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## ***Interactive comment on* “Municipal solid waste open dumping, implication for land degradation” by M. Yazdani et al.**

### **Anonymous Referee #1**

Received and published: 26 March 2015

#### Revision

The paper submitted by Yazdani et al. is interesting, but needs a very deep strong revision before be accepted to solid earth. The paper has to be more focused on do not mention other aspects as soil restoration and results from this research. The title does not fit with the content. It should be changed to “Comparison of two suitability methods to assess landfill location using Geographic Information System Analysis”. The introduction needs to be strongly reduced and focused, the material and methods have to be described with more accuracy and not be mixed with the results. The discussions are poor and should be focused on the work topic, the comparison between two methods of landfill suitability. The conclusions should be focused in the major outcomes, not in discuss the results.

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Line 2: Change “MSW” by “Municipal Solid Waste (MSW)” Line 2-5: Please rephrase this. In this form is not understandable. Line 7-8: Change “Municipal Solid Waste” by “MSW”. Line 8: Delete “the increase of” Line 9: Delete “decrease” Line 9-12: Describe just the objective of the work. For example “the objective of this work is study the suitability of an existing municipal landfill site in the west area of Mazandaran province (Iran) using Geographic Information System methods“. Line 12-17: Please delete this. In this form is not understandable the main results of your work and conclusions. Please describe it clearly.

Introduction Line 19-21: Resume this sentence to “Due to population increase and urbanization, it is necessary to develop an efficient waste management system” Line 21: Change “In spite of” by “Despite of the...” Line 22: Change “by land fill” by “in landfills” Line 24: Change “Landfill” by “it” Line 25: Delete “it is at the bottom of the hierarchy of options for waste disposal”

Page 1099 Line 7: Change “Pollutions” by “Pollution” Line 8: Change “A number of literatures have been reported in the past, where leachate” by “ Previous works found that leachates from landfills” Line 10: Change “some researches showed soil contamination” by “and soil” Line 13- line 1 (page 1100): Delete this. This do not have nothing to do with the problematic that you are working

Page 1100 Line 2-4: Delete this. Line 4: Delete “Due” and start with “To” Line 6: Delete “becoming” Line 8: Change “suitable to identify the limitations and problems” by “is an example of this” Line 8-10: Delete this. Line 15- 1(page 1101): Delete this. This does not have nothing to do with your research

Page 1101 Line 1-2: Delete this. Line 4: Change “were” by “are” Line 15-16: Is this in Iran? Line 18: Which sites? Line 23: Change : “So in this research, in order to evaluate the current Tonekabon landfill site suitability two methods were chosen” by “ The objective of this work is to evaluate the Tonekabon landfill site suitability using two

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methods“ Line 25- (2 page 1102). Delete this. It is not necessary here.

Page 1102

Materials and methods Line 5: Change “Tonekabon with about 1631.8 km<sup>2</sup> area, is located in the west of Mazandaran province, on the Northern edge of Iran between Ramsar and Abas Abad city, in the south coast of the Caspian Sea (Fig. 1)” by “Tonekabon region (1631.8 km<sup>2</sup>) is located in the west of Mazandaran province, on the Northern edge of Iran between Ramsar and Abas Abad city“. Line 8: Change “with” by “has”  
Line 8-9: Change “is located between 36\_420 N latitudes and 50\_490 E longitudes Its height is equal to 520m above the sea level” by located at 36\_420 N, 50\_490 E at 520m above the sea level “  
Line 12: Please show the coordinates of the meteorological station. Change “climatological” by “meteorological”. Write the source of this information. Line 14: Source of this information. Line 17: Change “point” by “area”  
Line 17-18: Delete “regarding the point and characteristics of its environment”  
Line 18-22: Please describe first the Physical environment data and then the land use data. Why you did not considered the wind direction fluxes? This is an important variable. I suggest you to do a figure explaining the model that you used. Line 22: delete “were considered”

Page 1103 Line 2: Change “GIS” by “Geographic Information Systems (GIS)”  
Line 4: Delete “some factors” by “aspects. Line 4-5: Delete “factors based on a consider method”.  
Line 5: Change “GIS” by “Geographic Information Systems (GIS)”  
Line 7: Which researches? Line 7-9: Delete “GIS software is capable of a producing useful, high quality maps for such purpose in a short period of time. So in this research GIS was used too.”  
Line 9-13: This is not true. Field data can be incorporated in GIS. Even regulations can be incorporated. Rephrase it. Line 16: Please write the ArcGIS version and extension that you used to do this analysis. Line 16-17: Please explain what means 0 and 1 (perhaps a range) and what classifies. Line 17-20: Please show the meters that you used in buffer analysis  
Line 26: What means “MPCA”?

Page 1104 Line 2-4: Be more specific Line 5-8: You described this before. Delete this.

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Line 7-9: Explain the parameters, and regulations. Everything is very subjective. Give a concrete description of these things. Line 9: What means “MPCA”? Line 10: Substitute “for some criteria which are mentioned below” by “according to the criteria described below” Line 13: Change “MPCA” by “Minnesota Pollution Control Agency”. You should refer this abbreviation before. Line 13-14: Change “Minnesota Pollution Control Agency (MPCA)” by “MPCA” Line 19: The points 2.3.1 and 2.3.2 can be merged and described in the point 2.3. The information about the “Regional screening method”

Page 1105: Line 21-22: Do you mean that landfill sites should be at less than 1 km from the roads?

Page 1106: Line 4-13 (page 1107): All this information is not a result is the base information that you used to run the model. This information should be described in the “Data and Evaluation Criteria”, Here it should be described also the scores attributed to the variables in each map, in order to understand the places with higher and lower risk. This could be described in a table. Line 14: The table should present the results according each method separately Line 14-15: These criteria should be described in the materials and methods Line 19-20: These maps should be shown Line 21-23: This is methodology. Please do not mix materials and methods with results Line 25-27: Which criteria? Which Guidelines? Line 29: Which maps were analysed?

Page 1108 Line 2: Which algorithm was used? Line 4-5: Please mention what you studied in the field. Line 6-8: I do not know if the authors considered this, however, it would be important to see the areas with high and low risk of to landfill construction. This would give an important information.

Discussions Line 9: This is important and true, but it would be important to see the original maps before in order to understand better the model. Line 13-17: Delete this. You referred already before. Please resume the results and discuss it. Here, refer just the methods used in your work and discuss them. There is no need to discuss methods that were not evaluated.

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Page 1109: Line 10-11: Please refer the researchers that you mention. Line 11-21: The studies that you show here do not have nothing related with the analysis that you carry out. You have tested two methods to identify the suitability of a landfill. Nothing related with soil restoration. In the discussions you have to discuss the methods and why they present these results.

Conclusions Line 23-27: Delete this. Show the main results of your work. My suggestion is that you is that you do it in bullet points.

Page 1110 Line 4-8: In the conclusions the results should not be discussed Line 7-11: You did not show any field result or at least that was incorporated in GIS model. Line 12-15: Delete this. It is not a an output of your work. . .

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Interactive comment on Solid Earth Discuss., 7, 1097, 2015.

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