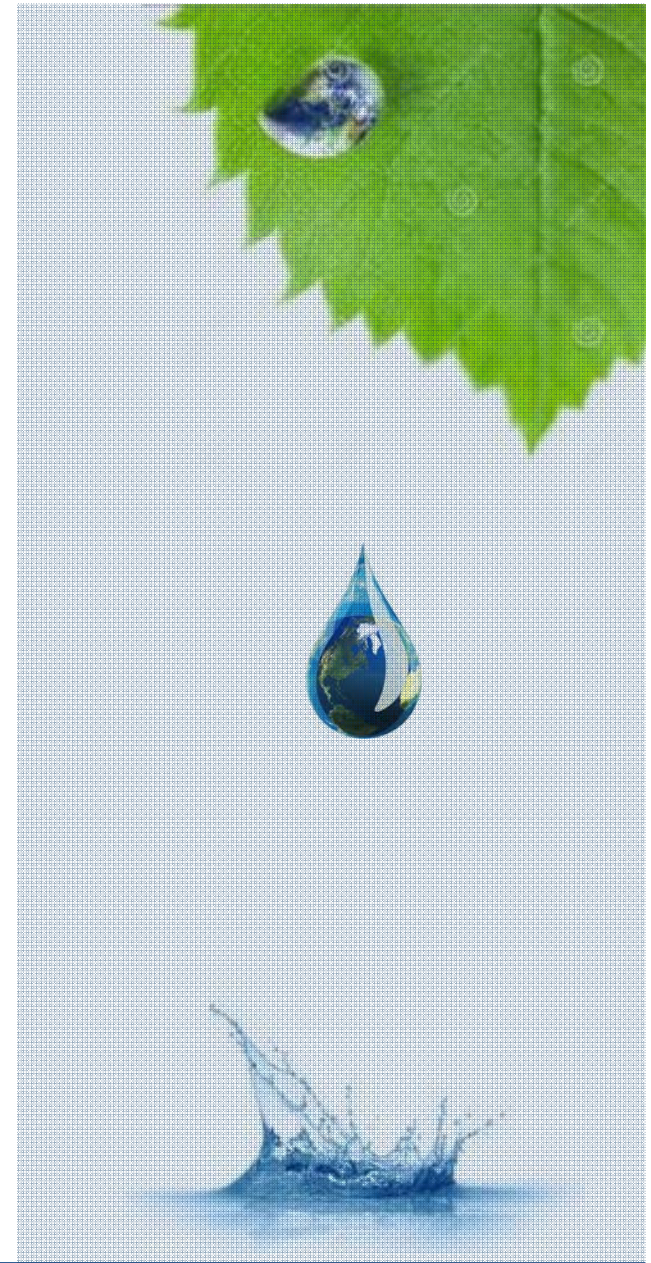


**MEDITERRANEAN ENGINEERING  
GROUP 2014**

**International Conference**  
27-28 November, Rome, Italy

**Water Pollution Control's  
Projects Technical Assistance,  
Design and Operational  
Monitoring**

**MATTEO BERTONERI – ambiente s.c.**



# WHAT WE DO

## 1. Environmental Engineering and Consultancy Services

**ambiente** is a Skilled, Competent and Experienced Partner in all engineering projects



Environmental Monitoring



Sustainable Urban Planning



Environmental Emergency Management



Green Energy and Resources



Health and Safety

ESIA



Contaminated Soil



# WHAT WE DO

## 2. Laboratory

Chemical , Biochemical and Microbiological Analysis and Consultancy Service on soil, water, air, waste, food,...

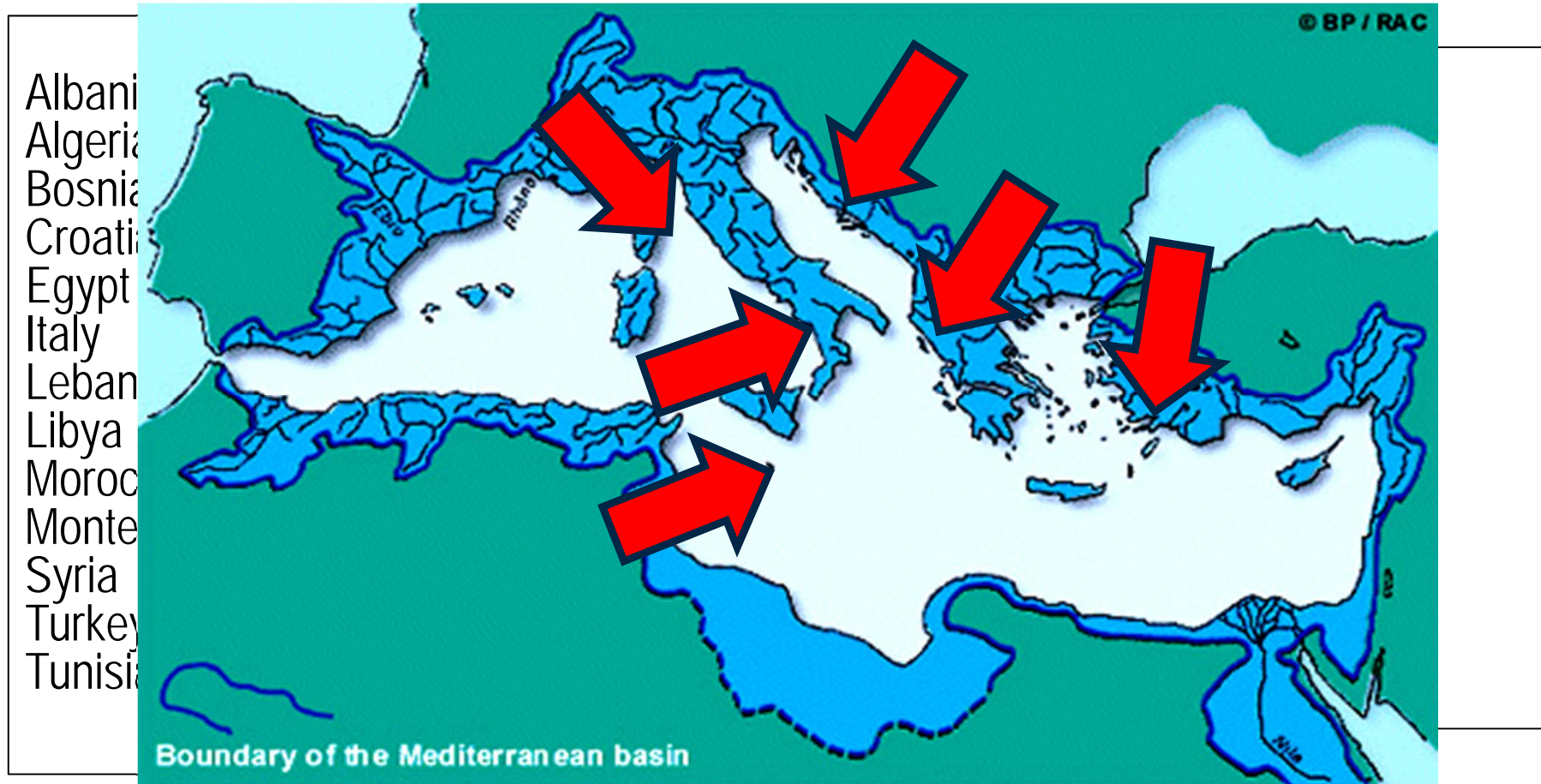
The laboratory is ACCREDIA ISO 17025:2005 accredited

Capacity building for public laboratories



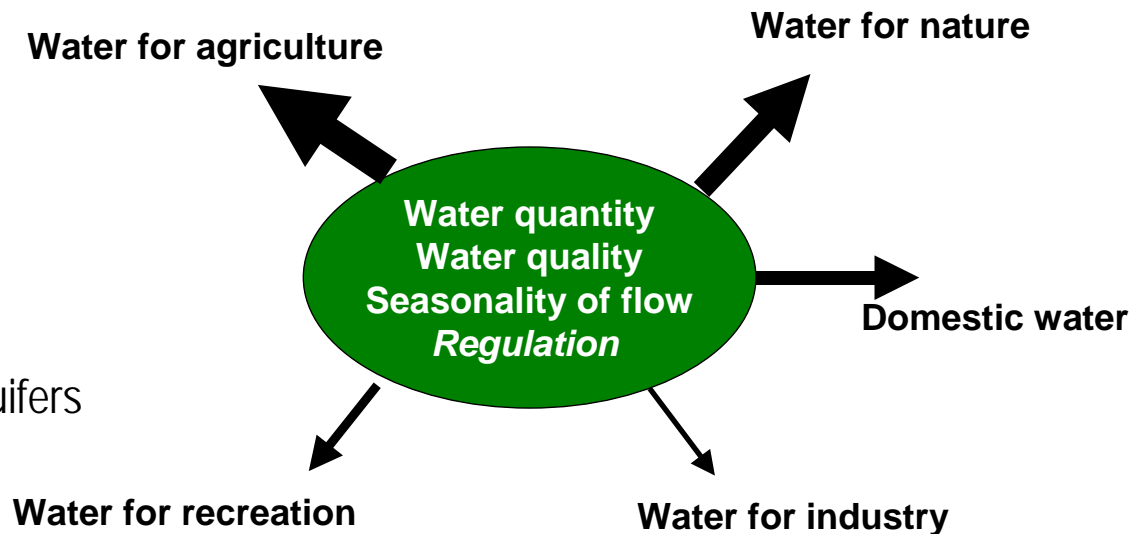
# WATER POLLUTION CONTROL'S PROJECTS

- 150 million people in coastal areas, 200 million tourists every year



# WHAT PROBLEMS ARE WE TRYING TO ADDRESS?

- Water planning
  - Local and regional
  - Municipal and industrial
  - Ecosystems
  - Reservoir storage
  - Competing demand
- Coastal Use
  - Saltwater intrusion into coastal aquifers
  - WWTP Outlet
  - Tourism Impact or Promotion
  - Dredging sediments
- Operation of infrastructure
  - Dam and reservoir operation
  - WWTP Outlets
  - Drainage re-use, use of wastewater effluent
  - High value/low water use crops



- Hydraulics
  - Hydropower
  - Flood and floodplain inundation
  - Irrigation timing and efficiency



# WHICH SKILLS

- INTEGRATED APPROACHES FOR THE IMPLEMENTATION OF MONITORING OF AQUIFERS
- ASSESSMENT OF POLLUTION FROM LAND-BASED ACTIVITIES, INCLUDING PERSISTENT ORGANIC POLLUTANTS
- CLIMATE CHANGE STRATEGIES
- CONSERVATION OF BIOLOGICAL DIVERSITY
- DESIGN, MANAGEMENT AND EVALUATION TREATMENT PLANT
- SUPPORT FOR POLLUTION REDUCTION POLICIES AND LEGISLATION'S IMPLEMENTATION
- TRANSFER OF ENVIRONMENTALLY SOUND TECHNOLOGY
- CONSULTANCY FOR PROMOTE THE SUSTAINABLE USE

ENSURE SUSTAINABLE



AND IN  
ACCORDANCE WITH PRIORITY  
NEEDS IDENTIFIED

# WATER POLLUTION CONTROL'S PROJECTS

ITALY

"Evaluation and Monitoring of Surface Water and Groundwater in compliance with WFD"

REGIONE CALABRIA

CROATIA

"Implementation of HV Sea Water Quality – Operational Monitoring"

HRVATSKE VODE

MALTA

"Development of Environmental Monitoring Strategy, and Environmental Monitoring Baseline Surveys"

MEPA

TURKEY

"Technical assistance for the establishment of the Turkish Environmental Information Exchange Network"

CFCU

ITALY

"Marine Environmental Monitoring during the removal works of Costa Concordia"

TITAN SALVAGE - MICOPERI

# MARINE ENVIRONMENTAL MONITORING DURING THE REMOVAL WORKS OF COSTA CONCORDIA



- **Object** : Preparation and execution of a Environmental Monitoring Plan for the protection of the marine ecosystem and of the desalination plant.
- **Target** : The activity is aimed at controlling the quality status of the different environmental matrices interfering with the wreck and with disposal's activities.
- **Timeline** : All sampling and analysis activities will continue until the complete removal of the wreck and continue until complete recovery status quo ante.



# MARINE ENVIRONMENTAL MONITORING DURING THE REMOVAL WORKS OF COSTA CONCORDIA



Chemical, microbiological and ecotoxicological analysis, to avoid the presence of pollutants

- inside waters ship
- marine waters outside the wreck,
- sediments surrounding the dismantling site,
- posidonia in the neighboring area of the wreck,
- the fish fauna living around the site.

In addition monitoring activities with :

- natural accumulators (Mussel Watch)
- synthetic accumulators (DGT: Diffusive Gradients in Thin Films)

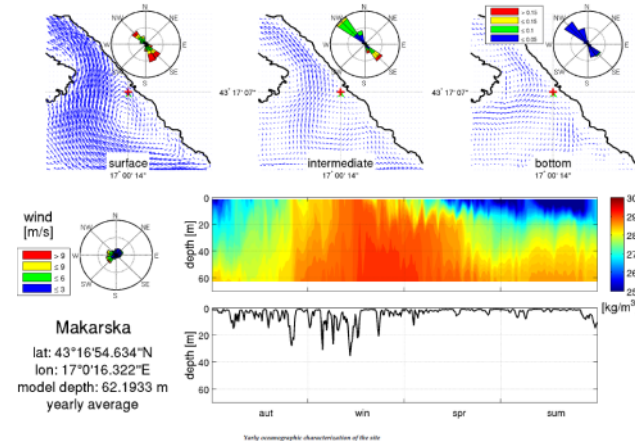
# COASTAL CITIES WATER POLLUTION CONTROL PROJECT 2

## ASSIGNMENT A: DESIGN ENVIRONMENTAL MONITORING PLAN

Over 40 sites :

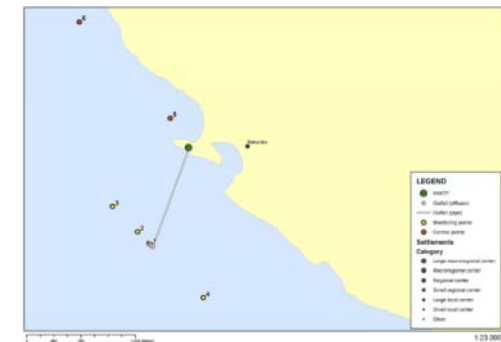
- Sewerage systems and WWTPs
- **Sea currents modeling**
- Definition of exposed beaches and monitoring stations and strategy

Parameters to be monitored on Water column , Sediment ,  
Biota and biological communities



## ASSIGNMENT B: IMPLEMENTATION OF THE MONITORING PROGRAM

1. 4 surveys in the period May'13 –Nov'14
2. Processing of data on the quality of coastal waters
2. Acquisition and processing data of WWTP discharges



# COASTAL CITIES WATER POLLUTION CONTROL PROJECT 2

## ASSIGNMENT C: TRAINING AND WORKSHOPS

- Organization of 4 workshops on specific topics :
  1. State of transitional and coastal waters
  2. Measurement, sampling and laboratory's analyses
  3. Wastewater treatment, monitoring and plant's management
  4. Illustration of the results
- Field training with regard to best practices of environmental monitoring
- Laboratory training for acquisition of analytical skills

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ingegneria ambientale e laboratori

LOGS cibm

**WORKSHOP**  
**SEA WATER MONITORING:  
DATA ACQUISITION AND ANALYSIS**  
**PRAĆENJE STANJA  
PRIOBALNOG MORA:  
UZORKOVANJE I ANALIZA  
PODATAKA**

REPUBLIC OF CROATIA  
COASTAL CITIES WATER POLLUTION  
CONTROL PROJECT 2  
BIRD LOAN NO. 7640/HR

HRVATSKE VODE  
UNIT FOR THE IMPLEMENTATION OF  
NATIONAL WATER MANAGEMENT  
PROJECTS  
ADRIATIC PROJECT

HV/QCBS/LAB-C1  
Implementation of HV Sea Water Quality  
Operational Monitoring

Venue / Mjesto održavanja:  
**Opatija (Hotel Ambassador) - Koper - Trieste**

Attendees / Polaznici:  
Staff of Hrvatske vode and local public health laboratories  
Djelatnici Hrvatskih voda te predstavnici laboratorija  
Zavoda za javno zdravstvo

Workshop Period/Vrijeme održavanja:  
**5-8 NOVEMBER 2013**  
**5.-8. STUDENOG 2013**

**SECOND WORKSHOP**  
Venue: Opatija (Hotel Ambassador) - Koper - Trieste  
Workshop Period: **5<sup>th</sup> - 6<sup>th</sup> NOVEMBER 2013**

Tasks of the event:

- Regulation on quality standards for water and Regulation on special conditions for the performance of water sampling;
- Describe the general physical, chemical and biological characteristics of the sea;
- Introduce the main characteristics of marine ecosystems;
- Explain possible types of marine pollution;
- Present possible strategies for monitoring programmes with specific parameters sets to be measured and analysed;
- Describe the necessary equipment for the measurements and sampling of physical-chemical parameters;
- Detail different methods for sampling, measuring and analysing the water column, sediments, biological communities and biota;
- Provide guidelines in the compilation interpretation and evaluation of the monitoring data

Zadaci radionice

- Obraditi problematiku ocjene kakvoće voda prema Uredbi o standardu kakvoće voda (NN 73/13) i posebnim uvjetima za obavljanje djelatnosti uzimanja uzoraka i ispitivanja voda (NN 74/13);
- Osnovna fizikalna, kemijska i biološka svojstva morskog ekosustava;
- Osnove onečišćenja morskog ekosustava;
- Određivanje strategije monitoringa i pokazatelja za praćenje kakvoće;
- Oprema za mjerenje i uzorkovanje fizikalno-kemijskih pokazatelja;
- Detaljan prikaz metoda za uzorkovanje, mjerenje i analizu vođenog stupca, sedimenta, bioloških zajednica i biote;
- Smjernice za kompilaciju, interpretaciju i procjenu rezultata monitoringa.



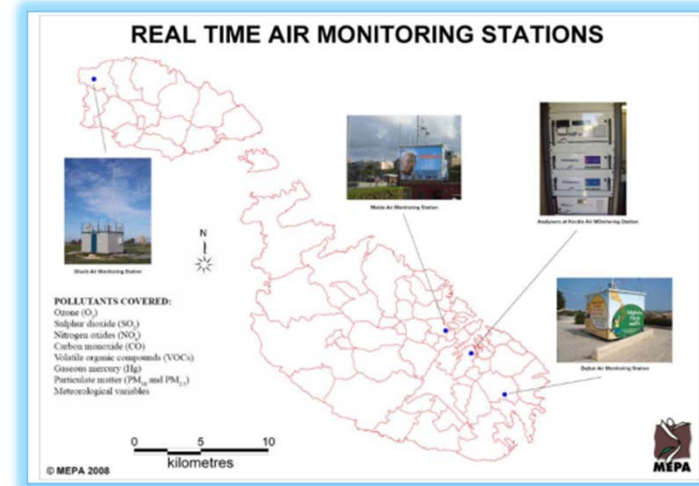
# DEVELOPMENT OF ENVIRONMENTAL MONITORING STRATEGY AND ENVIRONMENTAL MONITORING BASELINE SURVEYS

Goal : Environmental Monitoring Strategy and Baseline Surveys.

1. The analysis and study of the regulatory, instrumental and environmental data gap
2. The design of Environmental Monitoring Baseline and field execution
3. The definition of Environmental strategies for medium and long term.

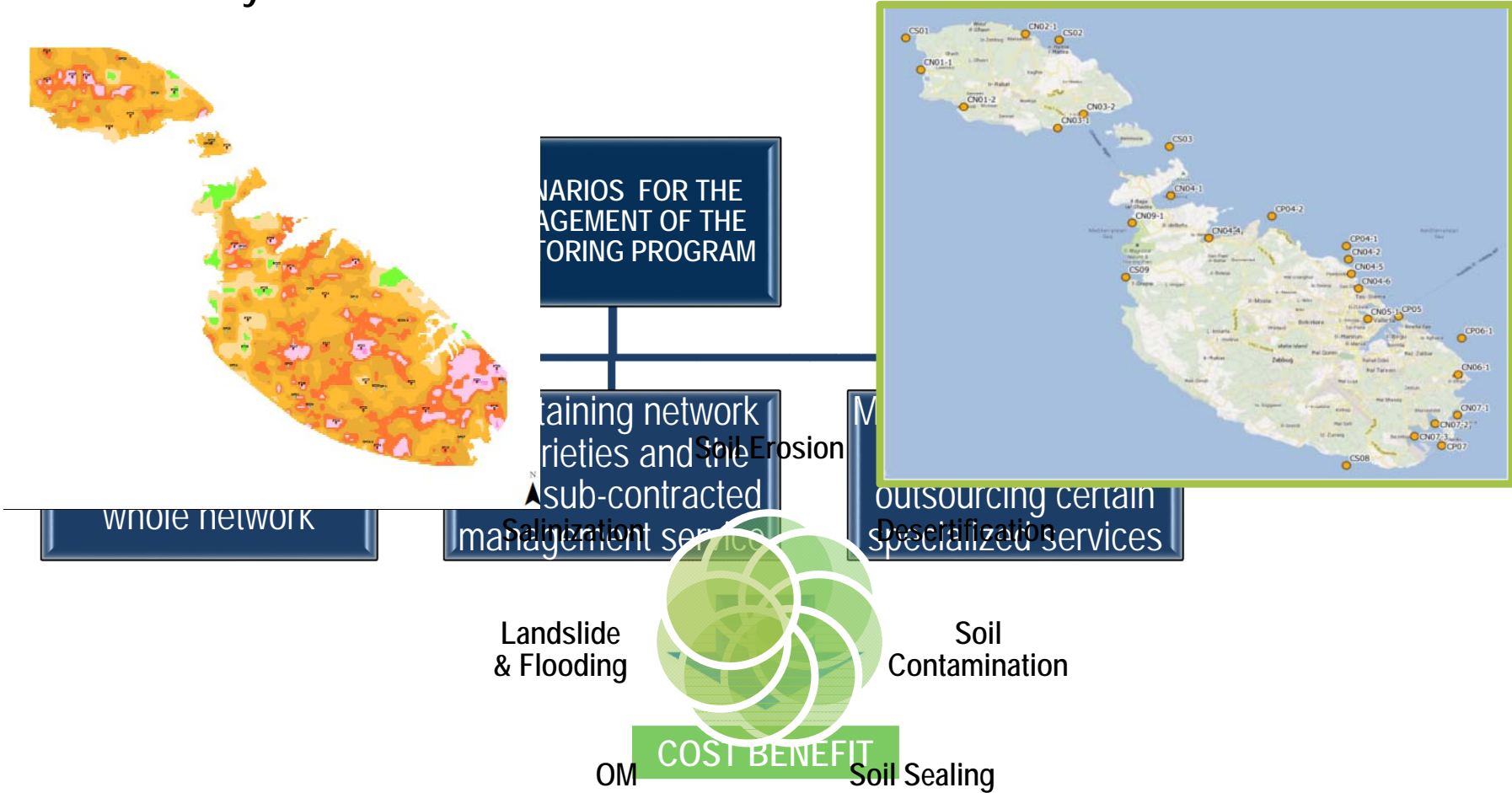
Monitoring surveys on Water, Air, Soil Radiation

- Physicochemical parameters
- Chemical elements (Metals, Ions, PAHs, PM10)
- Biological quality elements



# DEVELOPMENT OF ENVIRONMENTAL MONITORING STRATEGY AND ENVIRONMENTAL MONITORING BASELINE SURVEYS

## Multicriteria analysis



# TECHNICAL ASSISTANCE FOR CAPACITY BUILDING ON WATER QUALITY MONITORING

Project co-financed by the European Union and the Republic of Turkey

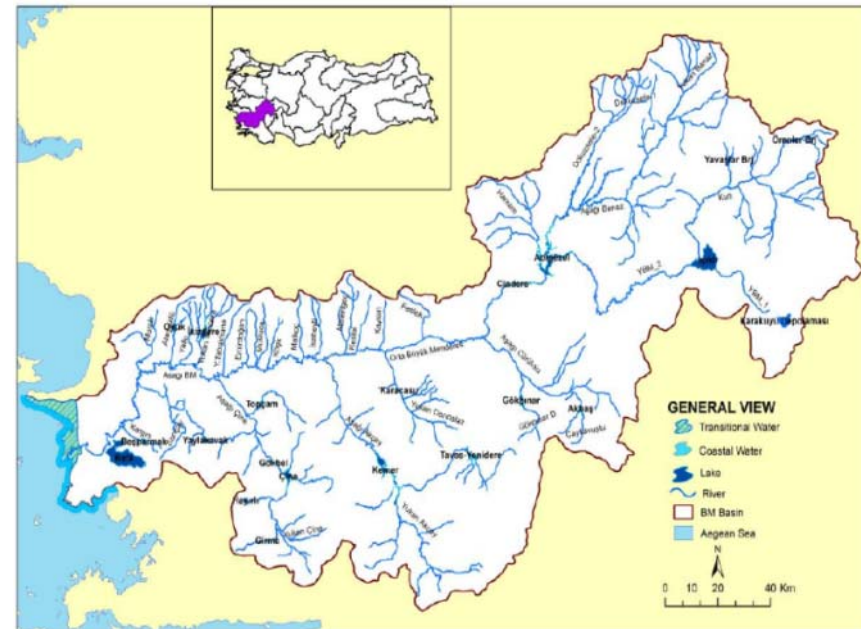


Part of the National Programme  
for Turkey 2009 under the  
Instrument for Pre-Accession  
Assistance



Water Framework Directive 2000/60/EC (WFD)  
Legislative framework to protect and improve the  
quality of all waters

Büyük Menderes River Basin (24,873 km<sup>2</sup>), Turkey





# TECHNICAL ASSISTANCE FOR CAPACITY BUILDING ON WATER QUALITY MONITORING

## Goal

- to strengthen Turkey's capacity to implement the WFD

## Process

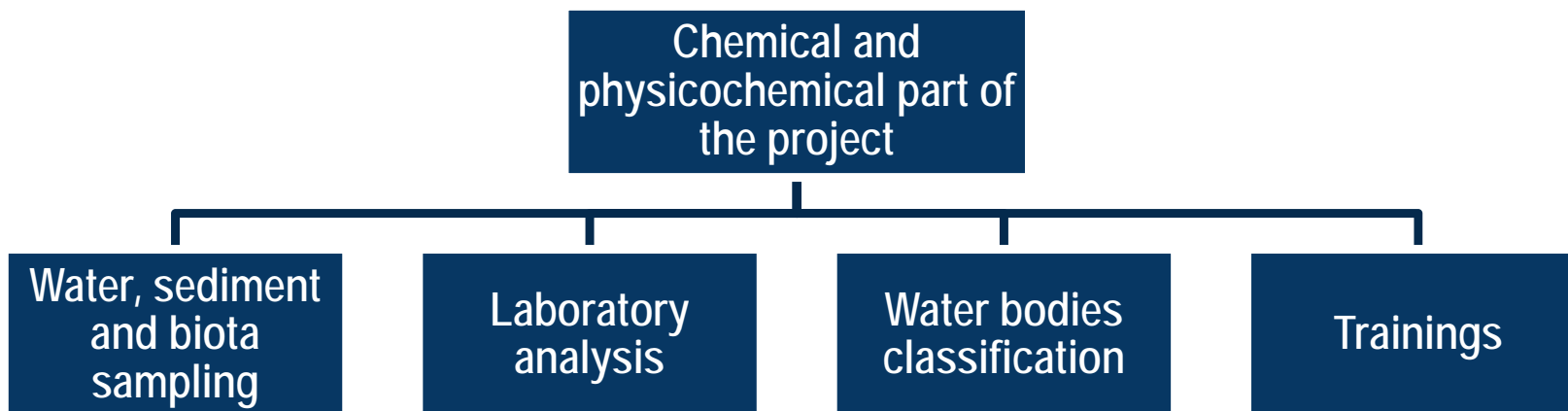
- development and implementation of an integrated **water monitoring programme** in the pilot River Basin of Büyük Menderes

## Results

- design and implementation of an optimized water monitoring network to assess ecological and chemical surface waters status
- provide knowledge and tools for water monitoring to the Turkish water authorities



# TECHNICAL ASSISTANCE FOR CAPACITY BUILDING ON WATER QUALITY MONITORING



# EVALUATION AND MONITORING OF SURFACE WATER AND GROUNDWATER IN COMPLIANCE WITH WFD

## Goal

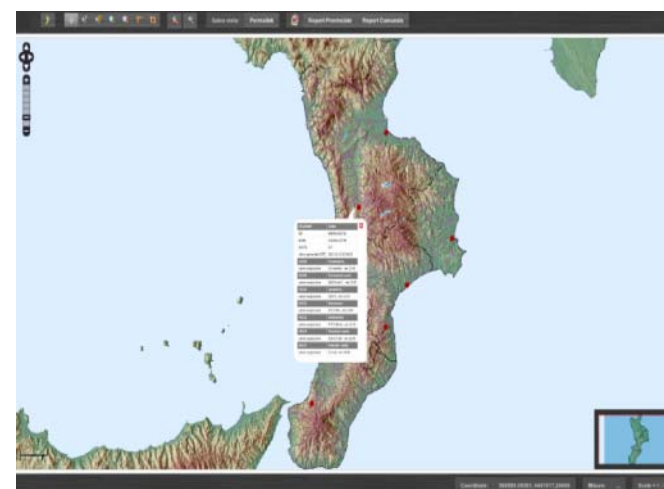
Planning and Implementing an integrated network of monitoring can provide detailed information about the ecological and chemical status of water bodies as required by the WFD.

The results should:

- define the status of water bodies on time;
- set a key point of reference at the regional and interregional comparison of data;
- drafting of specific risk charts
- defining the framework of safeguard measures for the entire regional hydrological network,
- modification and integration of the Plan of Water Protection.



Regione Calabria  
Dipartimento Politiche  
dell'Ambiente





# EVALUATION AND MONITORING OF SURFACE WATER AND GROUNDWATER IN COMPLIANCE WITH WFD

## 1. Obtain a biological, chemical-physical and hydromorphological baseline data

- Field activities : Measurements (biotic indices , hydrological parameters, wells and springs, freshwater / saltwater balance, surface water and / or groundwater);
- Sampling (water, sediment, biological matrices - surface water and / or groundwater).
- Laboratory activities: analytical determinations (water, sediment, biological tissues);
- data and index calculation, EQS;
- Reporting (analytical certificates, technical reports, report).

## 2. Assessment

- Define the ecological and chemical status for each water body
- Drafting of thematic maps to highlight all the identified risks;
- Detailed analysis for identify possible sources of pressure and possible solutions / mitigation measures.

# CONTACTS

THANKS  
FOR YOUR ATTENTION

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