

Pollution as a Major Cause of Desertification Phenomenon in Iraq

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Abstract: This investigation has been conducted to find new criteria suitable to use in Iraq for placing land in one of the desertification classes. The common criteria: vegetation cover or overgrazing of range land, lack of erosion control on dry farmed land and improper management on irrigated land are used for placing world land in one of the desertification classes or stages (slight, moderate, severe and very severe). In Iraqi condition, pollution has been added beside the above criteria: vegetation cover or overgrazing of range, lack of erosion control on dry farmed land and improper management on irrigated land. Also, a new class of desertification (Exceptionally or catastrophic desertification class) has been added. These classes describe the land with a considerable amount of war residues, mines, Synthetic chemical pesticides, toxic elements and or radioactive contamination.

Key words: Pollution, desertification, soil erosion, vegetation cover, salinization, Iraq

INTRODUCTION

Desertification was formally defined by the conference on Environment and Development hold in Riode Janeiro as land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities. According to U.N. Environmental Programmed (UNEP, 1992a, b), 250 m people around the world was directly threaten by desertification and indirect threaten to a further 750 m people. Over a 100 countries are suffering from the adverse social and economical impact of desertification.

There are 3 major causes of desertification in arid regions: overgrazing of range land, lack of erosion control on dry farmed land and improper management on irrigated land (Dregne, 1978, 2002).

The people of Iraq are suffering from adverse social and economical impact of desertification (Abdullah, 1994; Abdulla and Dawood, 2005). These impacts come from further causes that threaten the people in spite of good conditions of some soil and plant cover area. Pollution is one of these new causes (Latif, 1987; Almalah and Ethab, 1993).

Therefore, this investigation was undertaken to put the light on pollution in relation to desertification phenomena.

MATERIALS AND METHODS

To understand pollution in relation to the other causes of desertification, the following information has been done:

- The common major causes of desertification obtained from Dregne (1978, 2002) and UNCED (1992). Those are overgrazing of range land, lack of erosion control on dry farmed land and improper management on irrigated land.
- In Iraq, the author suggests that the causes of desertification mentioned above must include the level of pollution. Because pollution in Iraq now is a major cause of desertification in spite of the good conditions of some soil and plant cover.
- The low and high level of toxic elements, mines, Synthetic Chemical pesticides, mines and radioactive contamination have been approximately combined by the author for this study as none, slight, moderate, severe and very severe.

RESULTS AND DISCUSSION

Table 1 shows the common criteria used to estimate the degree of desertification. As it can be seen that there are 3 causes (vegetation cover or overgrazing of range land, lack of erosion control on dry farmed land and

Table 1: The common criteria used for estimating degree of land desertification

Degree	Plant cover	Erosion	Salinization or waterlogging	Pollution
Slight	Excellent to good vegetation cover	None slight	Crop yield reduce less than 10%	None
Moderate	Fair condition	Moderate sheet erosion Shallow gullies, few sand dunes	Crop yield reduce from 10-50%	None
Severe	Poor condition	Severe sheet erosion, gullies, dust storm, dunes are common	Crop yield reduce more than 50%	None
V. Severe	Land essentially denuded of vegetation	Severe gullies, sand dunes with dust storms	Heavy salt crust nearly impermeable soils	None

Table 2: The new criteria suggested by the author for estimating the degree of land desertification in Iraq in spite of the good vegetation, erosion and salinization conditions

Degree	Residue or scrap of wars	Toxic elements	Synthetic chemical pesticides	Radioactive contamination
Slight	None	None	None	None
Moderate	Insignificant	Slight	Slight	None
Severe	Scattered	Moderate	Moderate	None
Very severe	Intensive	Severe	Severe	None
Exceptionally or catastrophic	Crowded	Very severe	Very severe	Little

improper management on irrigated land). It is wrong to use these criteria alone to describe the degree of land desertification in Iraq. Pollution should be added to describe the kind of pollution hazard. Table 2 shows the suggested causes of desertification due to pollution in spite of the good conditions of some soil and plant cover. These are the residue or scrap of war, Synthetic chemical pesticides, toxic elements and radioactive contamination. So the classification of land should be based on 5 classes of desertification slight, moderate, severe, very severe and Exceptionally or catastrophic desertification with the above causes or criteria (the residue or scrap of war, Synthetic chemical pesticides, toxic elements and radioactive contamination). So, the classification of land should be based on 5 classes of desertification:

Slight: None pollution of the residue or scrap of war, Synthetic chemical pesticides, toxic elements and radioactive contamination.

Moderate: Slight or insignificant amount of pollution (residue scrap of war, Synthetic chemical pesticides and with none radioactive contamination).

Severe: Scattered or amount of war residue with moderate chemicals pollution and none radioactive contamination.

Very severe: Intensive amount of war residue with severe chemicals pollution and none radioactive contamination.

Exceptionally severe: Crowded amount war residue with Very severe and considerable amount of radioactive contamination. The land with this degree or class is considered to be in catastrophic desertification.

CONCLUSION

From the above results, it can be concluded that pollution is a major criteria beside the criteria mentioned by Dregne (1978) (vegetation cover or overgrazing of

range, lack of erosion control on dry farmed land and improper management on irrigated land. A new class of desertification (Exceptionally or catastrophic desertification class) has been added. These classes describe the land with a considerable amount of war residues, mines, Synthetic chemical pesticides, toxic elements and or radioactive contamination.

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