

## ***Interactive comment on “A decision-supporting methodology for assessing the sustainability of natural risk management strategies in urban areas” by A. M. Edjossan-Sossou et al.***

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This is a very interesting study that proposes a framework to facilitate risk managers in taking a more sustainable approach to decisions when considering risk assessment of natural hazards in urban locations. For the most part the paper is well written and adopts a logical structure. However, it would be really useful to have used a worked example(s) throughout the paper because the theory seems good but without examples until the very end makes it a lot to remember. It is clear that the authors put a lot of work into this paper but it is based on very controlled and theoretical information that may not apply to real life situations. I think the paper would be more convincing if it

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took a more example-based approach. It does not appear to be specific to natural hazards. Even if the authors used a hypothetical natural hazard and worked through the framework it would be more realistic. The paper requires minor editing for grammar and appropriate use of English. Title I suggest replacing ‘supporting’ with ‘support’. Abstract Consider giving an example of how the proposed framework incorporates sustainability principles in a particular decision. Key words Consider including key words. Introduction P209L7 Rephrase ....to control natural hazards..there is no way for people to control natural hazards we can only manage the response. P209L9-10 Is it possible to give an example of how current practice (focusing on financial and technical concerns) may be improved by a different approach, such as the one being proposed in the current paper? Or perhaps give examples after L18, P209L13 Sustainability in the context of risk management should be defined at this point. P209L19 Examples of the ‘numerous initiatives’ would be useful. P210L13-16 The difficulty here is that since each natural hazard is unique indicators must be tailored to each hazard but there may be some cases where common indicators may be used. See Donnelly et al. (2006) JEAPM and Donnelly et al. (2007) EIA Review for useful discussion. Materials and methods P213L20-21 this is an important point. Could the proposed framework be used to retrofit sustainability into previous management decisions? Section 3.2 goes into a lot of detail about indicators and their selection but it would be really useful to give examples of some of the indicators and why specifically they were chosen. It would also be useful to know what criteria the experts used to judge the relevance of the indicators. The final list of indicators and suggested parameters are indeed helpful but in my opinion require some discussion in the text. Section 3.3.1 How is the ‘desired level of sustainability’ determined for each parameter? This is very important because putting a value on sustainability is very complex. Equations 1 - 7 would be more useful if they had worked examples rather than waiting until section 4. Case study – it would be useful to explain how the framework can account for ‘missing values’ as in reality there will inevitably be missing data. Results If sustainability requires precise data and this does not exist – what is the point of carrying out a sustainability analysis? Table 4

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is missing units for all parameters. The text in the diagrams in Table 7 are too small to read. There should be some kind of an overall score for sustainability that incorporates all components in order to be able to select the 'best' alternative. Otherwise, how can a planner select which alternative is the best one i.e. which is better a high score for environmental sustainability or a high score for economic sustainability? Discussion Would it be possible to retrofit sustainability measures to old decisions?

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