

## IAH network on “Coastal aquifer dynamics and coastal zone management” QUESTIONNAIRE

IAH national committees, IAH members and non members from all around the world involved in SWI and SGD research and management are kindly asked to fill in the questionnaire in this page with as many details as possible.

A world database will be set up and made available, with basic coastal aquifer main characteristics.

We expect to gather standard and comparable information on the knowledge level and hopefully the state of the art of the research on SWI and SGD, and coastal aquifer management methods adopted around the world

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|-----|---|--|
| 1)  | Location of aquifer (country, more specific location):  | Cap Bon,Tunisia  |
| 2)  | Reported by:  | M. F. Ben Hamouda,J. Tarhouni,K. Zouari and C. Leduc   |
| 3)  | Type of medium (karst, porous, fracture)  | Porous   |
| 4)  | Type of aquifer (phreatic or confined)  | Plio-quaternary: Unconfined<br>Two deeper aquifers exist but they are separated from the Plio-quaternary aquifer by an impervious clayey layer   |
| 5)  | Main lithology - (e.g. gravel, sand and clay)   | Plio-quaternary: an alternance of marine sand with shells and sandstone with thin clay lense;<br>The deep aquifer system is composed by sand and sediments   |
| 6)  | Hydrochemistry: fresh or saline   | Fresh and Saline   |
| 7)  | Saltwater intrusion: lateral from sea or lakes - upconing   | Lateral from sea   |
| 8)  | Aquifer geometry: hydraulic characteristics   | The Plio-quaternary aquifer extends over 475 km <sup>2</sup> and its thickness varies between 30 and 150 m;<br>The deep aquifer thickness is about 150 m   |
| 9)  | Aquifer parameters: storage - annual water pumping - (in MCMA - millions cubic meters, annually)  | The climate is semi-arid and mean annual precipitation is 460 mm<br>The total volume of water pumped from the phreatic aquifer in recent years is close to 50 MCM/yr and 11.1 MCM/yr from deeper aquifers  |
| 10) | Depth of aquifer (water level and bottom) - water level 5-30 m - aquifer depth - 50-200 m   |  |
| 11) | Major chemistry (anions - ?; Cations - ?):  | Na <sup>+</sup> , Cl <sup>-</sup> , Ca <sup>2+</sup> , Mg <sup>2+</sup> , Br <sup>-</sup>  |
| 12) | Major salinity sources:   | Along the coast, the seawater intrusion resulting from the groundwater overexploitation is identified but is not the only cause of the qualitative degradation: the irrigation development that induces the soil leaching and the fertilizers transfer to groundwater over the whole aquifer extent is another major reason of the salinization increase |
| 13) | Population:   | It is an important touristic, industrial, and agricultural area with a population approaching 100 000 concentrated along the coast around the towns of Kelibia in the north and Korba and Ras Marmoura in the south  |
| 14) | Aquifer status: special features - e.g. thermal springs, major faults,...   |  |
| 15) | Investigation methods - e.g. water level measurements, EC (electrical conductivity profiles), TDEM (geophysical),                                       | Water level,hydrochemical(pH,T° and EC) and microbiological measurements   |
| 16) | Numerical hydrological modeling, chemical and isotopic methods, age determination, IR survey, seepage meters (for Submarine Groundwater Discharge, SGD) | Chemical and isotopic methods  |
| 17) | Monitoring methods applied and duration - water level measurements, EC (electrical conductivity profiles - seasonal)                                    | Surveys including level measurements, hydrochemical and isotopic samplings were performed in 2001,2002 and 2003 and results were compared with previous information  |
| 18) | Management methods:   | INECO project (“Institutional and Economic Instruments for Sustainable Water Management in the Mediterranean Region”) aimed at identifying, jointly with local stakeholders, policy instruments and pathways for mitigating groundwater overexploitation   |
| 19) | Aquifer management actions:   |  |
| 20) | Identification of existing or potential problems:   | The continuous increase in pumping has created several depressions in the water table, up to 12 m below msl and induced a deterioration of the water quality   |
| 21) | Annexes:  |  |
| 22) | Observations:   |  |