

## **Collective adaptation strategies towards floods and subsidence in Central Java, Indonesia**

The low lying coastal areas of Central Java are prone to an interplay of natural and human-made hazards. The slow emerging absolute sea level rise is enhanced by land subsidence up to -15cm/a in urban areas, due to excessive groundwater extraction and massive surface load. As a consequence, the local population is exposed to frequent tidal and river floods.

This study focuses on collective bottom-up strategies of households in the city of Semarang and rural villages in Kendal and Demak. We apply a mixed method approach including focus group discussions (2016) and a quantitative household survey (n=660, 2017).

Our results indicate that local people have so far being able to accommodate to their multi-risk environment and, surprisingly, outmigration remains marginal. Rather than retreating or gaining permanent protection, people have found ways to live with floods and subsidence. Coastal hazards have become 'normal' and are not perceived as a big risk. We found that, the strong social capital and a high level of self-organisation are key factors in enabling the local communities. However, the local knowledge about potential future developments is limited. Half of the households have never heard about sea level rise. Thus, the question arises, how are people able to maintain their livelihood in these environments?

Our research shows how the identified bottom-up strategies can be aligned with top-down approaches to increase the adaptive capacity of local communities. These findings open new pathways for applied coastal hazard management.