

## ***Interactive comment on “Review Article: Multi-criteria decision making for flood risk management: a survey of the current state-of-the-art” by M. M. de Brito and M. Evers***

### **Anonymous Referee #2**

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This article presents a review of Multi-Criteria Decision Making applications to flood risk management published since mid-90s. It provides a very full understanding of the global applications of MCDM and provides interesting points of view about trends regarding stakeholder's involvement and sensitivity, not fully investigated in the scientific community. The topic is of sure interest to NHESS, and the article is quite well structured, but it needs some reworking, for which I suggest a moderate revision.

1) I suggest an authors' revision of the introduction part, integrating the definition of MCDM presented in chapter 2 “Overview of multi-criteria decision making methods” and correct some weak concepts (see specific minor comments below).

C2465

2) It is not clear the meaning of chapter two. The authors state “Table 1 provides an outline of the fundamental properties of the MCDM methods analysed throughout the paper”. Is it a general classification, a research method/classification or is part of the findings? Please clarify this aspect.

3) Chapter 3, search strategy, is useful to understand the way papers have been selected and excluded, but I think it can be shortened a bit.

4) Conclusion needs to be revised carefully.

- The summary provided in chapter 5.1 is very well written, but it's a summary. A lot of information in this chapter should integrate the abstract part that seems to be focused only in the methodological part (classification of applications area) and less on the real findings of this review.

- Recommendations for further research (chapter 5.2) include a critical discussion of the findings of the review. Discussion can be explored in a chapter before conclusion and recommendations can be integrated at the end of the conclusions chapter itself.

- Limitations (chapter 5.3) include limitations, methodological limitations, discussions and conclusions - about the scientific outcomes of the present review. I suggest deleting this paragraph, that is very long and it could give the idea that this work have no scientific meaning. However, authors have to take the information included in it and divide them in the chapter of relevance. Limitations can be the reason of a call for more research or for amelioration the present study.

5) Concerning the charts, there are some suggestions that the authors can consider to make the graphs reader-friendly.

- Figure 1: Please use the point instead of the comma when expressing the numbers in the equation and the coefficient of determination. The subscript 2 in R coefficient is missing. Moreover I suggest considering only two decimals because in this type of regression further details are not needed.

C2466

- Figure 2: There are two colours that are pretty similar: Risk assessment and susceptibility assessment. Please change them. Moreover I suggest putting the title of y-axis.

- Figure 3: There are two colours that are pretty similar: Group meeting and Focus Group Discussion. Please change them. Remember that the colours of the printed version could be in black and white and make the reading difficult. If it is possible, I suggest changing the pie chart with a lot of colours with a horizontal bar chart with one colour. This remains to the author's discretion.

6) Regarding the supplementary material I guess that it is a very good summary of the paper reviewed, however I suggest to do not put questions as column fields and simplify them with lower words. Moreover, some of the fields are empty. Just put a footnote and motivate them, because sometimes is written that information are "not mentioned" and sometimes the field is empty.

Minor changes are described as follows:

- Page 6691, line 3. Please change the word "processes". The idea is not to mitigate any process but the consequence of floods (economic and human losses).

- Page 6691, lines 15-18. Please rephrase, since the concept is not so clear. Here the authors can put the definition of MCDM presented in chapter 2.

- Page 6691, lines 18-19. "They" can be interpreted in several ways. Please specify what or who.

- Page 6692, lines 3-5. Please rephrase, since the concept is not so clear.

- Page 6692, lines 6-7. "Previously" can be eliminated.

- Page 6692, lines 7-13. I suggest arranging the review of MCDM techniques in various field of study in chronological order.

- Page 6694, lines 10-14. Please rephrase the sentence without using a double paren-

C2467

thesis.

- Page 6698, line 24. "China accounts for 19.40 % of all applications, what is not too surprising" Please comment why this should be not so surprising.

- Page 6699, line 23. Please correct "Software's".

- Page 6702, line 6. What "careful facilitation" is?

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 6689, 2015.

C2468