

#### Subject IV

### **Wetlands, Climate Change and Livelihood in the North Eastern Hill Region**

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In all 6 papers was received under this theme and 5 papers were presented in the session. The key findings and recommendations are:

One paper reported that majority of the sample households have low physical asset and moderate human financial and social assets. Financial assets were the most important asset in adopting the livelihood strategies whereas, social assets could increase the chance of adopting other livelihood strategies apart from fishing in the study area.

Another paper reported that high fishing pressure and climatic variability of the region have resulted in a significant reduction in the wetland bio-resources. Deforestation in the catchments, construction of roads and embankments and blockage of feeder channels of floodplain lakes also contributed to the reduction of habitat complexity. Rapid urbanisation and industrialisation led to the crumbling of water quality and shrinking of bio-diversity by abuse and contamination of fresh water resources.

Another study on flood management strategies reported that the most widely adopted adaptation strategies were diversification, green manuring and alteration in date of sowing. Adopting deep water rice and high yielding varieties (Swarna Sub1 and Ranjit Sub1) were more common among large farmers. In case of small and marginal farmers, traditional flood tolerant rice varieties (mainly bao-dhan) because of low input and management practices.

The analysis on wetlands of Tripura reported that the number as well the area of wetlands of Tripura are gradually declining over a period of time which adversely impacting bio-diversity and livelihood of households dependent on fishery sector.

A comparative economics on paddy was carried out across the season, viz., *kharif* and *rabi*, where the cost was found to be higher in *kharif* season and it was found that

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the farmers were retreating from cropping activities due to lack of expected returns and better income opportunities outside the farm sector.

#### RECOMMENDATIONS

1. Loktak lake is a base for ecological and economic security, thus payments for ecosystem services for sustainable water management has to be encouraged and implemented. It was also emphasised on devising proper management strategies of the Ramsar area by the State Government alongwith in-depth research intervention by researchers
2. Promotion of culture base fishery in seasonal water bodies, establishment of wetland regulatory board, formulation of contingency plan for mitigation of extreme weather impact and strict compliance with existing environment and fisheries act are recommended.
3. The traditional varieties are rich in iron, protein and anti oxidant elements and mostly grown organic high potential in the international market. Hence, it was recommended that establishment of linkages with global markets for strengthening the value chain will help in coping with flood and also increase the income of the farmer.
4. Promotion of local functional institutions, strict compliance of provisions made under Indian Fisheries Acts and proper valuation of wetland ecosystems and scientific intervention for the restoration and management of the fisheries resources can improve the biodiversity and livelihood in the study area.
5. The findings suggested that one can learn from the case studies of successfully managed Ramsar site for agricultural practices in the world, viz., Kabukuri-numa (Japan) Laguna de la Cocha (Colombia, Hawizeh Marsh (Iraq), etc.