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Alluvial farming in Ayeyarwady floodplains. Spatio-temporal dynamics of a complex human-water system

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Floodplains are important locations for agricultural production in many regions of the world. In monsoon-dominated regions with a pronounced rainy season, the floodplains are often used seasonally, which can improve food security and the income of poor households in particular. Alluvial farming benefits from fertile sediment deposits, residual moisture in the soil and good access to water from the river or groundwater. At the same time, farmers have to deal with flood risks and highly dynamic hydromorphological and hydrological conditions.

Agriculture is the main economic activity in Myanmar and accounts for 38% of the Gross domestic product. The most important production areas are the central drying zone (CDZ) and the Ayeyarwady Delta. The CDZ, however, is particularly characterized by irregular rainfall, significantly rising temperatures, droughts, a shift in the onset of the rainy season and extreme flood events, which makes agricultural production very challenging and difficult.

By using the Plural Water Research framework the physical and human boundary conditions of a research area in a floodplain in the CDZ were studied in order to identify relevant components which are shaping this complex human-water system. With the help of satellite images, hydrological data, on-site mapping and surveying farmers, the spatio-temporal dynamics of the alluvial farming system was examined and the interactions between hydrological variabilities and extremes and the handling of farmers within this complex system were examined and adaptation strategies were identified.