

Abstract

Desertification is a global issue, with serious implications worldwide for biodiversity, eco-safety, poverty eradication, socio-economic stability and sustainable development. The most suitable methods for desertification assessment intensity considered to be experimental models. Based on the conditions of the study area and carried out assessments and studies, two models of ESAs and IMDPA were used to assess the desertification hazard in Khan-Mohammad-Chah, Zahedan city. 6 criteria were used to assess the hazard using the IMDPA model. Each criterion composes of some indices which take a weight of 1 to 4 based on their impact in the desertification and condition of the study area. Finally, map of each criterion was obtained based on the weighted average of the indices. Based on the weighted average of the maps of criteria, desertification hazard map of the IMDPA model was prepared for the Khan-Mohammad-Chah watershed. for the ESAs model, the same mathematical method of IMDPA is used. In the ESAs model, 4 criteria of soil, vegetation, climate, and management were used. The score range of the model indices is 1 to 2. Finally, desertification hazard was prepared using two models. Results of exploring the desertification hazard map by IMDPA model showed that there are three desertification classes of I, II, and III in the Khan-Mohammad-Chah watershed and the moderate class with a value of 74.46% covers most of the area of the study region. Based on the ESAs model, the Khan-Mohammad-Chah watershed was divided into two classes (neutral and critical) and four sub-classes (N, C1, C2, and C3). Among the mentioned classes, moderate critical subclass (C2) with a value of 70.83% covered most area of the study region. Climate and vegetation criteria are considered as the most effective factors in both models of IMDPA and ESAs. Results and investigation of both models indicate the native model of IMDPA is more effective than the imported kind of such model (ESAs). Therefore, it can be concluded that instead of using imported models, making some changes in the native models and removing their defects can be led to a comprehensive and complete model that can be used to assess the desertification hazard in the interior deserts of Iran and also can provide the information required for decision making and planning.

Keywords: Hazard desertification, IMDPA model, ESAs model, KhanMohamadChah, Zahedan.



University Of Zabol
Graduate School
Faculty Of Water and Soil
Department Of Water and Soil Engineering
The Thesis Submitted for M,S.C Degree
(In The Field Of Desertification)

**Assessment of Desertification intensity Using ESAs and
IMDPA Models in Zahedan Khanmohammad Chah Region**

Supervisor:

Dr. Ahmad Pahlavanravi

Advisor:

Ms. Nasser Rashki
Ms. Abbas khaksafidi

By:

Gholamreza Hajari Hesamieh

Summer 2018