

## **Prospects for responsible aquaculture and culture-based fisheries in highland Asia**

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### **Abstract**

International treaties and conventions and regional agreements and legislation concerning conservation and development of highland aquatic resources and associated calls for responsible aquaculture and fisheries development will be reviewed. Measures being implemented and contemplated to bolster fish stocks in upland water-bodies and wetlands and develop aquaculture throughout Asia will be described. Motivations ranging from maintaining national, regional and global biodiversity, to sustaining capture fisheries for income and food security and livelihoods diversification and employment will be presented. Apparent opportunities associated with reservoir construction to supply water for irrigation and hydroelectric power generation for culture-based fisheries and aquaculture will be critically reviewed. Invoking the DPSIR (Drivers, Pressures, State, Impacts, Responses) framework current policies and social-economic trends prompting culture-based fisheries and aquaculture development in European Community sponsored HighARCS 'Highland Aquatic Resources Conservation and Sustainable Development' project study sites in Shaoguan City, China; Buxa, West Bengal and Nainital, Uttarakhand, India; Quang Tri, Vietnam will be reviewed. Promising risk assessment frameworks and tools to facilitate critical reflection concerning culture-based fisheries and aquaculture development in highland areas will be assessed. Risks associated with stocking fish in highland aquatic resources include competition and predation on native stocks, genetic dilution, parasite and disease introductions and ecological impacts. Disruption to ecological processes and functioning could threaten stocks and flows of ecosystem services sustaining marginal upland communities and underpinning socioeconomic activity within watersheds. Prospects for devising and promoting Better Management Practices to guide responsible culture-based fisheries and aquaculture development and management practices will be reviewed based on experiences elsewhere in the region. Potential indicators concerning the resilience and sustainability of culture-base fisheries and aquaculture development in

highland areas will be described and assessed in terms of monitoring and evaluating stock enhancement and aquaculture development initiatives being contemplated for inclusion in action plans to promote conservation and wise-use of highland aquatic resources across the HighARCS project sites.