

Conceptual Approach for the Desalination Practices with Renewable Energies in Turkey

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ABSTRACT

For the time being, Turkey does not face a severe water scarcity problem due to its climate and geographical structure. Thus, desalination technology has not been practiced noticeably. However, the signs of water quality deterioration point out the fact that it will gain importance in the near future. Especially the tourist villages and compounds along the Aegean and the Mediterranean coasts of the country are of major concern due to the shortage of water resources and increased water demand in summer months. In most of the cases commercial bottles and water tanks are employed as alternative solutions. Desalination practices with renewable energy supply systems will be one the major recommended systems in rural areas owing to the incentives given under several national programs towards development and adoption of the EU (European Union) Aquis.

ADIRA (Autonomous Desalination system concepts for seawater and brackish water In Rural Areas with renewable energies- Potentials, Technologies, Field experience, Socio-technical and Socioeconomic impacts) project started in August 2003 and addresses the technical, environmental, social and economic questions for the solution of fresh water shortages coupled with lacking of electricity grid connections in remote areas in the Middle East and Northern Africa (MENA) countries. Hence, the ADIRA activities are aiming at the development of optimum concepts for fresh water supply for rural areas derived from salty water resources (sea water, brackish water), targeting regions without access to the electricity grid. The major result of this project will be the implementation of a large variety of different small-scale (0.1 up to 50 m³/d) autonomous desalination systems (ADS) powered by renewable energies in the partner installation countries, namely Cyprus, Egypt, Jordan, Morocco and Turkey.

Within the framework of this project Turkey is analysed in terms of water potential, climate, socio-economic activities, water consumption trends to extract the most suitable region and/or site for the application of ADS practices. Besides, the national and local authorities are investigated for the determination of responsibilities to provide a basis for the planned master plans. This study will focus on the regional characteristics obtained from the detailed questionnaires filled on site, and the screening methodology to select the most suitable site for the project. The regional analysis of Turkey, mainly in terms of the heavy touristic activities, resulted in selection Fethiye region as the most suitable site for the planned ADS.

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