



# ARZAKAN SPRINGS PROTECTION AND DEVELOPMENT

**Country.** Republic of Armenia

**Marz, city.** Kotayk marz, Arzakan town

**Client.** World Bank, MDPMU

**Duration.** August – November 1998

## Terms of Reference:

1. Engineering-geological and hydro-geological investigations of Arzakan springs and head structures.
2. Submission of a report on investigation results and future general design solutions.
3. Development of working design.



- Brief description of project and services provided**
- ✓ Hydro-geological investigation of the free underground water springs existing in the area of Arzakan operating water receiving structures and obtaining a special water use permission;
  - ✓ Reconstruction of 9 operating spring intakes of Arzakan underground springs (total capacity about 600l/sec) and construction of 7 new spring intakes (total capacity about 400l/sec),
  - ✓ Engineering-geological investigations of the areas of operating and designed spring intakes, water pipelines and other auxiliary structures;
  - ✓ Geodetic survey of the areas of operating and designed spring intakes, water pipelines and other auxiliary structures through TC-1100 electronic tachometric equipment and development of results with the help of LeastCAD software;
  - ✓ 300-1200mm L=6.5 km long transmission main water collecting pipeline and main outlet pipeline construction;
  - ✓ new chlorination station, mixer and water metering node construction;
  - ✓ Study of Hrazdan river hydrological regime;
  - ✓ design of sanitary protection zone with L=6km long metallic fence,
  - ✓ Construction of embankment (total length 3.3 km) in order to protect spring intakes against flood water from Hrazdan river,
  - ✓ Investigation of operating bridge and development of a design for its rehabilitation;
  - ✓ design of administrative buildings reconstruction;
  - ✓ design of 3.5 km long inter-area road rehabilitation,
  - ✓ Design of sanitary protection zone illumination rehabilitation.



## Project objective

The project implementation will allow increasing gravity water supply to Yerevan from spring intakes, thus protecting drinking water from pollution, as well as improvement of conditions of operating complex.