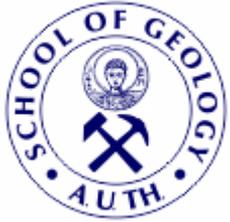


Water Resources Management Plan



Hydrogeological and Hydrological research of the Holy Monastery of Simonos Petras



In the Holy Monastery of Simonos Petras a hydrogeological and hydrological research is carried out under the supervision of Aristotle University of Thessaloniki. More specific the Laboratory of Engineering Geology and Hydrogeology of the Department of Geology supports the water recourse management, the chemical laboratory and the environmental monitoring of the site in order to ensure the sustainable water supply of the Holy Monastery. The monitoring network includes meteorological stations, water flow measurements points and water quality measurements points.



Chemical Laboratory

The preliminary results highlighted the following issues:

- ***The existing spring collection system deteriorate the water quality.***
- ***Is essential to improve and expand the existing water supply network and pipelines.***
- ***There are not enough water cisterns to store water during drought periods.***

The research concluded in a three-phase construction plan for the springs, pipelines and water cisterns.



Meteorological station

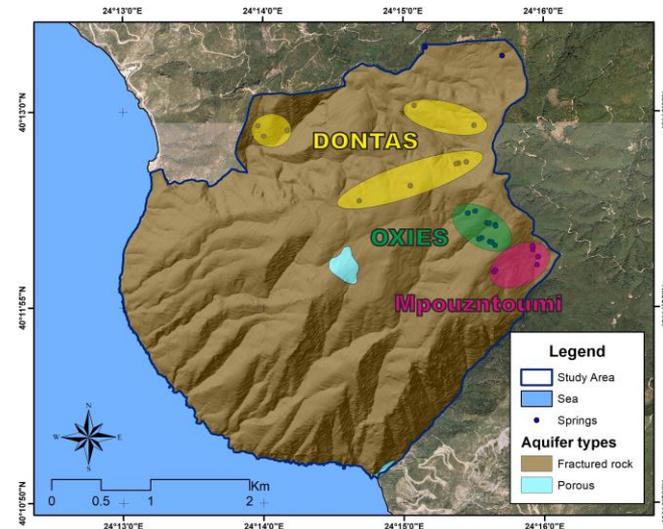
Phase 1 – Reconstruction of the spring water collection system

The springs are located within a dense chestnut forest and discharge fractured rock aquifers. There are three spring systems named: a) Dontas, b) Oxies and c) Mpouzntoumi. The numerous spring gushes are spread out in the Mountainous part of the Holy Monastery. In order to collect a sufficient quantity to meet the water demands of the Monastery is essential to reconstruct more than 40 spring gushes points.

The phase one of the includes the following works:

- *Construct a traditional byzantine type of spring collection system (40 points).*
- *Define protection zones of the springs.*
- *Construct faucets in the forest for the monks and the visitors.*
- *Establish watering points for wild animals.*
- *Continue the monitoring of the spring water quality and quantity.*

Budget estimation: 600.000 €



Hydrogeological map



Existing collection system of Springs



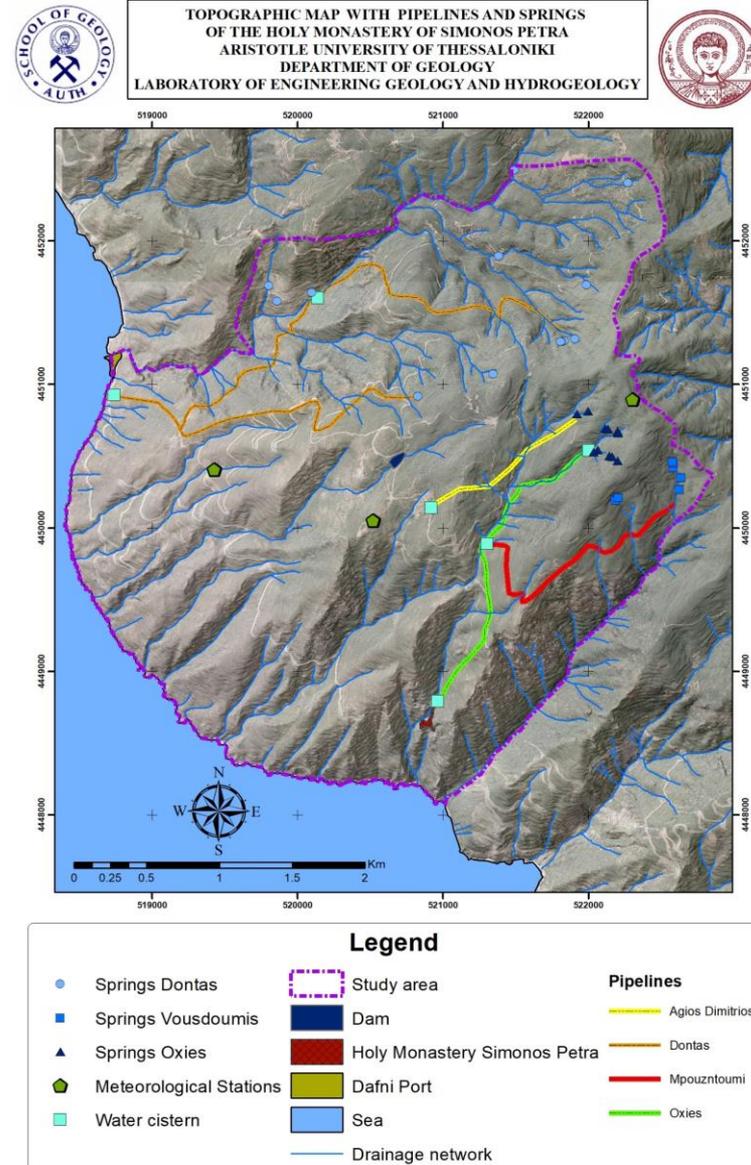
Desirable collection system of Springs

Phase 2 – Expand and upgrade the water supply network

The expansion and the upgrade of the existing water supply network is essential in order to preserve water quality and increase the exploit quantity.

- Upgrade the main pipeline to transfer spring water from **Oxies** (2.4 Km) spring to the Monastery water cisterns. **(Pipeline with Green color in the map)**
- Construct a pipeline (2.5 Km) to transfer water form **Mpouzntoumi** springs to the Monastery water cisterns. **(Pipeline with Red color in the map)**
- Upgrade and expand the pipelines (6.4 Km) to transfer spring water from **Dontas** springs to Dafni water cistern. **(Pipeline with Orange color in the map)**
- Upgrade the pipeline (1.2 Km) to **Agios Dimitrios** farm. **(Pipeline with Yellow color in the map)**

Budget estimation: 2.600.000 €



Phase 3 – Develop a water storage network

The final phase includes the building of three (3) new water cisterns in order to increase the storage capacity of the Holy Monastery of Simonos Petra. The characteristics of the water cisterns are the following:

- *Build a 1000 m³ water cistern at the site “Paleopriono”*
- *Build a 500 m³ water cistern at the site “Diastavrosi”*
- *Build a 200 m³ water cistern at the site “Agios Dimitrios”*

Budget estimation: 1.500.000 €



Desirable water cistern