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# New insights into uptake of household flood mitigation measures

**Comprehensive** flood risk management should include household measures, such as improving a home's stability and relocating heating systems to safe places within the house. According to new research, better communication with householders by authorities on the effectiveness of such measures, and how to implement them, could increase their uptake.

**With the recognition** that flooding is inevitable to some degree, there has been a shift towards integrated flood risk management in Europe that combines flood-prevention infrastructure with household measures to mitigate damage. However, not all residents in flood-prone areas prepare themselves adequately for floods and understanding the reasons behind this can inform strategies to effectively communicate flood risk.

The researchers conducted telephone interviews with 752 flood-prone households along the River Rhine in Germany to assess their 'flood-coping appraisal'. Flood-coping appraisal refers to people's thought processes when they assess their ability to avoid flood risk, and is split into three components:

1) **Response efficacy**. A person's belief that a risk-reduction measure is effective
2) **Self-efficacy**. A person's belief that they are able to implement the measure
3) **Response costs**. The financial, time and emotional costs that a person associates with implementing the measure

Through the questionnaire, the study gathered information on householders' implementation of four different types of measures: structural building measures, adapted building use, flood barriers and the purchase of flood insurance.

Around half of the respondents (48%) had already implemented one or several flood mitigation measures. The results indicate that both self-efficacy and response-efficacy influenced the adoption of these measures, but the different components were more influential on some measures than others.

The use of structural building measures (e.g. strengthening the building) was influenced mainly by homeowners' trust in their capability to implement the measure, i.e. self-efficacy. Response costs were only associated with structural building measures, most probably because they tend to be relatively expensive. This is supported by the finding that wealthier households were more likely to make structural changes to their home.

The adaptation of building use, for example, relocating kitchens to safer parts of the house, was more strongly influenced by the belief that a flood-adapted building could prevent or reduce damage (response efficacy) than belief in one's capacity to implement the measure (self-efficacy). This could be because adaptation of building use is relatively easy to carry out, compared to more structural changes.

Both response efficacy and self-efficacy contributed to the implementation of flood barriers within the house, indicating that people have to trust both the effectiveness of the barriers and their ability to adopt this measure. This was also the case for the purchase of flood insurance. An interesting finding was that previous flood experience reduced the likelihood of purchasing insurance, but this was revealed to be because it is either impossible or very expensive to get insurance in high-risk areas which have previously flooded.

Overall, the results indicate that to encourage more householders to implement flood mitigation measures, there needs to be better communication of their effectiveness and how to implement them. More specifically, structural measures may need financial support for those with lower incomes. Other incentives could include providing reduced insurance premiums for households that implement measures or integrating more stringent requirements in existing building codes.

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**Contact:**
bubeck@adelphi.de

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