

Interactive comment on “Examining the sustainability and development challenge in agricultural-forest frontiers of the Amazon Basin through the eyes of locals” by Irene Blanco-Gutiérrez et al.

Anonymous Referee #1

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****General comments:**

The paper presents a novel methodology for the analysis of interactions between the socio-economic and environmental aspects of a region. It is tested in two different regions with similar problems linked to deforestation. The paper addresses relevant scientific questions within the scope of NHESS, presenting novel concepts and tools, which are usable in other contexts in the world. The methods used are clearly explained and the results support the interpretation and conclusions of the paper. The description of the data, the methods used, the calculations made and the results obtained are

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sufficiently complete and accurate to allow their reproduction. The title clearly and unambiguously reflects the contents of the paper, while the abstract provides a concise, complete and unambiguous summary of the work done and the results obtained. The overall presentation is well structured, clear and easy to understand by a wide and general audience. The paper is, as a whole, of a high quality, although some aspects could still be improved.

****Specific comments:**

Regarding the structure of the paper, section 2.1 Description of the study area should be part of the introduction, not of the methodology section.

The paper is very well written, with detailed explanations of the method and the results. However, it would improve readability if some parts were shortened. The introduction and the study area description, for example, are too long and contains irrelevant information that could be deleted, such as mean annual temperatures or precipitation, which are not needed and it is sufficient to know the type of climate for the purpose of the article.

Some additional information on the scenario selection should be included. In section 2.4, it should be explained why are those scenarios selected and how are they translated into the models? In particular, the ‘climate change’ scenario is too simplistic and it should not be presented as a scenario itself but only as an important element to analyse together with the development scenarios (as it is mentioned in page 9, lines 4-5).

Page 6, line 23: the authors mention two focus groups per study area without justifying why. Please briefly clarify why 2 focus groups were organised instead of one, which could have avoided the merging phase. It is also not clarified if the 2 focus groups were similarly composed, in terms of stakeholder groups.

Page 7, lines 11-15: it is not clear what the ‘centrality’ concept is; please add a short

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clarification.

Page 8, line 1: it would be easier to understand the equation elements with a very small figure containing the components (ci, cj) with the edges and the weights in a visual way.

Page 8, line 26: how are values between 0-1 determined?

Page 10, lines 15-24: The paragraph is presented as facts, but this is the perceived view of stakeholders and it does not mean it is a demonstrated truth. Please rephrase so that it is clear that authors are presenting the reality perceived by stakeholders.

Table 1: the list of stakeholder groups is long and not easy to understand by outsiders. It would be easier for the reader if the table added a column (or some other feature) classifying them by wider types of stakeholder groups, such as 'farmers, environmentalists, local government. ...'.

Table 3: I would remove the climate change scenario, as explained in previous comments

****Technical corrections:**

Page 5, line 32, add "concept" after "FCM". Page 6, line 2, add "called" before "nodes". Page 6, line 3, add "The weight of" before "these relationships". Page 6, line 13, replace "scare" by "scarce". Page 9, line 32: remove 'and problems', it is redundant. Page 11, line 7: remove 'them' after 'studies'. Page 13, line 9: introduce 'situation of' (or something similar) between 'worsen' and 'region'. Page 13, line 25: move 'absent or ineffective' before 'social and governance'. Page 13, line 27: replace 'are' by 'is' after 'deforestation'. Table 2: font size is too small for reading Figures 4, 5: font size of the maps' elements is too small

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