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**THE IMPACT OF GROUNDWATER MANAGEMENT TO REDUCE  
DESERTIFICATION IN AL-ANBAR GOVERNORATE**

**THESIS**

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# **THE IMPACT OF GROUNDWATER MANAGEMENT TO REDUCE DESERTIFICATION IN AL-ANBAR GOVERNORATE**

## **ABSTRACT**

The phenomenon of desertification is one of the phenomena that threaten plant and animal life in general. The spread of this phenomenon has led to a lack of natural vegetation as well as agricultural production and crawling of forests for housing, overgrazing and logging, so desertification is a threat to human life. Therefore, the countries of the world collectively, through international organizations such as the United Nations and other regional organizations, make tremendous efforts to stop this dangerous phenomenon. the problem of study was about - What are the limits of the available groundwater in Al-Anbar Governorate. To what extent is the maximum utilization of groundwater to reduce desertification. What is the possibility of expansion in the fields of investment in groundwater. In view of the great importance of natural resources - in general - and vegetation - in particular in the national economy and its deteriorating situation that led to desertification in some areas, the Environmental Quality Authority has placed this issue on top of its priorities with the aim of rehabilitating and reviving this sector through direct or non-intervention Direct to stop this deterioration and desertification.

The study found out the following

- 1- Loss of a total of 50% of Al-Anbar's water resources due to either wasting or worn out facilities, as well as using old irrigation methods and because of the lack
  - 2- The wrong people realize that "water is an inexhaustible wealth" and that it is a commodity of little value.
  - 3-The water needs for all uses activities will increase in the near future, not numbers
- It can be addressed if the same methods continue in the uses currently used in Anbar province and there will be a crisis that cannot be addressed even at the level of drinking water.
- 4-It was concluded that, in addition to the natural factors that are primarily drought and which cause desertification, there are human factors represented by the rational behaviour of humans towards natural resources, which deepens the problem of desertification.
  - 5-The problem of desertification did not arise at once in the study area, but its emergence in this size was a result of the synthesis between the drought factor and the accumulation of irrational dealing with natural resources during a long period of time.

6-Due to the dire effects of desertification and the costs involved, the issue of combating desertification in Anbar Governorate has become one of the most important issues that requires a speedy solution due to the exacerbation of the scale of the problem and the accelerating pace of desertification.

Despite the efforts made by Anbar Governorate, the process of monitoring desertification and combating desertification still needs more efforts and unification, and for this we propose the following recommendations; -

1-Help farmers who living in the desert dig artesian wells and raise awareness about planting trees bearing salinity and drought.

2- The necessity of using modern irrigation methods and advanced methods in agricultural uses from It would raise irrigation efficiency to 90% instead of the current traditional method of 40% efficiency.

3- Developing irrigation projects in Anbar Governorate and reviewing them according to the new global variables to raise the level of their efficiency to reduce leakage and evaporation , and to adopt advanced electronic control systems in distribution.

4-To enhance cooperation between institutions concerned with combating desertification and other institutions working in the field of environmental protection and the conservation of resources from lands and groundwater, in order to avoid duplication when implementing operations to combat desertification.

5- Adopting an integrated approach to combating desertification that addresses all physical, biological and social aspects and economic.

6- Participation of stakeholders in Anbar Governorate in enhancing awareness of the local population in efforts to combat desertification.

6- Promote the mobilization of public funding and encourage the mobilization of private sector funding to implement desertification control operations in Anbar Governorate.

7- Increase and expand efforts to establish accurate databases on land degradation by means of identical and standardized standards.

**Keywords:** *Orogeny, Classification, Layers, Groundwater, Desertification.*