Review of Flood Forecasting Systems Operating in Different Regions of the World.

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Flood Early Warning Systems (FEWS) are one of the targets in Sendai Framework for Disaster Risk Reduction (SFDRR) to be achieved by 2030. However, despite their critical role in DRR, current availability and state of operational FEWS, investments and benefits of FEWS, challenges and future of FEWS globally as well as its contribution in achieving the agenda of SFDRR and is notably lacking. This study focuses on bridging these gaps by conducting an online survey consisting questions on all the components of FEWS, investments, operational effectiveness, benefits and challenges for distribution to the flood forecasting and warning centers across the globe.

From the survey responses, several technical, financial, institutional and social challenges were identified. About 75% of flood forecasters mention that river basins have inadequate hydrologic network coverage and do not have back-up measurement units in case of breakdown of existing units. Almost half of the responders indicate that their models are not advanced and accurate enough to produce reliable forecasts. Lack of technical expertise and limited workforce to perform forecasts was cited by 50% of respondents as one of the challenges. Moreover, only 33% of systems were evaluated technically to check for its operational effectiveness. Future operational FEWS are expected to enhance their systems by utilizing better data quality and availability, accessing global flood forecasting systems, improved computing techniques and upgraded risk communication to end users. However, to overcome above challenges and achieve SFDRR targets, sustainable and substantial investments in FEWS across the globe are imperative.

Key words: Cost-benefits; disaster risk reduction; flood disasters; flood early warning systems; investments; Sendai frame work; sustainable development goals