Adaptive Tools and Methods in the light of Climate Change: Enhancing Early Warning Systems for Adaptation and Resilience

Innovative Tools for Adaptation and Mitigation

Climate Change is expected to lead to an increase in weather-related extreme events while Disaster Risk Reduction (DRR) concomitant to this aims to mitigate the impacts of those extreme events. Therefore DRR needs to become an integral part of Climate Change Adaptation (CCA). However, despite the importance of this general acknowledgement, it is time to move beyond generic statements and think of concrete measures. It is essential to develop the discussion further and to improve the understanding of how exactly the experiences of DRR can inform CCA strategies and tools. That means researchers as well as practitioners need to identify the most relevant and effective DRR methods and tools which should be seen as a priority for Climate Change Adaptation and the adaptation to extreme events.

Through expert interviews, international expert workshops, and literature reviews we have explored different methods and tools of DRR that can also inform Climate Change Adaptation (Birkmann, Chang Seng and Suarez 2011). Although the applicability and usefulness of methods and tools of DRR for CCA have to be examined on a region and context-specific basis, the study has identified certain key areas where a close link between DRR and CCA should be addressed as a priority. These methods and tools should not be seen so much as new tools, but their effective and efficient use; particularly Early Warning and preparedness strategies and framework conditions, however they need to be adapted, improved and strengthened to foster effective synergies between DRR and CCA. As such it will be important to progress the discussion towards a precise assessment of the applicability and usefulness of selected methods and tools under specific regional and local circumstances. In this context, the paper presents an innovative perspective of the Governance context and framework conditions of natural hazard Early Warning Systems as a tool of DRR in the light of climate change (Chang Seng 2012).

Additionally, the paper underlines the key new challenges for Early Warning Systems and preparedness strategies to deal with the integration and monitoring of the combined effects of creeping and sudden-onset hazards in the light of Climate Change. Moreover, Climate Change Adaptation requires that Early Warning Systems extend their focus from saving lives in the short term to securing livelihoods in the medium and long term. This extension will become more important when creeping hazards, such as sea-level rise, salinization processes and drought, erode coping and adaptive capacities of communities exposed to sudden-onset and slow-onset hazards.

Drawing on a case study, the paper underscores the key challenges of how to enhance EWS in the light of migration and environmental shocks (Birkmann and Chang Seng 2012) Up to now, most EWS do not sufficiently consider migration and daily mobility patterns within the information or warning chain. Therefore, the paper highlights the importance of migration, urbanization and daily mobility patterns for effective early warning, as a flexible and adaptive tool for reducing disaster risk impacts.

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