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Hydrologic System Observation and Rainwater Harvesting in Alluvial Fans in the North of Jabel Sinjar Using Remote Sensing Data

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ABSTRACT

The study area is located in the northwestern of republic of Iraq within the municipal boundaries of Nineveh Governorate within Sinjar Qadha. The landforms were analysed and classified using the remote sensing techniques and data base to obtain the details about rain water harvesting, depending on previous geological studies about the area.

The characteristics of the hydrological systems were analyzed and studied to chose the typical and appropriate basins in order to apply the concept of rain water harvesting. The emphasis was on the alluvial fans within the Glacis unit. One of techniques of rainwater harvesting which was appropriate for application in active alluvial fan of Dahuna (within the study area), in which the best locations to construct barriers and stony ditches to recharge the aquifers beneath this alluvial fan, was chosen.

A geomorphological map was propertied by using aerial photographs showing the characteristics of alluvial fan of Dahuna and used to make an engineering irrigation map which shows the best location to construct the barriers and stony ditches on the main flow of Dahuna valley. In addition, methods of rain water harvesting according to landforms which are suitable for application to the study area were proposed to improve landuse and vegetation cover in the area of study as a whole, which suffers from deficiency in this concern.

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(7,4,1)

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(Rain water harvesting)

(Catchment area)

.(Hachum et al., 1999)

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(50000/1)

.(2)

(ITC)

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(Zuidam and Zuidam, 1979)

:**(Landform of Fluvial Origin)**

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(Constructive)

(Erosive)

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: **(Recent Valley Filling)**

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:(Alluvial Fans) -

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:(Landform of Denudational Origin) :

-:

:(Glacis Unit) () -

-:

:(Erosional Glacis) -

(3-2)

: (Accumulation Glacis) -

:(Bad Land) -

:(Landform of Structural Origin) :

(AL-Daghastani, 1989)

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(Isolated Outer Homoclinal Ridges (Cuesta Ridges))

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(Inner Homoclinal Ridges (Hog Back))

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: **(Dissected Back Slope)** -

(Mass movement) (Rills)

: **(Central Anticlinal Ridge)** -

(Gully erosion)

. (Dillon , 1999) (Appan, 1998)

(17650)

. (2002 ,)

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1997/11/19-17

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