



Interactive comment on “Urbanization and climate change impacts on future urban flood risk in Can Tho city, Vietnam” by H. T. L. Huong and A. Pathirana

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We would like to thank Dr. Kien Tran-Mai, Climate Change Programme Officer of the Mekong River Commission, for taking time to review this manuscript and making comments that would, in our opinion lead to significant improvements in the final article.

1. ... *highlight or elaborate on how concretely and if possible, practically the results of this study or its approach, methodology could be used . . .*

The most important message from this study probably is: there are many different drivers causing flood for Can Tho city. Flooding at different parts of the city

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may have different (combination of) reasons. In order to successfully cope with situation, it is needed to look beyond a single solution. Multitude of action spanning over all domains of urban flood mitigation (Engineering solutions to have acceptable return period, urban-planning linked solutions to handle day-to-day urban flows and resilience building for extreme events) and covering many different approaches (structural and non structural, distributed vs. focused) may be needed to address the issue in a viable fashion. Due to the space limitations we would like to leave detailed discussion on this topic for a future publication.

2. *it is important to consider (or at least mention in the study limitation) trans-boundary effects of possible upstream development. . . :*

In the current study we limited the hydraulic modelling domain to the urban system, using river level as boundary condition for the model. Therefore we do not have control over the simulation of hydrodynamics along the river. This is a limitation of the current study.

As described in the paper, we only considered the impact from upstream of the river in high development scenarios (These were the only scenarios available from our source – modelling study of Institute of Meteorology Hydrology and Environment). If river stage information for other scenarios are available as input, it is possible to assess the impacts on flooding for city.

We will mention this as a limitation of the study.

3. *Ideally, some other socio-economic factors should be mentioned more specifically as future scenarios/situations . . . :*

As many other aspects of this study, we had to make choices on the level of detail to be considered in the urban-growth modelling. It is clear, as the reviewer rightly points out, there are many positive and negative-feedbacks of the urban system and the surrounding region that significantly affect the trajectory of growth. There

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are multitude of top-down (e.g. landuse planning) and bottom up (e.g. unique relocation behavior of people) rules that can be incorporated in the landuse simulation. Some of this we did (e.g. proximity to waterways), but by no means exhausted all the important factors.

While we agree with the reviewers suggestion and will list these limitations in the discussion/limitations, it is difficult to focus exclusively on the landuse modelling aspect. This is a compromise we had to make choosing an ‘integrated’ modelling study a opposed to a ‘in-depth’ study on one aspect of the system.

4. ... study is only focusing on flood risk, not really on flood vulnerability (which is different from flood risk). As result, although the future flood risk are likely to be increased in Can Tho city due to variety of factors, actions towards reducing flood vulnerability by raising the resilience/preparedness of communities and related economic sectors or locations (of city development) is an utmost priority and a kind of non-regret option for Can Tho city’s planners and authorities

We agree with this. Our study only focuses on flood risk analyzing. In case of assess the flood vulnerability; we need to do more analyzing on social-economic issues. This will be covered in the limitations part of the final version. Further, we plan to cover the adaptation aspects, which invariably include the vulnerability reduction, in a future article.

5. Specific Comments:

We agree with the reviewer on the specific comments and corrections will be made in the final manuscript.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 10781, 2011.