along with a more accurate estimation of the real wave height and wave period in front of sluices and outlets.Within the vulnerability analysis only few damage categories have been considered. For some damage categories the tangible property was difficult to assess. However, the vulnerability analysis showed that the total damage calculated within each scenario strongly depends on the definition of the scenarios, the considered damage categories, the determination of the inundation behaviour and the derived depth-damage functions. Therefore, further investigations on the following topics should be carried out:

- criteria for the definition of inundation scenarios;
- damage categories, which have not been considered in this study;
- determination of the inundation process, e.g. by using numerical modelling;
- understanding of the breaching process of a clay-covered dike and the flood inundation process;
- further development of the depth-damage functions and their verification by real data.

Despite these further investigations, the assessment of the inundation propagation and thus the dimension of the damage are only assessable to a certain degree of accuracy. However, to calculate the flood risk and to assess the importance of the flood defence system as a defence structure for the inhabitants and their assets, a vulnerability analysis is indispensable.

The presented risk analysis procedure has been considered as starting point of reliability-based design of flood defence systems. This study has shown that it is indeed possible to consider more stochastic parameters when analysing the safety of a flood defence system. Despite the fact that many questions are still open and problems regarding the feasibility remain unsolved, the risk analysis procedure has resulted in a considerable increase in information about the Ribe flood defence system and the protected hinterland, which certainly will contribute to improve the decision-making regarding future flood defence systems in the area.

7. References

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