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Sustainable Rice Paddy for Floodplain Ecosystem Conservation under Emerging Climate Change: Case of Bangladesh

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Bangladesh is one of the most climate vulnerable deltaic countries in Asia with the globally highest rural population density. The country is getting prepared with strategic climate resilient development initiatives including wetland and river restoration with focus on food security, ecosystem services, and climate induced water risk reduction and adaptation to meet the challenge. IPCC findings¹ include: crop yields could increase by 20% in East and Southeast Asia, but decrease by up to 30% in Central and South Asia. Bangladesh's climate, land and hydrology make conditions suitable for growing tropical rice paddy varieties which occupies about 80 percent of the cropped area². Wetland conservation is getting more policy, planning and budget attention as rice paddy is the most climate adaptable food crop which grows along with fish and aquatic resources. This is one of the reasons why population density is comparatively higher in the floodplains as it offers multipurpose livelihood support. The impact of climate change on rice paddy based agricultural practices and its relation to water resources are of particular concern in the floodplain ecosystem in Bangladesh. There are five main kinds of floodplains in Bangladesh such as (1) Active River floodplains – alongside the main rivers with the youngest alluvial land, (2) Meander floodplains – relatively older, (3) Piedmont Plains – gently sloping land at the foot of hills, (4) Estuarine floodplain- smooth and level land with deep silt deposition and (5) Tidal floodplains- close to sea – almost level by clay plains crossed by tidal rivers. Crop calendar in Bangladesh is synchronized with climatic seasons and agro-ecological setting including land types in the background. Particularly rain-fed agriculture is adversely experiencing erratic monsoon rain, affecting both local ecosystem and subsequent cropping patterns. Loss of biodiversity will have additional negative effects on people's lives and livelihoods alike. Agricultural adaptation emerged as a high priority for ensuring food security in a changing climate. Introduction, dissemination and extension of flood, salinity, drought and diseases resistant rice crops variety are some of them. Adoption of early mature and short rotation crop, extension of hydroponics or floating agriculture in flooding areas can reduce the climate risk and vulnerabilities in these sectors. Improvement in the crop- based weather and flood forecasting systems is some of the adaptation measures

that would also be urgently required. Important wetlands and floodplains should be declared protected.

1 1 IPCC 2007. *Climate Change 2007*, Fourth Assessment Report. Accessed on 14 April 2008 at <http://www.ipcc.ch/ipccreports/assessments-reports.htm>

2 Hugh Brammer. 2002: Land Use and Land Use Planning in Bangladesh, UPL, Dhaka,