

Interactive comment on “Assessment and Monitoring of Land Degradation Using Geospatial Technology in Bathinda District, Punjab, India” by Naseer Ahmad and Puneeta Pandey

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Received and published: 18 April 2017

Answers to Comments of Referee 3

1. Comments of Referee: Are the number and quality of references appropriate? The authors should improve the quality of references including basic-scientific papers. The bibliographic review must be improved by mentioning studies that used the same techniques – RS, GIS and physico-chemical analysis of soil – to evaluate land degradation and the reasons why those techniques were chosen. Author's Response: The new references have been added at relevant places in Introduction section. Author's changes in the manuscript: Lines 3-15 and 19-27 of Page 3 describe the references.

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2. Comments of Referee: The study just shows the land cover and land use evolution within 14 years but doesn't connect that information with land degradation. Is there any correlation between land degradation and land cover? Also we can't see correlation between the soil properties and land degradation. Author's Response: Yes indeed there is a correlation between land degradation and land cover. The link between the two has been incorporated in the revised version between line no 3-16 of Page 3 in the introduction. Author's changes in the manuscript: Line no 3-16 of Page 3 in the Introduction section. 3. Comments of Referee: The scientific question can be: how was land degradation studied yearly and how may this new approach improve it? - As said in the abstract, the aim of the study was to assess land degradation with the help of geospatial technology Remote Sensing (RS) and Geographical Information System (GIS) in Bathinda District, Punjab. All over the paper we can't see the extension and the reasons of land degradation for the evaluated period. Author's Response: The land degradation was not studied yearly, rather it was studied for the year 2014 only based on satellite data and laboratory analysis. For decadal change detection, satellite data for the year 2000 was used to understand the changes the land might have undergone through. Author's changes in the manuscript: Page 29 (Line 13-31) and Page 30 (line 1-2) discuss these attributes of the study area. 4. Comments of Referee: What is the novelty of the present study? - The conclusion that the soils in the study area were exposed to the salt intrusion is based on the 21 samples; hence, the authors should better explain the sampling methodology because the samples are not well distributed all over the mapped region. Author's Response: The soil samples were selected randomly and equally distributed on the study area. As regards novelty, integration of remotely sensed data with field based data to determine the severity of land degradation is an important aspect of the present study. However, as far as land degradation assessment through geospatial technology is concerned, not much study has been done in the Bathinda region of Punjab, a north-western state of India. Author's changes in the manuscript: Suggestions incorporated in line no. 2-4 of Page 4.

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