



## **Role of seasonal streamflow forecasting in the Ganges-Brahmaputra-Meghna basin**

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The seasonal and inter-annual variability of the large Eastern Himalayan river basins pose a challenge to water users and managers alike on how to best manage the water resources in a sustainable manner. Droughts and floods are costly natural phenomena and the ability to predict the occurrence of such can immensely help the water resources decision makers of this region in planning and preparation. Efforts to increase the lead time and skill of streamflow forecasts of various spatial and temporal scales are crucial. However, translating these forecasts to the appropriate levels of influence and efforts to disseminate the information to the actual users in a proper manner are also as important. Research is thus needed to improve *downscaling* techniques and interpreting the results to make them salient for the users. This study focuses on the Ganges-Brahmaputra-Meghna river system, one of the largest in the world with a unique drought-flood cycle, to study how such a seasonal forecasting approach can aid water resources planners and policy makers of this region. Due to increased upstream usage and diversion, the region faces severe water shortages during the low flow season. However, during the monsoon season this river system undergoes rapid change and collectively drains intense precipitation for an area of more than 1.5 million square kilometers. Bangladesh, being the lowest riparian country in the system, experiences disastrous floods almost every year causing immense suffering to its population. Existing deterministic flood forecasts with short lead-times (3-7 days) and a poor dissemination network are insufficient for adequate contingency planning. Streamflow forecasts with monthly to seasonal lead-times and an effective disseminating system can improve the situation by providing the necessary time for flood preparation, and

also help crop plantation and river navigation practices.