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$$DM^2 = (GWI^3 \times MQI^4 \times SQI^5 \times VQI^6 \times CQI^7 \times WiEI^8 \times WaEI^9)^{1/N}$$

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$$Index - X = [(Layer - 1) \cdot (layer - 2) \dots (Layer - n)]^{1/n}$$

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- Desertification Mapping
  - Ground Water Index
  - Management Quality Index
  - Soil Quality Index
  - Vegetation Quality Index
  - Climate Quality Index
  - Wind Erosion Index
  - Water Erosion Index

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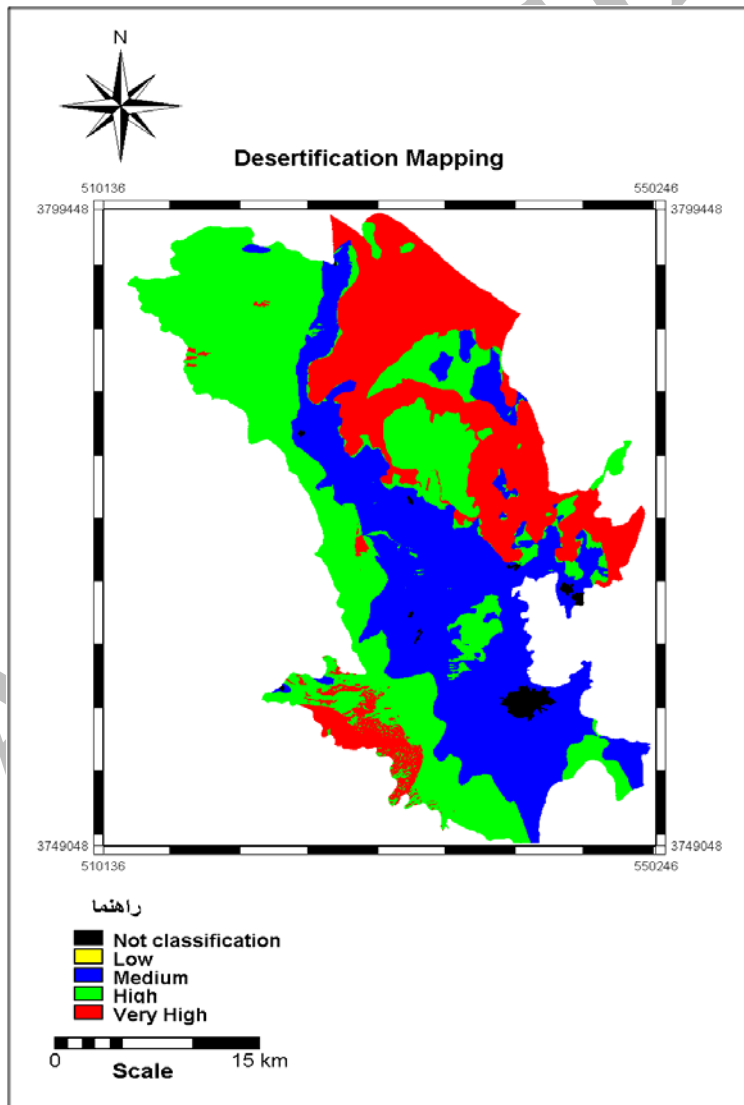
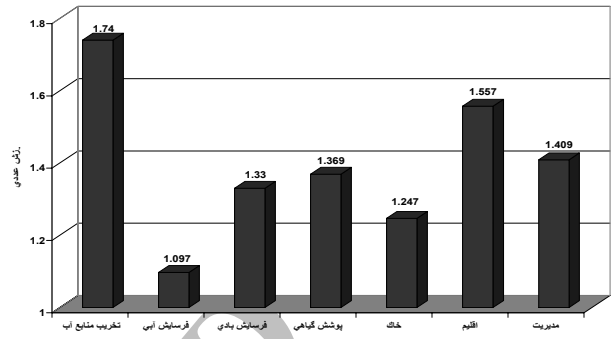
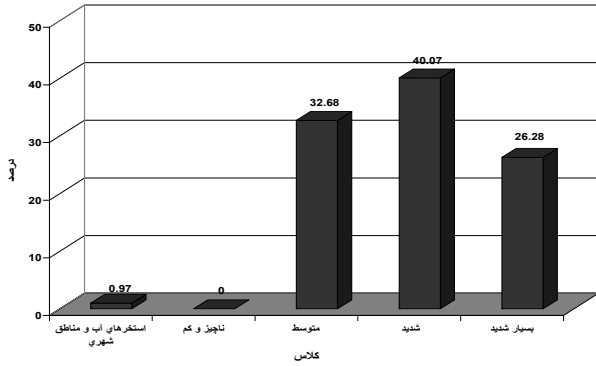
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## Calibration of MEDALUS Model to Present Regional Model For Desertification Intensity (Case Study: Kashan)

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### Abstract

Recently, desertification as a great problem threatens many countries all over the world. For evaluation and mapping of desertification many researches have been conducted in other countries leading to regional and local models. This research uses MEDALU, introduced by European Commission in 1999, to investigate desertification in Kashan area. The criteria and indices used in model were re-defined before application, so in the revised model seven criteria and 45 indices were assessed regarding conditions of the area. These criteria include water resources degradation, wind erosion, water erosion, climate, soil and management factors. Each criterion was assessed based on the selected indices, which resulted in qualitative mapping of each criterion based on selected criteria. Finally, sensitive (susceptibility) map of the area was prepared using geometric average of all criteria. The result indicates desertification in the region has an accelerating trend which may be extended throughout the region in the near future. Regarding the studied criteria, water resources degradation has the highest effect on desertification. This area, excluding urban lands, 196.67 km<sup>2</sup> of the area was categorized in the moderate desertification class while 366.04 km<sup>2</sup> and 240.21 km<sup>2</sup> of the area are prone to high and very high desertification.

Key word: Model, MEDALUS, Criteria, Index, Kashan