



Republic of Macedonia  
Ministry of Environment and Physical Planning

## River Basin Vardar/Axios

## General information

Vardar river flows into the North Aegean Sea as Axios river in Greece (87 km long, extending over 3,212 km<sup>2</sup>) and covers 23,747 km<sup>2</sup> (86.9%) of Macedonia.

Vardar is the longest and largest river of Macedonia (302.6 km), with an average elevation of the basin at 793 m (the Vardar spring in the Shara massif near Vrutok/Gostivar is at only at 683 m), at average rainfalls of 660 mm and a total annual discharge of 4.56×million m<sup>3</sup>.

The capital of Macedonia and several big industrial cities with a total population of over 1 million are located in this area.

Treska, Pchinja, Bregalnica, Crna, rivers form sub-basins of the Vardar.

19 large and over 100 small dams and reservoirs have been constructed in this region.

## Water Supply

According to the hydrographical conditions of the country there are four river basin areas and three major natural lakes.

About 4.400 springs are registered (58 springs have capacity of over 100 l/s.)

According to the total water demand by users, currently the major water consumer is irrigation sector with 63%, then population and tourist consumers 12%, industry 15% and fishponds with 11%.

The water demand by the river basin are as follows: river Vardar 79% of the total water demand, Crn Drim basin 12% and Strumica basin 9% of the total water demand.

Approximately 60% of the drinking water is supplied from carstic springs, 20% from surface waters, and 20% from ground waters. For drinking water supply, springs, ground water and surface water resources are used.

Drinking water quality is monitored and controlled by the Republic Institute for Health Protection.

The Hydrometeorology Institute is monitoring river water quality and quantity in the country and Hydrobiological institute is monitoring lakes water quality and quantity

The water supply systems are operated and managed by public enterprises established by local authorities.

There are also several regional water supply systems (Studencica, Lukar, Debar), operated by state public utilities.

## Water Protection Wastewater treatment

At the moment in Macedonia are constructed and operate only 6 urban WasteWaterTreatmentPlants (WWTPs). Three of them are located on the shore of three large tectonic lakes Ohrid, Prespa and Dojran that are of the highest priority concerning natural protection.

The fourth WWTP is in the Makedonski Brod and the last is in Kumanovo.

The total rate of population served by WWTPs is approximately 13% of the total population of Macedonia.

The oldest WWTPs are those at the lakes, they are constructed 20 years ago. In regard of other municipalities there are no WWTPs.

The worst situation is in Skopje (700.000 inhabitants) where WWTP is still not constructed.

Water supply and waste water services in Macedonia are provided by public enterprises established by local authorities.

Most of the water operation enterprises suffer from lack of financial resources.

The charges for water supply and waste water treatment are very low and in many cases do not meet even the recovery of the operational costs.

## Lake Dojran case

Lake Dojran with a surface of 47km<sup>2</sup> is the smallest tectonic lake in the region. The water level is receding quickly as a result of continued dry years and overuse of water for irrigation. After the drought in 2001, the level of the lake was on its lowest point ever 3.5 meters below its lowest point. This affected the biodiversity of the lake.

To compensate that, Macedonia installed well field of 12 pumps each of 100 l/s. The water is transferred to the lake via pipelines and open channels, thus improving the ecological and hydrological situation of Lake Dojran ecosystem.

# Priorities

Capacity building at institutional and personal level;

Investment in WWTPs;

Investment in Monitoring;

Ratify bilateral agreement with Greek side;

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On going process:

- Transfer of competencies from Ministry of Agriculture, Forestry and Water Economy to Ministry of Environment and Physical Planning;
- Establishing of Water National Council;
- Preparing of National Water Strategy.
- Comply with the WFD requirements



Thank you for your attention

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