

Decision support system for location specific early warning system

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Early warning is a key element of disaster risk reduction. All the advances in research in generating hazard risk information is not incorporated into operational forecast system and not all operational forecasts are integrated into decision making process to reduce disaster risks. This research paper aims to design location specific user need based weather and flood forecast products of different time scales for reducing disaster risks in vulnerable sectors. Based on the downscaled WRF forecasts and 1-15 days multiple weather ensembles (EPS) forecasts by ECMWF, integrating hydrological tools combining with GIS and social conditions, the DSS will be able to interpret, translate and communicate science based risk information into user friendly early warning information products to assist emergency managers and decision makers to prepare for appropriate response. Two sets of indicators have been defined for the DSS- the resources based indicators (RBIs) which represent the state of the local resource base and the decision support indicators (DSIs), which represent to improve livelihood conditions to cope with disaster. Relations between these two sets of indicators can be visualized though a cross-reference matrix, which, in fact, is considered as a conceptual framework for analyzing how the state of the local resource base affects livelihood conditions to cope with disasters. In a monitoring mode, indicators would allow following year-to-year developments and thus "measure" performance of interventions. In a predictive mode, they could contribute to a ranking of alternative interventions by measuring the extent to which objectives are met. DSS interface invites the users in an interactive way to specify the objectives and criteria that are involved, the management options (strategies) that are possible and the exogenous influences (scenarios) that should be taken into account. At the same it may be able to provide damage monitoring specifically to agriculture to estimate loss on agricultural output and quickly assess and report damages in agriculture sector with appropriate response mechanisms.