Reclamation of Desert soils:

Desert soils form in areas where the demand for water by the atmosphere (evaporation) and plants (transpiration) is much greater than precipitation. Deserts cover 20 to 33% of the Earth's land surface, and can be found in the tropics. Increasing in the area of desert soils called desertification):

Climatically condition of desert:

1. High temperature.
2. Low precipitation (less than 100 mm year)
3. The high difference between temperature at night and during day which in about (40^0C)
4. The relative humidity in about 38%
5. The wind speed in 20 km/hr.
6. Evaporation in5000 – 6000 mm/year

The most important fact in desert soils:

The desert soil may be sandy soil, calcareous soil, Sodic soil, Gypsiferous soil, …….etc it means that the desert soil have not constant physical and chemical properties or it has different properties depending on its texture, chemical properties ..etc for the above reasons the irrigation project may be means reclamation of desert soil, or it needs chemical amendments or application of organic matter ….etc depending on soil type.

The reclamination of dissert soil depends on type of the soil in the desert the soil may be:

1-Sandy soil. 2- Calcareous soil. 3- Others.

For above reason there is no the same method for reclamation the desert soils.

The methods may be:

1-Irrigation project.

2- Planting tolerance plants to drought. For example, Monastery of agriculture and Irrigation planted millions of tolerance shrubs to drought in desert area or soils.

3-Spraing the sandy soils in the dessert with asphalt (Petroleum substances)

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Combating desertification:

1-Desert covered vast area in Iraq.

2-Deterioration (Decrease) of natural vegetation cover in desert due to misuse of natural resources.

3-Sand dune formation cause by wind erosion.

4-The sand dunes effect on road, railway lines, irrigation and drainage systems, cities, agriculture lands and human health.

Therefore, MOA planned to fix these sand dunes through Sand Dune Fixation Project (SDFP) in middle and south of Iraq. More than 125000 ha have been stabilized by different methods.

The most important methods are:

1-Mechanical method: By using heavy equipment such as Bulldozer, Shovels and leveling grader to cover mobile sand dunes with heavy soil. This method recorded success results in south of Iraq.

2- Biological method: For sustainable fixation of shifting (moving) sand dunes, trees and shrubs tolerant to drought and salinity planted as wind break and Sheller belt. For this purpose, five million seedlings have been planted in south of Iraq.

3-Dry farming: By planting steam cutting of *Tamarix spp with* length of 100 cm (90 cm planted into the soil and 10 cm remain out) in the sand dune which have some moisture.

This method helps the growing of steam cutting during winter and spring.

This method gives a good result in the middle part of Iraq, so vast (large)

Area of sand dune covered by *Tamarix spp* plants.

Desert Oasis Project:

Fifty oasis been established on an area of 50-200 ha in Iraqi desert.

Using drip irrigation to irrigate the cultivated plant by using of well as a source of water.

The main aims of Oasis:

1- Providing the water for sheep holders in the desert.

2-To avoid over grazing.

3-To improve local environmental in the region by increasing green area.

4- To be a seed bank for natural vegetation in the region.

The problems of desert soils can be summarizing as follow:

1-Difficit of water.

2-Bad climatically condition as mentioned in slide number.

3-Sand dunes.

4-Soil properties, low organic matter, low available nutrients, the groundwater is very deep.

5- The soil order is Arid sol.

Reclamation or solving the problems of desert soils:

1-Construction irrigation projects.

2-Solving or decrease the sand movement (dunes).

3-Improving soil properties.

4-Decrease in soil erosion.