

A circular inset image showing a river with green grassy banks and a reflection in the water. Overlaid on the left side of this image are three overlapping green circles of varying shades.

ENVIRONMENT

RBM (river basin management)

Managing natural resources sustainably, whilst promoting development

There is nothing we can't handle on the environment: from water-, environmental-, waste-management, sustainability sensing and nature telemetrics, to long- and mid-term planning policies, impact assessments & feasibility studies.

Societies face water management challenges due to the degradation of natural resources, waste generated, water-demand, environmental sustainability and uncertainties of climate change. The establishment of water management policies at river basin level allows for an approach respecting the natural environment whilst considering social and institutional arrangements within and amongst regions and states. **River Basin Management (RBM)** is essential to ensuring long-term sustainability whilst establishing communication channels for integrated management.

In the RBM Sector EPSILON offers:

Engineering-, consulting-, contract RTD-, training-, educational and capacity building-services, aimed to assisting and addressing RBM challenges at the crossing point of environment preservation and sustainable development. EPSILON has been active in RBM since 1990 and our diverse group of scientists, engineers and professionals provide consultancy-, technical-, legal-services and RTD/R&D support in the fields:

- **Resources assessment** (climatology, water balance, land/water/groundwater/estuary)
- **Global water bodies** identification, classification, characterization
- Analysis of **pressures & impacts** on water systems
- **Decision Support Tools (DSS)** for the evaluation of technical, economic, environmental perspectives of alternative water uses
- **Database & geo-applications design/development** for environmental management, monitoring and reporting including UAV/UAS technologies coupled to sensors and Geoinformation technologies.
- **Habitats, species, ecology/ecosystems** identification and recording
- **Protected areas & Natura 2000** Management
- **Economic** analyses & **envirometrics**
- **Stakeholder** classification and analyses
- **Public participation & consultation** support, consultancy and implementation
- **Mathematical modelling & risk analyses** of critical infrastructures (e.g. dams)
- **Environmental risk assessments** for natural phenomena (e.g., flood, forest fire) and single/multi risk assessments mapping for natural disasters and emergency management
- **EC Directives & regulatory compliance**, as WFD/2000/60/EC, GW/2006/118/EC, EQS/2008/105/EC, 2006/11/EC/ dangerous substances, 2007/60/EC/Floods, 96/98/EC/Marine, INSPIRE/2007/2/EC, other (Habitats, Birds, EIA etc).

15 indicative projects:

The **EPSILON** Group track record includes numerous River Basin Management (RBM) projects at international-, national- and regional-level. The multi-years experience of our group's partners and staff guarantees high quality services for any RBM challenge.

- 1. TISA River Basin Management, Romania (2004).** Flood Prevention in the Upstream TISA River Basin with multiple technology components as GIS-based modelling, monitoring, and warning systems attached to optimization.
- 2. Sperchios river basin management & strategies, Greece (1998).** Field sampling, satellite technologies for basin mapping, hydro-simulations, evaluation and comparative analyses of flood structures, GIS, dissemination, capacity building, training.
- 3. Natura 2000 sites, Malta (2014).** Site visits, field work/sampling, mapping, legal analyses (EC Directives, national and local Plans/Policies), conservation status assessments, preparation of 22 management plans, legislation stakeholders consultation, dissemination and capacity building. www.natura2000malta.com
- 4. National borehole registry & national geodatabase, Greece.** Recording of water abstraction wells, portal geomapping, database and web GIS application, web-reporting, and capacity building (e.g., manuals, help desk, training).
- 5. RBM and rehabilitation of damage fire-ravaged areas, Peloponnese, Greece (2009).** Scenarios for flood forecasting & water management for watersheds, hydrological studies for: economic re-evaluation of the surface & ground water resources, protection against exhaustion & degradation of surface water & groundwater, prevention & flood control measures against water destructive actions, prevention of accidental pollution.
- 6. RBM, Northern Greece.** Hydraulic scenarios for flood forecasting & water management including: estimation of water balances (rivers & tributaries, e.g., Pineios), hydrologic forecasting, flood control estimates, hydro-modelling, optimal water management based on meteorology, drainage, land-use, ecosystems mapping. ArcGIS reporting.
- 7. Greco-Risks: Hellenic natural hazards risks management system (2015).** Multi-Risk geo-intelligent webplatform integrating 9 risk-hazard modules: geohazards, forest fires, flash-floods, extreme weather, tsunami, industrial accidents. It delivers combined & aggregated surface risks as demanded by Civil Protection Agencies, insurance companies & other organizations. www.grecorisks.com
- 8. Hellenic monitoring network operation & supervision, Greece.** Technical consulting services to the Ministry Secretariat for Water, aimed at ensuring effective-, orderly- and systematic- operation of the National Monitoring Network (NMN) according to article 8 of the EC/WFD/2000/60.
- 9. URS / FGS-NAVY®: Environmental Final Governing Standards, Greece (2014).** Updating of the environmental governing standards of the US Navy for Greece. Comparative analyses of the Hellenic-, European-, USA- and other legislations & Directives, for a wide spectrum of 32 enviro-sectors including air, natural resources, drinking water, waste water, solid-, hazardous- and medical-waste, ecosystems, marine and other.
- 10. Disposal of recycled water, river basin of Greater Limassol, Cyprus.** Feasibility Study. Evaluation of the technical, economic & environmental perspectives of alternatives to the use of recycled

water from sewerage systems in order to contribute to water balance and comply with the Government's water recycling policy.

- 11. Use of recycled water, river basin of Greater Nicosia, Cyprus.** Technical assistance and capacity building, investigation of alternatives for recycling of tertiary treated effluents from the municipal WWTPs. Evaluation of the alternative reuses according to national and EU water policies & legal provisions.
- 12. Water supply pipeline for Ais-Heart and Ag. Dimitrios, Reservoir Polyfytos, Greece.** Preliminary study and EIA for a planned project targeted to strengthening the electric potential of the country, whilst considering multipurpose reservoirs for hydroelectric power, agriculture, municipal supply & industry production. Public hearings support.
- 13. Protected area and wetland, Messolonghi-Aetoliko river basin, Greece.** Resources, technology, ecology, marine, sea-lagoon studies. Formulation of plan & specifications for managerial & regulatory measures, monitoring & coordination, operational system for protected river basin.
- 14. Irrigation and water supply system, Valtos-Acheloos river basin, Greece.** EIA and formulation of remedial actions for the works including rehabilitation & expansion of the main water canalization system, new irrigation networks & extension of existing ones for an irrigation area of 5920 ha. Analyses & mitigation measures for natural wetlands & wildlife, non-point agricultural pollution, flow regime & land use.
- 15. Small reservoirs, Islands of Southern Cyclades, Greece.** Torrent settlement, river water abstraction & design of reservoirs to providing drinking-, irrigation-, SME-water with capacities ranging from 150.000 m3 to 400.000 m3. River basins & hydro-balance analyses via SESOIL modelling & other methods.

Our Services are supported by:

- **GIS/GPS/GSM/GPRS** and other IST/ICT and field mapping technologies, also supported by Epsilon Italia srl, www.epsilon-italia.it
- **Mapping via flights & robotic** systems (UGV, UAV, UMV, sensors, telemetrics, aerial recording) as also supported by our associated company www.aviontek.com
- **Statistics databases** (INSPIRE, GISCO/Eurostat, ecospieces)
- **Geoinformation** and GIS databases off the shelf for Greece & Cyprus
- **RTD/R&D** (H2020, National programmes)
- **Capacity building**, also offered by Epsilon Bulgaria ood, <http://epsilon-bulgaria.com>
- **H/w, s/w, systems** integration, supported by PC-Systems SA, www.pcsystems.gr
- **Management consulting** also offered by Epsilon Consulting Ltd., Cyprus, www.epsilon-cyprus.com.cy

We address cross-sectoral and institutional issues at international-, national- and local-level to ensure sustainability of natural resources and to support integrated and socially acceptable solutions. Our multidiscipline approach aims at protecting the environment, ensuring economic development, increasing public awareness, understanding uncertainties, managing risks and supporting policy adaptation.

EPSILON is certified according to **ISO 9001:2008** by TUV NORD for: civil & environmental engineering consulting services, design & development of information technologies and Geoinformatics and GIS, surveying-collection- and GIS data production, project management, remote sensing & photogrammetry services, and ICT/IST navigation services.



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Number of
EPSILON Group
offices in Europe

35

Number of countries
where EPSILON has
significant presence

120

Number of large RTD projects conducted
during last decade

www.epsilon.gr