STUDIES ON MAIN POLLUTANTS IN THE GROUND WATER IN DIFFERENT LOCATIONS IN EGYPT

Thesis

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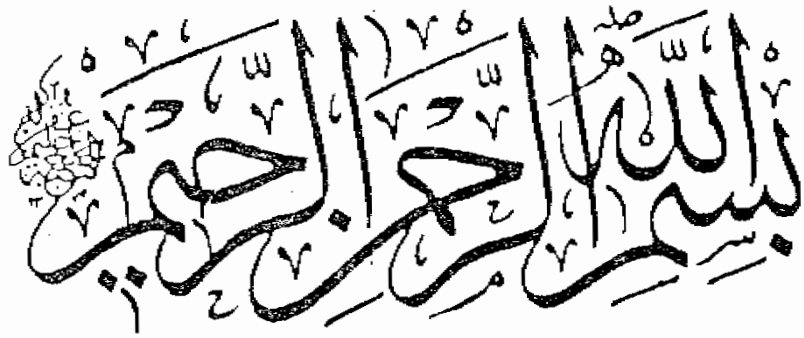
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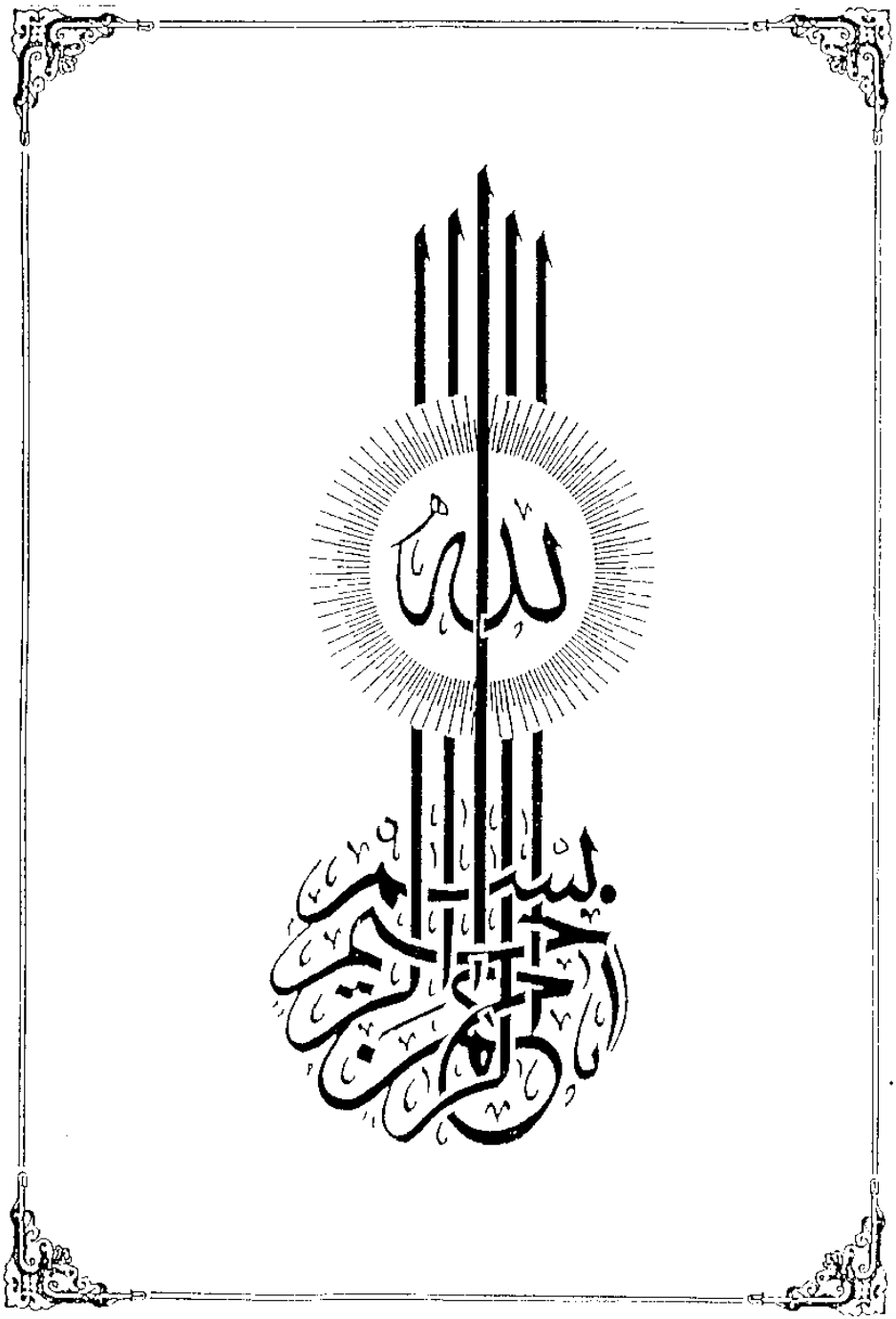

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Abbreviations:

APHA	American Public Health Association
ASMO	Arab Organization for Standarization and Metrology of arab league
AWWA	American Water Work Association
Eg. J. Geol.	Egypt Geological Journal
FAO	Food and Agricultural Organization of United Nations
GEMS	Global Environmental Monitoring System
IAWQ	International Association on Water Quality
IHD	International Hydrological Decade
IHP	International Hydrological Programme
ILO	International Labour Organization
IPCS	International Programme on Chemical Safety
IUCN	International Union for Conservation of Nature and Natural Resources
IWRA	International Water Resource Association
J. Wat. Resch.	Water Research Journal, Pergamon press LTD., NewYork
J. Microb. Ecol.	Microbial Ecology Journal,Springer-Verlage, inc., NewYork.
J. Gr. Wat.	Ground Water Journal, groundwater publishing company, U.S.A.
J. Wat. Int.	Water International Journals, International water resources association, U.S.A.
J. Sc. T. Env.	The Science of the total Environment Journal, Elsevier publishing Co., Amesterdam.
J. Env. Poll.	Environmental pollution Journal, Elsevier applied science publishers, LTD., England.
J. Env. Int.	Environmental International Journal, U.S.A.

J. AWWA	Journal of American Water Work Association, U.S.A.
J. Inst. Wat.& Env. Manag.	Journal of The Institution of Water and Environment Management
J. Aqua	Journal of water supply research and technology, international water supply association, Black Well Scientific publication
J.Wat. Supp.& Manag.	Water Supply & Management Journal
J.Wat. Res. Resch.	Water Resource Research Journal
MCM	Milliard Cubic Meter
U.N.	United Nations
UNEP	United Nation Environment Programme
UNESCO	United Nation Educational, Scientific and Cultural Organization
WHO	World Health Organization
WMO	World Meteorological Organization
WPCF	Water Pollution Control Fedration
WWF	World Wildlife Fund

I-INTRODUCTION

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INTRODUCTION

STUDIES ON MAIN POLLUTANTS IN THE GROUND WATER IN DIFFERENT LOCATIONS IN EGYPT

The world's environment is getting worse at a faster rate. Species extinctions, depletion of the ozone layer, the probability that the global climate will be changed by the "green-house effect", the increasing violent confrontations among people and the various economic shocks resulting from deficit spending, are interrelated indications that people are out of balance with their resources (IUCN, 1989).

A harmonious relation to the earth is more intricate, and of more consequence to civilization than the historian of its progress seem to realize. Civilization is not, as they often assume, the enslavement of a stable and constant earth. It is a state of mutual and interdependent cooperation between humans, animals, plants and soils, which may be disrupted at any moment by the failure of any of them. The ability of humans to inadvertently destroy natural systems increased dramatically since the 1940s (Ortolano, 1984).

Consequently, The current worldwide deterioration of natural environments is causing the extinction of species at a rate without precedent in the history of the earth. The global genetic heritage is the living foundation of the future and its continued erosion poses serious threat of ecosystem collapse. The biological diversity losses have tremendous implications for the practice of agriculture worldwide. Great strides in agricultural production have often come at the expense of genetic variability (McNeely et al, 1990).

Earth is the only place in the universe known to sustain life. Yet human activities are progressively reducing the planet's life supporting capacity at a time when rising human numbers and consumption are making increasingly heavy demand on it. Humanity's relationship with the biosphere will continue to deteriorate until new environmental ethics are adopted, human population stabilize, and sustainable modes of development become the rule rather than the exception. The most urgent problems facing the world today are not caused by nature but are the result of man's manipulation of nature. It is true that, the development of industry and agriculture created a number of environmental problems. These include water, soil and air pollution with their serious effect on human health and welfare (IUCN, 1980).

During 1960s, the public awareness of environmental degradation increased, and systematic planning to maintain environmental quality intensified in many countries. Past efforts to control water and air pollution were greatly expanded. New laws and administrative regulations were established requiring government agencies to account for the environmental impacts of their decisions. The increased attention to the environmental effects of human actions led to the development of new field, known as the environmental planning (Ortolano, 1984).

In Egypt, the development and the widespread of industry and agriculture, specially after the 1960s, have created a large number of environmental problems. The most serious problems facing Egypt today, are the rapid population growth and the high consumption rate. On the other hand,

the high rate in the population growth, the widespread of informal housing, the dramatic use of pesticides and fertilizers in agriculture, and the traditional methods of agriculture, all are responsible to a great extent for damaging Egypt's environment by polluting its valuable water sources, its land and air.

Today, One of the world's greatest concerns is the water resources availability, whereas water is an essential natural resource to sustain life and the demand rate is increasing rapidly. In its various forms it covers over three quarters of the earth's surface (AWWA, 1973). Most of the available water is either present as saline water which estimates an amount of 1.4 billion km^3 or as ice-bergs in polar regions which estimates an amount of 30 million Km^3. On the other hand, 97 % of all the earth's water is in oceans and about 2% in glaciers and ice-caps . The rest is available in lakes, rivers, and under the ground, where, there is about 4-60 million Km^3 (MCM) of groundwater which are difficult to be reached (World Resources Institute, 1987). Thus, the available fresh water- resources for Human use on the earth surface are limited and mainly dependent on the hydrological cycle.

Groundwater is one of the earth's most widely distributed and most important purest water source. While fresh water lakes hold about 120,000 km^3 of water, the estimated amount of groundwater, to a depth of half a mile into the crust of the earth, holds about 4 million km^3 of fresh water. An additional 14 million km^3 of water occur at depths between half a mile and two miles. This under-groundwater constitutes a vast and almost ubiquitous resource for satisfying water requirements of all kinds (United Nations, 1975)$_{(2)}$.