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## Impact of natural environment on the development of remote areas: Siwa Oasis, Western Desert, Egypt

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The study of the impact of the natural "Therapeutic" environment, known as balneology, has now become an important issue that many individuals and societies encourage for. This study aims to provide possible ways to benefit from natural resources (including mineral waters) for local communities, especially in desert areas, through the development of "Eco-Tourism"; a tool to reduce poverty of desert communities and protect natural and societal environmental resources. Also, to convert harmful local natural threats to opportunities through the development of safe and cure environment which provides sustainable development in such remote areas. Utilizing mineral waters as a part of preventative medicine is a main goal of this study. A considerable number of health problems can be cured by hot spring therapies, especially burns, hypertension, diabetes, gout, muscle aches, hemorrhoids, etc. In addition to hot springs, geologic materials such as mud and sand have been used for therapeutic purposes; sand baths are popular therapeutic practice. The Egyptian Western Desert oases area represents models for the desert regions of very rich natural resources and community-based eco-tourism attraction, but its services and the level of its economic life are considered poor. Siwa Oasis is located approximately 50 km east of the Libyan border and about 560 km from Cairo. The oasis is laying 12-18 meters below sea level and extends 82 Km long with a width varying between 2 and 20 km. The economic base of the oasis is agriculture, of which dates and olives are the principal produces. A large number of natural springs (about 146 springs) and more than 1000 wells are present in the Siwa area. All occurrences of thermal water ( $T > 35^{\circ}\text{C}$ ) are from deep wells (Nubian Sandstone aquifer). The temperatures of Nubian paleowater are in the range of  $35.4\text{--}48.3^{\circ}\text{C}$ ; with two exceptions of  $61.8^{\circ}\text{C}$  and  $61.3^{\circ}\text{C}$  in wells Kifar and Qara, respectively. Until today, all thermal water pumped in Siwa area is used for irrigation purposes only.

### Biography

Ahmed M El Shishtawy has completed his MSc and PhD degrees from the University of California, Santa Cruz, USA. He worked in the Geology Department, Faculty of Science, Tanta University, after his return from USA in 1990 and he is now working as a Professor Emeritus in the same department. He has supervised more than 30 MSc and PhD theses and published more than 50 articles and attended more than 30 conferences in Egypt and abroad. He has worked in different disciplines in Egypt and Oman and is now working as Vice Executive Director of Tanta University Unit for Management Projects.

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