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# **Enviromental isotoes and hydrochemical studies on the groundwater of wadi sudr,south west sinai,egypt**

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The present thesis deals with the Hydrochemical and Environmental Isotopes investigations at Wadi Sudr Delta to the southwest of Sinai. This could be considered as a basis for gaining new insights relating to the groundwater management for Ras Sudr delta area. The thesis comprises the following chapters: Chapter One: Introduction and Literature. Chapter Two: Geomorphological features and geological aspects. Chapter Three: Hydrochemistry and water quality. Chapter Four: Environmental Isotopes. Chapter (1) Introduction and Literature. This chapter contains a general description of the characteristics of the study area (location and climate), an outline of the aims of the study and the general methodology followed for conducting the investigation as well as an overview of the previous studies conducted in this area. Location and Climate conditions of the study area: The area of study of Wadi Sudr Delta is situated on the eastern side of the Gulf of Suez. It covers an area of about 670 km<sup>2</sup> bounded between latitude 29° 30' and 29° 50' and longitudes 32° 40' and 33° 20'. In Sudr area as well as in other localities along the Gulf of Suez, the climate is characterized by extreme aridity with low and erratic rainfall, high evaporation rates and low relative humidity, high summer temperature and generally vigorous winds. Average values of the climatic parameters as recorded at Ras Sudr station are included in the thesis. Aims of the Present Work: -a) Defining the recharge sources and its renewability. b) Investigating the flow regimes and the impact of lithofacies and structural elements on the hydrological system. c) Highlighting the mechanism of Salinization and water quality parameters. d) Evaluating the groundwater quality for different uses (drinking, irrigation, industry...). Chapter (2) Geomorphological Features and Geological Setting. Geomorphologic setting: Three geomorphological units are described in Wadi Sudr area: -• The Structural Plateau: It is consideration. Water Bearing formation: Within Wadi Sudr, groundwater occurs in the following two main formations: 1. The fractured