

Country specific information (Eva Koulouriotis)

GREECE

Water resources: Problems and perspectives

Generally speaking, the water resources in Greece can be summarised in the following categories:

1. Water resources management

In Greece, although there is water abundance, the distribution of the available resources is uneven. The basic projects for the rational management and counterbalance of water reserves include:

- The completion of management plans per aquatic division.
- Take up action for saving water conjunction with revaluation studies of the water needs depending on the development prospects.
- River water transfer projects.
- Agreements regarding interstate water.

2. Water supply

Water supply equals to approximately 12% of total consumption and is of high priority over any other use according to legislation. Main problems have to do with the increase of water needs, the exhaustion of the reserves due to overexploitation and quality downgrading as result of pollution. Major problems can be found in urban centres and in tourist areas where needs in water are expected to increase in the future.

Actions taken:

- Implementation of water saving programmes.
- Escalating pricing of water in combination with public information programmes.

3. Flood preventing protection and rain water management

The climatic change combined with inefficient infrastructure and the absence of effective planning, are highly responsible for the appearance of more frequent and devastating floods.

The most important causes of these problems are found in changes of land use and consequently in the increase in the runoff rates, in stream violations and filings, in poor maintenance of flood protection infrastructure and in nonexistent or insufficient sewage system in flood-hit areas.

Actions taken:

- Flood management planning and flood danger mapping according to Directive 2007/60.
- Flood prevention studies.

- Drafting specifications of water studies.
- Unification and upgrade of the water level measurement network.
- Flood warning and forecast systems development.

4. Drainage and sewage processing

Delays in completion of drainage and sewage processing works apart from hazards for public health and environment downgrading, may incur major penalties for the country as they violate Directive 271/1991.

Actions taken:

- Immediate completion of drainage and sewage processing works phase B'
- Speeding the procedure for completing drainage and sewage processing works in urban centres with a population between 2.000 and 15.000.
- Intensification of operation control in waste and sewage process units.
- Adoption of more severe penalties in order to avoid illegal waste and industrial sewage throwing in natural and artificial gathering places.
- Taking action in heavily polluted areas.

5. Irrigation

Irrigation is the most important use, regarding consumption, with a percentage that exceeds 84%, one of the highest in Europe. The current climate conditions (increased water evaporation during summer and low rainfalls) along with a big number of agricultural activities in the country, and inefficient ways of irrigation, contribute significantly in the rise of need for water in most aquatic divisions.

Actions taken:

- Locating the right places for constructing dumps and water tanks per aquatic division (based on Public Power Corporation's studies).
- Speeding up procedures on completion of flood prevention/irrigation dumps studies.
- Use of efficient ways of irrigation (drop by drop, hydroponic cultivation).
- Spreading the cultivation of non water consuming plants, especially in problematic divisions.
- Spreading the use of biological cultivation to constrain pollution from fertilisers and pesticides.
- Modernisation of irrigation networks with cutting edge technology systems of distribution and remote sensing.
- Immediate restructuring of administrative sector for the most efficient management of irrigation projects per drainage basin.

6. Energy production

The legislative frame of water resource management in Greece is ruled by Directive 2000/60 about water, but its implementation is unsatisfactory and considerably delayed. Only but

recently, the scheduled management plans per drainage basin have been assigned for implementation.

Despite the high water potential, located in the NW part of the country, a small percentage of electrical power is produced today by hydroelectric works (10% approximately). The annual exploitable water potential has been estimated in around 15TWh. This could cover 30% of the country' needs.

In order to achieve the binding target of 20%-20%-20% set by EU, it has been decided to promote, in order of priority, the development of the following:

- Hydroelectric projects (small and large).
- Hybrid systems which combine the use of wind and hydroelectric energy and storage of power in banks.

7. Protection of natural habitat and environment

Climate change along with a series of human driven interventions (over pumping of underground waters, change of use of land, bush fires, non acceptable agricultural practices such intensive cultivation, pollution from fertilisers, increase the danger of desolation which threatens 35% of the country.

Regarding the protection of habitats, special care should be given to the protection of quantitative and qualitative characteristics of the water resources and the strengthening of the natural mechanisms of decontamination.

Actions taken:

- Measures for ground cleaning up and protection from salting.
- Measures to limit erosion, especially in areas suffering from bush fires.
- Forest maps.
- State labs upgrade for the inspection of qualitative and quantitative parameters of waters (coastal, river and lake).
- Evaluation of the natural self-cleaning ability of aquatic systems in order to limit the exhaustion and the inability to return to the previous state.