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Application of Medium and Seasonal Flood Forecasts for Agriculture Damage Assessment

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Early warning is a key element for disaster risk reduction. In recent decades, major advancements have been made in medium range and seasonal flood forecasting. This progress provides a great opportunity to reduce agriculture damage and improve advisories for early action and planning for flood hazards. This approach can facilitate proactive rather than reactive management of the adverse consequences of floods. In the agricultural sector, for instance, farmers can take a diversity of options such as changing cropping patterns, applying fertilizer, irrigating and changing planting timing. An experimental medium range (1-10 day) and seasonal (20-25 days) flood forecasting model has been developed for Thailand and Bangladesh. It provides 51 sets of discharge ensemble forecasts of 1-10 days with significant persistence and high certainty and qualitative outlooks for 20-25 days. This type of forecast could assist farmers and other stakeholders for differential preparedness activities. These ensembles probabilistic flood forecasts have been customized based on user-needs for community-level application focused on agriculture system. The vulnerabilities of agriculture system were calculated based on exposure, sensitivity and adaptive capacity. Indicators for risk and vulnerability assessment were conducted through community consultations. The forecast lead time requirement, user-needs, impacts and management options for crops were identified through focus group discussions, informal interviews and community surveys. This paper illustrates potential applications of such ensembles for probabilistic medium range and seasonal flood forecasts in a way that is not commonly practiced globally today.