

Water Resources & Flood Risk Management

2nd Revision of River Basin Management Plan — Eastern Macedonia (2022)

The project refers to the drafting the comprehensive update of the RBMP for Eastern Macedonia, aligning with EU and Greek water directives. Tasks included revising water body classifications, assessing ecological and chemical status, updating pressures and protected areas, revising environmental objectives, and enhancing water management through advanced modeling and scenario analysis. Included public consultation and staff training.

It was assigned by the Decentralized Administration of Macedonia–Thrace / Directorate for Water, Central Macedonia

2nd Revision of River Basin Management Plan — Crete (2022)

Led the update of Crete's RBMP, focusing on water body status reassessment, hydromorphological analysis, pressure updates, and environmental goal reviews. Developed a water resources management model to simulate current conditions and future scenarios, supporting effective decision-making. Delivered public engagement activities and extensive training for local water authorities.

It was assigned by the **Hellenic Ministry of Environment and Energy / General Secretariat for Natural Environment and Water / General Directorate for Water**

1st Revision of the Flood Risk Management Plans for the River Basin Districts of Greece — Section 3: Eastern Macedonia and Thrace

The project refers to the **1st Revision of the Flood Risk Management Plans (FRMPs) for the River Basin Districts (RBDs) of Eastern Macedonia and Thrace**, as part of the national initiative covering all 14 RBDs of Greece (Subprojects 1–5).

It was assigned in **2022** by the **Hellenic Ministry of Environment and Energy / General Secretariat for Natural Environment and Water / General Directorate for Water**, in accordance with the requirements of **Directive 2007/60/EC on the assessment and management of flood risks** and its national transposition through **Presidential Decree 70/2015**.

1st revision of the Flood Risk Management Plan (FRMP) of Cyprus under the EU Floods Directive (2nd cycle)

Contract: TAY 19/2020

Scope included:

- Updating flood hazard and flood risk maps (Directive 2007/60/EC)
- 1st Revision of the FRMP of Cyprus and preparation of the Strategic Environmental Impact Assessment (SEA)

2nd River Basin Management Plan of Cyprus under the Water Directive 2000/60/EC

Included support of TAY for the:

- Coordination for requests of the EU services during the evaluation process of the 2nd River Basin Management Plan of Cyprus
- Drafting guidelines for the implementation of the Article 4.7 exemptions of WFD in Cyprus
- Reporting on the status of the process of the implementation of the Program of measures of the 2nd RBMP

 **Preparation of the 2nd River Basin Management Plan of Cyprus for the implementation of Directive 2000/60/EC and Preparation of the Flood Risk Management Plan for the Implementation of Directive 2007/60/EC.**

 **Strategic Drought and Water Scarcity Management Plan — Ionian Islands Region**

Commissioned by the Decentralized Administration of Peloponnese, Western Greece & the Ionian (2022), this project involved the revision of the regional drought and water scarcity management plan for the Ionian Islands. The updated plan provides an integrated monitoring and response framework, including:

- Application of international drought indices;
- Assessment of regional vulnerability to drought and water scarcity;
- Establishment of a monitoring and response mechanism based on severity levels;
- Proposal of targeted mitigation measures for local authorities and water utilities (e.g., municipalities, DEYAs).

 **Development of the 3rd River Basin Management Plan for Cyprus**

Commissioned by the Water Development Department of the Republic of Cyprus (TAY 2/2022), this project supports the implementation of the Water Framework Directive (2000/60/EC) through:

- Data review and completion under Article 5;
- Economic analysis of water uses;
- Cost recovery and pricing strategies;
- Drought management plan revision;
- Full drafting of the 3rd RBMP and its Programme of Measures;
- Strategic Environmental Assessment (SEA);
- Public consultation and stakeholder engagement;
- Digital submission of results to the EU;
- Ongoing monitoring and interim reporting on implementation progress.

 **Special Water Management Study – Support to the Athens Water Supply System (EYDAP)**

Conducted for the Directorate of Water Supply, Sewerage & Wastewater Treatment (D18) of the **Ministry of Infrastructure and Transport**, this study explored the sustainable management and enhancement of water availability for areas linked to the Athens Water Supply System, including:

- Evaluation of balance improvement options for the Mornos–Evinos subsystem;
- Assessment of water allocation for the Amfissa plain irrigation and aquifer protection;
- Proposals for improving irrigation in the Kopaida plain;
- Alternative water supply scenarios for Delphi municipalities;
- Measures to address pollution in the Asopos basin;
- Management of groundwater challenges in Marathon–Schinias;
- Allocation options for existing and future water demand along the system.

 **1st Revision of River Basin Management Plans – Western & Central Macedonia (EL09 & EL10)**

As part of the **nationwide revision of RBMPs for all 14 River Basin Districts**, and in accordance with Directive 2000/60/EC (transposed into Greek law via Law 3199/2003 and Presidential Decree 51/2007), this project focused on updating the management plans for the Western and Central Macedonia RBDs. Key activities include:

- Review of pressures and impacts on water bodies;
- Update of monitoring networks and water status assessments;
- Development of new or revised environmental objectives;
- Comprehensive Programme of Measures;
- Stakeholder engagement and EU compliance reporting.



Water resources management study for the River Basin of Kompsatos (Iasmos) River in Prefecture of Rodopi in Thrace (North Greece)

The study was prepared in aim to fulfill the EC Water framework Directive 60/2000/EC requirements for the water management of the river basin of Kompsatos River.

The Kompsatos River Basin is about 660 km² and the river discharges into Vistonida lake which is protected according to the Ramsar Convention. The main issue of the study was to ensure that the planned scheme for the construction of a new dam in Kompsatos river for providing irrigation water in the Rodopi's plain (about 20,000 ha) is compatible with the requirements of the WF Directive 60/2000/EC.

The study proposed the management plan which has to be implemented in order to assure that the development of the planned project will not degrade the existing situation of the surface and underground waters as it is characterized according to the WDF classification. The proposed management plan will be included to the foreseen regional management plan.



Water resources management plan for the river basins of East Chalkidiki

The study prepared for the Ministry Of Environment, Physical planning and Public works in the framework of the project "Drinking water projects of the Chalkidiki region. Design of the Petrenia Dam in Gomati and of the drinking water treatment, storage and transfer works".

The aim of the study is to fulfill the EC Water framework Directive 60/2000/EC requirements for the water management of the river basins of eastern Chalkidiki region.

The main issue of the study was to assure that the development of the planned projects will be compatible with the WFD requirements.

The study proposes a water management plan which involves all principal parameters concerning the available water resources, their quality and the estimation of the future demands.

Additionally, the general rules and for the exploitation of the surface and underground waters are proposed and formulated in a specific management plan which will be part of the foreseen water management plan of the whole region of Chalkidiki.



Surface water and groundwater management plan for the protected area of Delta of Nestos river, as well as Vistonida and Ismarida lakes and surrounding areas.

The study prepared for the Ministry of rural development and food in the framework of the project "Design of works for the transportation of and distribution of water from Nestos River to the plains of Xanthi and Rodopi in Thrace (Northern Greece) for the restoration of the ground waters – WFD 2000/60/EC".

The aim of the study is to fulfil the EC Water framework Directive 60/2000/EC requirements for the water management the protected area of Delta of Nestos river, as well as Vistonida and Ismarida lakes and the surrounding areas.

The main issue of the study was to assure that the development of the planned project for the transportation and distribution of the water from Nestos River to the Xanthi's plain for the irrigation of an area of about 30,000 ha which today is served by the overexploitation of the ground water, will be compatible with the WFD requirements.

The study proposed the water management plan for the above-mentioned areas which was approved by the 4777/27/10/2008 Decision of the General Director of East Macedonia and Thrace Region and will be included to the foreseen regional management plan.



Master plan of water resources management in the broader region of Thessaloniki

The objective of the project was the development of recommendations for the development of water resources in order to cover the future needs of the broader region of Thessaloniki.

Principal activities:

- assessment of the current and expected future water demand in the area, for urban water supply, irrigation and industry
- compilation of the available hydrologic and hydrogeologic information for the area
- assessment of the average recoverable quantity from the surface waters and aquifers of the area
- assessment of the quality of the surface waters and aquifers of the area
- compilation of the existing and planned works related to the development of the available water resources of the area and their relevant characteristics
- assessment of the recoverable discharge and expected quality of cross-border rivers, taking into consideration the future development trends in the respective countries
- development of alternative options for allocation of the available water resources and assessment of the associated cost for their construction and operation
- evaluation the capacity of these options to meet the evolving demand and the impacts to the environment
- assessment and ranking of the options and proposal for the recommended direction of development of water resources.

The above information was presented in detailed thematic maps of the area with the aid of GIS.

Interestingly, it was found that, while development to date had focused on the development of surface water resources, the groundwater resources had an excess capacity and a reasonable quality that could be exploited to cover the future demands.



Development of an integrated Water Resources Management model, for the General Secretariat of Research & Technology of the Greek Ministry of Industry, Energy and Technology, in the framework of the Programme for the Development of Industrial Research. The objective of the research effort is to develop a deterministic model for the management of inland surface and groundwater resources. The model may be extended to incorporate water quality issues in co-operation with GIS systems. It is object-oriented programme and user friendly.



Water Resources Management of the Evinos river basin and hydrogeological study

The objective of the study was the determination of the appropriate management scheme of the reservoir of Evinos for the adequate water supply of Athens and the protection of the downstream environment.

The main characteristic of the area is the strong interaction of the surface waters and groundwaters.

Principal activities:

- evaluation of the current and future water demands for the city of Athens
- assessment of the existing and planned downstream irrigation works and their respective water demand
- evaluation of the necessary water quantity for the protection of the river delta
- evaluation of the technical and operational characteristics of the Evinos dam
- compilation of the available hydrologic and hydrogeologic information for the area
- development of a water resources model based on rainfall input on a monthly basis
- calibration of the water resources model with historical discharge data on a monthly basis

- development of alternative options for the management of the reservoir, for representative hydrologic scenarios
- assessment of the capacity of these options to meet the evolving water demand and the protection of the environment
- formulation of recommendations for the operation of the reservoir depending on the available water and the level of demand

The novelty of the project was the development of a water resources model for the integrated assessment of surface water and groundwater balance.



Water Quality Management of semi-enclosed bays in Greece – Case study for the Thermaikos gulf

The study was carried out in the framework of Greek - Dutch collaboration for the environment. The objective was the development of decision support methodology for the management of water quality of semi-enclosed bays in Greece and the application thereof for the Thermaikos gulf of Thessaloniki.

Principal actions:

- development of the methodological approach for assessment and management of water quality
- compilation of information on the hydrodynamic diet of the Thermaikos gulf
- investigation and assessment of all inflows to the Thermaikos gulf and the related pollution characteristics
- assessment of the current and future uses of water of Thermaikos gulf
- assessment of the minimum water quality requirements on the basis of national and European legislation, depending on the proposed uses of the water
- development of a dedicated water quality model for the Thermaikos gulf for the establishment of the cause-effect relationship of pollution in the gulf and calibration thereof on the basis of available water quality data
- evaluation of the quantitative contribution of different sources to the pollution of Thermaikos gulf
- assessment of the impacts on water quality from alternative pollution control plans, including the development and operation of various stages of the wastewater treatment facility of Thessaloniki.

The model was granted to E.Y.A.Th. as decision support tool for the management of water quality of the gulf.



Consultancy on Water Resources Management of the Ipiros District in W. Greece,

The objective of the study was to develop a methodology for the management of water resources in Greece. The water management district of Ipiros with an area of XX Km² was selected for its diversity and intensity of water uses. Specialised mathematical models were applied for the detailed simulation of water balance in the region of interest.

Principal activities:

- compilation of the available hydrologic and hydrogeologic information for the area and development of representative hydrological scenarios
- compilation of the operational characteristics of the existing and planned works for the development of water resources of the area
- estimation (a) of the current and future water demands for the urban, agricultural, hydroelectric and industrial activities of the area and (b) of the minimum required water flow for the protection of sensitive environment of the Amvrakikos gulf
- evaluation of the characteristics of the groundwater regime in the area and its interaction with surface waters

- detailed schematisation of the surface water system of the area and calibration with existing discharge data
- development of alternative options for the management of the water resources of the area, for representative hydrologic scenarios
- development of an economic model for the assessment of the economic result of water deficit for the energy and irrigation sector
- assessment of the degree of coverage of water demands for each management option and each hydrologic scenario as well as the ensuing economic result
- comparative evaluation of the alternative management options and recommendations of the most preferable ones



Pilot study for the water resources management of the Louros and Arachthos rivers with the use of advanced numerical methods of analysis in association with Delft Hydraulics for the Ministry of Industry, Energy and Technology. The study focused on the detailed simulation of the of the water resource supply & demand system with advanced computer models using historical hydrometeorological data and present and alternative future development schemes.