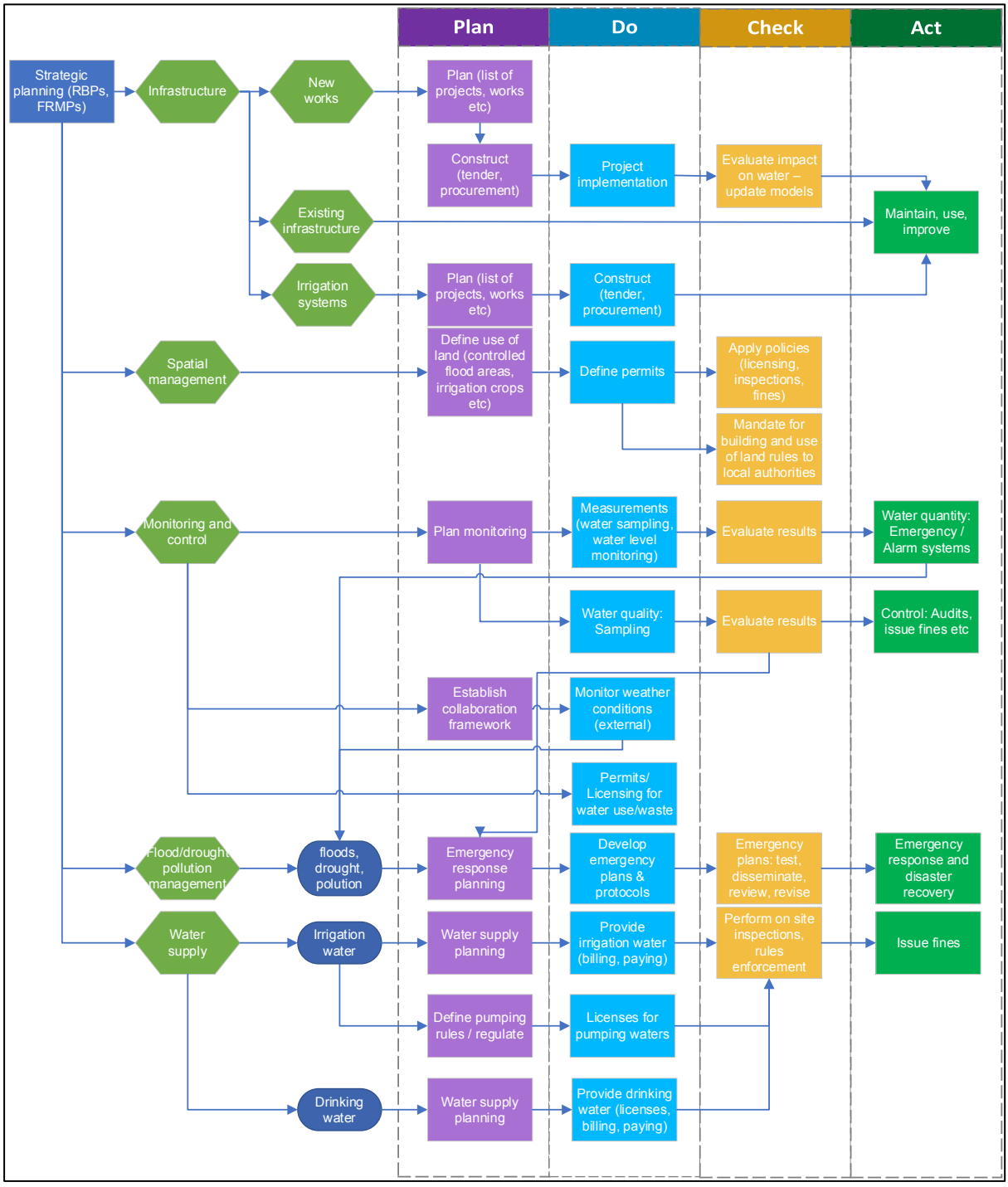


*Figure 30: Core water management process model*

**Strategic water management processes**

All processes required for effective and comprehensive decentralized local water management, the strategy to be deployed and implemented are identified and listed in the following diagram.

The following processes enumerated below aim to:

- Support the analysis performed in next steps.
- Define and delineate the processes that should be in place to effectively combine and collaborate with the central strategy of the EU and the state and transform and adapt those to a setting that serves local interests, needs and requirements.
- Finally intended to be incorporated into the new redesigned institutional framework.

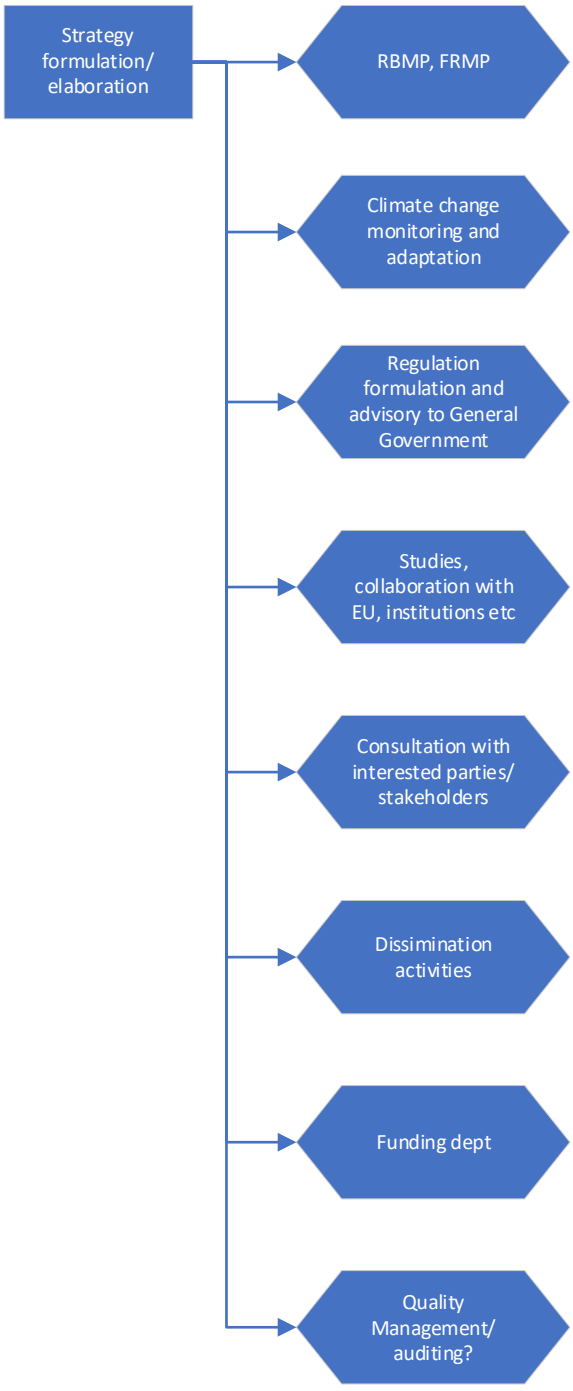


*Figure 31: Strategic processes for water management*

**The EPIC model**

Floods and droughts are some of the most tangible and devastating consequences of the climate crisis and they are increasingly affecting communities across the planet. It is crucial that societies adapt and that governments prioritize, accelerate, and scale up their response mechanisms. Societies have long struggled to prepare for and respond to floods and droughts. Consequently, a new approach is urgently needed to manage the large and growing risks associated with extreme hydroclimatic events. The "EPIC Response: Innovative Governance for Flood and Drought Risk Management" Report offers that new approach. It sets out a vision of how national governments can deal with the risks that have arisen regarding these events through innovative governance, offering a comprehensive path towards a safer and more prosperous future.

The EPIC Response approach was developed through a partnership between the World Bank (WB), GFDRR, GWSP and Deltares. It offers a path forward for governments to manage the risks that are associated with droughts and floods more comprehensively and systematically. It prioritizes the need for a "joined-up" government effort – one that does not rely on a single national lead agency and that does break siloes of single agencies mandated to address isolated parts of the interrelated challenges of floods and droughts.

The report presents a new framework for creating a more effective system of managing hydro-climatic risks, a system that has the potential to dramatically reduce the future human and economic toll from these events. It is operationalized through a practical and detailed framework, the EPIC Response Framework. The Framework identifies the main national government programs with roles in flood and drought risk management and describes how their interaction ultimately determines the final social, economic, and environmental impacts. A key insight of the EPIC Response Framework is that the different programs, implemented by a variety of agencies, interact together and ultimately determine the final social, economic, and environmental impacts caused by extreme hydro-climatic events.

The five main elements of this new framework can be represented by the mnemonic term "EPIC Response". E stands for Enabling, P for Planning, I for Investing and C for Controlling. More specifically, enabling environment of policies, laws, agencies, strategic plans, participation, and information, as well as planning at multiple and nested geographical levels to ensure that mitigation measures become higher priorities, are crucial for the treatment of floods and droughts. Moreover, investing in healthy watersheds and water infrastructure to reduce hazards from both floods and droughts, as well as controlling water use and floodplain development to reduce exposure and minimize vulnerabilities, are also critical to risk management. Finally, it is of great importance to respond better to floods and droughts through more effective monitoring, response, and recovery.

Critical to the framework is its "whole of society approach", socially inclusive and representative of the needs of all of society. This means more effective public participation, and greater government effort

to absorb citizens' views, especially those who are systematically underrepresented. Lastly, it is of great importance to note that the EPIC Response Framework can be used as a guide to undertake a system-wide assessment, which contributes to its uniqueness regarding the field of flood and drought risk management.

**Institutional setting – Existing framework**

At present in Greece, several authorities are involved in the management of water resources both in national as well as in regional/local level.

Law 3199/2003 (Government Gazette A 280), as amended and is in force, regarding the Protection and Management of Waters, which harmonizes the National Law with the provisions of the EU Directive 2000/60/EC (WFD), defines the competent authorities for the protection and management of water resources.

The Central Government is responsible for preparing the water protection and management strategy and the Regional Authorities are mainly responsible for the implementation of the strategic planning. More specifically, Decentralized Administration has the responsibility to determine the measures for the protection of water, while the control of their compliance, as well as the control of the management of ground and surface based irrigation water, the control of the execution of works to explore ground water, the execution of water resources utilization projects and the control of point and diffuse pollutant emissions in water, is carried out by the Regional Authorities and the Municipalities.

In the following sections, the responsibilities of the competent authorities are presented in detail.[23]

[23] 2nd revision of RBMP (EL08), Strategic Environmental Impact Study, 2023

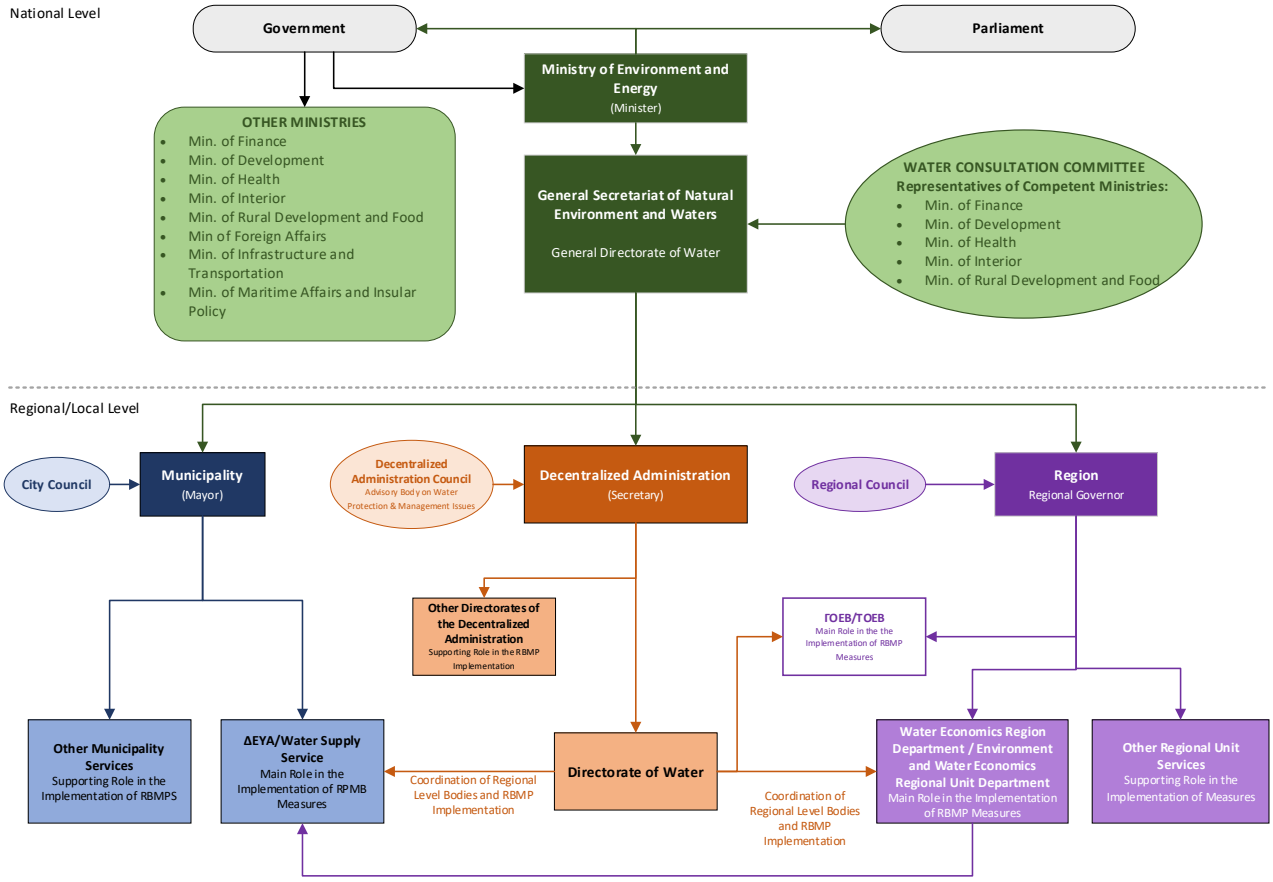


*Figure 32: Competent authorities for water protection at national, regional and local level*

**National Level Authorities**Error! Bookmark not defined.

National Water Committee, which since 28/03/2023 (law 5037/2023 (Government Gazette 78/A/28.03.2023) is replaced by the Minister of Environment and Energy. The Ministry of Environment and Energy prepares the policy for the protection and management of water and controls its implementation.

General Directorate of Water (subjected to General Secretariat of Natural Environment and Waters of the Ministry of Environment and Energy), has the responsibility of preparing the programs for the protection and management of the country's water resources and the coordination of the services and state bodies for every issue related to the protection and management of water. The Directorate, in collaboration with the Water Directorates of the Decentralized Administrations, prepares the national programs for the protection and management of the country's water potential and monitors and coordinates their implementation.

**Regional/Local Level Authorities**Error! Bookmark not defined.

In the individual Water Districts (as the Water District of Thessaly), at regional level, the competent authorities are:

Water Councils of the Decentralized Administrations (Σ.Υ.Α.Δ.), are composed in every Water District that extends to the administrative boundaries of one or more Decentralized Administrations. They are bodies for social dialogue and consultation on matters of water protection and management. The Σ.Υ.Α.Δ. express their opinion to the Secretaries of the Decentralized Administrations, if requested, on any upcoming issue regarding water protection and management.

Water Directorates of the Decentralized Administrations, exercise the responsibilities for water protection and management of the Decentralized Administrations. Each Water Directorate is responsible for the protection and management of water in the respective Region and exercises the responsibilities granted to the Decentralized Administration by the law. When the River Basin Management Plan (RBMP) is prepared or amended by the General Directorate of Water at the request of the Secretary of the Decentralized Administration, during its preparation, final processing or revision, the General Directorate of Water cooperates with the competent Water Directorate of the Decentralized Administration. In addition, during the process of preparing, revising or amending the RBMP the Water Directorate of the Decentralized Administration takes care of placing the plan in public consultation that lasts for a period of six (6) months.

The Central Government is charged with the responsibility of preparing the protection and management strategy while the elected regions, are mainly responsible for the implementation of the strategic planning. Specifically, the determination of the measures for the protection of water is carried

out by the Decentralized Administration, while the control of their compliance, as well as the control of the management of ground and surface based irrigation water, the control of the execution of works to explore and monitor ground water and the execution of water resource utilization projects, the control of point and diffuse pollutant emissions in water is carried out by the Regional Units and the Municipalities.

**Decentralized Administration - Water Directorate Departments and Responsibilities** Error! Bookmark not defined.

The Water Directorates of each Decentralized Administration are responsible for the following matters which are distributed among the Departments as follows:

**Water Resources Monitoring and Protection Department**

a) Collects and processes data on water quantity and quality.
b) Monitors and controls:
    - qualitative parameters and the quantitative status of protected areas,
    - the management of swimming water quality,
    - the implementation of measures to control point and diffuse emissions of pollutants in water,
    - the implementation of Protection Measures Programs for water pollution as well as water decontamination,
    - the planning of all the necessary preventive measures to deal with emergencies,
    - the preparation and implementation of Management Plans and Programs of Measures,
    - the preparation of the annual report on Management Plans and Programs of Measures implementation,
    - the preparation of hazard maps and flood risk maps,
    - the preparation and implementation of Flood Risk Management Plans (FRMP)
c) Takes the necessary measures for:
    - the prevention of surface and groundwater degradation,
    - the upgrading and restoration of water systems,
    - mitigating the effects of floods and droughts;
    - the preparation of a register of the protected areas
    - the application of all the objectives and standards provided for the protected areas, in order to carry out the analysis of the characteristics of each water district,
    - the overview of the impact of human activities on the state of water and the economic analysis of water use.

**Department of Development and Bilateral Relations**

Is mainly responsible for:

- the issuance of water use permits and execution of water utilization projects,
- maintaining a register of potential water utilization projects, liquid waste treatment projects and protection of water resources,
- the enforcement of existing or new projects and activities that are likely to degrade the waters,
- the restrictions and measures suitable for their protection,
- the coordination of all agencies for issues related to the use and protection of water.
- the implementation of international, regional and bilateral agreements and directives on water management and protection issues.

**Department of Administrative Support and Communication**

Is mainly responsible for:

- ensuring effective public participation in water protection and management procedures and in particular in the process of preparing, updating and revising Water Resource Management Plans and Flood Risk Management Plans,
- the administrative support of all Services of the Water Directorate

**Other individual Departments of the Decentralized Administration that may be indirectly involved in water management are listed below:**

- Department of Environment and Spatial Planning
- Directorate of Agricultural Affairs
- Forest Coordination and Inspection Directorate
- Directorate of Civil Protection
- Technical Control Directorate – Technical Support Department

**Region - Water Departments and Responsibilities** Error! Bookmark not defined.

**Department of Environment and Spatial Planning – Department of Water Economics**

The Department of Water Economics has responsibilities related in particular to the protection and management of water, such as:

- taking the necessary measures to participate in programs of interregional or bilateral agreements, in cooperation with the competent Ministry for water management and protection,

- taking all the necessary measures provided for in the management plans and programs,
- the issuance of decisions by the Regional Governor to impose restrictions or other measures on the use of water and the execution of water utilization projects,
- the organization of informative meetings to inform the public on matters of protection of aquatic ecosystems,
- the care for the control of point and diffuse pollutant emissions in surface, underground and coastal waters,
- the implementation and enforcement of all necessary preventive measures to deal with emergencies,
- the imposition of measures and sanctions to protect water and to deal with increasing trends resulting from human activities in the concentrations of substances in groundwater and to carry out sample analyses in order to establish the quality of plastic pipes and fittings made of un-plasticized polyvinyl chloride (hard PVC), used for the transport of drinking water and sewage, as well as for drainage systems in buildings.

Other individual Departments of the Regions which are responsible for the control of the implementation of the provisions of the national legislation for the management of water (control of the management of underground and surface irrigation water, the execution of works to find underground water and the execution of water resource utilization projects, the controls of point and diffuse emissions of pollutants in water etc.), are listed below:

**Region Departments**

- Independent Directorate of Civil Protection
- General Directorate of Public Health
- Department of Environment and Spatial Planning
- Directorate of Technical Projects – Department of Environmental Structures
- Directorate of Industry, Energy and Natural Resources
- Directorate of Agricultural Economy

**Regional Unit - Water Departments and Responsibilities** Error! Bookmark not defined.

Directorate of Environment and Spatial Planning – Department of Environment and Water Economics

The Department of Environment and Water Economics of the regional units are responsible for environmental issues, which are in particular:

- the control of compliance with the environmental terms for activities and projects, in accordance with the applicable legislation,
- taking measures to protect the environment,

- the implementation of measures, programs and actions, as well as
- responsibilities regarding the protection and management of water in the regional unit.

Other individual Departments of the Regional Units that may be indirectly involved in water management are listed below:

Regional Unit Departments

- Forest Departments
- Departments of Civil Protection
- Directorates of Technical Projects – Department of Environmental Structures
- Development Departments – Development, Energy and Natural Resources Licensing Department
- Directorates of Agricultural Economy and Veterinary
- Directorates of Agricultural Economy / Department of Fisheries
- Departments of Public Health and Social Care – Department of Environmental Health and Health Control

**Other Involved Agencies**Error! Bookmark not defined.

**Municipal Water Supply and Sewerage Company (Δ.Ε.Υ.Α.)**

The main scope of work of the Δ.Ε.Υ.Α. is water supply, drainage and treatment of urban sewage (according to Law 1069/80, article 1) in their area of responsibility. According to article 1, par. 3 they are also responsible for the study, construction, maintenance, exploitation, management and operation of water abstraction projects, water treatment projects, water transport networks, water distribution networks, sewage and rainwater networks, urban sewage treatment units, as well as processing and disposal units of the residue of the above processing procedures.[24]

Δ.Ε.Υ.Α. may also be involved in the management/supply of irrigation water for agricultural use, when the irrigation network is within their area of responsibility.[25]

**General Organization of Land Improvements/ Local Organization of Land Improvements (Γ.Ο.Ε.Β./Τ.Ο.Ε.Β.)**

[24]1st revision of the RBMP (EL08), DETAILED DOCUMENTATION TEXT - Determination and Registration of Competent Authorities and Determination of Area of Exercise of their Competencies 2018

[25] https://deyal.gr/el/gia-polites/kanonismos-ardeusis

Organizations for land improvement, are responsible for management/maintenance of the irrigation canals. Some of their main duties are listed below:

- Administration of the waters belonging to the Organizations of Ground Improvements (OEB) as well as the regulation of their use and distribution, through the enforcement of irrigation regulations and the taking of other necessary measures.
- Water and works policing.
- Enforcing and certifying the obligations of the beneficiaries
- Payment of debts to the public and private beneficiaries
- Determining and collecting grazing rights on unallocated lands in the project zones or on exposed lands, fishing rights within the rivers and lakes of their jurisdiction, or other related rights
- Taking every necessary measure for agricultural utilization in cooperation with the competent regional services of the Ministry of Agriculture, as well as ensuring the implementation of appropriate systems and methods of intensive land exploitation
- For Class A projects (main projects of general interest that significantly improve the agricultural conditions of large areas), the responsibilities are transferred to OEBs by the State
- For Class B projects (projects of local interest, supplementing the A' class projects, or independent projects inside and outside the A' class areas), care is taken for the preparation of studies and the construction or completion of projects, as well as the administration, maintenance and operation of existing and completed projects in previous years.

**Directorates of Technical Services of Municipalities**

The Directorates of Technical Services of Municipalities prepare studies and construct projects of local importance within the boundaries of the Municipalities.

**Other Competent Authorities - national level** Error! Bookmark not defined.

According to the RBMP in addition to the competent authorities mentioned above, there are other agencies (national or regional) that are involved in individual issues directly or indirectly related to the management of water resources.

- **Ministry of Rural Development** and Food, has a key role in the enforcement of RBMP measures and a complementary role in the enforcement of regulations.

Department of Soil and Water Resources Improvements - Department of Planning of Soil Improvement Projects and Utilization of Soil and Water Resources

The main responsibilities of the department directly related to water concern the determination of the country's needs in land improvement projects, the rational management of its water resources (in cooperation with competent agencies-bodies) and the participation in the preparation of corresponding multi-year programs.

Directorate of Environment, Spatial Planning and Climate Change – Department of Protection of Natural Resources from Agricultural Activities

Care for the protection against pollution and degradation of land and water resources intended for agriculture, stock raising and fishing as well as agricultural livestock and fishing production from any form of agricultural activity

- **Ministry of Health –** General Directorate of Public Health and Quality of Life, Directorate of Public Health – Environmental Health Management Department, has a key role in the enforcement of RBMP measures and a complementary role in the enforcement of regulations

The responsibilities of the department directly related to water concern the study, planning, coordination and monitoring of the implementation of sanitary provisions, regulations and programs, in particular regarding the quality of drinking water and swimming water.

- Moreover, the **Ministry of Finance, Ministry of Interior, Ministry of Foreign Affairs, Ministry of Infrastructure and Transportation** and the **Ministry of Maritime Affairs and Insular Policy**, have either key or complementary roles in the enforcement of RBMP measures and the enforcement of regulations

In addition to the above, the **Ministry of Civil Protection and Climate Change** is responsible for the central management of natural disasters and crises, as well as dealing with climate change issues. Among others, the Ministry prepares crisis management plans and ensures that citizens are informed in the event of a crisis (electronic messaging alert system (112)).

**Stakeholders/Interested Parties**

Stakeholders and interested parties that are directly or indirectly related to water management, such as, for example, in cases of emergency (floods or water shortages), participation in co-financed programs, industrial/agricultural/livestock or tourism development of the respective area of interest, in the preservation of protected areas etc., are the following:

Stakeholders

- General Directorate of Water (Ministry of Environment and Energy)
- Ministry of Rural Development and Food
- Ministry of Infrastructure and Transport
- Ministry of Interior

- Natural Environment & Climate Change Agency (Ο.ΦΥ.ΠΕ. Κ.Α.)
- Water Directorate of the Decentralized Administration
- Directorate of Rural Affairs of the Decentralized Administration
- Regional Union of Municipalities (Π.Ε.Δ.)
- Technical Chamber of Greece (Τ.Ε.Ε.)
- Geotechnical Chamber of Greece
- Environmental Organizations,
- Central Union of Chambers of Greece
- Municipal Water Supply and Sewerage Company (Δ.Ε.Υ.Α.)
- Unions of Agricultural Cooperatives
- Public Power Corporation (ΔΕΗ)

**Other Interested Parties**

- Civilians
- NGOs
- Industries/ΣΒΕΘ
- Greenhouses - crops
- Tourism enterprises
- Livestock/poultry units
- Scientific associations
- Academic institutions/universities
- Fire Brigade
- Police
- Army
- Water quality laboratories
- Hellenic National Meteorological Service (ΕΜΥ)
- Institute of Geological and Mining Research (ΕΑΓΜΕ)
- National Agricultural Research Foundation (ΕΘΙΑΓΕ)
- Hellenic Centre for Marine Research (ΕΛΚΕΘΕ)
- Hellenic Centre Biotopes – Wetlands (ΕΚΒΥ)
- Regulatory Authority for Energy, Waste & Water (ΡΑΑΕΥ)

**Summary Fact Finding outcomes related to current institutional setting**

The key findings of the fact-finding missions which are closely related to the functions of the current institutional setting for Thessaly, are as follows:

- Part of the tasks of the decentralized Water Departments are being executed at a central level, because of a lack of capacity at the decentral level.
- The development of flood management plans is delayed, and there is also uncertainty as to whether the current scope of work for the development of these plans is adequate.
- Water resources management and flood management are largely fragmentated over numerous organizations, such as municipalities, the approximately 50 local organization for land improvements, dam operators, and the 4 regional authorities (the Prefectures of Karditsa, Larissa, Trikala and Magnesia), with no overarching coordinating organization.
- The mandates are over, sometimes, relatively small areas determined by administrative boundaries and are not coinciding with hydrological boundaries. There is insufficient coordination and supervision of these organizations which operate according to their own interests.
- Difficulties in effective governance for water (and flood) management in Thessaly, results in a very excessive overexploitation of groundwater resources, mostly by the agricultural sector, which uses more than 90% of the total water in Thessaly.
- Groundwater abstractions are not known, nor are they being monitored or controlled.
- The decentralized Water Departments are responsible for managing the licensing, but they are too understaffed to assess the applications against the requirements for sustainable water use (renewable resources and safe yields).
- The only measure presented by the authorities is the promotion of water-saving irrigation techniques. Other effective (but highly unpopular) water demand management measures, such as the pricing of water, are not being considered.
- The distribution of water over the irrigated lands is managed by the approximately 50 local organizations for land improvements in the region, with no mutual coordination. Official, centrally endorsed protocols for the operation of pumps and gates do not currently exist.
- Coordination between the sectors, and particularly the coordination between spatial planning and water management, is effectively non-existent.
- Bridges, roads and railways were damaged because their designs had not properly considered the requirements for water management. They often acted as obstacles, causing damage to the infrastructure itself and inundations of the agricultural lands.
- As in daily water management there are no coordinated actions for maintenance of hydraulic infrastructure. The local organization for land improvements maintain and repair their own assets. Responsibilities of municipalities are sometime not clear.

- It was observed that municipalities were engaged in road and dike repairs along (natural) streams, whereas in the same area the organization for land improvements had crews repairing their drainage canals, which actually discharge into these streams.
- A case was observed north of Larissa where the ruptured river dike was being repaired by order of the Governor, whereas the repairs near the pumping station and bridge were being negotiated between the Municipality of Larissa and the Prefecture. There are also different rules for rivers that flow within one prefecture, and rivers that flow through more prefectures, which also causes debates on responsibilities. The situation reveals unclear mandate and/ or coordination which can result in gaps or overlaps for infrastructure maintenance.
- An institutionalized early warning system currently does not exist. The existing warning system and communication with inhabitants was ineffective.

Based on those findings, it is more than clear that today's institutional setting for water management, is based on a puzzle of many organizations combining a variety of competencies and priorities, lacking efficient channels of communication and collaboration. This situation results in gaps in infrastructure ownership, missing incorporated technical knowledge and competency regarding water management into among others spatial planning, management of infrastructure, protocols and guidance for emergency management.

**EPIC model evaluation**

An extensive analysis based on the EPIC model has been performed aiming to evaluate all aspects of this approach. The detailed outcome is presented in Annex 7. EPIC model evaluation.

The conclusions derived for each section are listed below.

1. ENABLE – National Sectoral Frameworks
   Notwithstanding the legal and institutional frameworks, there is no effective governance for water (and flood) management in Thessaly. Water resources management and flood management are largely fragmentated over numerous organizations, such as municipalities, the approximately 50 local organization for land improvements, dam operators, and the 4 regional authorities (the Prefectures of Karditsa, Larissa, Trikala and Magnesia), with no overarching coordinating organization

2. ENABLE – Whole-of Society Approach
   The participation of local leaders or water stakeholders in decision making regarding strategic water management activities and plans, is supported through the public consultation as a part of the development and approval process of RBMP and FRMP. Still the incorporation of stakeholder needs is managed by the authority of the party that issues the plans and thus it can be questioned on its influence in final decision making.
   It is obvious that a robust and unquestionable process to secure participation of all interest parties in decision making, is missing.

   Monitoring of water levels in Thessaly is in the responsibility of the water division under the decentralized government of Thessaly. Hydrological/meteorological data are not systematically monitored by any agency and the information received is scattered. Still the monitoring is performed manually, and no automatic sensors are used. Shortage of equipment and personnel for this purpose was reported.
   A competent body that systematically collects and utilizes all available data for water monitoring to provide input for decision making is missing.

3. ENABLE – Hydrological and Meteorological Services
   According to Dardanos Plan, in Greece there is no institutionalized body, specialized in hydrology, responsible for issuing an official warning regarding the risk of flooding, at a specific place and time, with the use of appropriate hydrological balance simulation models of the water basin, considering the forecast from the National Meteorological Service (EMY) on the intensity, duration and spatial distribution of rainfall.

Moreover, for the most accurate spatial and temporal determination of the occurrence of a flood phenomenon in a river basin, the short-term forecast about the intensity and distribution of rainfall is also required. Short-term weather forecasting (nowcasting) requires the use of special meteorological RADARs in combination with data taken from ground stations and other meteorological parameters in real time, as well as suitable software that can predict the evolution of the phenomena in the following hours. In Greece, there is still no possibility of short-term weather forecasting by E.M.Y

4. PLAN – Floods and Drought Risk Mitigation and Contingency Planning

   Flood Risk/River Basin Management Plans are prepared according to the EU directives. There is, however, no monitoring system or clear institutional framework for the mandate and implementation of the measures of the FRMP/RBMP programs.

   Responsible for the management of rivers and tributaries is the Regional Authority, and consequently, the Regional Units to which they belong to. However, today there are no organized registers and clear division of responsibilities for river management, especially in cases where a river flows through more than two regional units or regions.

   As for the maintenance of hydraulic infrastructure, there are still no coordinated actions. The local organizations for land improvements, maintain and repair their own assets. Responsibilities of municipalities are sometime not clear.

5. INVEST – Healthy Watersheds

   Water Directorates of the Decentralized Administrations, have the responsibility to monitor and control the quality parameters and quantitative status of waters, the ecological status of surface waters, as well as the status of protected areas. However, the above actions are not fully implemented by the aforementioned authority mainly due to lack of specialized personnel and equipment.

   As for the agriculture sector, environmental sustainability and climate-smart agriculture programs are not fully developed and they are slowly adopted by farmers, partially due to lack of awareness.

6. INVEST – Water Resources Infrastructure

   There are many flood infrastructure projects lacking the appropriate ownership and management by a competent authority that can properly provide maintenance and use of water resources, while there are projects for which, although a competent authority has been assigned, the work operation lacks efficiency and water utilization can be improved.

7. CONTROL - Water Allocation & Groundwater Management

The decentralized Water Departments are responsible for managing the licensing for water use, but they are too understaffed to assess the significant number of applications against the requirements for sustainable water use (renewable resources and safe yields).

As for infrastructure, it was reported that many illicit dams and other structures have been erected by individual farmers, and that the stream beds have been raised locally so as to get more water to farmlands. This sometimes occurred with the support of local entities. Such practices are disastrous both from a water management and a flood management perspective.

8. CONTROL - Floodplain Management

   Considering the lack of reliable data and flood models, the current flood risk management plans and maps are non-existing or unreliable.

   In Thessaly, bridges, roads and railways were damaged because their designs had not properly considered the requirements for water management. They often acted as obstacles, causing damage to the infrastructure itself and inundations of the agricultural lands

9. RESPOND - Drought Monitoring, Response & Recovery

   The national plan against desertification (ΕΘΙΑΓΕ, 2001) needs to be updated/revised.

   To date, the only measures presented by the authorities is the promotion of water-saving irrigation techniques. Other effective (but highly unpopular) water demand management measures, such as the pricing of water, are not being considered.

10. RESPOND - Flood Monitoring, Response & Recovery

    An institutionalized early warning system currently does not exist. The existing warning system and communication with inhabitants is ineffective. There is also no (operational) evacuation plan or strategy to rescue people and livestock or to provide them with basic needs.

    No formal way or competent authority to enable or manage update of RBMPs and FRMPs after disaster, exists in regional level.

11. RESPOND – Disaster Risk Financing

    Currently, the main sources of state funding, in cases of major disasters, is E.U. (European Solidarity Fund (EUSF), Organization for Economic Co-operation and Development (OECD), European Investment Bank (EIB) etc.).

    The procedure for granting financial assistance to citizens affected by natural disasters is described in KYA 33862/06.05.2019, which focuses only on the granting of basic living needs allowance to those who find themselves in need as a result of natural disasters, as well as the execution of simple repair works and/or the replacement of household goods.

In addition, all the measures and interventions of the Greek Government for the support and rehabilitation of the areas affected by natural disasters are gathered on the website of the state aid

(https://arogi.gov.gr/). Requests for financial support against housing assistance, compensation for household goods, business grants and ΕΝΦΙΑ exemption, can be submitted through the website.

## Benchmarks for Thessaly

Water management framework models in countries with long history and great experience in water management worldwide, driven mostly by their critical risks from water impact eg floods, drought etc have been carefully selected and used as "qualitative benchmarks". Also the models of the biggest countries in Europe like Germany and France have been selected due to their social and political impact in EU regulations and administration.

Short explanation of the selection criteria is presented in the following paragraphs.

A table presenting in detail each framework's key aspects is contained in Annex 8. Benchmarking WMO.

**Netherlands**

Choosing the Netherlands as a case study for water management offers unique insights due to several key reasons:

1. **Geographical Vulnerability:** A significant portion of the Netherlands is below sea level, making it inherently vulnerable to flooding. Moreover, the Netherlands is situated at the down-stream end of major international Rivers such as Rhine and Meuse that flow out in the North sea. This geographical challenge has necessitated the development of sophisticated water management strategies to protect the land and its inhabitants.
2. **Historical Expertise:** The Dutch have a long history of water management, dating back centuries. They have developed a wide range of techniques to control water, from dikes and levees to more advanced solutions like the Delta Works, a series of construction projects designed to protect the country from the sea. This history provides a rich context for studying effective water management.
3. **Innovative Solutions:** The Netherlands is known for its innovative approaches to water management. For example, the country has implemented the room for the river programme, floating houses and farms, water storage in urban areas to mitigate heavy rainfall effects, and the use of green roofs. These innovative practices offer valuable lessons for sustainable flood management, urban development and climate adaptation strategies.
4. **Integrated Water Resources Management (IWRM):** The Dutch approach to water management is wholistic and involves integrating various sectors such as agriculture, urban planning, and

nature conservation. This integrated approach ensures the sustainable use of water resources, balancing human needs with ecological considerations.

5. **Global Consultancy:** Due to its expertise, the Netherlands has become a global consultant on water management issues, advising other countries facing similar challenges. This role underscores the country's advanced knowledge and experience in dealing with complex water-related challenges.
6. **Adaptation to Climate Change:** The Netherlands' proactive stance on climate change adaptation, particularly in water management, makes it a valuable case study. The country's forward-thinking policies and practices in anticipation of rising sea levels and more extreme weather conditions can serve as a model for other nations.
7. **Public-Private Partnerships:** The Dutch water sector is characterized by strong collaboration between the government, private sector, research institutions, and civil society. This collaborative approach has led to effective water management solutions and can provide insights into successful governance models.
8. **Education and Research:** The Netherlands hosts several leading research institutes and universities specializing in water management, hydraulic engineering, and environmental sciences. This concentration of knowledge contributes to the continuous development of cutting-edge water management strategies.

**Germany**

Choosing Germany as a case study for water management provides unique insights due to its comprehensive and integrated approach towards managing its water resources. Here are several reasons why Germany stands out in water management analysis:

1. **Diverse Geographical and Climatic Conditions:** Germany's varied geographical and climatic conditions—from the Alps in the south to the lowlands in the north—present a wide array of water management challenges. This diversity requires a range of strategies to manage flood risks, water quality, and water supply, providing a broad spectrum of case studies in a single country.
2. **Advanced Environmental Legislation:** Germany has a strong legal and regulatory framework for environmental protection, including water management. The country's adherence to the European Union's Water Framework Directive (WFD) and its own Federal Water Act highlights its commitment to maintaining high standards of water quality, sustainable water use, and ecological protection.
3. **Innovative Water Technology and Infrastructure:** Germany is at the forefront of developing and implementing innovative water technologies. This includes advanced wastewater treatment processes, rainwater harvesting systems, and flood protection measures. The country's

investment in green infrastructure and nature-based solutions offers valuable lessons in sustainable urban water management.

4. **Integrated Water Resources Management (IWRM):** Similar to the Netherlands, Germany practices Integrated Water Resources Management, which involves coordinating water use across different sectors and ensuring that water management is environmentally sustainable, economically efficient, and socially equitable. This approach provides a model for effective multi-stakeholder governance.
5. **Climate Change Adaptation and Mitigation:** Germany is actively engaged in adapting its water management practices to the challenges posed by climate change. This includes measures to enhance the resilience of water infrastructure to extreme weather events and to reduce greenhouse gas emissions from the water sector. Germany's proactive strategies in climate adaptation and mitigation offer insights into future-proofing water management systems.
6. **Research and Development:** Germany is home to numerous research institutions and universities that are leaders in hydrology, water management, and environmental engineering. The country's strong focus on research and development drives innovation in water management technologies and practices.
7. **Public Participation and Awareness:** Germany places a strong emphasis on public participation in water management decisions, recognizing the importance of involving communities in the sustainable management of water resources. This approach fosters greater public awareness and support for water conservation and protection measures.
8. **International Cooperation:** Germany is active in international water management initiatives and development aid, sharing its expertise with countries facing water-related challenges. This global engagement underscores Germany's role in promoting sustainable water management practices worldwide.

Analyzing Germany's approach to water management offers valuable insights into how advanced technological solutions, integrated management strategies, robust legal frameworks, and public participation can be combined to address the complex challenges of managing water resources sustainably and effectively.

**France**

Choosing France as a case study for water management offers valuable insights due to its unique approach and the challenges it faces in managing its water resources. Here are several reasons why France stands out in water management analysis:

1. **Diverse Water Resources and Challenges:** France has a wide range of climatic zones and geographical features, from the mountainous regions in the Alps and Pyrenees, which are rich in freshwater resources, to the Mediterranean area that faces scarcity and drought issues. This

diversity provides a comprehensive view of different water management strategies suited to various conditions and makes France a geographical model which fits better to Greece and Thessaly more specific.

2. **Integrated Water Management Policies:** France has been a pioneer in implementing integrated water resources management (IWRM) policies that consider the entire water cycle, including surface water, groundwater, water supply, and wastewater treatment. This wholistic approach ensures that water management is sustainable and balances the needs of human consumption, agriculture, industry, and ecological preservation.
3. **Innovative Water Technology:** France is home to some of the world's leading water companies and research institutions, which contribute to advancing water treatment, distribution, and conservation technologies. This has led to the development of cutting-edge solutions for water purification, desalination, and smart water management systems.
4. **Strong Regulatory Framework:** The French water management system is supported by a strong legal and regulatory framework that promotes water conservation, pollution control, and the protection of aquatic environments. France's Water Law embodies the principles of preventing deterioration of water resources, promoting sustainable use, and encouraging the participation of citizens and stakeholders in water management decisions.
5. **Decentralized Management Approach:** France has adopted a decentralized approach to water management, where decision-making powers are distributed among various levels of government, including regional water agencies. This allows for more localized and responsive management strategies that can be tailored to the specific needs of each region.
6. **Adaptation to Climate Change:** France is actively working on adapting its water management practices addressing the impacts of climate change, such as increasing temperatures, changing precipitation patterns, and sea-level rise. Efforts include enhancing the resilience of water infrastructure, managing water demand, and protecting water quality against pollution.
7. **International Leadership in Water Issues:** France has positioned itself as a leader in global water governance, hosting international forums such as the World Water Forum and actively participating in international water management initiatives. This leadership role reflects France's commitment to addressing global water challenges and sharing its expertise with other nations.
8. **Public Participation and Awareness:** Like Germany, France emphasizes the importance of public participation in water management, recognizing the role of communities in conserving water resources and protecting the environment. This approach encourages responsible water use and greater public engagement in water conservation efforts.

Analyzing France's approach to water management provides insights into how diverse water challenges can be addressed through innovative technologies, integrated policies, decentralized governance, and active public participation. France's experiences offer valuable lessons in balancing water resource sustainability with the demands of economic development and environmental protection.

## Institutional setting design

Based on the outcomes of the fact-finding mission and the deeper analysis performed regarding the current institutional setting for water management in Thessaly, combined with the outcomes of the EPIC model evaluation, it is more than obvious that the aims of the new institutional framework should be at least the following:

- Design a strong and resilient setting that will gather all water management activities under the coordination of a single, competent, efficient, and effective organization.
- The boundaries of this organization should be defined by the “water boundaries” and not the administrative.
- The organization should have the financial strength and capacity to perform or support the implementation, operation and maintenance of all demanding works required in the water system of Thessaly to accomplish the objectives of safety, water availability and sustainability.
- The organization should have the authority to permit, license and control the use of water to safeguard its long-term availability.
- The organization should consider strongly and be affected by all social, environmental, and economical aspects and needs of all the key stakeholders that are heavily affected by the use of water in the area.
- The organization should be effective, efficient, robust, competent in terms of knowledge, systems and capacity, protected from changes so as to safeguard its continuity.

The scope of the organization should be defined by the following statements:

- It should include or coordinate all the activities, responsibilities and authorities to perform wholistic water management in the field of application.
- Its area of responsibility should be the boundaries of a water system. For this, it is strongly suggested to follow the area of Thessaly’s water system defined in River Basin Management Plan already issued (water system no 08).
- It shall oversee all natural or artificial infrastructure to handle waters within the water system of Thessaly (water system no 08), such as natural and artificial lakes, rivers, streams, ditches, dams, dikes, water reservoirs.

The organization can be deployed by acquiring all departments involved in suggested water management activities in the local governmental authorities in Thessaly.

The organization should be independent and operate locally in close collaboration with the following ministries:

- Ministry of Infrastructure and Transports.
- Ministry of Environment and Energy.
- Ministry of Agriculture and foods.
- Ministry of Civil Protection.

Lastly, it is strongly recommended that the organization should be located within the area of its authority.

**Legal entity**

The examined legal forms that have been investigated of the existing legal framework regarding the alternative legal forms that the Body could take, revealed three main alternatives:

a) as a Legal Entity under Public Law (L.E.Pu.L.),
b) as a Société Anonyme (S.A.) and
c) as a Legal Entity under Private Law (L.E.Pr.L.) with special legislation and with the assignment of certain responsibilities of public authority and its submission to the rules of the private economy.

Subsequently, a comparative overview of alternative legal forms was attempted in relation to the description of the characteristics and capabilities that the proposed Body seeks to arm.

**Benchmarking criteria of the proposed legal forms**

For the comparison of the three proposed legal forms of organization and operation of the agency, the following evaluation criteria were taken into account:

- The criterion of the range of the responsibilities that will be transferred and shall be exercised by the Agency, based on its proposed structure.
- The criterion of water as a public good.
- The criterion of the dual nature of the Agency (public and private).
- The criterion of representative participation in the Body of the State, of local authorities and private water users.
- The criterion of flexibility and effectiveness in decision-making and the implementation of its multiple objects.
- The criterion of financial and administrative, autonomy and independence.

**Comparison of alternative forms:**

**Legal Entity under Public Law (L.E.Pu.L.).**

Legal Entities under Public Law are established by law or pursuant to legislative authorization by Presidential Decree. The operation of Legal Entities under Public Law is determined by the rules of

administrative legislation, which regulate both issues of their internal structure and their relations with citizens. The nature of legal entities governed by public law is distinct from the legal entity of the State, provided that they have their own separate legal personality and are not identical to it. However, they are under the decisive influence of the State, because, apart from the regulatory framework of the State that governs their operation, their overall supervision and political guidance is under the absolute control of government power. Typical examples of legal entities may be hospitals, where in this case they take the form of a foundation, or public associations (e.g. engineers, lawyers, etc.), where they take on the characteristics of an association aimed at organizing a profession, applying the rules of ethics and controlling their members.

Legal Entities under Public Law are bodies of public authority and exercise their powers by issuing administrative acts, governed by the principle of legality and the principle of enforceability. As bodies of public authority, they are subject to administrative control (hierarchical, judicial and supervisory) and state fiscal control, as their revenues derive from the state budget.

Based on the above, the establishment and operation of the Agency in the legal form of the Legal Entity under Public Law, by definition, does not meet the aforementioned criteria. Although the conditions for the exercise of official authority are met, such a form does not meet the other criteria, its dual nature and its action in general. The aims and objectives of a Water Management Body, as described, cannot be limited to the framework of sovereign administration, i.e. exercised by issuing administrative acts and developing public law relations. Furthermore, the intended financial independence (or even more financial autonomy) of the Body, which will operate, inter alia, as a water service provider, requires that its dependence on the state budget be excluded, as well as flexibility as possible in accordance with the rules of the private economy.

**Société Anonyme (S.A.)**

Regarding the legal form of the Société Anonyme that the Body could alternatively take,the existing legal framework was taken into account and the possibilities it provides today for the establishment of SAs by the State or other state bodies for the sake of the public interest combining the offer of goods and/or the provision of goods to citizens. The case of the establishment of an SA with special legislation was not examined, as it is something that will be examined below in the context of the establishment of a Legal Entity under Private Law with special legislation.

Therefore, from the investigation of the existing framework, the establishment of a S.A. is possible within the framework of special laws such as:

a) the development companies of local authorities in application of the Code of Municipalities and Communities (art. 252, par. 3b, law 3463/2006)

b) the establishment of SAs by local authorities for the execution of projects or the provision of services aimed at serving the public in application also of the Code of Municipalities and Communities for (art. 265 law 3463/2006).

Similar to S.A. is the case of Municipal and Community Public Benefit Enterprises (art. 254 of Law 3463/2006) or special purpose Local Authorities enterprises (art. 252, par. 4, of Law 3463/2006, to which water companies also belong) and for this reason they are not examined separately.

The above legislative provisions, as specialized, concerning a specific subject for which local authorities can take the initiative to assign to SAs, necessarily have a limited scope. The S.A. can be established for special and specific subjects and it has local character. Therefore, the establishment and operation of the Body in the legal form of the abovementioned S.A., it is considered by definition not to meet the aforementioned broader criteria, as it does not meet the specific characteristics required by the specificity of the Water Management Body. Due to its nature, its specificity, its supralocal character and the complexity of its responsibilities, the examined Water Management Body is beyond the scope and objectives of these laws and special provisions for the establishment of such SAs.

**Legal Entity under Private Law (L.E.Pr.L.).**

Legal Entities under Private Law may be established by special legislation. In the context of the legislative initiative, the law shall specifically provide for all those regulations that will concern the organization and operation of the L.E.Pr.L.under establishment, as well as the responsibilities and competences of the L.E.Pr.L. At the same time, the legislator has the right to empower the legal entity with the possibility of exercising powers that involve the exercise of public authority.

**Conclusions**

Taking into consideration the abovementioned, as well as the aforementioned overview of the possible alternative legal forms that the Agency could take in terms of its organization and its operation, it is reasonable to conclude that the legal form that brings together the most advantages is the establishment of a Legal Entity under Private Law (L.E.Pr.L.). For the best possible achievement of the objectives and the most effective exercise of its powers, the legislator may provide for the establishment of L.E.Pr.L. in the form of a Société Anonyme (S.A.), in order to follow the rules of the private economy to the extent that this corresponds more effectively to the areas of its activity as a provider of water services.

Given the specificity of the proposed legal structure, with the multiple aims and objectives it will be called upon to serve, it is necessary to establish it directly by law so that the legislative regulation adequately specifies:

- the public character and profit purpose of the Body,
- the delegation of the necessary competences of public authority to achieve its objectives,

- the abolition of existing structures, which will be absorbed by the new Body, and the transfer of their competences,
- the transfer of assets to the Agency,
- the transfer and organization of responsibilities for the preparation of Water Management Plans and Flood Risk Management Plans of Thessaly,
- organizing public consultation on water management and flood risk issues,
- the preparation of strategic plans for water and their binding nature,
- consultative powers and their validity and commitment,
- public powers of authorization, control and administrative penalties,
- the imposition of fines and the powers of confirmation and collection,
- the charging of fees of consumption, and their collection,
- studying possibilities,
- the absorption of employees or transfer to the Body or the creation of positions or the procedures for the recruitment of specialized personnel,
- the operation of the Body in accordance with the rules of the private economy and the deviation - to the permissible extent - from the operating framework of public undertakings or bodies governed by public law or the State in general,
- the way of its internal organization and operation,
- the way of the representation and the assurance of participation in the Board of Directors of the Body of water users (farmers, industry, tourism, etc.), of the state and of the local authorities,
- supervision by the State, its type and scope,
- the unhindered access to any information and database regarding water management,
- the possibility of drawing up public service contracts with the State,
- the possibility of drawing up program contracts,
- provision for the public announcements and the preparation of public-service and program contracts,
- the preparation of internal regulations,
- the preparation of water management regulations and irrigation regulations,
- the predicted exemption of the Body from taxes, stamps and public fees.

The indicative positions mentioned above are regulated only by special legislative regulation so that it is possible for the Entity to acquire the legal tools, staffing, financial capacity and public powers alongside with the best possible flexibility to achieve its objectives.

**Organizational structure**

The proposed organigram for the water management organization is designed following the extensive analysis of the existing institutional framework for water management, as well as successful models used

already across Europe as presented in chapter ”Institutional framework analysis”, the evaluation of legal and strategic frameworks and operational needs essential for effective water management.

This structure is aimed at optimizing resource allocation, ensuring regulatory compliance, and fostering innovation and collaboration across departments. The decision to adopt this particular organizational structure is based on a strategic analysis of the entity’s goals to address water as a crucial public good, integrate climate change adaptation measures, and enhance stakeholder engagement, ensuring the organization is well-equipped to meet current and future water management challenges.

The proposed organizational structure is presented in the following diagram (**Error! Reference source not found.**).

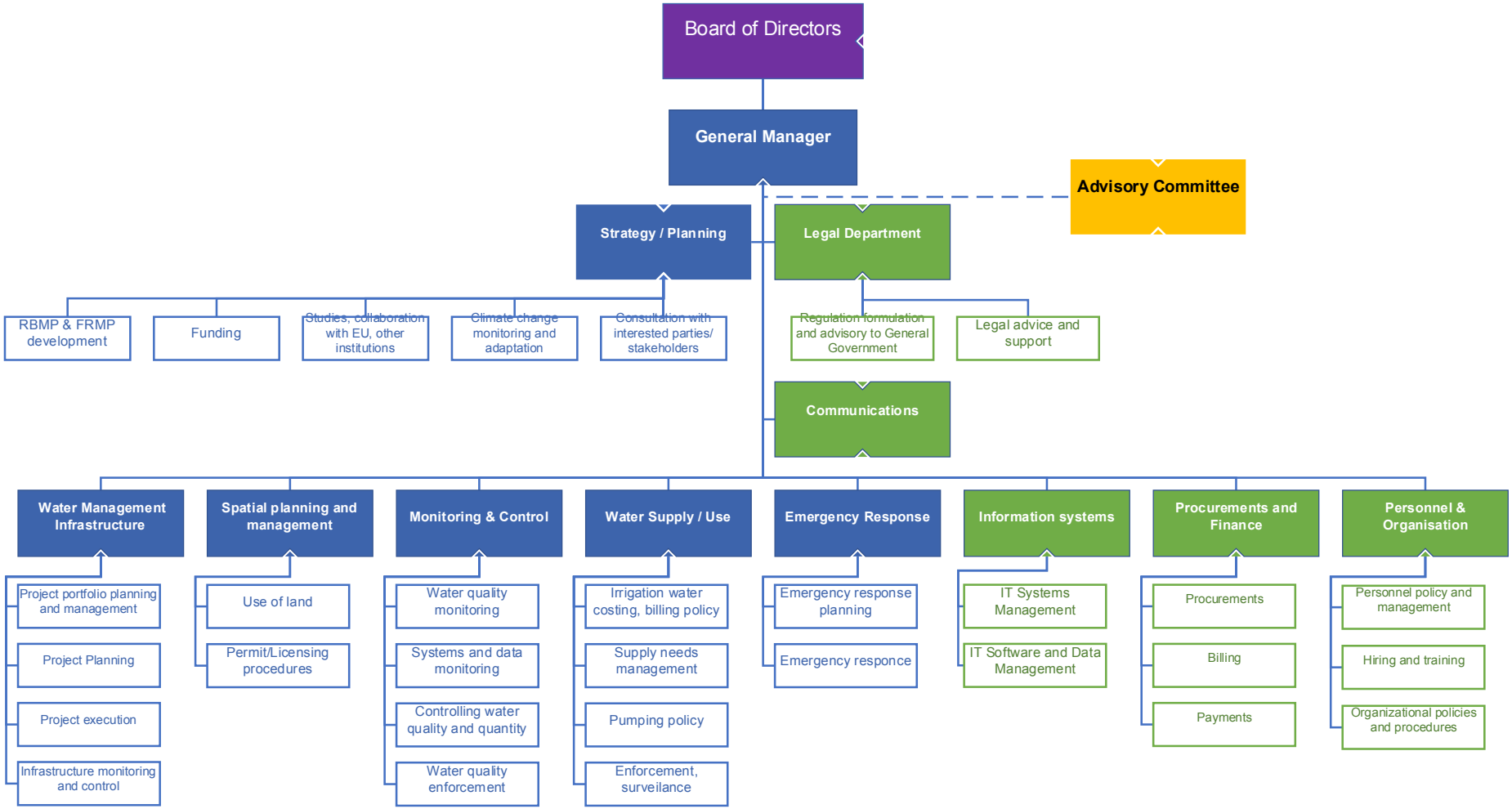


*Figure 33: WMO organizational structure*

**Organization description**

In the following paragraphs a detailed description is presented of each department role, task and responsibilities in accordance with the fundamental conception.

**Management bodies**

***Board of directors***

The Board of Directors is the leading decision-making body of the organization. As a strong involvement of the core stakeholders is recognized as a very important requirement, it is suggested that a corresponding representation of the core stakeholders should be ensured through the synthesis of this board.

As core stakeholders can be identified the following:

- Ministry of Infrastructure
- Ministry of Environment and Energy
- Ministry of Agriculture and food
- Decentralized authority of Thessaly
- Regional authority of Thessaly
- Farmers of Thessaly

Still the list above should be considered as indicative and the final synthesis of the board is strongly recommended to be formulated through a consultation process with the relevant authorities.

***Advisory committee***

Aiming to strengthen the participation of all stakeholders (users or managers of water) an advisory body of wider participation from all interested parties can be considered.

This body might serve as an advisory body of experts and stakeholders as listed below:

- Stakeholders
    - General Directorate of Water (Ministry of Environment and Energy)
    - Ministry of Rural Development and Food
    - Ministry of Infrastructure and Transport
    - Ministry of Interior
    - Natural Environment & Climate Change Agency (Ο.ΦΥ.ΠΕ. Κ.Α.)
    - Water Directorate of the Decentralized Administration
    - Directorate of Rural Affairs of the Decentralized Administration
    - Regional Union of Municipalities (Π.Ε.Δ.)
    - Technical Chamber of Greece (Τ.Ε.Ε.)

  - Geotechnical Chamber of Greece
  - Environmental Organizations,
  - Central Union of Chambers of Greece
  - Municipal Water Supply and Sewerage Company (Δ.Ε.Υ.Α.)
  - Unions of Agricultural Cooperatives

- Other Interested Parties
  - Civilians
  - NGOs
  - Industries/ΣΒΕΘ
  - Greenhouses - crops
  - Tourism enterprises
  - Livestock/poultry units
  - Scientific associations
  - Academic institutions/universities
  - Fire Brigade
  - Police
  - Army
  - Water quality laboratories
  - Hellenic National Meteorological Service (ΕΜΥ)
  - Public Power Corporation (ΔΕΗ)
  - Institute of Geological and Mining Research (ΕΑΓΜΕ)
  - National Agricultural Research Foundation (ΕΘΙΑΓΕ)
  - Hellenic Center for Marine Research (ΕΛΚΕΘΕ)
  - Hellenic Centre Biotopes – Wetlands (ΕΚΒΥ)
  - Regulatory Authority for Energy, Waste & Water (ΡΑΑΕΥ)
  - Information society organization
  - Meteo

The list above should be considered again as indicative and the final synthesis of the board is strongly recommended to be formulated through a consultation process with the relevant authorities.

**Detailed responsibilities – Consulting / Advisory units**

The "Strategy/Planning" department is responsible for developing the long-term strategies and actionable plans to ensure sustainable water resource management by developing the RBMPs and FRMPs. The department should support and enable the funding of projects, collaborates with various stakeholders to align water management objectives and strategies with environmental, economic, and social goals. The department should also examine, formulate and propose strategies to organization’s top management.

The key objectives of the department are:

- Develop comprehensive strategies to ensure sustainable water management, aligning with long-term environmental, economic, and social goals.
- Identify, secure, and manage funding sources for water management projects, including national and EU funds and programs.
- Forge strategic collaborations with government bodies, NGOs, the private sector, and communities to support water management objectives.
- Integrate climate change resilience and adaptation measures into water management planning to address and mitigate the impacts of climate change.

The key tasks and responsibilities of the department are the following:

- Strategic Planning
  - Develop long-term water management plans (RBMPs and FRMPs).
  - Evaluate water demand and supply forecasts.
  - Integrate sustainability and conservation goals.
- Funding
  - Identify potential funding sources for projects.
  - Prepare and submit proposals, grant applications.
- Stakeholder Collaboration
  - Engage with local communities, NGOs, and government agencies.
  - Coordinate with research institutions.
  - Organize stakeholder meetings and workshops in close collaborations with communications office..
- Consultation with Key Stakeholders
  - Conduct regular consultations to gather input and feedback on water management strategies.
  - Facilitate RBMPs and FRMPs public consultation.
  - Analyze stakeholder feedback for integration into strategic planning.
- Climate Change Adaptation
  - Assess the impacts of climate change on water resources.
  - Develop resilience and adaptation strategies.
  - Enable incorporation of climate change scenarios into planning models.
- Innovation and Technology
  - Research and propose new water management technologies.
  - Implement pilot projects to test innovative solutions.
  - Stay updated on global best practices in water management.
- Top Management Advisory

- Provide regular updates and strategic advice to top management on water management trends and challenges.
- Develop decision-support tools and reports for executive decision-making.
- Advise on policy development and strategic direction based on latest research and industry best practices.

The unit personnel requirements and skills are:

- Manager/consultant with more than 10 years of experience in water management with PhD or master degree in Environmental Science, Engineering or related field.
- Administrative personnel with bachelor's or Master's degree in Finance, Economics, or related field.

**Legal services department**

This department is responsible for providing legal support for all legal matters, regulatory proposals formulation, handling contracts and agreements, managing disputes and litigation, ensuring organizational, environmental, fiscal, and personal data-related compliance.

The key objectives of the Legal services department are:

- To ensure regulatory compliance.
- To provide legal advisory services to the departments of the organization.
- To support regulatory compliance and proposal formulation.
- To strengthen and secure contracting procedures.
- To support managing disputes and litigation.

The key tasks and responsibilities of the department are the following:

- Regulatory Compliance
  - Ensure all organization activities comply with local, national, and international laws and regulations.
  - Stay updated on legal changes affecting water management.
  - Monitor and advise on compliance with environmental laws and regulations affecting water resources and quality.
  - Work with environmental agencies and stakeholders on compliance strategies.
- Contract Management

- Draft, review, and negotiate contracts related to water projects, including supplier agreements, service contracts, and partnership agreements.
- Legal review of public announcements and conduct of competitive procedures, as well as overall support in the preparation of public-service and program contracts.

- Dispute Resolution
  - Handle legal disputes and litigation related to licensing and fining procedures, water rights, environmental impact, and contractual disagreements.
  - Represent the organization in legal proceedings as required.
- Legal Advisory Services
  - Provide legal advice to management and departments on water law, environmental regulations, and risk management.
  - Assist in the formulation of legislative framework proposals, policies and procedures with legal implications.
- Stakeholder Engagement
  - Advise on legal aspects of stakeholder engagement, including public consultations, agreements with local communities, and negotiations with other water users.
- Documentation and Record Keeping
  - Maintain comprehensive records of all legal documents, contracts, and litigation materials.
  - Ensure secure and organized storage of legal records for easy access and compliance purposes.

The unit personnel requirements and skills are:

- Lawyers with experience and experience in the following fields:
  - Public law.
  - Public procurements legislation (tenders, public contests, contracts, public works).
  - Environmental legislation (water rights, urban planning, forest maps, land use, waste management etc).
  - Private law.

**Communications office**

The scope of the unit is to manage all internal and external communications, ensuring clear and effective dissemination of information related to water management practices, policies, and initiatives.

The key objectives of the unit are:

- Ensuring effective communication and engagement with all stakeholders, including the public, government bodies, and partners.
- Raising public awareness about water conservation, management practices, and the importance of sustainable water use.
- Developing and implementing strategies for communicating during crises, such as water shortages or contamination incidents.
- Ensuring timely and accurate dissemination of information about water management activities and policies.
- Promoting a positive image of the organization and its initiatives.
- Establishing channels for receiving and addressing feedback from stakeholders and the public.
- Facilitating clear and effective internal communication within the organization.

The key tasks and responsibilities of the unit are the following:

- Strategy Development
  - Support public consultation procedures during the development of RBMPs and FRMPs.
  - Developing plans for timely and accurate communication during emergencies.
- Public Relations
  - Establishing and maintaining positive relationships with media.
  - Writing and distributing press releases to share news and updates.
- Stakeholder Engagement
  - Organizing events and initiatives to engage with the community and gather input.
  - Working with governmental bodies, NGOs, and other stakeholders.
  - Establish communication paths with all interested parties and supporting authorities.
- Content Creation
  - Producing informative content on water conservation and management.
  - Managing the organization's online presence, including social media and website content.
- Internal Communication
  - Ensuring employees are informed about policies, projects, and organizational news.
  - Implementing channels for employee feedback and suggestions.
- Event Management
  - Organizing workshops, conferences, and public forums to promote awareness and education.
  - Handling the logistical aspects of events to ensure smooth execution.
- Brand Management
  - Overseeing the organization's brand image and messaging consistency.
  - Developing campaigns to promote the organization's initiatives and achievements.
- Monitoring and Evaluation
  - Keeping track of media coverage and public perception.
  - Evaluating the effectiveness of communication strategies and activities.

The unit personnel requirements and skills are:

- Head of office
  - Bachelor's or master's in communications, Public Relations, Journalism, or related field.
  - Extensive experience in strategic communications planning and execution, preferably in the water management or environmental sector.
- Public Relations
  - Bachelor's degree in marketing, Communications, or related field.
- Administration
  - Degree in administration.
  - Experience in event management.

**Detailed responsibilities – Core departments**

Water Management Infrastructure

The scope of the Water Management Infrastructure department encompasses the comprehensive infrastructure projects planning, design, provide resources and assign or construct/maintain, monitor and provide mandate for use of any natural or artificial infrastructure to handle waters within the water system of Thessaly (code 08), such as natural and artificial lakes, rivers, streams, ditches, dams, dykes, water reservoirs.

The key objectives of the Water Management Infrastructure department are:

- To effectively implement the River Basin Management Planning for works into the boundaries of the water system/compartment.
- To develop and maintain robust water infrastructure that meets current and future demands.
- To enhance the resilience of communities to flooding and drought through effective management and infrastructure solutions.
- To protect and preserve water ecosystems through sustainable management practices and infrastructure minimizes environmental impact.
- To manage financial resources prudently, ensuring the cost-effectiveness of water management operations and infrastructure projects.
- To adhere strictly to all relevant local, national, and international regulations and standards in water management practices.
- To foster collaboration with governmental agencies, private sector, civil society, and communities for integrated water resources management.

The key tasks and responsibilities of the department are the following:

- Project portfolio Planning and monitoring

        - Develop Project Master Plan based on RBMP and FRMP
        - Develop annual project plan
        - Monitor project plan progress
        - Review and revise project plans
    - Project Planning
        - Mandate project development and implementation to competent authorities (Ministry of Infrastructure and Transport, Regional Authority, Municipality, National Power Company DEI etc)
        - Develop/assign project preliminary studies and designs.
        - Management of public contests and tendering.
    - Project execution
        - Contractual agreements.
        - Project implementation monitoring
        - Works inspection and control.
        - Timeline management
        - Project communication
    - Infrastructure delivery
        - Define ownership
        - Deliver infrastructure if required
    - Infrastructure monitoring and control
        - Update and maintain infrastructure registry.
        - Provisions for own infrastructure maintenance.
        - Monitor maintenance works performed by assigned authorities.
        - Safeguard the proper use.

The department personnel requirements and skills are:

- MSc. degree in water related Civil engineering with 5-10 years' experience in integrated water resources management, hydrology and modelling

**Spatial planning and management**

The scope of the department is to identify and categorize use of land under the water system of its area of authority so as to prevent severe impacts from floods and to safeguard the water systems quality and quantity.

The key objectives of the Spatial Planning department are:

- To ensure that development plans and water management strategies are harmonized to protect ecosystems, enhance water quality, and support sustainable development.
- To minimize the risk and impact of flooding through strategic land use planning, incorporating floodplain management, and implementing green infrastructure solutions to enhance water absorption and manage stormwater runoff.
- To adapt land use and water management practices to the impacts of climate change, including increased flood risks, droughts, and shifts in water availability.
- To safeguard natural habitats, wetlands, and water bodies through spatial planning policies that limit pollution, prevent habitat fragmentation, and conserve biodiversity.
- To ensure that the placement and design of water management infrastructure, such as reservoirs, treatment plants, and distribution systems, are optimally integrated into the spatial planning framework to support efficient operation and minimize environmental impacts.
- To protect public health and safety by preventing the development of residential areas and critical infrastructure in high-risk flood zones or areas prone to water contamination.
- To actively engage with stakeholders, including communities, businesses, and governmental agencies, in the planning process to ensure that water management and land use decisions reflect diverse needs and priorities.

The key tasks and responsibilities of the department are the following:

- Mapping and analyzing the availability, quality, and distribution of water resources in relation to land use patterns to inform planning decisions.
- Land classification and use formulation based on FRMPs.
    - Controlled flood areas.
    - Water consumption restrictions.
    - Protected areas.
    - Agricultural land use to safeguard water quantity and quality.
- Regulation formulation for land use in relation to water safety and safeguard in close cooperation with the legal department.
- Consultation for permits/licensing procedures with competent licensing authorities.
    - Construction restrictions in controlled flooding areas (consultation with municipalities for construction rules and permits).
    - Rules for agriculture in controlled flooding areas.
    - Suitability of agriculture to support proper water consumption.
- Advising on the optimal locations for water infrastructure projects considering both geographical and environmental constraints to minimize impacts and maximize efficiency.
- Develop, update and maintain maps of land classification and use restrictions.

- Utilizing geographic information systems (GIS) and other data management tools to analyze spatial data related to water resources and land use, supporting informed decision-making and policy development.

The department personnel requirements and skills are:

- MSc. in spatial planning and 5-10 years' experience in water sensitive/risk informed spatial planning

**Monitoring and control**

The scope of the department is to monitor closely the water quality and quantity, the water uses according to applied rules, the weather conditions and other data and information from third parties and institutions that provide valuable information for the organization and the water stakeholders in the area of application (water system 08). The department also is responsible for safeguarding water quality through inspections, handling of complaints and issuance of fines when required.

The key objectives of the Monitoring and Control department are:

- To continuously assess the quality of water sources, treatment processes, and distribution systems to ensure that water meets or exceeds health and safety standards.
- To continuously assess the quantity of water sources, treatment processes, and distribution systems to ensure that there no flooding or shortage risk.
- To ensure all operations comply with local, national, and international environmental regulations and standards, including those related to water quality, discharge permits, and pollution control.
- To gather and analyze data on water quantity, quality, usage, and system performance to inform decision-making, identify trends, and forecast future water needs and challenges.
- To provide timely and accurate information to stakeholders, including regulatory bodies, the public, and other departments within the organization, about water system status, water quality issues, and compliance matters.

The key tasks and responsibilities of the department are the following:

- Monitoring water quantity (surface and underground waters)
    - Define controlled areas, measurement points and methods
    - Collaborate with external parties (universities, laboratories, local authorities etc).
    - Define security levels both for flood and shortage.
    - Develop and maintain monitoring systems and processes

    - Monitor and report water quantity levels.
- Monitoring water quality (regularly sampling and measurements)
    - Define controlled areas, measurement points and methods
    - Collaborate with external parties (universities, laboratories, local authorities etc).
    - Define safety levels for water quality (emissions, pollution).
    - Develop and maintain monitoring systems and processes.
    - Monitor and report water quality.
- Weather conditions monitoring
    - Develop collaboration frameworks with institutions collecting and analyzing related data.
    - Gathering, analyzing and maintain meteorological data and information from competent authorities and organizations).
- Monitoring of alarm systems
- Controlling water quality and quantity.
    - Design and apply preventive and corrective measures to safeguard surface and underground water quality and quantity.
    - Safequard defined protected areas in terms of water effects
    - Review effectiveness of applied measures.
    - Inform / train stakeholders.
- Water quality enforcement
    - Receipt and examination of complaints regarding water pollution
    - Examine out of bound measurement results
    - Issue fines
- Reporting
    - Issue reports on a regular basis on water quality and quantity.
    - Provide data and information regarding water quality and quantity in real time basis for departments of WMO.
    - Inform stakeholders and the public.

The department personnel requirements and skills are:

- MSc. Hydrology or Environmental engineering and 5-10 years relevant experience

**Water supply and use department**

The scope of the department is to:

- Manage the sourcing, treatment, allocation, and distribution of water to meet the needs of industrial, agricultural users. The needs of residential users should be managed in close cooperation with municipality water supply organizations.

- Involves in ensuring the sustainability of water sources, optimizing water use efficiency, and promoting water conservation among consumers.
- Handling infrastructure development and maintenance needs to ensure a reliable water supply in close cooperation with the Water Management Infrastructure department.
- Manage water allocation and usage policies to balance demand with available resources, incorporating drought management strategies and emergency water supply planning.

The key objectives of the Water supply and use department are:

- To ensure a consistent, uninterrupted supply of high-quality water to meet the needs industrial and agricultural users.
- To manage and protect water sources against overexploitation, pollution, and environmental degradation, ensuring their long-term viability.
- To promote efficient water use and reduce wastage across all sectors through the adoption of water-saving technologies, practices, and public awareness campaigns.
- To manage the needs for the necessary infrastructure, to support reliable water supply and distribution in close collaboration with the Water Management Infrastructure department.
- To balance water supply with demand through effective allocation, pricing strategies, and the promotion of water conservation among users in close collaboration with other water supply authorities such as DEYA, DEI and other water supply infrastructure operators.
- To engage with communities, industries, and agricultural users to understand their water needs and challenges, fostering cooperation and shared responsibility in water management.
- To develop strategies to adapt water supply and management practices to the impacts of climate change, including variability in water availability and extreme weather events.

The key tasks and responsibilities of the department are the following:

- Manage water supply needs for industrial and agriculture use.
    - Irrigation needs, monitoring, analysis and evaluation.
    - Industrial water supply needs registration, monitoring, analysis and evaluation.
    - Submission of proposals for works to the department for Water Management Infrastructure.
- Develop and maintain costing and billing policy for irrigation in close collaboration with responsible departments of the Ministry of Environment.
- Formulate rules for pumping from underground waters.
- Receive and manage applications for pumping licensing from underground waters.
- Licensing procedures for irrigation and industrial water supply under the area of authority of the organization.
- Enforcement of application of pumping policy and rules:
    - On-site inspections.

    - Law enforcement and fines issuance.
- Close collaboration with water infrastructure owners to define rules for water allocation and use.
- Develop water use and allocation strategies and proposals for legislative and institutional interventions regarding the policies for water allocation and use.
- Participate in educational and dissemination activities for key water stakeholders to engage then in cooperation and shared responsibility in water management.

The department personnel requirements and skills are:

- Bsc. degree in water related Civil engineering with 5-10 years' experience in integrated water resources management, hydrology and modelling

**Emergency response department**

The scope of the department is to prepare for and provide support and consultation for an immediate and effective response to water-related emergencies, including floods, droughts, contamination incidents, and infrastructure failures, to protect public health and safety into its area of applicability (water system 08) in close collaboration with Civil Protection and local authorities.

The key objectives of the emergency response department are:

- To develop, maintain, and regularly update comprehensive emergency response plans that outline procedures for dealing with various types of water-related crises such as floods, droughts, ensuring readiness to act in the event of an emergency.
- To establish and maintain effective communication channels with internal departments, external agencies (such as emergency services, environmental agencies, and local governments), and the public to ensure coordinated response efforts and timely dissemination of information.
- To ensure the availability and readiness of resources, including personnel, equipment, and supplies, required for emergency response and recovery efforts.
- To develop and implement programs aimed at educating the public about water-related risks, emergency procedures, and ways to reduce vulnerabilities through conservation and preparedness measures.
- To plan and execute recovery operations that restore water services and infrastructure to pre-emergency conditions, including rehabilitation of affected ecosystems and communities.

The key tasks and responsibilities of the department are the following:

- Conduct Risk Assessments:
  - Identify potential emergency scenarios.
  - Evaluate risks to water supply, quality, and infrastructure.
  - Update risk assessment after water system changes.
- Develop detailed Emergency Plans and protocols regarding water risks and impact:
  - Develop and update plans for different scenarios: floods, droughts, contamination, infrastructure failure.
  - Develop detailed emergency response protocols regarding required actions to flood protection.
  - Provisions for the approval and dissemination of emergency plans in case of drought by the stakeholders and the community.
  - Provide input to enhance and update existing emergency response plans (DARDANOS) with actions and protocols regarding water risks, impact and response.
- Manage Resources:
  - Plan resources needed for water-related emergencies (equipment, supplies).
  - Ensure readiness of response teams and equipment.
- Train Staff and Stakeholders:
  - Organize training sessions and drills.
  - Develop training materials on emergency procedures.
- Educate the Public:
  - Create and distribute educational materials on water-related risks.
  - Conduct public awareness campaigns.
- Plan to support coordination during Emergency:
  - Plan to support Civil Protection coordination team in an emergency situation.
  - Establish communication with local, regional, and national agencies.
  - Set up an incident command structure and rules.
- Monitor early warning systems
- Support actions during emergencies in close collaboration with Civil Protection and local authorities:
  - Issue warnings and advisories regarding water issues.
  - Serve as the point of contact for media inquiries regarding water issues.
  - Deploy emergency response teams.
  - Manage distribution of emergency water supplies.
  - Implement containment measures for severe water contamination.
  - Assess and mitigate environmental impacts.
- Direct Recovery Efforts regarding water issues:
  - Assess damage to own infrastructure.
  - Prioritize and oversee repair work.
- Document and Report:
  - Keep detailed records of emergency responses.

- Prepare reports for internal review and regulatory compliance.
- Review and Improve:
  - Analyze performance post-incident.
  - Update plans and procedures based on lessons learned.

Personnel requirements and skills

- BSc. Or MSc. Degree in water related Civil engineering with 5-10 years' experience in integrated water resources management, hydrology and modelling

**Information systems department**

Manage and support for utilization of information technology in water management activities by organization's departments.

The key tasks and responsibilities of the department are the following:

- Information Systems Development and Maintenance:
  - Design, implement, and maintain information systems that support water management activities, including water supply, distribution, quality monitoring, and billing.
  - Ensure systems are scalable, reliable, and secure.
- Data Management:
  - Oversee the collection, storage, and analysis of data related to water resources, including quantity, quality, usage patterns, and infrastructure status.
  - Ensure data accuracy, integrity, and confidentiality.
- IT Infrastructure Management:
  - Manage the organization's IT infrastructure, including hardware (servers, computers, sensors) and software (operating systems, applications).
  - Ensure infrastructure is up to date and capable of meeting organizational needs.
- Cybersecurity:
  - Implement and maintain robust cybersecurity measures to protect data and infrastructure from unauthorized access, cyber-attacks, and data breaches.
  - Conduct regular security audits and vulnerability assessments.
- Support and Training:
  - Provide technical support to users within the organization, resolving issues related to information systems and technology.

    - Conduct training sessions for staff on the use of information systems and applications.
- GIS and Spatial Analysis:
    - Utilize Geographic Information Systems (GIS) for spatial analysis of water resources, infrastructure planning, and environmental impact assessments.
    - Maintain and update geospatial data and maps.
- Network and Communication Systems:
    - Ensure reliable operation of the organization's internal and external communication networks, including email, VoIP, and other collaboration tools.
    - Oversee the installation and maintenance of communication lines and equipment.
- Regulatory Compliance and Reporting:
    - Ensure information systems comply with legal and regulatory requirements related to water management, data protection, and privacy.
    - Generate reports for regulatory bodies as required.
- Technology Evaluation and Innovation:
    - Stay informed about emerging technologies and evaluate their potential application within the organization to improve efficiency, reduce costs, or enhance service delivery.
    - Lead innovation projects to implement new technologies and systems.
- Disaster Recovery and Business Continuity:
    - Develop and maintain disaster recovery plans for information systems to ensure business continuity in the event of system failures or other disruptions.
    - Conduct regular backup and restore tests.
- Stakeholder Communication:
    - Facilitate communication between technical staff and non-technical stakeholders to ensure IT projects and services meet organizational needs.
    - Translate complex technical information into understandable terms for decision-making.

The department personnel requirements and skills are:

- IT Director
- IT experts with knowledge and experience in the following areas:
    - IT project management.
    - Database administration.
    - Data analysis and support.
    - Help desk, user support.
- System administrators with knowledge and experience in the following areas:
    - Cybersecurity.
    - Network engineering.
    - Disaster Recovery and Business Continuity.

- GIS Analysts
- IT Compliance Officer.

**Financial Services Department**

The department shall manage all financial aspects of the organization's operations, including budgeting, accounting, financial reporting, and analysis.

The key objectives of the financial services department are:

- Oversees and manages the organization's finances with integrity, ensuring all financial practices align with governmental regulations and non-profit objectives, focusing on transparency and accountability.
- Develop and implement efficient billing systems for irrigation water users.
- Engage in strategic financial planning and forecasting to ensure the long-term financial sustainability of the organization, enabling it to meet its water management goals.
- Ensure strict adherence to Greek and European Union financial regulations, including those specific to governmental and non-profit entities, water resource management, and environmental protection.
- Align financial strategies with the organization's mission to promote water conservation and sustainable water use among irrigation and other water users, incorporating environmental stewardship into financial decision-making.

The key tasks and responsibilities of the department are the following:

Procurements

- Tender Management.
- Supplier selection.
- Contract Management.
- Purchase Ordering.

Financial services

- Financial Planning and Budget Management
    - Develop, handle approval activities, and maintain the annual budget.
    - Conduct long-term financial planning to support organizational goals.
- Billing and Revenue
    - Implement and operate an efficient billing system for irrigation water users.
    - Ensure accurate metering, invoicing, and timely collection of payments.
    - Receive and manage payments for license issuance, fines etc.
- Accounting and Financial Control and Reporting

    - Maintain accurate financial records in compliance with national accounting standards.
    - Monitor operational and project expenditures.
    - Prepare and present financial reports to management, stakeholders, and regulatory bodies.
    - Identify and implement cost-saving measures.
- Regulatory Compliance
    - Ensure adherence to financial regulations and standards set by Greek and EU authorities.
    - Stay updated with changes in financial laws affecting water management.
    - Coordinate internal and external audits to ensure financial integrity.
    - Implement and monitor internal controls over financial processes.
- Stakeholder Communication
    - Facilitate transparent communication regarding financial and billing policies and performance.
    - Address inquiries and concerns from irrigation water users and other stakeholders.
- Support and Advisory Services
    - Provide financial advice and support to other departments for budgeting and financial decision-making.
    - Collaborate on projects requiring financial input or cost assessments.

The department personnel requirements and skills are:

- Department head
    - Master’s degree in finance, Accounting, Business Administration, or a related field.
    - Extensive experience in financial management and strategic planning within a similar sector.
- Accountants:
    - Bachelor's degree in Accounting or Finance.
    - Experience in accounting, financial reporting, and taxation preferred in public sectoral administration.
- Revenue Officers, treasurers:
    - Bachelor's degree in Finance, Accounting, or Business Administration.
    - Experience in revenue collection and cash management.

**Personnel & Organization**

The scope of the "Personnel & Organization" department encompasses overseeing all aspects of human resources management such as standardize organization’s departments and job positions tasks and responsibilities, hiring and incorporating staff, managing employee relations and performance, developing, and implementing training programs, managing payroll processes, ensuring compliance with labor laws and regulations, and fostering a positive work environment.

The key objectives of the "Personnel & Organization" department are:

- To attract, recruit, and retain highly skilled professionals who can contribute to the organization's mission in managing water resources efficiently and sustainably.
- To provide ongoing training and professional development opportunities for employees, ensuring they possess the necessary skills and knowledge to meet current and future challenges in water management.
- To ensure that all employment practices comply with national labor laws and regulations, minimizing legal risks and protecting the organization and its employees.
- To promote a safe and healthy work environment, minimizing the risk of workplace accidents and ensuring compliance with occupational health and safety regulations.
- To promote diversity and ensure an inclusive work environment where all employees feel valued and able to contribute to their full potential.
- To analyze and optimize organizational structures and processes to improve efficiency, adaptability, and effectiveness in achieving water management objectives.

The key tasks and responsibilities of the department are the following:

- Recruitment, selection, onboarding, and Orientation
    - Develop job vacancies and manage personnel needs according to national legislation.
    - Manage the selection process to hire qualified candidates.
    - Design and implement onboarding activities for new employees.
    - Conduct orientation sessions to introduce new hires to the organization’s mission, values, and operations.
- Training and Development
    - Identify training needs for staff development.
    - Organize and facilitate training programs, workshops, and seminars for personnel.
    - Apply performance review processes according to national legislation and applied processes.
    - Provide feedback and guidance to employees for competence development.
- Personnel compensation
    - Manage payroll processing accurately and on time.
    - Manage retirement processes and payroll related issues.
    - Update payroll databases and systems.
- Employee Relations
    - Address employee concerns and resolve workplace issues.
    - Foster a positive work environment and promote employee engagement.

- Compliance with Labor Laws
    - Ensure all HR practices comply with local, national, and applicable international labor laws.
    - Stay updated on changes in employment legislation and adjust policies accordingly.
- Health and Safety
    - Implement health and safety policies and procedures.
    - Conduct risk assessments and promote workplace safety initiatives.
- Diversity and Inclusion
    - Promote diversity initiatives and ensure an inclusive workplace culture.
    - Monitor and report on diversity and inclusion progress and challenges.
- Organizational Policies and Procedures
    - Analyze and design organizational structures to improve efficiency and effectiveness.
    - Develop, apply and update organizational policies and procedures.
    - Facilitate change management processes to support organizational growth and development.
- Record keeping.
    - Receive documentation, open and update employee's file record.
    - Archive employee records after exit.

The department personnel requirements and skills are:

- Department Director
    - Degree in Human Resources Management, Business Administration, or related field.
    - Personnel management experience.
- Administrative personnel
    - Bachelor's degree in human resources, Labor Relations, business administration or related field preferred.
    - Experience in human resources or personnel departments preferred.

**GOEBs & TOEBs**

HVA expresses its concerns about the management and executions of certain local functions such as the water irrigation network and collection of payments currently performed by GOEBs & TOEBs. These functions are extremely particular to the local circumstances, and it will face significant challenges to incorporate them into the WMO. Therefore, we recommend refraining from making a hasty and radical decision on TOEBs entirely without first ensuring there is sufficient information and analysis available to make a clear decision where the ownership of these functions is best governed.

TOEBs seem to perform an important function to manage and operate irrigation infrastructure. In many irrigation projects this is a real asset to have that kind of organization. They all have their own administrative

systems, communication systems with farmers, procurement procedures, PR, and ICT /geographical information systems. They often have qualified staff to execute these tasks. Thus, a significant reformation of this system might cause a principal drawback and increase the distance between the managing organization and end-users. Still an effort to transform TOEBs whilst leaving most of their executive tasks intact seems more feasible. Transfer of their present water development and management functions that have repercussions beyond their own area (such as building small dams, drilling boreholes, but also maintenance works) under the mandate of the WMO can be considered as an option. This might help to reinforce the work by TOEBs. Also the payment of fees by TOEBs to the WMO is an option.

Nevertheless, GOEBs can be considered safely as part of the existing institutional framework for water management in Thessaly, and thus their merging into the new WMO is an expected approach to enhance infrastructure maintenance capabilities and strengthen the collaboration of the new institution with TOEBs.

# Indicative implementation plan

It is clear this new Water Management Organization will require time and effort to reach its final intended operational status and be able to function effectively, independently and accomplish its ambitious objectives. Towards this purpose, the existing resources should be utilised and a change management plan is strongly recommended to be developed and followed aiming in smooth transition without gaps and malfunctions.

Although a plan cannot be deployed at that time, effort is given to present an indicative approach and set the basics for a more detailed transition plan to be developed in a later more mature stage.

The indicative implementation plan is as follows.

**Short term plan**

- Assign organization's top management.
- Recruit all department heads.
- Assing all members of Board of Directors.
- Transfer and merge personnel from corresponding departments performing water management tasks within the Decentralized Authority and Regional Authority of Thessaly. "Monitoring and control" and "Water supply and use" departments can be partially staffed by existing personnel of the before mentioned authorities.
- Existing office infrastructure can be utilized to facilitate immediate operation of the organization.
- Staff water infrastructure department with the personnel to manage effectively immediate needs such as facilitate the deployment of new works in collaboration with third parties (eg other technical departments of local authorities). Estimated no of personnel 3-5.
- Spatial planning and management can be performed by the support of the engineers of the "Water management infrastructure department".
- Staff financial and personnel departments with the capacity to handle an organization of 20-30 employees.
- Reengineering and computerization of licensing procedure for water pumping licensing to reduce process time and costs. Assignment to external company to process pending files could be an option to speed up licensing process. This will result in awareness and control of water pumping in the region.
- Especially for "water infrastructure" department:
    - Recruit personnel for immediate tasks.
    - Develop relationships with technical departments of local authorities and ministries.
    - Develop Thessaly's water infrastructure registry.
    - Develop project master plan in close collaboration with competent authorities.
    - Monitor project progress.

**Medium term plan**

- Recruit all required organization staff and deploy required tasks and responsibilities.
- Setup and deploy collaboration with third parties / stakeholders and access to required systems such as early warning systems, water parameters monitoring etc.
- Grow ownership of water infrastructure.
- Develop electronic management systems to facilitate and support fast and secure licensing procedures.

Still the above list of actions should be considered as recommendations for the purpose of this report.

As already said, more detailed change management plan is considered critical to support the smooth transition to a new institutional framework that will "lead" the management of waters in the Thessaly water compartment.

For this plan the following should be considered:

Define the final organizational model.

Prepare a detailed "Change management plan" listing the following:

- Existing personnel of other organizations to be transferred.
- Existing infrastructure to be utilized.
- Procedures already in progress.
- Transferring detailed plans including personnel, equipment, systems, procedures etc.
- Communication and coordination plan.
- Costs and payment procedures.
- Operational startup on new organization.
- Plan implementation and adjustments.