Flood loss reduction of private households due to building precautionary measures -- lessons learned from the Elbe flood in August 2002

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Abstract: Building houses in inundation areas is always a risk, since absolute flood protection is impossible. Where settlements already exist, flood damage must be kept as small as possible. Suitable means are precautionary measures such as elevated building configuration or flood adapted use. However, data about the effects of such measures are rare, and consequently, the efficiency of different precautionary measures is unclear. To improve the knowledge about efficient precautionary measures, approximately 1200 private households, which were affected by the 2002 flood at the river Elbe and its tributaries, were interviewed about the flood damage of their buildings and contents as well as about their precautionary measures. The affected households had little flood experience, i.e. only 15% had experienced a flood before. 59% of the households stated that they did not know, that they live in a flood prone area. Thus, people were not well prepared, e.g. just 11% had used and furnished their house in a flood adapted way and only 6% had a flood adapted building structure. Building precautionary measures are mainly effective in areas with frequent small floods. But also during the extreme flood event in 2002 building measures reduced the flood loss. From the six different building precautionary measures under study, flood adapted use and adapted interior fitting were the most effective ones. They reduced the damage ratio for buildings by 46% and 53%, respectively. The damage ratio for contents was reduced by 48% due to flood adapted use and by 53% due to flood adapted interior fitting. The 2002 flood motivated a relatively large number of people to implement private precautionary measures, but still much more could be done. Hence, to further reduce flood losses, people’s motivation to invest in precaution should be improved. More information campaigns and financial incentives should be issued to encourage precautionary measures.
Flood loss reduction of private households due to building precautionary measures – lessons learned from the Elbe flood in August 2002. H. Kreibich1, A. H. Thieken1, Th. Petrow1, M. Müller2, and B. Merz1 1GeoForschungsZentrum Potsdam (GFZ), Section Engineering Hydrology, Telegrafenberg, D-14473 Potsdam, Germany 2Deutsche Rückversicherung AG, Hansaallee 177, D-40549 Düsseldorf, Germany Abstract. But also during the extreme flood event in 2002 building measures reduced the flood loss. From the six different building precautionary measures under study, flood adapted use and adapted interior fitting were the most effective ones. They reduced the damage ratio for buildings by 46% and 53%, respectively. Flood losses can include loss of life, damage to infrastructure and agriculture, interruptions to business and education, and impacts on human health and welfare. It has long been known that such losses are primarily the result of human decisions. (2005) Flood loss reduction of private households due to building precautionary measures: Lessons learned from the Elbe flood in August 2002. Nat Hazards Earth Syst Sci 5:117–126. . OpenUrl.