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“Wetlands and water: supporting life, sustaining livelihoods”

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Wetlands and poverty reduction

Case study examples of where wetland wise use and management have contributed to poverty reduction

1. India: Environmental Flow Scenarios for Chilika Lake

1. Chilika Lake, a major coastal lagoon on the east coast of India, is a unique assemblage of marine, brackish and freshwater ecosystems. The highly productive lagoon with its rich fishery resources sustains livelihoods of more than 200,000 fishers and 800,000 agricultural farmers living in its catchments.
2. Development has altered hydrological regimes and biodiversity within the lagoon and its catchments, impacting the natural resource base of the region. Livelihood pressures and conflicts within the communities living in and around Chilika and associated floodplains are one result.
3. Under the ongoing water resources consolidation schemes, Naraj barrage was constructed at the head of the delta. The main objectives were to provide irrigation in the upstream regions of the Mahanadi Delta and to control flooding and waterlogging in the downstream area. However, the barrage influences freshwater flow to the lagoon, resulting in environmental and livelihood impacts. Hydrobiological monitoring of Chilika Lagoon, initiated by Chilika Development Authority (CDA) and involving Wetlands International, clearly highlighted the critical role of Mahanadi delta system in governing the freshwater flows to the lagoon.
4. The monitoring showed that any reduction in water flow from the delta may seriously affect the productivity of the floodplain system and lead to changes in ecological character of the lagoon. The monitoring results also showed the need for an Environmental Flow Assessment (EFA) to determine the appropriate flow regimes which would maintain environmental quality while providing sustained economic benefits to the communities through irrigation and flood control.
5. Four flow scenarios were identified based on hydrodynamic and biological modeling. Extensive community consultations and economic assessment of scenario impacts was carried out to identify the flow management that would yield net gains to communities while maintaining the environmental quality of Chilika. By maintaining the present levels of freshwater flows and reducing high intensity floods, an overall annual incremental

benefit of € 8.4 million would be realised through enhanced agricultural and fish productivity.

6. Strategies to continue improving the prospects for Chilika Lagoon include recognition of the nature and value of the floodplain ecosystem, the integration of the floodplains into regional conservation and management, using participatory approaches to environmental flow management, and strengthening of institutional networking and monitoring mechanisms.

2. Ethiopia: Ecosystem services from western highlands wetlands

7. In the western highlands of Ethiopia, perennial swamp and seasonal wetlands play a vital role in the lives of people by helping them achieve food security during the “hungry season”. Food security is enhanced through the production of green and mature maize and vegetables. The main harvest from these areas, in the early rainy season, is ready just when the supply of food from the upland fields is running out for many families and the “hungry season” is starting.
8. In addition, many of the rural people obtain the other essential requirement for life, drinking water, from wetland edge springs. The functioning of these sources of relatively safe water is dependent on the water table level which is maintained by the wetland.
9. Wetlands also contribute indirectly to food security by providing products which people can collect and sell to provide them with cash for purchasing food. Some of the poorer people make a living from collecting craft materials which they either sell or use for making craft items for sale. Medicinal plants are also found in wetlands and these items contribute to the well-being of households through direct use or through sales. The role of such sources of income was quite significant in the past, when even livestock could be purchased with such income. However, this has declined significantly in recent years and is almost non-existent where wetland agriculture has increased.
10. Wetlands are also beginning to be used for brick making as urban housing standards rise. This is mainly occurring in the areas of the Jimma Zone, where the urban growth is most rapid and coffee earnings contribute to higher incomes. So, with respect to many of the wetland benefits, there is a web of linkages from the initial user of the wetland to the final consumers of the wetland products. These linkages mean that virtually every household in the western highlands obtains some benefits from the wetlands.

3. South Africa: *The Working for Wetlands Programme*

11. Working for Wetlands combines two concerns: (i) securing South Africa’s water supplies through conservation of wetlands; and (ii) systematic efforts at poverty relief, job creation and skills development. The programme is part of the SA government’s Expanded Public Works Program, in partnership with WWF and the Mondi Wetlands Project.
12. There are currently 50 wetland rehabilitation projects underway. Typical activities undertaken within the projects include:
 - the construction of structures to control erosion in, trap sediment and raise water tables;

- control of invasive alien plants;
- plugging of artificial drainage channels in the wetland;
- addressing offsite causes of degradation in the catchment;
- raising awareness of wetlands among workers, landowners and the public;
- providing adult basic education and training and technical skills.

13. Working for Wetlands made contributions to the improvement of the beneficiaries' livelihoods beyond increased income. The beneficiaries reported that 1) their level of confidence is boosted by their role in the project; 2) food security improved; 3) income security improved; and 4) housing improved.

4. **Brazil: *The Várzea Project***

14. The "várzea" or floodplain of the Amazon River is one of the most important ecosystems of the basin both ecologically and economically. Intensification of commercial fisheries, commercial logging and the expansion of extensive cattle and water buffalo ranching are leading to the depletion of the várzea natural resources and the degradation of its productive capacity.

15. A Várzea project, undertaken by WWF with communities across the floodplain, is attempting to increase their capacity to sustainably manage their local environment to raise household income and improve their quality of life. The Project is achieving this by:

- strengthening local and regional institutions for the participatory management of floodplain resources;
- increasing income generated by improved ecological productivity of community management systems;
- implementing formal and non-formal educational programs for schools and community and regional management organizations; and
- developing and implementing policies in support of the participatory management of floodplain resources.

16. Environmental benefits of the project to date include restoration of fish populations. Socio-economic benefits of the project to date include:

- improved productivity and profitability of community-managed fisheries;
- up to 25% increases in average agricultural income;
- increased income from sting-less bee raising and shrimp fishing;
- strengthened community capacity to resolve collective management problems;
- improved health and health services;
- reduced vulnerability to conflicts over resources and property rights.