Solid Earth Discuss., 7, C731–C735, 2015
www.solid-earth-discuss.net/7/C731/2015/

Solid Earth
Discussions
Open Access

Interactive comment on "A fuzzy intelligent system for land consolidation – a case study in Shunde, China" *by* J. Wang et al.

J. Wang et al.

wangphoenix@163.com

Received and published: 11 June 2015

General response: Thank you for the deep comments. Maybe this manuscript made you confused. So I think it is necessary to give a general background to help readers understand. This article is focused on adopting data mining technology to solve the land evaluation. But the traditional indexes used for evaluation is subjective and messy. We need to select some important ones by objective tools in order to simplify the process. In this article, Fuzzy Measure was used for shifting the land indexes. The values of Fuzzy Measure represent the importance of each land index or index group. The final values of fuzzy measures decide which index can be used for the evaluation. The fuzzy measure can describe the nonlinear information and the land indexes are not dependent and linear. So it is suitable for shifting land indexes. About "Three Old"

project mentioned in abstract, it is just pointed out as data source and not described in detail due to words limitation. It is used for validating out new evaluation method. We will accept your suggestion to give a clear start. "Three Old" project is presented in Introduction as line 15 to 21 in page 6.

Detailed comments: 1. Introduction In the first sentence: rural conditions: explain which conditions and what has been destroyed. Response: Rural condition includes environmental condition, ecological condition, living condition and cultivated land condition. As the pollution and industrialization mounts up, all rural conditions are affected and become worsen.

2. Chap 1 line 15 the three old project: explain about the project. Response: "Three Old" project is a special project supported by the Government of Guangdong Province in China. The 'Three Old' refers to old villages, old factories and old towns. The aim of the 'Three Old' reformation is to encourage peasants to live in centralized residences and empty large blocks of cultivated land for the development of large-scale agriculture. Therefore, the 'Three Old' project mainly is focused on the reconstruction of old villages. In this article, the main work is proposing a new evaluation model. "Three Old" project just provide the testing data. So, the detailed introduction was listed in section 2.

3. Page 5: story line very messy. Also you use difficult words to tell easy things. Only distracting the reader from the message you want to get across. Write in easier words, shorter sentences. And explain fuzzy, explain what is Land index system. Response: In this section, some computer-aided methods for land consolidation were introduced. We accepted your suggestion to change the mode of expression and try to use more short sentences. "Fuzzy" means ambiguous and uncertain. Here, a Fuzzy Decision Tree was proposed for dealing with the uncertainty in land data, which combined Fuzzy Sets and Decision Tree. Land index system means that a set of indexes is enough to describe the land information and evaluate the level of land. It is not the whole land indexes and need to be selected by some tools.

4. Page 6. Line 3: too difficult: why? Response: Traditionally, land indexes are determined subjectively by experts. It is difficulty to confirm the concrete value of indexes which is related with the weights in Analytic Hierarchy Process (AHP). So obtaining the accurate weights is very difficult.

5. Page 6, line 9: L1 norm: needs ref! Response: Thank you for the good suggestion. We will add the related reference here.

6. Page 6, line 9: explain non-zero fuzzy Response: Thank you for the question. Here, “fuzzy” and “measures” cannot be separated. “fuzzy measure” is a proper nouns. Non-zero fuzzy measure means those fuzzy measures with non-zero values.

7. Page 6. Line 11-13: omit Add in the end of your intro a clear objective of the paper! Response: This is a good suggestion. We will add a clear objective of the paper in the end of Introduction.

8. Materials and methods: Line 21: reconstruction of old villages: I thought you mentioned that the villages were demolished??? Response: One task of “Three Old” project is reconstructing the old village which is not suitable for sustainable development. After re-planning design, part of houses in those villages will be demolished and reconstructed on another plot.

9. Page 7: line 3: destroyed? By what? Response: As so far, a large amount of cultivated land has been destroyed by pollution, illegal construction and man-make waste in China. The amount of cultivated land is decreasing yearly.

10. Line 9: same problems: which ones? Explain! Response: The same problems mean that destruction of the cultivated land and contradiction between supply and demand of land.

11. Page 8 line 12: materials: what kind of materials? Response: The materials includes the information about “Three Old” land, such as all indexes, land levels, finished or not and so on. The main results are listed in table 2.

12. Line 20-25: lot of redundant info, and not a very scientific way to describe the whole process, also it is unclear to me what kind of indexes you are referring to other than the ones you introduced yourself on this page. Response: we accept your suggestion. This process will be simplified. The indexes referred here are those original ones listed in table 2.

13. Page 9 line 1: research: : : needs ref. rough sets??? What is that? Raw data? Response: In computer science, a Rough Set is a specific research subject which is first described by Polish computer scientist I. Pawlak. It is a formal approximation of a crisp set in terms of a pair of sets which give the lower and the upper of the original set. The following references will be added in manuscript. âĂć Pawlak, Zdzisław (1982). "Rough sets". International Journal of Parallel Programming 11 (5): 341–356. âĂć Pawlak, Zdzisław(1991). Rough Sets: Theoretical Aspects of Reasoning About Data. Dordrecht: Kluwer Academic Publishing.

14. Line 7: here you finally introduce fuzzy logic: : : shoud have been done much earlier. Response: Fuzzy logic is introduced in this part because it is just used in constructing the evaluation model. We agree with your comment too. A brief introduction will be added in section 1.

15. Page 10 line 11-15. I count here the word fuzzy really too many times: : : Response: In this part, “fuzzy” shows as a part of some proper nouns, such as “fuzzy sets”, “fuzzy logic” and “Fuzzy decision trees”. It is inevitable to show up many times.

16. Page 11 1-14: very unclear section. Make more clear Page 12; line 16-22: make more clear too Response: We will accept your suggestion and try to make the two parts more clear.

17. Page 14, line6-16: reads nice, a nice summary, but why here? Response: This paragraph is arranged here for illustrating how to obtain the values of fuzzy measures by L1-norm regularization.