

# Wetlands and Poverty Reduction Project

## Good Practices and Lessons Learned in Integrating Ecosystem Conservation and Poverty Reduction Objectives in Wetlands

Sonali Senaratna Sellamuttu, Sanjiv de Silva,  
Sophie Nguyen Khoa and Jayampathy Samarakoon





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Jayampathy Samarakoon*

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- Main picture - A boy fishing in a lake adjacent to paddy cultivation. Tonle Sap Wetland, Cambodia. *Photo Credit: Chu Thai Hoanh*
- Side image-1 - A fisherman using traditional craft and net. Bhoj Lake, India. *Photo Credit: Amitangshu Acharya*
- Side image-2 - A family of Lesser Whistling Teal. Bundala National Park, Sri Lanka. *Photo Credit: IWMI*
- Side image-3 - A woman with her children in a dambo, Malawi. *Photo Credit: Rebecca D'Cruz*
- Side image-4 - An artisanal fisherman in a flooded forest. Tonle Sap Wetland, Cambodia. *Photo Credit: Chu Thai Hoanh*

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## Acronyms and Abbreviations

ADB	Asian Development Bank
AF	Analytical Framework
AREA	Dryland rehabilitation consultancy
BMC	Bhopal Municipal Corporation
CBO	Community-Based Organization
CCD	Coast Conservation Department
CEA	Central Environmental Authority of Sri Lanka
CEPA	Centre for Poverty Analysis
CNR	Cao Hai Nature Reserve
COP	Conference of Parties
CPRs	Common Property Resources
CRMP	Coastal Resources Management Project
CS	Case Study
CSR	Corporate Social Responsibility
CTF	Community Trust Fund
DFAR	Department of Fisheries and Aquatic Resources
DFID	UK Department for International Development
DG	Director General
DoA	Department of Agriculture
DS Division	Divisional Secretary Division
DWLC	Department of Wildlife Conservation
EFO	Ecological Fund Office
EMATER	Association of Rural and Extension Service
ESIA	Environmental and Social Impact Assessment
F&AR Act	Fisheries and Aquatic Resources Act
FC	Fisheries Committee
FFPO	Fauna and Flora Protection Ordinance
FGDs	Focus Group Discussions
FGN	Federal Government of Nigeria
FMA	Fishery Management Area
FMP	Fishery Management Plan
FMWR	Federal Ministry of Water Resources
GCEC	Greater Colombo Economic Commission
GN	Grama Niledhari
GEPB	Guizhou Environmental Protection Bureau
HJKYB	Hadejia-Jama'are-Komadugu-Yobe Basin
HN	Hadejia-Nguru
HNWs	Hadejia-Nguru Wetlands
IAD	Institutional Analysis and Development
IBM	Integrated Basin Management
ICDPs	Integrated Conservation and Development Projects
ICF	International Crane Foundation
IDP	Integrated Development Plan
IDSMA	Mamirauá Institute for Sustainable Development
IPM	Integrated Pest Management
IRMP	Integrated Resources Management Programme in Wetlands
ITAD	Information, Training and Agricultural Development Ltd.
IUCN	International Union for the Conservation of Nature (The World Conservation Union)
IWMI	International Water Management Institute

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IWRM	Integrated Water Resources Management
IWRMCs	Integrated Water Resource Management Committees
JWL	Joint Wetlands Livelihood project
KYB	Komadugu-Yobe Basin
LCA	Lake Conservation Authority
LCBC-GEF	Lake Chad Basin Commission Global Environmental Facility
LDEDET	Limpopo Department of Economic Development, Environment and Tourism (South Africa)
m	Meter
MEA	Millennium Ecosystem Assessment
MMNL	Muthurajawela Marsh Negombo Lagoon
MOU	Memorandum of Understanding
MP	Master Plan
MSC	Most Significant Change
MWP	Mondi Wetlands Project
NCF	Nigeria Conservation Foundation
NGO	Non-Governmental Organization
NNR	National Nature Reserve
NR	Natural Resource
PA	Protected Area
PM&E	Participatory Monitoring and Evaluation
PRA	Participatory Rural Assessment
RBDAs	River Basin Development Authorities
RDRC	Yunnan Rural Development Resource Centre
RF	Revolving fund
RRA	Rapid Rural Assessment
RUP	Resource Use Planning
SANBI	South African National Biodiversity Institute
SDR	Sustainable Development Reserve
SHG	Self Help Groups
SL	Sustainable Livelihoods
SMART	Specific, Measurable, Achievable, Relevant and Timely
SMWRs	State Ministries of Water Resources
SU	Sustainable Use
TF	Task Force
TUP	Trickle Up Programme
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNP	United National Party
VEA	Voluntary Environmental Agents
VND	Vietnamese Dong
WCP	Wetland Conservation Project
WDI	Wetlands Development Initiative
WESSA	Wildlife and Environment Society of South Africa
WfW	Working for Wetlands Project
WI	Wetlands International
WII	Winrock International India
WPRP	Wetlands and Poverty Reduction Project
WWF	World Wildlife Fund

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## Executive Summary

This study was driven by two objectives: to develop a framework and methodology for assessing the outcomes of conservation-poverty reduction initiatives and to apply it to such initiatives in wetlands to understand conditions and methods that can support the integration or balancing of ecosystem conservation with poverty reduction. The study was supported by Wetlands International (WI) and the resulting analytical framework and Lessons and Good Practices feeds into WI's Wetlands and Poverty Reduction Project (WPRP) that seeks to emphasize the need for closer practical linkages between conservation and developmental paradigms and to generate knowledge on how this can be achieved in wetlands. Underlying these objectives is the confirmation by the Millennium Ecosystem Assessment's (MEA)<sup>1</sup> synthesis report to the Ramsar Convention that wetland losses appear more rapid where human populations are increasing most and where pressure for economic development is greatest, and that the projected continued loss and degradation of wetlands will result in further reduction in human well-being, especially for poorer people in less developed countries. The MEA further emphasizes that achieving the UN Millennium Development Goals such as the eradication of poverty, therefore, partly depends on maintaining or enhancing wetland ecosystem services, and that to do so, a cross-sectoral focus is urgently needed that emphasizes securing wetland ecosystems and their services in the context of sustainable development and improving human well-being. These messages are incorporated in Ramsar Resolution IX.14 on Wetlands and Poverty Reduction whereby sound wetland management is now expected to not only cover conserving ecological integrity but also pay specific attention to the local people's well-being (Ramsar Convention Secretariat 2005). In this context, integrated approaches that incorporate both conservation and development needs of the wetland system are expected to play a greater role.

The study was desk-based due to funding and time constraints and gathered empirical evidence mainly through case studies on wetland projects exhibiting both conservation and poverty reduction components. Only seven from approximately 50 potential initiatives could be used in this exercise as many lacked a poverty reduction element. Additional information was collected through an e-forum and literature review. Concurrently, a conceptual Analytical Framework (AF) was developed based on a review of existing frameworks that led to the adoption of elements from the Sustainable Livelihoods Framework, IUCN's Sustainable Use Framework and the Institutional Analysis and Development Framework. The resulting AF was applied to each case study through a matrix developed to understand existing issues in wetlands and their drivers, project intervention objectives and strategies and finally the outcomes of these interventions.

The AF together with the matrix have proven to be a valuable tool for disaggregating the situational attributes, interventions and outcome dimensions of wetland projects irrespective of significant variance in issues, objectives, strategies and scales amongst the case studies. Of particular note is their ability to reflect both conservation and poverty reduction aspects of the pre-intervention situation, the interventions and the outcomes. This may be seen as a distinct advantage over existing frameworks which appear to view situations from either a conservation or development perspective. Application of the AF to the case studies in light of the study's objectives also illustrated how it could be used for identifying trade-offs between maintaining ecosystem integrity and biodiversity conservation on the one hand and poverty reduction and development aspects on the other in the post-outcome analysis. This becomes critical if one is to understand the impacts of outcomes from individual time-bound interventions with the sustainability of both conservation and poverty reduction aspects in the longer term.

With regard to lessons and good practices generated by the case studies, the fundamental and multiple roles of a sound understanding of the situational context of the wetland demands emphasis. The benefits stem from an understanding of the complexity of issues and the diversity of their drivers. In case studies where this was done, project implementers could assess strategies better and identify needed skills. Baseline data covering a wide range of situational attributes also enabled adaptive management which allowed projects to track and respond to changing scenarios, and also to demonstrate impact more convincingly. Case studies that invested in understanding context also

<sup>1</sup> *Millennium Ecosystem Assessment (2005)*

displayed a perception of the process as an opportunity to invest in stakeholder relationships at the very outset, especially in situations where outsiders were viewed with distrust. Recognizing that drivers exist at different spatial and administrative scales also emerges as a key lesson for pre-intervention analysis so that the implications of negative externalities (e.g., broader ecological, political, economic processes) are factored into the responses. From an ecological perspective, the wetland's productivity will significantly influence the degree to which the developmental needs of people can be accommodated before a strategy becomes unsustainable. At the other end of this (sustainability) equation lie human demographic and consumption trends. Any strategy to achieve sustainable or wise use of wetlands will need to operate within these confines. This, then illustrates the need for interventions based on an evaluation of trade-offs whereby it is likely that the full productive and, hence, developmental potential of a wetland will not be realized in the interests of maintaining ecological services at an optimal level in the interests of future generations.

The case studies also highlight several operational tools, methods and lessons dealing with a range of aspects such as resource management planning; livelihood development; managing change process and institutional development as well as project development and management. What must be emphasized with respect to tools and methods is that their viability will be determined by how well their design is tailored to case-specificity (the technical aspect) and the diligence with which they are implemented (the people aspect). Micro-credit, for example, worked in some cases while it failed in others, because basic conditions such as access to markets, development of skills and other capacities of recipients were overlooked. What is also clear is that utilization of more than a single tool or method maybe often necessary. In the management of fisheries in open access systems for instance, a combination of zoning, open and closed seasons and alternate livelihoods development through micro-credit were necessary to balance conservation and use, allow for fish stock recovery and compensate for the resulting reduced access to wetland resources. Adoption of a pilot phase, when introducing new initiatives that required changes in attitudes and adoption of new skills, was also an effective learning tool for both project implementer and intended beneficiaries, and helped minimize and address undesired consequences at the outset.

Overall, many of the lessons identified in the case studies reenforce the insights from past attempts at integrated approaches implemented since the early 1990s in different ecosystems, as identified in the Introduction to this report. An overall perception in the literature of unconvincing outcomes regarding the reconciliation of people's development needs with conservation objectives had posed the question of whether a win-win outcome is practically possible. The limited number of case studies and limited ability to objectively verify outcomes prohibits the present study from making a conclusive assessment. However, the varying outcomes in the case studies from poor conservation and poverty reduction to poor outcomes in one or the other to some positive outcomes in both aspects suggests that a search for a conclusive answer may miss the point. The scope for win-win results appears to be case-specific, and failure in some cases does not mean failure in all situations. What should be emphasized is that the win-win outcomes that did occur are characterized by trade-offs and strategies to offset the developmental implications of such trade-offs through viable alternate income schemes. On the question of whether resource dependency is a necessary condition for local participation in conservation, experiences in at least two case studies suggest that the willingness to balance use with wetland conservation emerged even where alternate income development was in fact reducing the overall dependence on the wetland. This counterintuitive result is attributed to the provision of alternate livelihood avenues combined with attitudinal changes that made people more receptive to conservation/sustainable use messages.

A focus on time-bound interventions also necessitated an examination of such interventions in the context of a longer term view of project specific outcomes. The behavior of resource users in at least one case study demonstrates that from the sustainability/wise use perspective, poverty reduction will not necessarily lead to ecosystem conservation, and in fact may result in the exact opposite since household consumption levels will continue to rise past the point where desired income exceeds that which can be provided by the ecosystem through sustainable methods. The same case study also shows the situation to be more complex and open to influence by a range of dynamic factors such as population growth. As such, resource dependence as a long-term basis for wise use may not be the ideal solution if increasing pressure on the natural resource base cannot be diverted to alternate sources of non-resource based income. Broader economic growth in the area

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that will create such jobs thus emerges as another critical condition for ensuring sustainable use arrangements remain so over time. Thus, the temporal dimension to sustainability should be more expressly recognized and this in turn challenges interventions to consider how strategies suited to the present can also build capacities to deal with change over the long term. As suggested by the literature, one means to do so is to ensure investment across the various capitals (i.e., biophysical and ecological; social, human, cultural and political; economic; and policy, institutional and legal) on which households draw on for resilience and adaptation in times of change.

The case studies also suggest a high degree of commonality between the strategies or interventions adopted to promote an integrated approach in wetlands and those applicable in other ecosystems. This is perhaps to be expected if the view that many ecological issues are fundamentally manifestations of human interactions, and that people share the same or similar motivations irrespective of whether they depend on a wetland or a forest. However, one critical difference that emerged was the dynamic nature of many wetland systems particularly in their biophysical attributes, and the potential for such dynamism to effect drastic changes in ecosystem services over a relatively short time frame. Thus, biophysical structure and tidal setting (in coastal systems) carry fundamental implications for management strategies.

Although not reflected in the case studies used for this report, it appears pertinent to recognize the importance of viewing local resource management objectives on a broad globalized canvass as recent events have demonstrated. Poverty reduction strategies based upon conservation and management of wetlands by themselves may be offset by global market trends and national fiscal policy as witnessed by the rising fuel costs and inflation that erode household income and push wetland dependent households into deeper deprivation unless they access alternative income sources.



## 1. Background and Report Structure

The International Water Management Institute (IWMI) was contracted by Wetlands International (WI) to identify existing lessons and good practices in creating mutually supportive links between human well-being and wetlands management with respect to poverty reduction of local communities and wetlands conservation. This study forms part of WI's Wetlands and Poverty Reduction Project (WPRP) that seeks to influence policy and practice at all levels to enhance the recognition of this people-ecosystem interconnection. In addition to this study, the WPRP funds four Demonstration Projects (one each in Kenya, Mali, Zambia and Malawi, and Indonesia) each spanning between 2 to 3 years. In selecting wetlands that exhibit high biodiversity values as well as human use, these projects seek to further explore methods for promoting win-win situations of sustainable ecosystem conservation whilst contributing to poverty reduction. The results of this IWMI study and the Demonstration Projects will be shared by WI with the broader conservation and development communities. In addition to this report, the IWMI-WI collaboration will also contribute several other outputs in support of WPRP's overall objectives. These are a Communications Brief summarizing the current report for policymakers; and a Conceptual Framework for understanding and evaluating wetland conservation and poverty reduction outcomes in line with the framework used in the current report but further refined based on an evaluation of WI's four Demonstration Projects at the end of 2008. The major addition to the framework presented in this report will focus on the identification of trade-offs necessary to achieve a balance between conservation and poverty reduction objectives.

Underlying this piece of work is the belief that there needs to be closer collaboration between conservation and development actors who may often work in common areas without always realizing the interdependence of the issues they seek to resolve. Healthy and resilient aquatic and terrestrial ecosystems provide a diverse range of services to humans that are essential in securing food and livelihoods security, especially of the rural and peri-urban poor. However, such ecosystems typically remain poorly integrated within land and water resources management and food production systems; the factors required for maintenance of the ecological character of ecosystems are seldom met, and the overall socioeconomic value of ecosystems to people living in basins across the world is underestimated. As a result, many ecosystems including many wetlands are subject to increasing degradation, with serious attendant implications for human well-being, especially in the longer-term. Closer collaboration between the conservation and human development groups is thus likely to benefit both people as well as the ecosystem by realizing optimal ecological services sustainably. It is thus hoped that the compilation, synthesis and sharing of lessons learned will demonstrate both the need for a more cohesive approach to addressing the conservation-development nexus and provide insights, in the form of lessons and good practices, on how various challenges could be approached.

This report consists of six parts: the main report and five annexes. The main report presents the findings of the study and is thus a synthesis of the case studies, e-forum and other literature (these are described in the *Methodology* in chapter 3). As such, its contents focus on highlighting lessons and good practices that lead to or support the integration of wetland conservation and poverty reduction. The annexes provide the supporting information for the main report, and each annex details a key component of this supporting information.

Annex 1 provides an extended summary of each case study referred to in the main report. The temptation to shorten these summaries has been resisted in the belief that some degree of detail is necessary to provide adequate context to enable the reader to understand how the lessons and good practices identified in the main report have been derived from the case studies. The outcomes of the e-forum held at the beginning of the study are summarized in Annex 2, while Annex 3 contains descriptions of the three conceptual frameworks that were combined to develop the framework that guided this study. As explained in the *Methodology* in chapter 3 of this report, the conceptual framework was applied to each case study through a matrix, and these form the content of Annex 4.

## 2. Introduction

Wetlands are areas where water is the primary factor controlling the environment and the associated flora and fauna. There are several definitions of wetlands that have been put forward. The Ramsar definition of wetlands<sup>2</sup> which is widely used, is a broad one, encompassing not just marshes and lakes, but also coral reefs, peat forests, temporary pools, riparian systems, even underground caves, and other systems found everywhere from the mountains to the sea, including man-made habitats such as aquaculture ponds and irrigated agricultural lands. The Environmental Protection Agency (USA) defines wetlands as “areas where water covers the soil or is present either at or near the surface of the soil all year or for varying periods of time during the year”. They define two broad categories of wetlands - coastal or tidal wetlands and inland or non-tidal wetlands (EPA 2007). What is clear is that wetlands encompass a vast and diverse range of ecosystems and as such, representing a wide array of relationships and services to both people and biodiversity.

The diversity of wetlands in developing countries is considerable, and has played a critical role in the development of human society, agricultural settlements and urban centers from historical time (Swaminathan 1989). Wetlands vary by type and size based upon geographic location. The socioeconomic linkages of rural communities to these wetlands are equally variable, ranging from subsistence to commercial. Myriad management implications stem from this wide diversity (Finlayson and Moser 1991; Maltby 1986; Duggan 1990). The adverse human impact on wetlands in developed and heavily populated parts of the world, has ranged from significant to total (Maltby 1986). Similarly, in developing countries, many urban centers have replaced wetlands, both freshwater and coastal, as low-lying areas were filled for construction of infrastructure and habitation (Mitsch and Gosselink 1993). In this process, wetlands were generally regarded as land development opportunities where the returns on investment were attractive. The interests of segments of society which depended on wetlands, directly or indirectly, were either ignored or subsumed under the overall rubric of development. Many reviews of the interaction between humans and wetlands show a worldwide trend of diminished wetlands (Finlayson and Moser 1991).

The lives of the vast majority of the poor in developing countries are linked to rivers and associated wetlands fundamentally for their food security. According to the World Bank definition of extreme poverty, i.e., surviving on US\$1 per day, the aggregate number across South Asia, East Asia, Africa and South America, would exceed the population of North America (Saith 2003; Ahmad et al. 2001). If the poverty threshold of US\$2 per day is used, the poor who are dependent on the same sources of water for livelihood and survival strategies exceed the combined populations of the European Union and North America. Wetland ecosystem structure and functioning, population growth, land use impacts, microeconomic conditions, macroeconomic policy and globalization influence the livelihood and survival strategies of dependent populations, especially of the poor.

The complexity of poverty is portrayed in an extensive literature such as the Human Development Reports (UNDP 1990-2005; Narayan and Petesch 2002; World Bank 2001). Poverty is a complex phenomenon because it is both multidimensional and dynamic in nature. In recent times there have been many and varied explanations of poverty that have been put forward by international agencies, government institutions and also by poor people themselves. One such widely used definition that captures the fact that poverty comprises of different dimensions states that “Poverty is a multidimensional phenomenon, encompassing the inability to satisfy basic needs, lack of control over resources, lack of education and skills, poor health, malnutrition, lack of shelter, poor access to water and sanitation, vulnerability to shocks, violence and crime, lack of political freedom and voice” (World Bank 2001).

Poverty is also clearly not a static phenomenon with some people remaining in a state of chronic poverty, while others experience a state of transient poverty. According to Holzmann (2001), there is an increasing volume of empirical evidence that shows that the poor consist of those who are always poor and those who move in and out of poverty, with the latter group being strikingly large. Different types of interventions would be required in order for the transient and chronic groups to overcome

<sup>2</sup>“areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters” (Ramsar Convention, Article 1.1).

poverty (Tudawe 2002; Hulme and Shepherd 2003) and this would apply to poor people living in or adjacent to wetland systems as well.

The World Development Report 2000/2001 states that effectively combating poverty is not just a matter of fostering economic growth, but is also a matter of tackling the political and social inequities that keep poor people poor. In a world where political power is unequally distributed and often mimics the distribution of economic power, the way state institutions operate may be particularly unfavorable to poor people. Because of these realities, “facilitating the empowerment of poor people -- by making state and social institutions more responsive to them -- is also key to reducing poverty” (World Bank 2001).

The relationships among development, poverty and equity are articulated in World Bank (2006). Poverty reduction requires diverse approaches (Carney et al. 1999) that are adopted at both the micro-level as well as the macro-level. With regard to the latter, Sachs (2005) promotes development assistance coupled with ‘central’ planning and implementation. Easterly (2006) argues that centralized planning and development assistance are the problems that cause poverty in the absence of appropriate incentives. All agree that economic growth is essential for poverty reduction. Daly (1991) argues that sustainable economic growth is impossible since the earth’s ecosystems are finite, non-growing and materially closed. However, he shows that a non-growing economy can contribute to sustainable development at the local level where: a) renewable resources are exploited in a manner where harvesting rates do not exceed regeneration rates, and b) waste emissions do not exceed the renewable assimilative capacity of the local environment.

This essentially constitutes ‘wise use’ of wetland resources (Ramsar Convention Secretariat 2007). The question remains, however, whether wise use of wetlands by itself can contribute to poverty reduction of dependent populations?

The fact that wetlands deliver a wide range of critical and important services vital for human well-being is well-known. This was confirmed in the Millennium Ecosystem Assessment’s (MEA) synthesis report to the Ramsar Convention “*Ecosystems & Human Well-being: Wetlands & Water*”. However, what was also confirmed by the report was that degradation and loss of wetlands is more rapid than that for other ecosystems, and wetland-dependent biodiversity in many parts of the world is in continuing and accelerating decline. Of particular relevance to this study, the MEA also verified that losses tend to be more rapid where human populations are increasing most and where demands for increased economic development are greatest, and that the projected continued loss and degradation of wetlands will result in further reduction in human well-being, especially for poorer people in less developed countries where alternate livelihoods are not as readily available. The MEA concludes by emphasizing that progress towards achievement of the UN Millennium Development Goals such as the eradication of poverty, therefore, depends on maintaining or enhancing wetland ecosystem services, and that to do so, a cross-sectoral focus is urgently needed from policy- and decision-makers that emphasizes securing wetland ecosystems and their services in the context of achieving sustainable development and improving human well-being.

Noting these conclusions made by the MEA and the Millennium Development Goals, COP9 of the Ramsar Convention, through Resolution IX.14 on “Wetlands and poverty reduction”, urges contracting parties and other governments to take action to contribute to poverty reduction, highlighting the importance of access to resources, ecological sustainability, governance and economics. It went on to stress the central role of local communities and linking wetland management and restoration with poverty reduction in this work through the need to:

- review and improve existing financing mechanisms for wetland management to help address poverty reduction;
- develop new ideas such as local agreements with wetland communities to enable the maintenance of ecosystem services;
- ensure that gender equality and sensitivity to local communities are taken into account in sustainable wetland management strategies;
- raise awareness of the self-perpetuating cycles that result from the relationship between wetland degradation and poverty;

- give priority or support to the conservation and wise use of water and wetlands in national poverty reduction strategy papers, IWRM and other policies; and
- create new partnerships between local communities, developers and conservationists to ensure that local perspectives are included and that existing sustainable livelihood strategies are respected.

In relation to the above Ramsar Resolution, it is clear that sound wetland management is now expected to not only cover conserving the ecological integrity of the ecosystem but also pay specific attention to the local people's well-being, thus contributing to alleviating their poverty status. Therefore, integrated approaches that incorporate both conservation and development needs of the wetland system will need to become the norm. In this context we refer to the existing literature on Integrated Conservation and Development Projects (ICDPs) and investigate where wetland management strategies sit within the overall lessons that are emerging.

In the early 1980s in response to inadequacies of the traditional exclusionary 'fences and fines' (Brandon and Wells 1992) approach to conservation, a call for strategies to win local people over as allies for conservation transpired (IUCN, UNEP and WWF 1980; McNeely and Miller 1984). Particular emphasis was placed on resolving local resource user conflicts and contributing to local economic and social development to transform conflicting people-protected area relationships into collaboration for resource stewardship and mutual benefits. Practical conservation lessons combined with the belief that excluding people from traditional resource bases was not politically or morally defensible. Though originating from a general Protected Area (PA) context, the idea of eliciting local support for conservation objectives and the need for supplying tangible local level benefits was seen to apply more broadly to ground realities outside PAs. In fact, this thinking aligns closely to the principles of sustainable development that include effective biodiversity conservation; increased local community participation and economic development for the rural poor (Hughes and Flintan 2001; Wells and McShane 2004). The emergence of poverty reduction as a leading global issue of current times is clearly reflected in the UN resolution on the Millennium Development Goals, where the first goal refers to halving the proportion of people living in extreme poverty by the year 2015. This has laid further emphasis on the potential contribution of the ICDPs as they have come to be termed.

Experiences over the past two decades from an expanding assemblage of ICDPs have provided the basis for several evaluations of how well on-ground results match the conservation and developmental benefits expected by the theory, and whether the results support the fundamental underlying assumptions of the theory, namely that local people are a primary driver of natural resource degradation, and that improving living standards will promote conservation by reducing people's dependence on natural resources thereby removing the need for unsustainable exploitation. The results appear mixed, with strong concerns surfacing based on what were perceived to be unconvincing results regarding the reconciliation of people's development needs with conservation objectives (Brandon and Wells 1992; Kremen et al. 1994; Gibson and Marks 1995; Newmark and Hough 2000). Some studies provide a more positive opinion (Hamilton et al. 2000). Overall, based on the literature at the time Brandon and Wells (1992) conclude that the majority opinion suggests that causative links between conservation outcomes and the application of development tools remains unclear. Some of the main concerns are as follows:

#### **Assumed link between increased local community well-being and biodiversity conservation outcomes are unclear**

Brandon and Wells (1992) contend that the assumption that people will stop unsustainable/illegal use if provided viable alternatives has not been demonstrated, and that households will continue existing activities along with new ones unless the new activities can absorb all their labor. They will do this because meeting poor people's basic needs do not necessarily also meet their material aspirations that call for continued maximal accumulation of wealth. In fact, according to Ferraro and Kramer (1997), increased affluence has been documented to have been used to intensify the activities which the alternate income sources were meant to undermine! In addition, some economic activities such as hunting often have a social or cultural dimension (Gibson and Marks 1995). Furthermore, as Berkes (2004) points out, real communities are far from the idealized cohesive units; they are complex sociopolitical units that are constantly changing. Achieving coherence between conservation



objectives and community resource stewardship involves alignment with a myriad of (sometimes conflicting) physical, social, cultural, economic, political and institutional conditions and objectives of multiple subcommunity groups.

A related observation is that improved well-being may in fact increase demand for meat and other wildlife products (Barrett and Arcese 1995), while others have suggested that enhanced well-being has attracted in-migration creating new threats to the environment (Hughes and Flintan 2001). Another important factor put forward is the poor understanding of the socioeconomic and ecological dynamics of conservation and development linkages in the local context leading to project strategies based on inaccurate assumptions (Stocking and Perkin 1992).

### **Alternate incomes have had low returns and many may be unsustainable**

Impacts on poverty and well-being have tended to be short-termed, and few claims to success have been backed by a rigorous impact assessment and quantification process (Wells and McShane 2004; Garnett et al. 2007). Reviews have focused on the central role of markets in making alternate income generation viable, and in particular their stability (price and exchange rate fluctuations, and political unrest), local experience in marketing and the logistical and procedural investments necessary for successfully accessing markets. As pointed out by Garnett et al. (2007) and others, many alternate income strategies are still dependent on a natural resource, and thus each requires the productivity of the resource to be maintained. This will be difficult where increased production is necessary either due to depressed prices or where higher prices for products attract more people to the activity or increases the incentive for imitation and competition from external sources. In other words, these livelihood activities are also precariously balanced between the ecological constraints and economic reality.

### **Poor understanding of local context**

The depth of knowledge of local social, cultural and economic situations and trends, and linkages between them has been found to be especially weak. For instance, the use of inappropriate social units due to a failure to understand kinship hierarchies and gender roles (especially women) has hindered local participation and the equitable distribution of benefits within and between communities (Gibson and Marks 1995; Hughes and Flintan 2001). As one review of community-based conservation projects suggests (Berkes 2004), equity (and empowerment) are often more important than financial benefits per se for community participation in conservation. Moreover, a prescriptive approach to designing interventions and a lack of attention to local knowledge also overshadowed the fact that communities have their own perspectives on what conservation is or could be, and that these needed to be factored into the solutions (Berkes 2007). As Garnett et al. (2007) indicates, biodiversity or ecosystem preservation is valued more globally than locally, and that those seeking biodiversity conservation in poor countries are usually external stakeholders and are often confronted with both national and local stakeholders who place greater value on resource extraction. Thus, the reviews of ICDPs clearly illustrate that each case is conditioned by the context in which it evolved, thereby emphasizing the need for a detailed understanding of context before seemingly workable solutions from elsewhere (i.e., blueprints) are applied.

In addition to this narrow conceptual basis, pressure from donor project cycles and the use of external consultants unfamiliar with local contexts have also been causal factors in the poor adaptation to context (discussed in more detail below).

### **Failure to factor in the dynamic nature of ecological and social processes**

Related to the issue of context, questions concerning the sustainability of ICDP results were also prompted by the static view of ecological and human processes in project defining objectives and expectations. Experiences illustrate that both natural and human processes are in fact dynamic and can have significant impacts on the people's use of natural resources. For example, as human populations increase over time (naturally or due to migration), an ecosystem will be able to meet a declining percentage of that population, forcing communities to abandon sustainable practices (Hackel 1999). Even if population growth is negligible, the dynamic nature of ecosystems may see their productivity decline over time due to changes in their biophysical characteristics and functions.

Garnett et al. (2007) thus emphasize the importance of overall economic growth in the project area to increase the availability of jobs outside of the natural resources-based economy. They also make clear that the finite productivity of ecosystems will also mitigate the degree to which local poverty reduction can be addressed and incentives for conservation established. Failure to understand these limitations have resulted in unrealistic project expectations and undermined the long-term viability of some alternate incomes.

### **Failure to view local context within the framework of broader ecological, political and economic landscapes and drivers**

Hughes and Flintan (2001) find that external threats such as changes in policy, expanded market demand, and illegal commercial operations such as logging and mining are often avoided or overlooked, and cite a study of 21 protected areas (Wells et al. 1998) which concluded that direct threats from local people ranked well behind external processes such as road construction, logging and sponsored migration. After all, communities are often embedded in larger ecological, economic and political systems, and respond to the incentives and pressures brought to bear by them (Berkes 2004). Growing urbanization was highlighted as a major influence on markets (Barrett and Arcese 1995) for many natural products such as meat, timber and water and this fact is especially relevant to wetlands.

The prevalence of external factors as drivers of local biodiversity loss and social and other conditions illustrates the practical limitations of a focus on local ecosystems and communities alone. In fact, a key lesson is that ecological systems are hierarchically organized, with each subsystem nested in a larger subsystem, and that the social systems involved also operate at multiple levels (Berkes 2007). The inference therefore is that interventions must occur at multiple scales through diverse field and policy-level approaches that are vertically integrated, ensuring that site-based actions are directly supported by policy-level actions both nationally and internationally (Wells and McShane 2004). In ecological terms, this also implies a landscape perspective that will expand the options for trade-offs and increase the chances of maintaining ecosystem values within those landscapes in the face of change (i.e., greater resilience). From a governance perspective, this means the appropriate governance system to promote will depend on the level at which the situation is examined. Nevertheless, the increasing influence of globalization will require an institutional hierarchy that links the local level to the various higher levels of social and political organization that impact and shape institutions at the local level (Berkes 2007). Furthermore, these spatial and temporal scale issues should be addressed at the earliest stage of ICDP design (Wells and McShane 2004).

### **Inappropriate and unrealistic project formats and time frames**

A desire by donors to show quick outcomes has resulted in a highly structured and unrealistic time-bound funding process at odds with the key lessons emerging from the ICDP reviews that highlight the need for flexibility in time-lines. Most evaluated project life spans fell into the 3-5 year category which was inadequate for changing the behavior of large numbers of diverse and disparate stakeholders dispersed over large areas needed to achieve results. In other words, too much was being expected in too short a time using inadequate tools (Newmark and Hough 2000; Wells and McShane 2004). What is necessary, therefore, are more flexible financial and temporal arrangements consistent with local absorptive capacities, since neither higher levels of funding nor faster project disbursement were found to correlate with more successful community development. Responding to the pace of the community, rather than attempting to meet externally imposed deadlines, is more likely to produce more meaningful and sustainable results, but will require commitment over many more years (Wells and McShane 2004).

### **Failure to diversify investments amongst several forms of capital**

While many ICDPs have emphasized investment in natural capital, the reviews indicate that those that invest across all forms of capital are likely to build greater human capacities to manage change and enter into resource stewardship arrangements (Garnett et al. 2007). Suggested investments include health, education and skills development, shelter, safety from environmental hazards and

governance.

### **Failure to recognize the need for strategies based on trade-offs**

The pursuit of win-win outcomes despite their elusiveness appears to have inhibited recognition that win-win situations though idyllic, are in fact the exception. In practice, as evaluations have shown the multiplicity of actors and their often competing interests require a willingness to forego the ideal in favor of compromises and trade-offs between human well-being and ecosystem services (Brown et al. 2005; Garnett et al. 2007). A key attribute to success, therefore, should have been the ability to identify, negotiate and implement trade-offs between these multiple interests (Wells and McShane 2004).

Trade-offs also come into play when investing in the capital available to communities. As noted by Garnett et al. (2007), investments in the physical capital such as roads can provide access to markets, but can also open opportunities for logging. Improved communication, while facilitating access to knowledge, can also generate desires for new consumer products. Thus, capital investments will often involve a trade-off with natural resources to varying degrees.

### **Insufficient or too much devolution or empowerment and local resource stewardship institutions**

While devolution of decision-making over local resources especially to local communities is often linked to 'modern' conservation thinking, the reviews of ICDPs, while confirming that inadequate devolution can be a constraint, also stress that too much devolution can be counterproductive (Newmark and Hough 2000; Berkes 2007). Thus, ICDPs have been criticized for not promoting devolution adequately due to the inability of projects to influence existing administrative systems that vest power in state agencies (Hough 1994), while other studies conclude that too much devolution has been hijacked by the communities that have viewed it as an opportunity to accumulate wealth at the expense of sustainable traditions and invest it in the success of the next generation (Garnett et al. 2007). Garnett et al. (2007) also conclude that the reviews of ICDPs show that community homogeneity is a myth, and that at least some members of the community will seek to maximize returns in as short a time as possible. These views are reflected by Lebel et al. (2006) who warn against the assumption that community-based conservation is the most appropriate approach to integrate conservation and development, especially where the issues transcend local boundaries and will require a multi-scale approach.

### **Failure to match expertise with project needs**

Attempts by conservationists at implementing what are essentially developmental activities have also been a feature of many ICDPs. The danger of overstepping the fine line between dependence and empowerment when implementing development initiatives should be minimized by reflecting a better balance between specialist development practitioners and conservationists in project teams (Newmark and Hough 2000).

### **Poor monitoring and evaluation mechanisms**

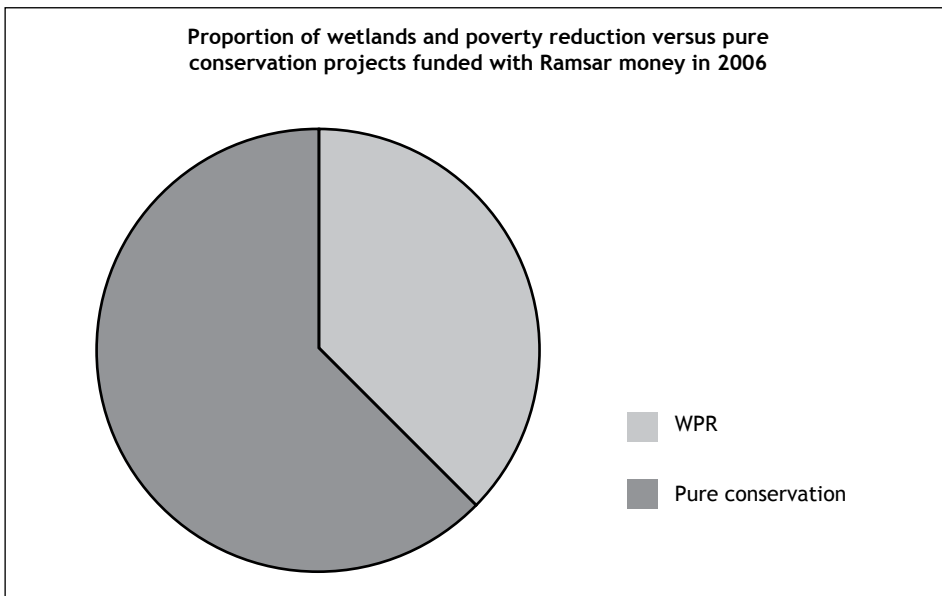
Poor project design, especially the lack of monitoring and evaluation both in ecological and development terms, have caused opportunities for ongoing project learning and adaptation to be lost (Kremen et al. 1994), as well as a means to demonstrate ecological and developmental impact and the linkages between them to be missed (Wells et al. 1992). In view of the complexity of the challenges and incremental nature of progress towards project goals, adaptive management processes that integrate project design, management, and monitoring to systematically test assumptions in order to adapt and learn have been suggested (Wells and McShane 2004).

As described above, while the observed shortcomings of ICDPs may be many, it has also been pointed out that a majority of the problems identified are not specific to ICDPs, but are in fact quite generic to most conservation and/or development projects. Moreover, while some conceptual assumptions of ICDPs have been questioned, many shortcomings are more the results of poor project design and implementation (Newmark and Hough 2000). For example, some assessments (e.g., Ferraro and Kramer

1997) draw specific attention to the distinction between the views of communities on conservation and those of project leaders and other staff. The issue for communities was not necessarily the idea of conservation per se, but the failure of projects to offer adequate alternatives, or other aspects of project implementation such as public relations. Thus, whilst valid, the assessments do not suggest that the ICDP approach be discarded, and in fact increasingly recognize the validity of linking conservation to local poverty reduction and broader social development (Wells and McShane 2004; Garnett et al. 2007).

As recognized by Wells and McShane (2004), the concepts, tools and processes that could support the application of integrated approaches are still being developed and understood. They, thus value the early rounds of ICDPs as opportunities for gaining a better grasp of the links between conservation and development at different spatial scales and in different contexts. In relation to wetland work, although their value is being increasingly recognized, integrated approaches are only recently beginning to find their place even with the Ramsar Convention, which provided a majority of its funds to pure conservation interventions in 2006 as illustrated in Figure 1. Many also recognize that this approach, like others, has its inherent limitations, and therefore should be viewed not as a comprehensive solution, but as one of several options to be applied in any combination as required by each situation (e.g., Newmark and Hough 2000; Hughes and Flintan 2001).

**Figure 1. Proportion of projects funded by the Ramsar Convention in 2006 with both conservation and poverty reduction components.**



Source: Resolution IX.14: Wetlands and poverty reduction, 35<sup>th</sup> Meeting of the Ramsar Standing Committee, February 2007.

Note: WPR = Wetlands and Poverty Reduction

It is interesting to note that overall, the current ICDP literature appears to focus mainly on terrestrial forestry ecosystems. During our review we came across very little material pertaining to ICDPs in relation to wetland ecosystems specifically. We, therefore, hope to investigate through our study, whether wetland-related ICDPs reveal similar or different lessons to those highlighted in the general literature and address the question of whether the type of ecosystem involved influences the nature of integrated approaches. Moreover, we also hope that the lessons and good practices identified through our review contribute to the continuous iterative learning process that is essential for addressing the shortcomings of ICDPs highlighted by the current literature.

### 3. Methodology

#### 3.1 Collection of Required Data

The identification of lessons and good practices constituted a desk-based study using completed or near-completed projects as case studies, and supplementing these with an e-forum discussion on wetlands conservation-poverty reduction with individuals and groups of practitioners working on wetlands and poverty issues in different parts of the world, and other existing published literature sourced through a web and library literature search.

##### 3.1.1 *The criteria for selecting case studies*

A set of criteria was initially developed by IWMI and presented at the WI Consortium Workshop held in January 2007, where feedback was obtained and the criteria finalized thereafter.

The criteria used for the selection of case studies were as follows:

1. Integration of wetlands conservation and poverty reduction of communities living within or adjacent to the site.
2. Existence of natural resource-based livelihood activities (the project/initiative should not focus entirely on the conservation needs, but should also involve the livelihood activities linked to the wetland).
3. Size of the population dependent on wetlands (examples of high and low dependencies to look at their different implications).
4. Type of wetland - a range of wetland types to cover diverse ecological conditions.
5. Size of wetland (examples of small and large wetlands to look at their implications).
6. Land tenure - state, communal, private landownership (examples of each will broaden the lessons in terms of their relevance).
7. Legal status - Protected Area (PA) versus non-PA (as for criteria 5 above).
8. Management - State versus community versus private management (as for criteria 5 above).
9. Project duration - 1-2 years, 5-10 or more years (examples of short and longer initiatives will help explore the role of time in understanding change processes).
10. Rural - urban setting (at least one example of an urban wetland is desired).
11. Geographic location - Africa, Asia and South America (focus mainly in developing country contexts).

The set of criteria and explanatory note was circulated widely amongst both the conservation and development fraternities through several well established list-servers and IWMI, Wetlands International, the Ramsar Forum and personal networks. This was supplemented by an internet search. Finally, seven case studies (Annex 1) were selected out of almost 50 projects by applying the set of 11 criteria listed above. Whilst no single case study was expected to represent all the criteria, the criteria was used to generate case studies that reflect the diversity in the context faced by conservation and development practitioners, in terms of varying ecological, geographical, human and administrative settings.

As shown in Table 1, the seven case studies represent different geographical regions - four from Asia (two in Southeast Asia and two in South Asia), two in Africa (one from West Africa and one from South Africa) and one from South America. Five of the wetlands are in a rural setting while two are in a proximity to urban areas. A range of wetland types were also represented - for example, a freshwater lake, a brackish water lagoon, flooded grasslands, flooded forests, mangroves, marsh, and peatlands. While six of the sites are inland one is a coastal site. The size of the wetlands also varies - the smallest square area being 174 hectares (ha) and the largest 260,000 ha. The number of people living in the wetland area also varies significantly. While three of the sites were declared PAs, three sites were not protected and one site was only partially protected (56% of the wetland site). One common feature in the seven sites was that there were wetland management initiatives being implemented at the sites and these all attempted to address both conservation and poverty issues (although perhaps to varying degrees).

Table 1. Case studies selected.

#	Project title	Location (site name)	Duration		Wetland type		Geographic location		Rural or urban	Size	Project duration (years)	Population in the area	NRS-based livelihoods	Legal status	Mgmt type prior to project	Land tenure
			Start	End	Region	Country	Region	Country								
1	Lake Fundudzi Conservation Project (part of the Mondli Wetlands Project)	Mondi Wetlands	2002	Ongoing	Multiple. lake and peatlands, springs, marshes	Inland	Africa	South Africa	Rural	Approx. 174 ha	5+	Approx. 6,000	Subsistence farming and fishing	Not protected	Open access	Private + State
2	Sustainable Exploitation of Lepironia Grassland Integrated with Local Traditional Handicraft Conservation Project	Phu My village in Kien Giang Province	Nov. 2004	May-2006	Flooded grassland	Inland	Asia	Vietnam	Rural	2,890.5 ha	7+	Approx. 350 households	Paddy and handicrafts	PA (Nature Reserve)	Open access	Public and Private
3	Integrating Conservation with Rural Development at Cao Hai Nature Reserve	Cao Hai	1993	2005	Lake (fresh water)	Inland (plateau)	Asia	China	Rural	96 km <sup>2</sup>	10+	Approx. 23,000	Farming fishing handicrafts	PA (Nature Reserve)	Protected area with prohibitions on access	Public in the PA and private surrounding
4	Integrated Resources Management Programme in Wetlands in the Muthurajawela Marsh Negombo Lagoon (MMNL) complex	Muthurajawela Marsh and Negombo Lagoon	1998	2003	Barrier-built estuary and marsh and marginal mangroves	Coastal	Asia	Sri Lanka	Urban	6,232 ha	5+	Approx. 714,428	Multiple. Fisheries dominate	56% Legal cover	Co-mgmt between state and communities	State-private mix

Table 1. Case studies selected. (continued)

#	Project title	Location (site name)	Duration		Wetland type	Geographic location		Rural or urban	Size	Project duration (years)	Population in the area	NRS-based livelihoods	Legal status	Mgmt type prior to project	Land tenure
			Start	End		Region	Country								
5	Mamirauá Sustainable Development Reserve Project	State of Amazonas, Northwest Brazil	1992	2002	Seasonally flooded forest	South America	Brazil	Rural	260,000 ha	10	Approx. 3,600	Fisheries, some agriculture, hunting and timber extraction	PA (sustainable development)	PA prohibiting people and resource use (but treated as open access)	State communal
6	Joint Wetlands Livelihoods project in the Hadejia-Nguru Wetlands	Hadejia-Nguru Wetlands in Hadejia-Jama'are-Komadugu-Yobe Basin	2002	2007	Delta	Africa	Nigeria	Rural	2,000 km <sup>2</sup> (basin is 84,000 km <sup>2</sup> )	5	Approx. 1.5 million	Multiple. mainly farming and fisheries	Not protected	Mainly open access	State-private mix
7	Developing markets for watershed services and improved livelihoods-Conservation of Bhoj Wetlands through Incentive Based Mechanisms	Bhopal	2005	2007	Lake	Asia	India	Rural and urban	36 km <sup>2</sup> (360 km <sup>2</sup> with watershed)	2	Approx. 1.25 million	Agriculture (rural), fishing and non-wetland employment (urban)	Wetland of national importance	None	Privet in catchment and city

### 3.1.2 Summary of selected case studies

#### **Case Study 1: Lake Fundudzi Conservation Project (2002-Ongoing)**

##### **Background**

Lake Fundudzi is South Africa's only inland freshwater lake. Located in Limpopo Province in the north, the lake's catchment includes peatlands, springs, slope seepages and valley bottom marshes. The lake itself is 144 ha and the 10 surrounding wetlands are approximately 30 ha in total. Around 6,000 people live in the lake catchment and many are unemployed women and children and the elderly, as many of the young and middle-aged men have left to find work in the cities. Dependence on the wetland system is high with harvesting natural resources for food (especially fish), medicine, construction material and water. Subsistence farming is the dominant form of agriculture. An increasing number of fruit orchards and vegetable gardens are being established in the catchment, and more people are relying on cultivating both winter and summer crops for food security. The lake is considered to be the home of ancestral spirits and is thus very important for the fulfillment of religious needs amongst the local Tshivha community. Threats included clearing of natural vegetation for orchards, vegetable gardens and new residential stands. A complex mix of traditional tribal authorities, local political councils and government departments caused uncoordinated land use by assigning land for different and often conflicting uses, some which resulted in wetland loss. Excessive lake sedimentation in the catchment and surrounding wetlands occurred due to poor land management such as cultivation on steep slopes without soil erosion control measures. Inadequate horizontal and vertical integration structures also inhibited collective action to resolve these issues.

##### **Project objectives and strategies**

The main objective was to promote and facilitate effective participatory wetland rehabilitation and sustainable use in communal areas to bolster local incomes. Environmental awareness was promoted and capacity developed amongst the local community and government authorities for resource use planning. This was linked to the integration of sustainable use concepts and processes into the government's Integrated Development Plan for the area. The project strategically aligned wetlands and their hydrological functions with water management and the new National Water Act, taking a broad ecosystems and catchments approach and avoiding a narrower focus on species conservation, which would have failed to demonstrate links between wetlands and people. This was supported by demonstration projects on practical approaches to sound wetland management that included processes and activities based on participation and wise use. Short-term local poverty reduction was promoted through employment in wetland rehabilitation activities. Longer term poverty reduction was supported through skills development (primary healthcare, basic adult education, gender equality, family planning, HIV/AIDS, first aid, safety, swimming, fire fighting, and financial management) to broaden people's employment opportunities. This was also aimed at raising personal self-belief and self-esteem crucial for empowerment. Community-government links were maintained by working with traditional leadership, farmers, and government extension services in agriculture and environment. It was hoped such cooperation would help institutionalize sustainable use concepts and participatory processes.

##### **Outcomes and impacts**

The lake's rehabilitation has made significant contributions to associated biodiversity and ecosystem services. Wetland vegetation increased as did streamflows. Soil erosion control measures such as contours to reduce sediment helped protect the large fishing community and households that purchase fish as their main source of protein. Freshwater springs used for domestic use were protected by reforestation around the springs. Rehabilitation of wetlands around the lake enabled expansion of community food gardens by supplying additional water, though this may become an issue in the future if expansion is not managed. Water is now more dependable and accessible to livestock farmers. Women's groups established for weaving traditional and tourist crafts from wetland plants are operational. Efforts to raise awareness and develop capacities have generated positive social change. Communities now participate actively in lake management through seven village committees and a multi-stakeholder executive committee that includes traditional chiefs and government staff as invited members at meetings to offer advice on issues. Participation has also resulted in a fairer distribution of ecosystem services and project benefits. Awareness raising, participatory dialogues and tangible results of restoration have helped communities to realize the value of protecting natural resources and has changed the way they view the environment. The collaborative processes have also eased tensions between traditional leaders and government departments and differences amongst traditional leaders themselves, enabling greater willingness to work together. This also facilitated the integration of the Lake Fundudzi Conservation Project into the government's Integrated Development Plan (IDP) for the area to ensure that the lake and associated wetlands are featured in future land use plans.



## **Case Study 2: Sustainable Exploitation of *Lepironia* Grassland Integrated with Local Traditional Handicraft Conservation Project (2004-2006)**

### **Background**

The Phu My wetland is a seasonally flooded grassland of 2,890.5 ha in the Kien Giang Province of Vietnam. Its particular ecological importance results from it being the largest remaining *Lepironia* grassland in the Mekong Delta. In view of acidic soils in the region, the wetland also affords a key resource to the local economy, and especially to the Khmer people and their traditional livelihoods making handicrafts from the grass. However, this dependency and low incomes also led to over-exploitation in the absence of any regulation of access to the wetland. In addition, emerging pro-agriculture land use policies in the province presented the real danger of conversion to agriculture since wetlands were classified as uncultivated land. Already, new irrigation infrastructure had begun to alter the hydrological regime causing changes to soil character and vegetation and declining groundwater levels.

### **Project objectives and strategies**

The project set out to protect the wetland from conversion; to restore its hydrology, and to install a localized land use plan to make the wetland's exploitation sustainable whilst still contributing to local livelihoods. One strategy involved demonstrating the economic value of the wetland services to the provincial authorities, while simultaneously enhancing local incomes by upgrading handicraft production through training and organization to supply to national and export markets. Success in this could lead to a second strategy of having the wetland designated as an 'open' protected area that would allow controlled use based on zoning. Meanwhile, the hydrological problems would need the construction of water control structures to re-establish the hydrological regime.

The basis for changing the provincial policy was baseline data to illustrate and quantify the ecosystem services, coupled with a zoning plan and its codification as protected area rules that provided for conservation, sustainable use and existing agriculture. Livelihood enhancement relied on improving the quality of hat and handbag production and organizing the communities into cohesive production units and market research and development. Women were particularly targeted for roles in the handicraft manufacturing process. The objective was to hand over the production operation to the community through a capacity building and planning phase.

This was supplemented by a revolving fund operated by local Farmer Associations and Women's Unions providing money to households for alternate livelihoods. Preference was given to landless households, and no interest was charged. This was supported by introducing a new rice variety; training in integrated pest management and animal husbandry, and integrating rice and aquaculture. Direct access to local markets was also established to eliminate the monopoly enjoyed by middlemen.

These development activities were complemented by dialogues on conservation and collective assessment of options for balancing wetland conservation with people's need to use it.

### **Outcomes and impacts**

The project convinced provincial authorities to maintain the wetland by demonstrating its true economic value that was significantly higher than its perceived value. The wetland was in fact designated as the Phu My Protected Area in 2004. As an 'open' protected area, four zones were established, each serving different purposes - Ecological Restoration, Exploitation, Materials Growing and Agricultural Production (existing agricultural land of the commune). Resource use is prohibited in the Ecological Restoration Zone. In the Exploitation Zone, harvesting is rotated to enable re-growth of *Lepironia*. The Materials Growing Zone supports restoration by decreasing the pressure on other zones. The Agricultural Production Zone will not be enlarged. The new rules governing *Lepironia* harvesting were incorporated into District law, and will be enforced by the community. Reduced disturbance of the wetland saw the annual Sarus Crane count for 2005 increase from previous years. The area was also included in the Kien Giang Biosphere Reserve recognized by UNESCO in 2007.

By end 2006, 200 of the 350 local households were involved in the project through the handicraft operation or other livelihood skills development activities. Incomes of those involved in handicrafts increased from under a dollar a day to between \$1.9-3.1 a day, which translated into better household nutrition, education and an appreciation of the wetland resources. It also empowered women to attain greater financial and social independence. These results attracted requests for skills training from other villages and an additional 200 people received training. As many of these beneficiaries also began handicraft making, further areas of *Lepironia* have been protected for sustainable harvesting.

The project won the UN-HABITAT's Dubai International Award 2006 for Best Practices in Improving Living Environment from amongst 700 nominations, and was a finalist of the UNDP's Equator Prize 2007.

### **Case Study 3: Integrating Conservation with Rural Development at Cao Hai Nature Reserve (1993-2005)**

#### **Background**

The Cao Hai wetland is a freshwater lake with a watershed and consists of 96 square kilometers (km<sup>2</sup>) in the Guizhou Province of China. Despite its high biodiversity value, especially as wintering ground for the rare Black-necked Crane, its location in one of the most economically marginalized areas of China and the government's drive for rural food sufficiency through agricultural expansion subjected the wetland to a history of alternating land use between a wetland and agricultural land for which it was drained in the 1950s and again in 1972. While designation as a National Nature Reserve (NNR) in 1985 following its restoration as a wetland in 1982 settled the land use question at the policy level, failure of the Nature Reserve rules to accommodate the dependency of local livelihoods gave rise to a new set of problems between the NNR and local communities which threatened to erode the ecosystem. Designation turned what was an open-access system into a closed protected area system. The livelihood impacts of exclusion from the productive wetland resources was exacerbated by a shortage of arable land elsewhere due to hilly terrain and poor soils. Poor access to credit, markets and low skills further constrained livelihood options. Conflict between the NNR staff and communities became acute with encroachment on the one hand, and an inflexible approach to law enforcement by the NNR staff on the other.

#### **Project objectives and strategies**

In this context, the project sought to balance conservation with the real need for poverty alleviation measures at the local level. This would require the relaxation of NNR rules to accommodate some degree of use on one hand, and the active involvement of local communities in conservation on the other.

The starting point was not conservation, but economic and attitudinal upliftment of the communities. The vehicle for this was two micro-credit schemes first implemented on a pilot scale and then expanded. The first level targeted individuals and groups of individuals (the Trickle Up Programme or TUP) through loans of \$100 for commencing new livelihood activities. Selection of these livelihoods had to be justified with respect to the potential to succeed and a business plan. Training was provided to facilitate this decision-making and planning. The second scheme sought to build financial and organizational capacities at the community scale (Community Trust Fund or CTF) through a loan of \$250 given in two equal installments. The communities could decide on how the funds would be spent so long as there was a community-wide benefit. In both TUP and CTF rules imposed by the project were minimized to allow recipient groups' flexibility and a sense of ownership and empowerment.

The TUP and CTF were also the primary platform for changing the perceptions amongst the NNR staff and villages of each other, and paving the way for participatory management of the NNR. The project obtained agreement from the NNR staff to participate in the TUP and CTF as monitors and liaisons between the recipients and the project.

The micro-credit scheme also incorporated a condition that each recipient or group must undertake a conservation activity of their choice based on available resources. This was supported by the environmental education of farmers and schoolchildren.

#### **Outcomes and impacts**

Economic and social - at the household scale, independent economic and social impact surveys in 1997 and 1999 found only three of the 411 TUP groups to have failed. Of the groups surveyed 56% stated that the alternate livelihoods were their main source of income, while 35% reported increased incomes even when compared to the incomes of non-participant households. Other impacts included improved family nutrition and a newfound self-confidence in the ability of families to cope. Review of the CTF also showed significant impact in the construction of roads; drinking water wells; a public health facility; repair and reopening of a school; tourism infrastructure; a site for public meetings and activities, and a fund to deal with sickness, weddings and deaths.

These benefits and exposure to group dialogues and daily interactions between the villagers and NNR staff through the TUP and CTF resulted in a sustainable land use plan for the wetland that allowed fishing and collection of other wetland products according to a zoning plan and open and closed seasons based on voluntary compliance. Protection of bird breeding areas and tree planting on slopes to reduce erosion were also done voluntarily. This collaboration for conservation occurred despite the fact that less livelihoods relied on the wetland consequent to the TUP and CTF which diversified livelihood options. This participatory approach also challenged the basis of NNRs in China. The methods and results at Cao Hai have been recognized by the central government as having potential application in several of the over 700 NNRs established throughout the country.

### ***Case Study 4: Integrated Resources Management Programme in Wetlands in the Muthurajawela Marsh Negombo Lagoon (MMNL) complex (1998-2003)***

#### **Background**

This is a coastal wetland complex including a barrier-built estuary (brackish water lagoon) and marsh, in Northwest Sri Lanka. The marsh and lagoon (MMNL) are interdependent ecological systems constituting a unitary 6,232 hectare ecosystem. The MMNL complex has a history of human use and settlement with rapidly growing urban population pressures and degradation despite the marsh being designated as a sanctuary. The surrounding population is over 700,000 with numerous urban centers along the MMNL borders, where population density varies between 2,500 and 8,000 persons per km<sup>2</sup>. Lagoon and nearshore fishing is the main wetland-based livelihood activity with some agriculture and animal husbandry. Fisheries support around 15,000 people and is the primary income source of at least 3,000 families. Employment in industry, tourism and other development sectors is also prominent. Overall, about 80% of households earn less than \$2/day, of which 37% earn less than \$1/day. Those with the lowest incomes were partially or entirely dependent on extraction of natural resources, and the absence of an alternative choice of livelihoods drives environmentally destructive income activities. Although a Master Plan (GCEC and Euroconsult 1991) and Fishery Management Plan for MMNL were developed under earlier interventions, several threats to the system persisted. These included poverty-driven encroachment in the marsh with settlements located with little thought given to the overall hydrology of the system. Apart from the loss of wetland, biannual floods and water-related health hazards have been prevalent. Pollution through untreated industrial effluent and urban waste and poor enforcement of environmental standards have led to eutrophication and fish mortality in the lagoon. Sediment buildup in the channels connecting the lagoon to the sea obstructs adequate flow of water into the sea. Water exchange between lagoon and sea has been further hampered by rapid and unplanned urbanization. Overfishing and destructive fishing driven by population expansion and absence of alternative employment is also prevalent, and fisheries yields had declined in the lagoon. Land use is highly politicized with severe competition for votes between local politicians.

#### **Project objectives and strategies**

The Integrated Resources Management Programme in Wetlands (IRMP 1998-2003) was one of four interventions in the area between 1998 and 2007. The objective was to implement the management plan of 1994 for the MMNL wetland complex within an ecosystem framework. The fundamental challenge was generating a broad-based consciousness on the need for resource management. The project saw the emphasis of the MMNL as an interdependent system based on a coherent knowledge base as the key to generating local stakeholder support for the draft Fishery Management Plan (FMP) which called for designating the lagoon as a Fishery Management Area (FMA). This involved discussions with fishery organizations, Fisheries Cooperative Societies and NGOs through planning meetings at village level. Maps were prepared to facilitate discussions. These dialogues were followed by four meetings that brought together the communities and senior personnel from the wildlife and fisheries departments to discuss the draft FMP. The MMNL was also to be zoned to prevent habitat fragmentation by providing for multiple uses such as conservation, resettlement, and sustainable use. The process involved creating a stakeholder steering committee and use of maps and resource inventories to explore alternated zoning scenarios.

Income generating activities through micro-credit was begun for household income supplementation to compensate for controls to be introduced by the FMP. Community-based 'fishery committees' were created to facilitate stakeholder involvement in the proposed FMA. Other key interventions included a revolving fund to support fishery management interventions and resettlement of encroachers.

#### **Outcomes and impacts**

Implementation of the Fishery Management Plan and a multiple use zoning system for the MMNL was facilitated. The Negombo Lagoon Fisheries Management Authority was established comprising of members of 10 village-level Fisheries Cooperatives (legal entities with their own constitutions and officer bearers elected in a democratic manner). However, full implementation of the FMP by establishing catch limits and a licensing system was prevented by political interference. With regard to livelihoods development, the overall outcome was mixed, although some activities were instrumental in providing poor fishing families and female headed households with an additional income source. An independent evaluation of this project component concluded that the reasons for some activities to fail were poor analysis of markets and too high expectations of participants' adoption of unfamiliar skills where there was no tradition in engaging in some type of work such as handicraft weaving.

### **Case Study 5: Mamirauá Sustainable Development Reserve (MSDR) (1992-2002)**

#### **Background**

The wetlands in Mamirauá (State of Amazonas, Northwest Brazil) is a complex of seasonally flooded forest, or várzea, with rivers, creeks, lakes, interspersed with forest and shrubland during the dry period. With a core area of 260,000 ha and a subsidiary area of 864,000 ha, the area has exceptionally high global and local biodiversity. About 1,800 local and indigenous people live within the core area with other surrounding populations amounting to an estimated 3,600 wetland users overall. These communities have limited infrastructure and access to social services, with high poverty levels, high birth and infant mortality rates and low life expectancy. Lack of awareness of laws and no links to the political system made these communities extremely vulnerable to exploitation that had also created suspicion of outsiders.

The need for legal protection for the area arose out of intense pressure on its resource from politically backed illegal commercial loggers, fishermen and hunters of caiman and other wildlife. Designation, however, posed a problem since the categories of protected area (PA) in Brazil at the time did not recognize the rights of local and indigenous people to live in and utilize protected areas, though such rights were essential given the high poverty levels and dependence on natural resources for food, income, medicines, materials and other services.

#### **Project objectives and strategies**

The first challenge was to include a new PA category that recognized the rights to inhabit and sustainably use the PA in the face of a strongly conservative conservation lobby. This was a precondition for the project's overall objective of sustainable use. The project lobbied the Brazilian Government to change Mamirauá's status using extensive biological and socioeconomic studies to demonstrate the links to people's well-being, but also the viability of sustainable use. Lobbying was also done at a personal level between the project leader and Amazonas State Governor based on an appreciation of potential political mileage to be gained by supporting the project. Survey data was also used to make the Mamirauá problem a national and international issue through television programmes and print media articles making the case for reforming the PA rules.

To ensure sustainable community resource use, a participatory management plan was developed with a focus on fisheries which provides 80% of dietary protein. A fish stock assessment was conducted using local knowledge of fish identification and behavior leading to dialogue on establishing a voluntary management plan that included notions of rights of access that distinguished between local people and outsiders who had no interest in sustainable harvests.

To diversify income opportunities, an ecotourism programme was begun by constructing a floating lodge close to the core area as a low volume-high value venture due to logistical challenges.

The project also needed to alley mistrust at the outset, and used quick and tangible social benefits including the provision of health specialists to fill poor service delivery by the state.

#### **Outcomes and impacts**

A new PA category titled a Sustainable Development Reserve (SDR) was created and Mamirauá designated as such in 1996. SDRs consider local populations as crucial agents of biodiversity conservation, and allow people to live within the area, and use the local resources as long as they conserve biodiversity. In the context of the conservative view of conservation, this marked a radical departure in policy. This also provided the basis to regulate access by outsiders, although the vastness of area and limited resources meant this remained a challenge. Resource users were mobilized into a general assembly of local resource users who could utilize and trade in the reserve's resources. All local stakeholders were invited to the assembly to present their case and the assembly decided, by vote, those who constituted the user group. Project lobbying also earned recognition for scientific research and led to the creation of the Mamirauá Sustainable Development Institute (MSDI) in 1999 as a public-private research entity with government funding.

At the local level, village and producer associations were established with help from the church for collective resource use planning and market access. Several legally registered producer associations including fishermen, farmers and handicraft producers in the Jarua sector were, for example, able to double prices obtained for their produce and to collectively negotiate supply agreements with commercial food chains in the region. Better organization also allowed communities to engage with local administration and lobby for other services. The ecotourism venture provides significant income and employment to several communities close to the lodge, adding about 84% to household income. The lodge has been included in the catalogue of a leading ecotourism operator in the US.

## **Case Study 6: Joint Wetlands Livelihoods project in the Hadejia-Nguru Wetlands (2002-2007)**

### **Background**

The Hadejia-Nguru Wetlands (HNWs) is an inland delta located in Northern Nigeria towards the center of the 84,000 km<sup>2</sup> Hadejia-Jama'are-Komadugu-Yobe Basin (HJKYB). The basin supports 18 million people, 1.5 million of whom reside in the HNW. Predominance of farming, fishing, livestock rearing and wild resource collection indicate a high degree of dependence on the rich wetland ecosystems. These wetlands were estimated to provide \$167/ha in benefits to local people in the early 1990s in comparison to only \$29/ha from irrigated agriculture upstream. The wetlands historically exceeded 2,000 km<sup>2</sup> during peak flooding, but this dwindled to 413 km<sup>2</sup> by 1993 after the construction of two dams and two large-scale irrigation schemes following recurrent droughts. Poor dam design and operation severely altered both the quantities and timings of water flows in the basin, subjecting some parts to prolonged flooding and others to prolonged drought. Resulting wetland degradation undermined many key livelihoods and restricted access to infrastructure and services such as markets. This failure of livelihood systems resulted in severely aggravating poverty and the abandoning of villages. Loss of primary livelihoods forced people to exploit other natural resources triggering a second round of ecological destruction such as deforestation. Other associated threats included increased vulnerability to disease, siltation and invasive *Typha* grass. The lack of a basin-scale institutional mechanism to deal with these issues by rationalizing water management helped prolong and deepen the problems.

### **Project objectives and strategies**

Overall, the project sought to put in place self-sustaining change processes that will culminate in institutional frameworks and practices for restoring ecosystems and resolving livelihood conflicts by addressing the underlying institutional failures that impede rational water management in the basin. At the basin level, this involved promoting an Integrated Water Resources Management (IWRM) policy for the basin and developing an integrated basin level water management plan. This required improving stakeholder communications; advocacy and influencing key decision-makers; building institutions and improving organizational interrelations; and above all, eliciting the will to act. This involved awareness raising to improve the level of debate; workshops and study tours; partnerships with other NGOs, projects and donors and strategic media coverage.

Concurrently at the local level, the strategy was to build capacity of grassroots stakeholders to demand and influence reforms at all levels for the benefit of the wetlands and local communities. The project worked with village communities along river channels affected by siltation and invasive weeds to catalyze resource use planning for conflict management and the equitable use of shared waters in the channel. This involved mobilizing communities previously in conflict over access to land and water resources to develop strategies that gave each resource user the opportunity to use a particular resource at a given time and place. Activities included collective channel clearance; protective flood dyking; water proportioning; pastoral access rights; women's empowerment and livelihoods diversification. A series of exchange visits between clusters of villages helped highlight common problems and build inter-community coalitions and learning.

Overall, a consensus on key issues and their causes needed to be forged amongst the almost 100 stakeholders and their diverse interests. Baseline data collection sought to provide stakeholders with a detailed understanding of cause-effect relationships and management options. Formation and functioning of strategic alliances or coalitions between different groups of water users was facilitated. The media was used to create an overall climate of awareness and support for change within and outside the basin, and to build local support and constituency pressure.

### **Outcomes and impacts**

Broad agreement at all levels on the problem, its root causes and short, medium and long-term solutions was captured in a draft catchment management plan (CMP) approved and adopted by all six riparian state governments and the Federal Government of Nigeria (FGN). A multi-state platform (the KYB Governors' Summit) was created for Governors of riparian States to find common solutions to shared problems through adoption of IWRM. State IWRM Committees in all six riparian states were established, triggering policy and budget support for IWRM from State Ministries of Water Resources (SMWRs) or Water Boards across the basin. At the local level, the KYB Wetlands Development Initiative (WDI) was established by wetland communities to coordinate community/wetland level activities. Marginalized groups, especially women and pastoralists, were integrated into the WDI governing and received priority capacity building support. Funds were generated and allocated for wetland management such as channel clearing.

### ***Case Study 7: Developing Markets for Watershed Services and Improved Livelihoods-Conservation of Bhoj Wetlands through Incentive-based Mechanisms (2005-2007)***

#### **Background**

Bhoj Wetlands is a man-made lake (11<sup>th</sup> century) in the City of Bhopal, India. The lake and its watershed consist of 36 and 360 km<sup>2</sup>, respectively. In view of a rich biodiversity (including Sarus Cranes) despite its urban setting, the wetland was designated as a Ramsar Site in 2002. It provides about 40% of potable water for residents in Bhopal and supports several rural and urban livelihoods including 500 fisher families. Irrigated agriculture is also a major livelihood activity especially upstream of the lake and city. An estimated 34% of the rural population lives below the poverty line. With expanding populations (Bhopal's reached 1.25 million in 2000), expanding settlements in the catchment, direct sewage inflow and runoff, and increased nutrient load from the rural catchment has caused the lake's water quality to deteriorate. Agriculture driven eutrophication was compounded by inadequate soil management upstream causing fish harvests to decline over the years, and health concerns as a source of potable water. The Bhopal Municipal Corporation (BMC) lacked the finances for remedial interventions as raising water charges was not politically feasible.

#### **Project objectives and strategies**

The overall objective was to promote wetland conservation and wise use through incentive based mechanisms, with a particular focus on reducing agricultural runoff. The key challenge lay in orienting the upstream and downstream stakeholders to appreciate their respective roles in lake water quality management, especially in relation to the rural catchment. This would be a complex exercise requiring interactions between multiple rural and urban stakeholders. The strategy adopted involved an incremental process where the first step involved establishing the contribution of the rural catchment to the pollution load of the lake and to identify land management activities that were proven to improve water quality. A review of good management practices to control agriculture nonpoint source pollution concluded that organic farming was the most suitable option. This, however, required two conditions: the growth of the emerging organic market in India so that farmers would have an independent incentive to stay organic, and support for farmers through the transitional phase of converting from chemical to organic farming. This led to the next step of sensitizing stakeholders and reaching a consensus on upstream and downstream stakeholder roles.

Beneficiaries of the downstream watershed services in Bhopal City (local industry, hotels, financial institutions and residents) were facilitated in appreciating the overall value of the lake and the relevance of improving the raw water quality. This included dissemination of calendars and pamphlets; a media workshop on environmental reporting; a workshop on corporate social responsibility; a painting competition with schoolchildren, and a street play on the role of citizens in maintaining the lake. Meetings were also held with the BMC. A 20-minute film highlighting the Integrated Basin Management (IBM) concept in the context of the Bhoj Wetlands was produced in Hindi and English and multi-stakeholder discussions held around the film. Discussions also included stakeholder willingness to support the upstream farmers to adopt organic practices. This related to initially 150 farmers in eight riparian villages along two streams feeding into the lake who were representative of the watershed service suppliers. Informal and structured dialogues were conducted with farmers that confirmed the need for incentives to facilitate the shift towards organic farming to offset transition costs such as sustained knowledge inputs on organic techniques including composting and bio-pesticides; reducing uncertainty of yields; offsetting the likely initial dip in outputs and the starting costs of certification. In addition, chemical farming benefited from national and state level subsidies and agricultural research and extension services. Small farmers in particular would find it difficult to adopt a complete organic approach due to their limited ability to respond to livelihood shocks. Thus, it was agreed that trials be carried out by medium and large farmers who adopted organic farming practices in patches while mainstream agriculture was practiced on the rest. Farmers received training programmes and exposure visits to a local government farm, and to the local jail that had experimented with organic farming practices. Even if these proved viable, getting the poorer farmers to convert would require a payment in cash or kind by the downstream recipients of watershed services in Bhopal.

#### **Outcomes and impacts**

Despite the project's endeavors, no payment mechanism had been initiated at the time of preparing this report. Intermittent transfers of key State bureaucrats supportive of the concept; nascent village level organizations due to insufficient incentives for collective action and negotiations with a complex web of stakeholders have been some of the major constraints. However, a preliminary impact study of the pilot plots suggest that net profit per acre (approx. 0.4 ha) of soybean increases with the shift to organic farming, although transaction costs were not valued. The study concluded that willingness to shift to organic practices is greater if incentives like certification and market support through differential pricing systems are arranged. A few senior policymakers are interested in experimenting with the IBM concept, and the BMC is now willing to consider a proposal for investing funds in the rural catchment on a pilot basis.

## 3.2 Data Analysis

### 3.2.1 Case study summaries

A “case study summary” was developed for each selected wetland site which ranged from 8-15 pages in length. Each case study summary followed the structure below:

- Setting the broad situational context that describes the geographical, ecological and human setting and key ecological and human challenges.
- Understanding the project objectives which needed to include elements of improving human well-being whilst conserving the wetland ecosystem.
- Identifying the key issues faced by the wetland and people underlying the project objectives.
- Identifying the interventions/strategies implemented by the project to address the issues and thereby meet each of its objectives.
- Linking the key outcomes of the project interventions to the issues and project objectives.
- Extracting lessons and good practices by trying to understand what decisions, actions or strategies contributed to successes as well as less successful interventions. More specifically, the study sought to understand how an intervention’s design and implementation affected the outcome. It also sought to ascertain whether there were certain in situ or external conditions that influenced the outcome, the assumption being that in each case, there may be key conditions that determine the level of success.

The case study approach also sought to identify lessons at a broader level than simply those linked to individual interventions. This included themes such as the relationship between project time frames and the processes of change; the implications of dynamic physical and ecological changes that occur in different wetlands and their implications for sustainability of poverty reduction strategies; the evolution of people’s developmental and material aspirations vis-à-vis what wetlands (or natural resource based livelihoods) can sustainably support and the implications for livelihoods-based conservation strategies; working with multi-stakeholder groups and conflict resolution. The basis for this two-level approach was the belief that whilst it was important to understand what made particular interventions or activities (e.g., establishing a livelihood activity or a resource user group) work, there exist broader contexts that influenced the project’s outcomes overall, and which constituted fundamental knowledge prior to project design.

The background literature required to develop the “case study summary” was sourced from project documents such as proposals and implementation plans, progress reports, project closure reports, external reviews and from other sources such as journal articles and other publications. Publications or evaluation reports by external parties were especially valued as sources of independent assessments, especially in view of the fact that this study, for budgetary reasons, did not involve in situ verification through site visits. Information from these sources was entered into the standard case study format and sent to focal points identified for each project for verification and further information. This additional information was generated through a series of questions at the end of each case study format which either sought clarifications on existing information or asked individuals for their views on specific aspects of the project. This was an iterative process. The responses were then integrated into the case study structure as a final step.

### 3.2.2 Developing an analytical framework

Recognizing the multi-disciplinary and multi-sectoral approach often called for in creating the diverse ecological, social, policy, legal, and institutional conditions necessary for implementing the wetlands

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<sup>3</sup>Framework - in the context of our work, we use the broadest definition of “framework” as indicated by Schlager (1999) which states that “a framework organizes inquiry by specifying sets of variables of interest. A framework specifies classes of variables and their relationships to each other, providing a kind of intellectual scaffolding that gives a coherent structure to inquiry”. A framework, therefore, allows the integration of several theories of action across domains that would otherwise be examined in isolation from one another and allows comparisons and evaluations (Koontz 2003).

wise use concept, a conceptual framework<sup>3</sup> was developed to help capture and organize these varied dimensions involved in implementing wetlands wise use projects that seek to link conservation and poverty reduction. In the overall synthesis of this report, the framework was also used to group lessons and best practices to represent a logical process that reflects the diverse package of conditions and skills necessary to translate the concept of wise use into an effective management system for sustainable livelihoods and resource use options, within specific geographical, ecological, political and socioeconomic contexts.

To develop our framework to better understand conservation and poverty reduction in wetlands, we initially searched for existing frameworks to ascertain if any suitable ones were already present that could be adapted for the purpose of our study. The conceptual framework we developed therefore draws on three well-established frameworks that are found in the literature and widely used in poverty reduction/development work, sustainable use and conservation discourse and institutional analyses especially in relation to common pool resources. The three frameworks are:

1. The Sustainable Livelihoods (SL) framework that provides a better understanding of the multi-dimensional nature and complex ‘driving’ forces and processes behind the poverty concept (Carney et al. 1999; DFID 2001).
2. The Sustainable Use (SU) analytical framework developed by IUCN’s Species Survival Commission (SSC) Sustainable Use Specialist Group (SUSG) for assessing factors that influence the sustainability of uses of wild living natural resources (Ahmed et al. 2001; Zacagnini et al. 2001).
3. The Institutional Analysis and Development (IAD) framework (Ostrom 1990; Oakerson 1992; Smith et al. 2005; Lorenzen et al. 2007) for investigating the use of common pool resources.

While the SL framework adopts a “people-centered” approach, the SU framework advocates an ecological or natural resources perspective. Together, therefore, the two frameworks help provide a balanced ecosystem-livelihoods approach. The IAD framework focuses on the interaction between local institutions and the environment and thus provides complimentary information to that obtained from the other two frameworks which are relevant in understanding the interrelations between wetland conservation and poverty reduction processes (see Annex 3 for a more detailed description on each of the three frameworks). Interestingly, as illustrated in Table 2, there are several common elements found among the three frameworks even though their origins and main focus vary.

In terms of the assignment at hand (i.e., assessing whether poverty reduction and conservation related goals are simultaneously achievable in wetland management), drawing on relevant components from each of the established frameworks proved useful in designing a simple conceptual framework for understanding how and to what degree wetlands can be managed to conserve their ecological integrity while concurrently contributing to poverty reduction in the local context.

In the proposed framework (Figure 2), all **situational attributes associated with the wetland** (such as the biophysical and ecological; Social, human, cultural and political; Economic; and Policy, institutional and legal) are used to describe the baseline situation existing at the wetland site. The **patterns of interaction** between the different types of attributes result in a particular type of **outcome**. The **desired change** that wetland management initiatives or actions generally hope to gain is to achieve a positive outcome that would increase ecosystem sustainability and help with poverty reduction. This, in turn, may change the wetland’s attributes and result in a new situation. There is, therefore, a feedback, adaptive mechanism from the **lessons learned** through a management initiative. In addition, there are various **externalities** impacting the system (that may originate from either within or outside the wetland) and these may not only affect the attributes and patterns of interaction but also directly impact the outcomes. Further explanation of each element of the proposed framework is given in the text below.

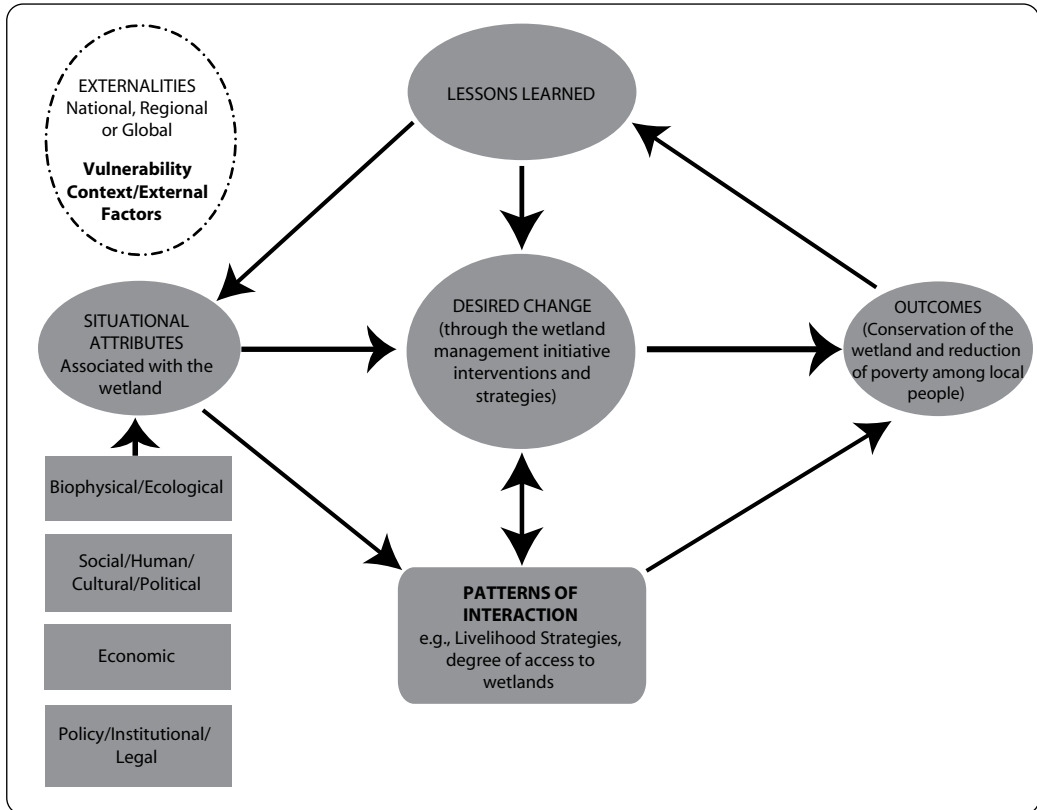


**Table 2. A comparison of the SL framework, SU framework and the IAD framework<sup>4</sup>.**

Different aspects/elements of the frameworks	Poverty and sustainable livelihoods	Sustainable use of natural resources	Institutional analysis in common pool resources
	SL framework	SU framework	IAD framework
Externalities impact the ecosystem or the people	The vulnerability context describes external forces (usually beyond the control of the system) that influence people's livelihoods (e.g., natural events and political instability).	External factors (beyond the control of the stakeholder) that could be modifiable (e.g., conflicts, foreign debt) or not modifiable (e.g., natural disasters) and affect the natural resource.	Trends and shocks in terms of the physical environment and economic environment that may be beyond the level of the local people (i.e., the micro-level and instead acting at the meso-scale or macro-scale).
Representing the multi-dimensional nature of livelihoods and natural resource use	Five broad categories of "capital" or assets are recognized - natural, human, social, physical and financial. People need a range of assets to achieve positive livelihood outcomes; no single category of assets on its own is sufficient.	Recognizes suites of factors related to the usable natural resource (ecological), user population (social); institutional, cultural and political, and economic aspects governing resource use practices.	Recognizes the five livelihood assets of the resource users (natural, human, social, physical and financial). People possess a set of different assets to achieve different outcomes.
Transforming structures and processes	Includes policy, institutions and laws that govern poverty reduction and natural resource use.	Institutions recognized as one suite of factors (see second box under SU framework above) that govern natural resource uses.	Includes policy, institutions and laws that influence natural resource use patterns.
Patterns of interaction	Describes livelihood strategies of the local people which are the range and combination of activities and choices that people make in order to achieve their livelihood goals.	Describes the natural resource use dependent activities in a system as extractive and non-extractive under the natural resource use suite of factors (see second box under SU framework above).	Describes livelihood strategies of the local people which could include survival, diversification or specialization strategies.
Outcomes	Describes outcomes as the achievement and result of different livelihood strategies. Livelihood outcomes include: more income, increased well-being, reduced poverty and more sustainable uses of natural resources.	Describes the sustainable use of a resource being achieved through the different configurations of different factors (for example, ecological, social and economic) and how they interact.	Describes outcomes as the result of the different interactions of different attributes of the natural resource. Outcomes could include environmental sustainability or livelihood sustainability.

<sup>4</sup> derived from Scoones 1998; DFID 2001; Zacagnini et al. 2001; Smith et al. 2005; and Lorenzen et al. 2007

**Figure 2.** Proposed conceptual framework for understanding conservation and poverty reduction within wetlands.



### Situational attributes associated with the wetland

This encompasses all the various factors or dimensions that are associated with the wetland status. For example, the **biophysical and ecological attributes** of a wetland include the wetland's hydrological regime, soil quality, nutrient cycles and the ecological environment (such as lakes, lagoons, mangroves and fish) from which ecosystem services are derived. The ecological environment is especially important to those who engage in livelihood activities dependent on natural resources (such as fishing). The poor having access to natural resources, including land, water, fisheries and wildlife is essential for sustainable poverty reduction. Overall, the hydrology regime could be considered as an overarching factor by virtue of many wetlands' dependence on water flows, especially of coastal wetlands or those at the end of a river basin.

In the context of the framework, the **social, human, cultural and political attributes** are those that describe and define the local people living within the wetland system. **Social** attributes represent the set of social resources people draw upon to achieve their livelihood outcomes. This includes family, friends, informal and formal social networks and political affiliations. **Human** attributes include the good health, skills and knowledge that make it possible for local people to pursue different livelihood strategies - essential if they are to utilize any of the other types of attributes. **Cultural** attributes may be closely associated with how people view and utilize certain natural resources within a wetland. **Political** attributes refer to the nature of the relationship between local stakeholders and political figures at the local and broader levels. This will include the degree to which communities are able to influence political decision-making to obtain access to resources and services (e.g., natural resources and infrastructure such as housing and roads).

**Economic attributes** in our framework include financial resources that people use to achieve their livelihood outcomes. This includes available stocks (such as liquid assets like gold, cash or bank deposits) and regular inflows of money (such as income, pensions, remittances and other transfers from the state [e.g., welfare monies]). Financial capital is the attribute that is likely to be least available to the poor. The economic conditions operating in the wetland and access to markets are also taken into consideration here.

**Policy, institutional and legal attributes** all help shape natural resource uses and livelihoods in the wetland system. Local institutions governing the utilization and access to natural resources in the wetland, operational rules, tenure rights, the roles of legislation and law enforcement in relation to the use of resources in the wetland are all covered here.

**Patterns of interaction** in our framework are the combination of different attributes associated with the wetland and how they interact, which in turn determine an outcome. For instance, there are livelihood strategies that may be adopted (through the interaction of different attributes found in the wetland) that create a change in terms of the overall conservation and livelihood outcomes. In the main report we attempt to illustrate the interactions between the different attributes both in terms of how they give rise to the issues which the project seeks to resolve, the nature of project interventions and their outcomes. To help illustrate these patterns of interaction, each case study was summarized in a matrix that attempts to track the role of various attributes in determining issues and shaping interventions (see Annex 4).

### Desired change

In our conceptual framework desired change refers simply to the change that is hoped to be brought about to the outcome by influencing patterns of interaction. For example, in the case of a wetland management initiative the desired change that is being sought in the wetland would be to achieve a positive overall outcome in terms of environmental sustainability and livelihood sustainability. The desired change can, therefore, be achieved through project interventions or strategies that are brought about through the alteration of the patterns of interaction of particular attributes.

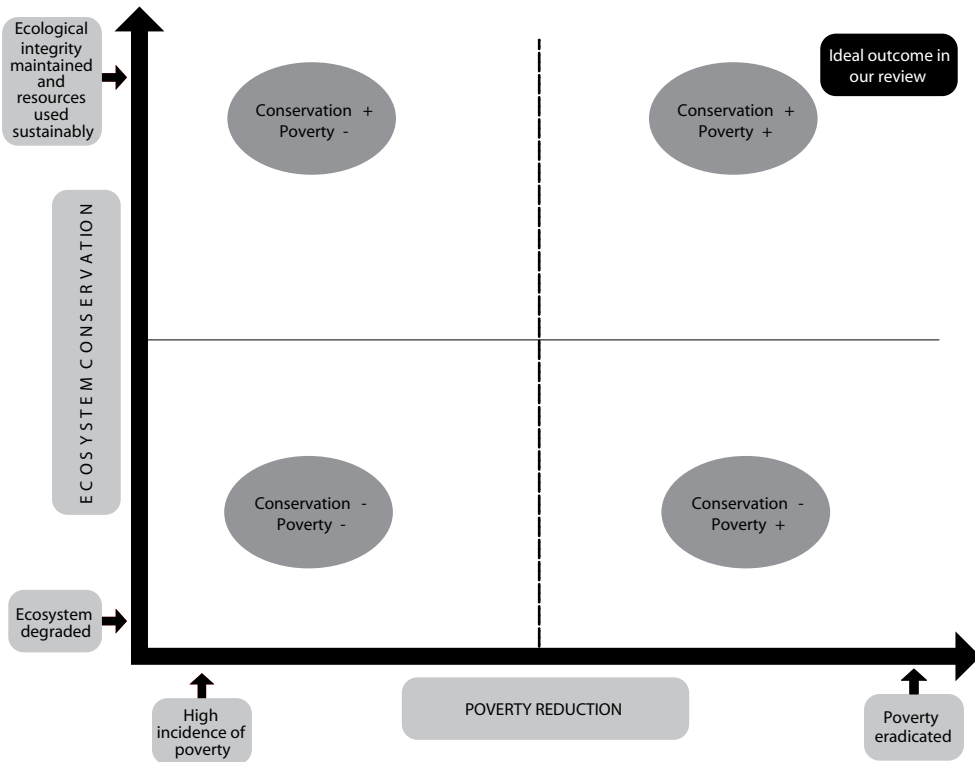
### Outcomes

As indicated above, outcomes are determined by the situation of attributes associated with the wetland system and the patterns of interaction that occur. We consider a **successful outcome** to be one where both conservation and poverty reduction have been achieved within a particular wetland system. We take into consideration that there will invariably be varying degrees of success in terms of achieving this particular outcome and this could take on a number of different computations as shown in Figure 3. These different scenarios would result in various trade-offs between achieving optimal conservation and poverty reduction within a wetland. For example, there could be high levels of conservation achieved but no poverty reduction within a wetland, or the opposite scenario, where poverty reduction and development objectives are achieved but the ecosystem is degraded. In the case of our review, we measure levels of success by assessing how well *both* conservation and poverty reduction were achieved within a site. Therefore, a case study that illustrates high conservation success, but has not addressed poverty issues would be considered unsuccessful in the context of our study.

### Lessons learned

According to our analytical framework, the lessons learned from achieving a certain outcome through a particular pattern of interaction would feed back in an adaptive manner to the situational attributes and create a new situation. Lessons may be learned during project implementation or highlighted after project completion. In the main report of our work, we adopt the framework to identify lessons learned and include the following research questions: a) What do the outcomes tell us about an intervention? b) What worked, what did not and why? c) What do these lessons tell us about the role of the different attributes and their interactions? and d) How sustainable are the new situations that lead to conservation and poverty reduction?

**Figure 3.** Various outcomes in terms of achieving conservation and poverty reduction objectives in a wetland.



### Externalities

In our conceptual framework, all elements are shown to operate within the context of externalities. This includes the external factors such as trends and shocks in terms of the physical, economic and sociopolitical environment over which local communities have limited or no control since these processes may be acting beyond the level of the local people, at the meso- or macro-scale. These externalities may directly affect wetland attributes, patterns of interaction and outcomes. External factors may include natural events such as flooding and droughts or economic factors (such as globalization and foreign debt) and sociopolitical factors (such as conflicts and war).

### Other points of consideration

Overall, while the conceptual framework helps organize the key issues, drivers, interventions, outcomes and lessons learned in a logical manner, we cannot lose sight of the fact that the range of spatial and temporal scales that operate within a wetland with a number of dynamic processes taking place in terms of both the ecosystem processes of the wetland and also the poverty dynamics and drivers, our conceptual framework should not act as a “static” tool.

#### 3.2.3 Applying the conceptual framework to the case studies

We “test” our conceptual framework by applying it to the set of selected wetland case studies to determine if they have been successful in terms of achieving a combination of conservation and poverty reduction outcomes and in terms of what they tell us about the different attributes of the framework.

A summary matrix was developed to clarify and highlight the relationship between the case studies and the conceptual Analytical Framework (AF) developed for this study. By presenting key information from each case study in a format based on the AF's structure, the table seeks to illustrate how the attributes and processes conceptualized in the AF have played out in each case study (see Annex 4). Thus, the table begins with a description of the key issues or challenges that existed prior to the project and the main drivers of each issue are aligned with one or more of the attributes of the AF. The ecological and poverty implications of each issue is then described, thereby making the link to the key research question driving this study: how and to what degree wetlands can be managed to conserve their ecological integrity while concurrently contributing to poverty reduction in the local context.

This situational context is then linked to the changes to this baseline situation sought by the project and the strategies adopted by it to this end. These strategies are also correlated to the attributes stated in the AF to emphasize the complex nature of interventions required to address specific issues that are themselves often driven by an interaction between several attributes. It is hoped that this methodology underscores the dynamism between the attributes identified in the AF, both in terms of understanding challenges and identifying effective mechanisms for dealing with them, especially where the desired outcomes are not merely conservation, but conservation that does not unfairly penalize the well-being of local communities, and ideally enhances this well-being. This is facilitated by grouping the outcomes of project strategies/activities according to whether they had conservation or poverty impacts or a combination of both. A "+", "-", or "+/-" sign against each heading further indicates whether these outcomes were deemed to be positive or negative. Thus, "poverty reduction (-)" indicates that the outcome was unsuccessful in reducing poverty or in fact increased it. The "+/-" indicates that the outcomes were mixed. The lessons and good practices at the end of the matrix seek to distill the key attributes of success in dealing with each of the issues.

In terms of our framework we investigate its usefulness in assessing outcomes of conservation and poverty reduction and determine how it needs to be modified to improve its rigor and ability to assess successful wetland initiatives. This process will continue through the application of the conceptual framework to evaluate WI's demonstration projects. This will involve determining what kind of indicators would be realistic and possible to collect data on to evaluate whether the wetland conservation and poverty reduction outcomes are achieved. We assume that the conceptual framework that is developed will need to be adapted and modified along the way and that, therefore, it is likely to undergo a process of evolution.

### 3.3 Limitations of the Study

This was meant to be a desk-based study, bringing into play several inherent limitations. The inability to travel to specific project sites meant that the study was entirely dependent on published and unpublished material and communications with individuals involved in the case study projects, and those participating in the e-forum. One resulting implication and key constraint was the limited ability to independently verify information provided for each case study. The outcomes and lessons learned that we report are derived directly from the literature and feedback from persons contacted. Quantification of impacts (e.g., degree to which incomes increased) and qualitative interpretation of outcomes (e.g., who really benefits amongst a heterogeneous stakeholder group) could not be conclusively verified except to the degree to which third party independent reviews were available. These limitations also apply to the study's ability to comment on the sustainability of outcomes, although some indications of elements that would contribute to sustainability have been provided. While such external evaluations were available for CS3, CS4, CS5 and CS6, it is worth noting the lack of such material in the case of CS1, CS2 and CS7. In hindsight, with projects that had the independent evaluation reports, perhaps one approach to undertake the review would have been to be in direct contact with the evaluators. However, it must also be noted that a majority of the external evaluations appear to be more focused on the poverty reduction aspects of the projects and do not report on the biodiversity conservation. Therefore, relying solely on the external evaluations may have led to an unbalanced review of the project outcomes.

Another constraint was the identification of suitable case studies that contained conservation as well as poverty reduction elements. The rationale applied in selecting projects was that a focus on

only one or the other element represented the 'business as usual' approach that does not provide the conservation-poverty relationships needed for this study. Identifying projects that had both elements proved more challenging than had been anticipated. Out of almost 50 projects that were either referred or identified as potential case studies, a closer examination of project documents indicated that only about eight projects presented the wetlands conservation-poverty focus **and** had progressed sufficiently in their implementation (either they were completed which was preferable, or were nearing completion) to provide a basis for learning. It is also noteworthy that the majority of wetland projects with this poverty-conservation link were begun relatively recently.

Another problem linked to the fact of this review being restricted to a desk-based study was that the availability of material for the selected case studies varied and this may have resulted in some case studies having far more in-depth information presented than others in the analysis.

Overall, this 'remote control' method also necessitated a much longer time frame to access the desired information at the desired level of detail, as the process was subject to the availability of pre-existing documentation and the time and willingness to participate on the part of the respondents to collect the information where this is not the case, and divert time to respond to follow-up queries.

## 4. Findings

### 4.1 Issues and Drivers that Exist in the Wetlands

As is the case with all wetland sites, the case studies under review clearly illustrated that there were both common and site-specific issues that existed in wetlands (see Table 3). For example, one of the key common issues that were highlighted was changes taking place to the hydrology of the wetland. These changes were mainly linked to the biophysical/ecological attributes associated with the wetland. For example, in CS2 the main cause was badly designed irrigation canals and infrastructure, while in the case of CS5 it was a badly designed dam upstream to the wetland that was causing the hydrological changes. In CS4 the blockage of channels connecting the lagoon to the sea was caused by both natural processes (in this case sedimentation buildup) and also human activities such as illegal land filling. Externalities from beyond the wetland site also impact hydrological regimes of wetlands - for example, upstream dams and irrigation infrastructure are shown to affect downstream wetlands as illustrated above.

Closely associated with the hydrology of the wetland is another common issue that emerged through our case studies, which is sedimentation buildup. This issue is often associated with the biophysical and ecological attributes of the wetland - such as the flow of sediment from the waterways connected to the wetland (as in the case of CS4) and in water distribution channels in the absence of adequate tidal flushing (as in CS5). In addition, deforestation (in CS1 and CS5) and the cultivation on steep slopes (in CS1) have resulted in sedimentation. There are also economic attributes that act as drivers of this issue - such as cultivation practiced very close to a water body and the collection of fuelwood mainly for economic reasons (in CS1).

Another important issue that was highlighted was the changes in land use patterns within wetlands (such as the proposed conversion of a natural wetland to agricultural land in CS2 and the conversion of marsh to settlement areas in CS4). Drivers or causes of this change may vary, however, from site to site and be linked to different attributes associated with the wetland - for example, in the case of CS2 it is policy-related and in the case of CS4 is linked to social and human attributes such as high population density, rising property value and poverty.

Various conflicts arising due to different land uses within a wetland site was another common issue and was cited in both CS1 and CS3. The drivers of this issue appeared to be associated with the social/human/cultural/political attributes (for example, an increase in population, high incidence of unemployment and poor environmental awareness in the case of CS1) and the policy/institutional/legal attributes (an exclusionary PA policy and inadequate conflict resolution skills in the case of CS3).

As in most natural resource use systems, in wetlands too conflicts do arise within and between the different natural resource user groups. The drivers of this type of conflict could fall into any of the four major groups of attributes associated with the wetland - such as (a) biophysical/ecological (perceived competition for the same shrimp resource in the case of CS4), (b) social/human/cultural/political (competition between traditional leaders and local government in CS1), or (c) economic (livelihood options eroded in the case of CS5), and (d) policy/institutional/legal (lack of conflict resolution mechanisms between different fisheries gear users in CS4 and lack of conflict resolution between farmers and herders, and farmers and fishermen in CS5).

Unsustainable natural resource uses within wetlands (including over-exploitation of a particular natural resource or the use of destructive techniques that cause damage to a particular resource or an entire habitat) is another very common phenomenon and could be caused by a number of different drivers. For example, this could be as a result of the biophysical/ecological attributes of the wetland such as the geographic isolation of the wetland that causes an increasing dependence on the natural resources (as in the case of CS2 and CS3); poor agricultural productivity and inadequate land in the wetland to meet basic food requirements (as in the case of CS3). Some social/human/cultural/political attributes such as the lack of skill diversification among the local people (in CS3 and CS4) that has contributed to a high incidence of poverty (in CS4). In CS2, the geographic isolation of the wetland has resulted in a high incidence of poverty (an economic attribute associated with the wetland).





**Table 3.** Key common and site-specific issues that existed in the case studies under review. (continued)

		Attributes							
		1: Biophysical/Ecological; 2: Social/Human/Cultural/Political; 3: Economic; 4: Policy/Institutional/Legal; ext: Externality							
Issues	Drivers	Attributes (driver)	1 Lake Fundudzi	2 Phu My	3 Cao Hai	4 MMNL	5 Mamirauá	6 Hadejia-Nguru	7 Bhoj Wetlands
Common to two or more case studies									
<b>3.Changes in land use patterns</b>									
	Economic policy favoring agriculture	4		X					
	Unauthorized housing - rapid urbanization; population increase; inability to purchase land due to poverty	2				X			
<b>4.Conflicting land uses</b>									
	Exclusionary PA policy	2, 4			X		X		
	Insufficient PA staff and conflict resolution skills	4			X				
	Growing population	2	X						
	High incidence of unemployment	2	X						
	Poor environmental awareness	2	X						
	Complex and conflicting decision-making authorities	2, 4	X						
	Inadequate horizontal and vertical institutional structures	4	X						
<b>5.Conflict within and between resource user groups</b>									
	Perceived competition for the same fishery resource by different gear users	1, 4				X			
	Livelihood options eroded due to prolonged dry spells	2, 3						X	
	Lack of mediation mechanisms	4						X	
<b>6.Unsustainable NR uses</b>									
	Open access regime	2, 4		X	X	X	X		
	High incidence of poverty	2, 3		X		X	X		
	geographic isolation increases dependency on NRs in the wetland	1		X	X		X		
	Insufficient government resources for law enforcement	3, 4					X		
	Poor soil quality resulting in low agricultural productivity	1			X				
	Inadequate land to meet basic food requirements of the population	1			X				
	Lack of skills diversification	2			X	X			

**Table 3.** Key common and site-specific issues that existed in the case studies under review. (continued)

		Attributes							
		1: Biophysical/Ecological;	2: Social/Human/Cultural/Political;	3: Economic;	4: Policy/Institutional/Legal;	ext: Externality			
Issues	Drivers	Attributes (driver)	1 Lake Fundudzi	2 Phu My	3 Cao Hai	4 MMNL	5 Mimirauá	6 Hadejia-Nguru	7 Bhoj Wetlands
Common to two or more case studies									
<b>7. Lack of access to infrastructure and services</b>									
	Prolonged flooding of roads due to poor dam design	1 and ext						X	
	Vastness of the area	1					X		
	Lack of transport and communications infrastructure	1					X		
	Lack of government resources	3, 4					X		
<b>8. Lack of governance structures</b>									
	Lack of basin-wide institutional structures for IWRM	2, 4						X	
	Weak rule of law and poor transparency and accountability in local politics	4					X		
	Poor levels of awareness of individual rights and democratic processes						X		
	Lack of formalized local organizations						X		
<b>9. Pollution (industrial effluent, garbage, solid waste, agricultural)</b>									
	Untreated effluent from industrial estate	1 and ext				X			
	Potential encroachers dumping garbage to illegally fill-up land.	2				X			
	Lack of proper sanitation facilities due to high population density	2				X			
	Lack of proper sanitation due to poverty	2, 3				X			
	Use of chemical fertilizers and inadequate soil management in the catchment area of the Upper Lake	3							X
Specific to a single case study									
<b>10. Spread of invasive species</b>									
	Prolonged dry spells due to poor dam design	1 and ext						X	

**Table 3.** Key common and site-specific issues that existed in the case studies under review. (continued)

		Attributes							
		1: Biophysical/Ecological; 2: Social/Human/Cultural/Political; 3: Economic; 4: Policy/Institutional/Legal; ext: Externality							
Issues	Drivers	Attributes (driver)	1 Lake Fundudzi	2 Phu My	3 Cao Hai	4 MMNL	5 Mamirauá	6 Hadejia- Nguru	7 Bhoj Wetlands
Common to two or more case studies									
<b>11. Potash intrusion</b>									
	High water tables due to prolonged flooding-due to poor dam design	1 and ext						X	
<b>12. Increased vulnerability to water-borne diseases</b>									
	Prolonged flooding due to poor dam design	1 and ext						X	
	Pollution and bad sanitation conditions	1, 2				X			
<b>13. Complex context with little prior knowledge to understand it</b>									
	Sociocultural relationships based on intricate kinship systems and gender roles	2					X		
<b>14. Suspicion of outsiders</b>									
	Years of exploitation by middlemen and local politicians	2					X		
<b>15. Difficult logistical scenarios</b>									
	Vastness of the area	1					X		
	Lack of transport and communications infrastructure						X		
<b>16. Resistance from local government to the project</b>									
	Territoriality over project objectives	2, 4	X						

## 4.2 Project Interventions and Strategies

There were a wide range of project activities that were adopted under each of the case studies to address the different issues that the site was facing. These are described in detail under Annex 1 and also shown in Annex 4. One common feature was that interventions tended to be multi-scale and addressed issues at both the policy level as well as site level. Another factor was that a multidisciplinary approach had to be adopted to address most problems and issues arising in the wetland and, therefore, there was a clear interaction between the different attributes of the wetland in addition to external factors influencing the wetland.

## 4.3 Overall Project Outcomes

The outcomes achieved in the different case studies were broadly divided into four categories: conservation related; poverty reduction related; conservation and poverty reduction related; and other (see summary matrices in Annex 4). Outcomes were scored subjectively as either positive or negative based on the available information. Where an outcome had both positive and negative aspects (+/-), a score of "1" was added to both the positive and negative columns. The results for each case study are given in Table 4 below.

Overall, in our wetland case studies, there appear to be a much larger proportion of positive outcomes than negative ones. This is most likely to be as a result of our review depending mainly on project documents (where some may have focused mainly on the positives rather than the negatives) and only some external evaluations (which also did not cover all outcomes of the project). In addition, our interpretation of outcomes is based on certain strategies being initiated or steps being put in place to achieve a certain outcome. However, the values given to the outcomes do not wholly reflect their sustainability in the long term, as it is difficult to verify this from the available information. In some projects such as CS6, the fact that it is ongoing have weighed against it as some key objectives have not yet been realized, although some progress has been made towards them. It is also worthwhile mentioning that what we are showing is a snapshot in time - outcomes do not remain static and are dynamic in nature - they, therefore, change over time. This means that what would have been considered a positive outcome at the end of the project may have completely changed if re-evaluated some years later.

Table 4. Summary of case study outcomes.

Case Study	Conservation		Poverty reduction		Conservation and poverty reduction		Other		Totals	
	(+)	(-)	(+)	(-)	(+)	(-)	(+)	(-)	(+)	(-)
Case Study 1	6	0	4	0	7	0	1	0	18	0
Case Study 2	4	0	3	0	4	1	1	1	12	2
Case Study 3	6	1	2	0	4	0	1	1	13	2
Case Study 4	4	0	7	5	4	0	2	2	17	7
Case Study 5	2	2	4	0	17	3	2	0	25	5
Case Study 6	0	0	5	0	7	0	2	1	14	1
Case Study 7	0	0	0	0	1	1	2	0	3	1

#### 4.4 Lessons Learned and Good Practices for Integrated Wetland Conservation and Poverty Reduction

By applying the conceptual analytical framework to the case studies, project interventions have been broadly categorized into ‘lessons learned’ and ‘good practices’. While there are several definitions of the latter, in the context of this study a ‘good practice’ is to be understood as a method or technique that through experience (and research) has proven to reliably lead to a desired result or outcome that a) directly helps to successfully integrate conservation and poverty reduction, or b) supports the integration of conservation and poverty reduction. Likewise, a ‘lesson learned’ is defined as an experience, example, or observation that imparts beneficial new knowledge or wisdom on how both conservation and poverty reduction can be achieved in wetlands through an integrated approach. In this case, one or several good practices can lead to a lesson.

##### 4.4.1. Understand the situational context within an integrated framework

Ecological problems are often manifestations of human interactions - decisions made and actions taken individually and collectively, from policy to community, household and individual levels, and the conflicts arising between them. These need to be negotiated first if the ecological issues are to be addressed. Hence, the increasingly recognized need for integrated research in support of integrated responses that can respond to the diverse social, cultural, economic, and political dimensions of human behavior. Thus, a well-grounded understanding of the ecological situation, but poor knowledge on the underlying human interactions will severely undermine prospects of balancing conservation and developmental objectives. The process of understanding the context must therefore be comprehensive if its coverage of situational attributes and integrated analysis is to reach beyond superficial assumptions.

The messages are grouped into those that are general (directly below) while others are linked to specific attributes associated with wetlands to illustrate their respective roles.

***Lesson: Without baseline data, achieving and demonstrating impact will be difficult***

As noted in the introduction to this report, a central issue of ICDPs highlighted by past reviews is their ambiguous results especially in relation to the link between conservation and impacts on poverty. This can only be addressed if a clear understanding of and quantified (wherever possible) baseline ecological, socioeconomic and other attributes exist prior to project interventions to enable the before-after comparisons required for demonstrating impact. The assessments of before and after household incomes in CS3 is illustrative of this.

***Lesson: Context may need to be viewed at multiple scales depending on the nature of drivers***

As will be discussed in more detail in other sections below, what amounts to context will be project-specific, and will depend on the problems at hand, their causes and the geographical, institutional and political scales involved. In some situations, context may be predominantly local (CS1, CS2, CS3, CS4 and CS7), while in others, it may encompass an entire basin (CS5 and especially CS6), with some components operating at the national or transboundary scale. While a project’s ability to have influence at the higher scales may be limited, the need to understand the causal relationships remains important.

***Lesson: An understanding of context will be central to identifying and prioritizing trade-offs***

In a process that will often hinge on a project’s ability to identify and prioritize trade-offs between competing interests, information on the situational attributes will be fundamental to understanding the conflicts, and synergies between different options and identification of what is acceptable in the context of the project’s objectives.

***Good Practice: Ensure baseline studies cover all situational attributes***

A first step to solving a problem is to understand it. Failure to adequately appreciate the often complex interplay between situational attributes linked to natural resource management and poverty at the site (and beyond) will result in inappropriate interventions. Particularly where interventions

are driven by an interest in conserving biodiversity, be it through sustainable resource use and contributions towards local poverty reduction, baseline data collection may emphasize ecological and related biophysical data, with less attention to other contextual attributes. Experiences from the case studies make it clear that meeting ecological objectives will need to deal with the complex human relationships that often give rise to the ecological problems. In other words, ecological problems are often in fact fundamentally problems of human interactions - decisions made and actions taken individually and collectively, from policy to community, household and individual levels, and the conflicts arising between them. These need to be negotiated first if the ecological issues are to be addressed. A good understanding of the ecological situation, but poor knowledge on the underlying human interactions (e.g., social, cultural, economic, institutions) will, therefore, severely undermine prospects of success.

***Good Practice: Combine an understanding of context with project objectives to identify what key skills the project team will need***

Understanding the attributes contributing to specific problems will indicate where the emphasis should be in terms of project implementing skills. This is especially important when combining conservation and poverty reduction where multi-disciplinary teams are essential. In CS3, for example, although funding was relatively small, the good grasp of the ground situation enabled funds to be used to employ staff with the skills to administer the TUP and CTF grants that directly influenced household livelihoods and attitudes, which in turn provided the platform for meeting conservation objectives in a participatory manner. In contrast, the opposite occurred in CS4 where the need for trained social mobilizers was not recognized at the outset, and had to be rectified once problems arose.

***Good Practice: Use baseline data to establish monitoring and learning processes from the outset***

Change often occurs in incremental steps, and a key to managing such change processes involves incorporating review, learning and adjustment cycles in project management (see the section 4.4.5, *Project Development and Management*, below for more details). Such a system, however, cannot function without systematic monitoring of ongoing interventions and their impacts on the conditions or attributes that combine to create issues and those needed to resolve them. Selection of appropriate monitoring indicators in turn requires good baseline data that represents all aspects of each challenge or situation. This is especially true with integrated approaches which are likely to involve trade-offs between conservation and development objectives, and would thus require close monitoring to ensure this balance is maintained.

***Good Practice: Use the process of understanding context to invest in stakeholder acceptance***

Data collection may be viewed merely as a necessary activity prior to other project interventions, to be clinically undertaken with a minimal loss of time and other resources. Such an attitude can adversely impact the project's outcomes in several ways. The 'quick and dirty' approach associated with such an orientation can provide a false picture of situations (especially causal relationships), and may also alienate some (especially vulnerable) stakeholders where stakeholder representation at fact-finding forums have been poorly organized or dialogue has been or is perceived to be superficial. Given that the project will need to return to these stakeholders later on, alienation or failure to allay their suspicions or uncertainties about project intentions will require further time and resources to rectify, with no guarantee of success. Thus, investment in data collection should also be viewed as an opportunity to invest in relationship building to support future project implementation. The opportunities provided to identify stakeholders and interact with them creates the potential to deal with the emotional or value-based issues that can determine stakeholder support for the project, and to replace mistrust and apprehension with an understanding of how the project can benefit stakeholders while meeting conservation objectives. Two important and related means to this end is to ensure data collection is participatory and that traditional knowledge is incorporated with scientific data. In CS5, the fishery stock assessments had both aspects. The recognition of traditional knowledge, and thereby, the local resource users provided a distinguishing feature between the project and past interactions with outsiders (see the section 4.4.1.1, *Biophysical and Ecological*, below for more on traditional knowledge).

**Good Practice: Combine past data with new baseline data to identify trends**

Many human and ecological processes involve change, and understanding these change processes and patterns is critical to understanding the relationships between the wetland and both anthropogenic and natural processes. The combination of past data with baseline data collected by the project can be a multi-year time frame that identifies important trends, and adds dynamism to the understanding of the context.

**4.4.1.1 Biophysical and ecological****Lesson: Understanding the hydrology is a window into other wetland characteristics that may define project options and strategies**

Many natural wetlands are water dependent, and derive many characteristics from their water regime (water quality, flow quantities, frequencies, and seasonal variations). Thus, changes to basin hydrology can represent a single intervention with multiple and widely dispersed consequences affecting ecosystem functions and human well-being, as best illustrated by CS6 where altered flow patterns had severe basin-wide ecological impacts and fuelled the spread of poverty.

Even where hydrological alterations are not an issue, a poor understanding of the water regime can cause poorly designed interventions. For example, in CS4 prior to the IRMP, a lack of understanding of the water regime caused local authorities to resettle communities in the wetland's floodplain, thereby increasing the vulnerability of settlers to flooding and its attendant knock-on issues. In CS2 on the other hand, an understanding of how hydrology influences the distribution of wetland resources provided the basis for resource use zoning by assessing carrying capacity and identifying areas suitable for conservation and those for production.

**Good Practice: Understand the long-term productivity of (especially coastal estuarine wetlands to identify appropriate livelihood and coping and adaptive strategies, especially in dynamic systems**

Many wetlands have a natural process of succession, and coastal estuarine wetlands especially are inherently unstable owing to their dynamic biophysical characteristics. As these characteristics change, so too will the wetland's productivity, and its ability to support specific livelihood practices, unless engineering interventions are adopted to counteract natural events such as sediment buildup as proposed under CS4. Where such investments are not feasible, the emphasis may need to be more on building people's capacities to deal with dynamic ecological processes - i.e., a shift from traditional practices to new coping and adaptive strategies. Prediction of the wetland's long-term characteristics should inform project strategy at the outset in terms of balancing environmental and development requirements.

**Good Practice: Natural resource mapping**

Natural resource mapping helps inventorize the resource base - what resources exist where, and this helps the status and nature of their current and potential use to be known. Developing sustainable resource use mechanisms will not be possible without this understanding. The species and their distribution and population size estimates provided the basis for fisheries management planning in CS5, and in CS4 maps were prepared to reflect the fishing methods and distribution of these methods within the lagoon. In CS2, *Lepironia* extraction was balanced with conservation by identifying use and nonuse areas. In CS5, the decision over who to restrict from the SDR, for instance, was based on extensive mapping of the resource and its use by the project.

**Lesson: Policy advocacy based on informed arguments stand a better chance of convincing decision-makers**

Advocacy for change at policy level will be difficult if solid scientific arguments are not provided, for which a detailed knowledge of the area is needed. In CS5, demonstration of good knowledge of the area helped the project build credibility amongst the scientific community and policymakers for changing the area's PA status. An understanding of the wetland's economic value helped the project in CS2 change provincial policy that was pro-agriculture in favor of conserving the wetland

while simultaneously ensuring access to wetland resources (see section 4.4.1.3, *Economic*, for more details). In contrast, the lack of adequate baseline data proved pivotal in CS7 where the project sought to convince upstream water users to adopt less polluting practices. Although findings from the environmental monitoring study was shared in stakeholder discussions and created much interest in the rural catchment's contribution to the nutrient load of the lake, the lack of empirical time series data at the individual inlet level meant the project could not present a compelling enough hydrological rationale to gain stakeholder agreement for an environmental services payment system. Availability of time series data would have made the case for action more convincing by illustrating trends and illuminating future scenarios.

***Lesson: Utilizing traditional knowledge can enrich understanding; save time and resources, and build capacities, relationships and acceptance***

The process of generating baseline data offers opportunities for investing in the sustainability of the project overall especially in demonstrating the links between conservation rationales and supporting people's well-being. By including traditional resource users and incorporation of their traditional knowledge, the process invests in the credibility, acceptance and potential for adherence by lending a greater degree of ownership to the planning process. This may improve the likelihood that new sustainable resource use rules are adhered to. It also enriches the baseline data itself by incorporating long-standing observations about the resource, making the picture more accurate. However, traditional knowledge has to be tested in comparison with scientific interpretation where traditional information is based on mainly folklore or myth rather than practice and mental maps. For example, in CS5, the observations of fishermen of species-specific behavior helped enhance accuracy of population estimates, whereas in CS4, the popular belief that their net types caught the same species brought two fisher groups into conflict, which was resolved by the project using species identification to demonstrate that this was not the case.

#### *4.4.1.2 Social, human, cultural and political*

Where local social, human, cultural and political landscapes are complex, a sound understanding of the structure and drivers of these systems and their relationships to resource use patterns are important. Especially since human interaction is at the center of so many issues, including many that manifest themselves through ecological or biophysical attributes.

***Lesson: The need for information flows both ways between project implementers and stakeholders***

Project personnel are not the only actors desiring information. Project stakeholders are likely to be equally curious and even concerned about the project, its objectives and what these may mean to their well-being, or local political aspirations. Thus, baseline data collection should involve processes for dialogue that provides the space for all parties to understand the situation and future prospects in an integrated conservation-use context. Failure to engage stakeholders from the beginning would reenforce the impression that the project is driven by "outsiders", resulting in resistance towards the project.

***Lesson: Stakeholder inclusiveness is important to avoid alienation and resistance and to accurately understand complex relationships***

Disregard for extensive dialogue at the inception stage will alienate those stakeholders who were not encouraged to participate, or who were overshadowed by those who are more numerous or influential or wealthier. Such an oversight is likely to increase the risk to the project in its ability to reach planned outcomes given that those excluded may be the more marginalized groups who may be the main targets in terms of poverty alleviation strategies. Eliciting the confidence and cooperation of disenfranchised stakeholders during implementation will eat into project time frames and funds, and adversely influence the chance of success. Genuine attempts to reach broad representation and draw out the nuances within each group will first help disentangle complex motives underlying situations, and lay the foundations on which project activities can build on. For example, fisheries can be further divided based on the types of fishing/location/gear used and each subgroup may face different problems. In CS3, it was recorded by the RDRC staff that facilitated the TUP and CTF



programmes that although they had their own ideas about how these should be operated, listening to dialogues amongst villagers illustrated the invalidity of some of their assumptions.

***Good Practice: Understand issues from local stakeholder perspectives (an inside view)***

Communities may perceive the wetland as belonging to them as they have historically depended on it in many ways. Appreciating the implications for people's livelihood options and other aspects of their well-being will help evaluate project assumptions and strategies in a realistic framework. Resolving conservation-human conflicts depends on first understanding conflicting views and their causes. Generating local participation in the project has been described as "a process of understanding, establishing trust and problem solving" (CS3). In CS3, the most powerful motivator for reconciling the communities with CNR was solving the practical needs of local people by identifying compromise positions that enabled conservation without adversely impacting local livelihoods based on the wetland.

***Good Practice: Pay attention to the role of culture and religious beliefs to minimize conflict and engender support***

Mutual respect between project and community is necessary if trade-offs, often necessary for balancing conservation and use, are to be accepted by resource users who may be required to alter or even abandon some livelihood practices. As illustrated in CS1, personnel external to the local community found themselves accused of insensitivity to local beliefs, customs and knowledge. One example was when rocks for constructing anti-erosion structures were brought from outside the catchment. These were considered "dirty" by the community who believed this would introduce impurities to the sacred lake. A ceremony for cleansing the impurities was required as a way of apologizing to the communities and their ancestors.

***Good Practice: Identify the different interests of stakeholders to manage these effectively***

Where the project was faced with a large number of stakeholders in CS6, strategically targeting the right people with the right messages at the right time proved critical in creating enough support for change at each level, and was founded on a very detailed stakeholder analysis that identified specific views, interests, capacities and needs of different stakeholders. This desegregation of stakeholders helped the project determine individual strategies to influence each stakeholder group with regard to how the sustainable use perspective should be incorporated. Similarly, in CS7, the project had to reconcile very different perspectives amongst urban and rural stakeholders. In the rural areas there were caste and class issues, small and big farmers and caste-based communities, while the urban context was defined by a different number of political and civic institutions each with different agendas and viewpoints. Perception also varied across the urban-rural landscape illustrated by local fishermen in the urban catchment who viewed farmers in the rural catchment to be rich and not requiring assistance from urban stakeholders to switch to organic farming. The need to invest more time and effort in parallel engagements with various stakeholder groups from the very beginning of the project thus became clear early on.

#### 4.4.1.3 Economic

***Lesson: Knowing a wetland's economic values can influence policy***

Demonstrating alternate economic values may help address land use policies that threaten the wetland's existence. This was the case in CS2 where demonstrating the potential of *Lepironia*-based handicrafts helped change provincial policy that would have caused the wetland to be converted to agricultural land. The knowledge of economic markets beyond the local context was important in demonstrating the potential returns from handicraft exports and provided the basis for an integrated approach to meeting the development and conservation objectives of the province and project, respectively.

***Lesson: Political consideration will generally focus on the economic efficiency of an investment***

Information may be required to demonstrate that conservation can be achieved without compromising economic efficiency if decision-makers are to be won over. This information will relate to demonstrating a wetland's actual or potential multiple economic benefits as an alternative to conversion to a single economic use. This will, however, be easier where governance (the way decisions are made, in whose interest, conflict resolutions, law and order) is transparent and accountable.

***Good Practice: Identify all existing wetland-livelihood relationships at the outset***

A detailed understanding of the range of wetland-livelihood relationships, their contributions to households' overall livelihood system and livelihood strategies is a basic requirement for any livelihoods-based conservation strategy. This would also require understanding of where alternate livelihood opportunities lie and the key challenges towards their realization. In the case of wetlands, livelihood activities include various natural resource uses that could be either extractive (for example, in fisheries) or non-extractive (for example, ecotourism ventures associated with the wetland). Baseline data on the number of people engaged in different types of livelihood activities associated with and without the wetland and the average income generated from these different activities needs to be collected as in CS2, CS3 and CS4. Without this information it is difficult to ascertain the economic impact of the different livelihood activities on the wetland system.

***4.4.1.4 Policy, institutional and legal***

***Lesson: Analysis of policy, institutional and legal frameworks will help establish the various levels at which issues exist***

As discussed in subsection 4.4.1.5, *Externalities*, below and illustrated in several case studies (e.g., CS2, CS4, CS5 and CS6), policies, laws and institutions can act as powerful external influences that shape local context. The linkages between broader policy objectives and local issues will provide a 'bird's eye view' of the broader policy and political landscape a project may need to influence.

***Good Practice: Identification of local institutions should look beyond those that are registered***

It may be assumed that identifying local stakeholder groups is most efficiently done by reference to the registry of local organizations. However, the project found that many such organizations were unregistered and were thus absent in the preliminary multi-stakeholder workshops (CS6).

***Good Practice: Relate stakeholder identification to their respective interests (motivation), influence and potential contribution to project objectives***

As illustrated in CS6, disaggregating stakeholders based on their interests and degree of influence will provide a clearer picture of who the key stakeholders may be and how each of them needs to be engaged. This will in turn shape the approaches adopted in the project's communications strategy.

***4.4.1.5 Externalities***

Several case studies illustrate the overarching influence of events outside the remit of the project on ecological and development conditions within the project area (hydrology, policies, markets, etc.). These influence the pre-project situation as well as the options available and strategies necessary for effective project implementation. In some cases, the externalities have assumed central importance while in others, their influence varied. In CS6, poorly designed and managed upstream irrigation interventions (dams and water allocation) assumed center stage as the cause of basin-wide ecological, developmental and social upheaval, and the project strategy had no choice but to focus on change processes that would have basin-wide impacts. In CS4, the polluting of the lagoon mainly from an external industrial estate had to be addressed as part of the lagoon fisheries management strategy. In CS5, while scale was again a consideration since the protected area was part of a far larger ecological system, the project was not in a position to influence events outside the PA. While the degree of influence a project can have is discussed later in this section, a situational evaluation will need to pay equal attention to events and trends outside the project area as inside.

#### 4.4.1.6 Interactions between attributes and its link to poverty reduction

The case studies illustrate that poverty is rooted in the complex interplay between various attributes (and externalities) in each site. This includes links with the wetlands, specifically their size and current and future levels of productivity and who has access to the resources. In CS2, the wetland was small and income from the main economic activity it supported (handicrafts) was low compared to agriculture which was not possible due to soil acidity. It is also a function of a broad and varying range of other factors: isolation, alteration in the hydrological regime affecting soil quality, and an open-access regime in CS2, whereas the combination was different in CS4: an open-access regime; poor access to skills development and alternative employment; sedimentation and pollution.

While poverty is a result of certain problems, it may also be a driver of other issues such as conflicting land use (CS1), unsustainable resource extraction (CS2, CS3, CS4 and CS5), inability to deal with external events such as policy changes (CS3, CS5 and CS6), hydraulic interventions (CS3 and CS6) and external resource users (CS2 and CS5).

In view of the complex multi-dimensional nature of poverty, attempts at poverty reduction by improving access to and capacities to use and manage wetland resources alone is unlikely to succeed if at least some of the underlying conditions and processes are not addressed concurrently. An understanding of these complex relationships, therefore, becomes critical.

#### 4.4.2 Natural resource management

##### 4.4.2.1 Multiple use zoning systems

In wetland sites around the world, one method of addressing the issues of unsustainable natural resource use or changes in land use patterns in the wetland is the adoption of multiple use zoning systems. These systems generally include integrated management plans and permit different natural resource uses in separate zones. It should be noted, however, that multiple use zoning is not a tool that is unique to wetland systems, but one that planners use in a number of different ecosystems to resolve real or prospective use conflicts, allowing for both the protection of ecologically sensitive or critical areas as well as the utilization of resources in a manner that is considered sustainable over the long term (Agardy 1997; Kellerher 1999; Senaratna 2001). Strategic zoning was one method adopted in the CS2 and CS4 case studies to reduce the direct impact of people on the ecologically important natural resources in each of these wetlands. Zoning has worked well as a basis for implementing a multiple use approach to wetland management in both CS2 and CS4. There are several steps required to ensure the successful development of a zoning plan.

***Lesson: The role of multi-disciplinary scientific information demonstrating the nature of change is a prerequisite for the legitimacy of a zoning system***

Scientific information on change trends in the wetland that is multi-disciplinary (for example, land use patterns, ecological changes and socioeconomic changes) would be essential to initiate the zoning process as shown in CS4. Political authorization, another crucial first step towards preparing an effective zoning plan, is often based upon the assessment of change trends. Of course the rationale for the zoning must be clear and equitable to obtain the support of the local leadership.

***Good Practice: Stakeholder consensus building through scenario analysis***

The different zoning scenarios should be ideally discussed initially among the different stakeholders representing a range of conservation and development agendas linked to the wetland to build consensus, otherwise certain groups may feel isolated and not support or engage in the process at a later stage. In the case of CS4 this included holding stakeholder workshops that involved not only the different state agencies responsible for the management of the wetland but also the different resource user groups and local residents and explaining the different zoning scenarios to the group, which ranged from being purely conservation oriented to being mainly development related. The views and needs of the different stakeholders were taken into consideration when finalizing the zoning plan which represented trade-offs between competing conservation and development needs. However, as illustrated by CS2 zoning will only work in practice if it is made enforceable through

either a formal or informal set of rules developed through a consultation process that would guide eligibility of access to natural resources, exploitation methods and quantities, and timings of exploitation.

#### 4.4.2.2 Licensing schemes and closed seasons

Another method of addressing the issue of unsustainable natural resource use within wetlands is by setting up closed seasons (where harvesting of particular natural resources are banned or limited during certain stipulated times of the year) and licensing schemes to control the number of natural resource users, type of gear used for extraction and the volume or amount of catch. While such mechanisms may cause a loss of some livelihood options in the short term, wetland users may stand to gain in the long term by maintaining or even increasing the resource base.

#### ***Good Practice: Provide suitable compensatory mechanisms to encourage participation of the poor***

In the case of CS4, a licensing scheme was advocated under the fisheries management authority to ensure that the number of fishers did not exceed the carrying capacity of the lagoon fishery and that only non-destructive types of gear were used. With regard to the latter, however, since it is usually the poorest members who use the low investment destructive fishing methods, it is crucial that adequate compensatory mechanisms that meet the requirements of this group are set up to dispel the notion that they were 'losers' before the fishery is closed.

It is important that adequate institutionalized support is provided by the regulatory authorities to poor resource users who are affected, for example, by changes in gear use enforced through the project. Otherwise these groups may not willingly adhere to the change and may even disrupt the process by aligning themselves with powerful local groups that could take advantage of the situation such as the case in CS4. For example, for certain politicians, restrictions of use maybe considered a negative impact to their vote-base.

#### ***Good Practice: Linking closed seasons with a suitable system of allocating natural resources equitably during open seasons***

In the case of CS3, while a closed fishing season was established during the breeding season, there was no differentiating in terms of the types of gear that could be used during the open season, and, therefore, poorer fisher families sometimes continued to fish during the ban as a result of being of the view that they would be at a disadvantage during the open season, competing against better-off individuals who could afford higher capacity modern fishing gear and thus catch much higher fishing yields than themselves. Therefore, unless the fishing ban during the closed season is linked with a suitable system for allocating the resource amongst the fisher families at other times of the year, the first-come first-served nature of open-access extraction will continue, placing poorer, more vulnerable families at a disadvantage. In this context, in CS5, a yearly quota system in addition to the specification of the minimum size of fish that could be caught helped overcome problems of this nature.

#### 4.4.2.3 Using an integrated approach when addressing natural resource management issues

As mentioned previously, natural resource management in a wetland cannot be viewed in isolation to the broader context within which it operates. Otherwise, in addition to many other issues arising, there is also the risk of losing credibility among the different stakeholders involved. For example, in CS4, fisheries management had to be addressed along with mitigating industrial pollution impacting the lagoon from external sources. In addition, the project had to ensure that the landless fisher families encroaching in the marsh were resettled and provided with basic amenities to improve their standard of living. Addressing the fisheries management issues in isolation would not have helped improve fish stocks in the lagoon nor enhanced the well-being of people overall. An integrated approach that simultaneously deals with the different elements of the overall conservation-development challenge must be adopted.

#### 4.4.2.4 Using a familiar method of resource management ensures greater acceptance

##### ***Good Practice: Operate through existing local institutional systems wherever feasible***

It maybe advantageous to use an existing local institutional system, if it is suitable, for resource management rather than developing a completely new institutional setup to accommodate the project. This would lead to greater acceptance by the local community. This is especially relevant to the multi-stakeholder approaches necessary for integrated conservation-poverty reduction initiatives. For instance in CS5, the project used the local institutional framework established by the Catholic Church during the 1970s, whereby neighboring communities were grouped into sectors, for administrative and religious coordination. The project also engaged the ‘community promoters’ who had worked for the Catholic Church, to make known the importance of sustainable resource use as many communities were already familiar with these individuals. However, the decision to use existing institutions should be carefully considered to ensure that they do not bring existing local divisions with them. This is discussed further under section 4.4.4.2, *Institution Building*, below.

#### 4.4.2.5 Resettlement

Under certain circumstances, local communities in a wetland may need to be resettled to a new location due to occupying areas of high ecological importance or a newly designated conservation zone. The resettlement is usually expected to reduce the direct impact of the local people on the wetland’s biodiversity. Resettling communities is often a highly sensitive exercise, especially if the local communities have lived in a particular area of the wetland for generations and are not willing to move. If not tackled with great care and undertaken along standard, established guidelines, resettlement may in fact exacerbate the poverty level of those resettled.

##### ***Good Practice: Understanding community needs plus transparency in the overall process can improve willingness to relocate***

In-depth consultations should precede plan preparation to assess needs and willingness to be resettled. The people’s basic requirements, views, fears and aspirations should be taken into consideration as much as possible. All potentially confusing situations should be explained fully to the community and a consensus built for apparently unfair decisions - transparency in all decisions must be ensured. Political interference in this process should be avoided. In CS4, marsh encroachers were moved to a designated resettlement zone. However, they were not willing to move too far from their original homes since they wanted to maintain existing social relations, their children’s schooling, etc. As an incentive they received a house plot and an additional piece of land of 5 perches.

##### ***Good Practice: Empower the community through capacity building for greater ownership of their new situation after resettlement***

Capacity building of the resettled community (in skills, leadership and CBO management) is a necessary means of empowering the community and creating ownership of the resettlement process and was undertaken in the case of CS4. The project established a village level society to ensure proper procedures are followed at each stage. It also assigned a social mobilizer to live in the new settlement and train the communities in planning, implementation and ensuring full participation of the community including women and children. The participation of all community members was encouraged - not just a few dominant individuals.

#### 4.4.3 Livelihoods development

The communities living within wetlands may be engaged in unsustainable resource use practices as a result of various drivers, including poverty, as described in Table 3. To address these issues, several of the case studies incorporated a livelihoods development component in an attempt to diversify the livelihood skills and opportunities of people and wean them away from the unsustainable practice, with the assumption that livelihood diversification helps reduce overall poverty levels in the site.

#### 4.4.3.1 Micro-finance mechanisms to support alternate income generating activities

In recent years, micro-finance, i.e., extending small loans to the poor for income-generating activities and other financial services, has grown tremendously in its popularity as a development tool. Micro-finance mechanisms are often incorporated in integrated natural resource management projects to provide poor communities with a means of enhancing their financial assets and reduce the risks they face. Many loan recipients make at least part of their living by exploiting local common pool resources. The World Bank estimates that there are now over 7,000 micro-finance institutions serving 16 million poor people with an annual cash turnover of around US\$2.5 billion (Anderson et al. 2003). Micro-finance mechanisms have been known to be adopted in some integrated wetland management projects, as, for example, in CS3 and CS4 where a revolving fund was set up in each case. This meant that recipients of the livelihood generating programmes have direct access to seed money to commence their own businesses or livelihood opportunities. If managed properly, the revolving funds were expected to continue to operate even after the end of the project period and thus ensure the long-term sustainability of the livelihood activities.

***Good Practice: Promote local ownership of micro-finance mechanisms by maximizing decisions to be made by the grantees and limiting preconditions to a broad framework***

In both CS3 and CS4, the revolving funds that were set up were managed by community groups in the wetland site. This meant that the decision of what types of livelihood activities would be initiated and who the beneficiaries would be, were ultimately decided by the community groups. This created a sense of responsibility and ownership among the local people. In addition, this could be considered a prerequisite for long-term sustainability of micro-finance mechanisms after project completion. One of the main disadvantages, however, is that community groups may not always remain transparent and fair when selecting beneficiaries. For example, they may favor certain individuals as beneficiaries based upon their political influence and power, rather than perhaps the more deserving poorer groups. One method of overcoming this problem is to set up an independent neutral supervisory body to monitor the functioning of the micro-finance or revolving fund, although this may take-up additional time and funds of the project and, therefore, may not always be feasible. In CS3, the fact that communities organized and managed the TUP and CTFs minimized the operational costs incurred by the project. Another drawback of managing revolving funds is that it is difficult to ensure that money borrowed is paid back on time - this was a problem that was encountered with some of the clients in CS4.

***Good Practice: Link conservation directly with micro-finance mechanisms***

A unique feature in CS3 was that the conservation initiatives were directly linked to the micro-finance mechanisms. In this case, undertaking a conservation activity was a condition of the grant to each recipient micro-credit group. To ensure that this was not considered a burden, stipulating the specific conservation activity was avoided and left up to the groups to decide. This proved to be a very innovative manner in which resource stewardship could be combined with poverty reduction.

***Good Practice: Assess both the economic as well as the ecological implications of proposed livelihood activities, paying attention to the resource demand implications of scaling up***

While livelihood options proposed under alternate income generating opportunities may make complete economic sense, it is important to ensure that their ecological implications, especially if many recipients opt for this livelihood activity are also taken into consideration. Otherwise this may lead to a negative ecological impact as illustrated in CS3 where the majority of recipients opted for pig farming which placed a high burden on the wetland to provide fodder. The project tried to ensure diversification of livelihood options when granting new loans thereafter.

***Good Practice: Ensure flexibility in the approach for managing micro-finance***

To increase the chances of success it is important that the micro-finance mechanisms are flexible in accommodating local needs and views. If these mechanisms are too rigid, it will be difficult to deal with practical realities or unexpected events that take place. In the case of both CS3 and CS4 this was apparent, where flexibility of utilizing the funds and relaxing the credit conditions was achieved by minimizing the pre-defined conditions to a few simple and clear rules that could be

easily followed by the participants. For instance, while some conservation action was a condition of the revolving loans in CS3, the recipients were allowed to decide on what the activities would be based on their own capabilities.

***Lesson: The magnitude of the revolving fund will determine its ability to reduce overall poverty***

If the magnitude of a revolving fund is not sufficient to provide clients with the opportunity of earning income levels at least similar or preferably higher than what they are obtaining through undertaking their current livelihood activities, it becomes a mechanism for supporting subsistence livelihood activities only, and, therefore, does not help alleviate poverty.

***Good Practice: Ensuring prominence for women in micro-finance mechanisms can enhance chances of success***

The involvement of women in micro-finance initiatives in the wetland sites does not merely serve to raise their status in the community; they have been found in the case studies to often be more effective business managers than men, stemming primarily from their natural dispositions and roles within the family structure. These included a tendency for more careful planning with greater attention to detail; a greater propensity to save profits or invest them in productive uses; greater flexibility in adapting to market fluctuations; a good understanding of their family's needs and better knowledge of markets through more frequent contact. Women were placed in a position of authority to manage the micro-finance mechanisms in the case of both CS3 and CS4.

***4.4.3.2 Markets and marketing networks***

It is advisable that proposed livelihood programmes identify existing marketing networks and determine how best to access these before initiating a particular income generating activity. A detailed business plan should be developed as was the case in CS2, through market research on existing products, market structure, market saturation, potential volumes of sales linked to the availability of raw materials, prices and resulting income scenarios. In CS4, while over 20 income enhancement activities were initiated, there was a relatively high dropout rate with less than half of the maximum client base continuing with the original livelihood activities by the end of the project. The lack of appropriate markets and marketing networks to sell their products was identified as one of the key contributors to the low success rates. In CS3, the livelihood initiatives were more successful due to the articulation of a clear marketing strategy based on market research and identification of a customer base.

***4.4.3.3 Pilot projects***

In most case studies alternate income generating activities were initially set up in the form of pilot demonstration projects with a relatively small number of participants from the community as illustrated in CS3's TUP and in CS4. This is a sensible way to initiate livelihood activities for many reasons. First, a proper, concerted effort can be made with a smaller number of participants with available resources channeled to fewer people. Focusing on a small number of communities can build up positive relationships relatively quickly between the project implementers and community members and there is usually visible action and results as shown in CS3. Second, if the pilot projects become successful they can be promoted to a larger community group and thus undertaken on a bigger scale with more beneficiaries. Therefore, the pilot activities would act like an experiment and can be expanded with the initial beneficiaries providing feedback on their experiences and lessons learned. Their demonstrative value can provide a positive focal point for consensus building, drawing commitment, group action and learning, and institutional change. On the other hand, if the pilot projects are not successful, at least it is only a relatively small number of people that would have been negatively affected and the lessons learned from the failures can be critical for the iterative learning process associated with this activity as in CS4. Finally, if undertaken on a pilot scale, this allows managers to use an adaptive approach and be more flexible to deal with ground realities they are faced with.

***Good Practice: Use the pilot phase to assess the impacts of alternate livelihoods on the wetland if these are scaled up***

In CS3, although pig farming was chosen by the majority of TUP loan recipients in the pilot phase, it soon became apparent that the demands for fodder would make this an unsustainable livelihood option if it were to be chosen by more recipients when the TUP was expanded. The project was thus aware of the need to provide alternate livelihood options when up-scaling the TUP from the pilot phase.

***Good Practice: Get project stakeholders to drive every stage of the process***

When setting up alternative pilot livelihood activities, it is important that all relevant stakeholders are kept informed on the various activities and are involved in the process from the inception. For example, resource users should be given the opportunity to express their views on income generating activities that are meant to wean them off unsustainable harvesting of particular resources. They should also be given the opportunity to indicate the different types of livelihood activities they would be interested in undertaking. Transparency in the decision-making process is critical to ensure acceptance by community members. Likewise, key resource managers (such as government agencies) should also be involved from the beginning in providing input to the alternate income generating activities in terms of their feasibility and these stakeholders should be given regular updates on progress made.

***Lesson: Willingness to adopt new practices will depend on perceptions of risk and incentives provided to balance such risks***

A major objective in CS7 was to convince upland farmers to adopt organic farming practices to reduce pollution loads flowing to the lake. It was noticed that farmers who “championed” the cause chose to do so on the basis of their ability to experiment (take risk) and gain from subsequent input cost reductions. Others with limited risk taking capacity were not in a position to experiment unless financial assistance was made available. Collective action would only be possible when such an incentive structure is in place.

***4.4.3.4 Training programmes associated with gaining “entry” into the local community***

If community members are to stop unsustainable resource use practices they would expect to receive some tangible payoffs from the project. Livelihood programmes and associated training are often viewed as a critical part of this process and act as a means of gaining “entry” into the community. Although initiating various income-generating activities and training programmes during the implementation phase of a wetland management project is not in itself a difficult task, careful attention must be paid to ensure that livelihood development activities initiated under the project remain viable over the longer term, especially after project completion. CS4 highlighted the difficulty of some of the training programmes (for example, the handicraft making) associated with alternate livelihood activities remaining viable - with large dropouts recorded by the end of the project. In CS1, local people were trained through the project in developing skills (such as primary healthcare, basic adult education, gender equality, family planning, HIV/AIDS, first aid, safety and financial management) that were viewed as improving their chances of long term poverty reduction.

***4.4.4 Governance and change processes***

Where governance structures are underdeveloped at the local level, an external catalyst in the form of project interventions can play a significant role in generating change on behalf of local communities (all CSs). While not all lessons and good practices detailed below may be specifically linked to conservation and poverty reduction goals, they have been included in view of their importance in creating the governance environment that can make rational resource use arrangements viable. Of particular importance is their role in building local organizational and political capacities necessary for the mobilization of local people as active participants in determining the structure and operation of integrated resources management in a manner that is locally relevant.



#### 4.4.4.1 Accessing policy reform processes

***Lesson: The need for realism and compromise in a process involving incremental steps***

Policy reform advocacy has to balance project objectives with government priorities and the interests of politicians. While a certain set of strategies may represent the ‘best’ technical option for achieving project objectives, they may not be politically or institutionally feasible. Therefore, the ‘best option’ has to be molded around what is socially and politically acceptable, into the ‘best available’ option. For example, in CS4, due to pressure from local politicians, the project staff had to include some families that had political influence as beneficiaries of the settlement programme. In the case of CS5, to convince policymakers to introduce a new PA category, the project had to present their arguments in a manner in which politicians could gain political mileage.

***Lesson: To capture high-level support, understand where project priorities overlap with those of politicians and senior administrators***

The higher up an individual is in the decision-making hierarchy, the more elusive will be his/her attention. In CS5, the project captured the Amazonas State Governor’s interest from the outset, and his support was a key factor in the project’s success in incorporating a people-friendly PA category in national policy and legislation. Understanding and exploiting how the Governor could benefit politically by supporting the project was an important factor in accessing his support. Similarly, in CS4 too the high ecological and economic value of the wetland was brought to the notice of the President of Sri Lanka, who instructed that a sustainable development plan was prepared for the MMNL wetland in 1989 - which was instrumental in initiating all the wetland management work that followed in this site.

Involving lower-ranked officers as conduits for reaching decision-makers had a limited effect if reports are not circulated within the organizations, and issues are not sufficiently pushed, as was found in CS6. This required other approaches of informing key decision-makers, including involving them as special guests or keynote speakers in workshops or seminars jointly organized by their organizations and JWL, and high-level briefing visits from DFID/ITAD/JWL. These were incorporated in the communications strategy.

#### 4.4.4.2 Institution building

***Lesson: Institutional development in marginalized areas requires patience, perseverance and consideration for cultural differences***

Complex social structures, distrust of outsiders, poverty and general vulnerability, illiteracy and a lack of knowledge about institutional development have been common local context features in the case studies. The manner in which these challenges have been met demonstrates that it takes time for new ideas to be debated, thought through, accepted and acted upon. All the case studies emphasize that especially where local institutions are absent or weak, the process of institutional development needs to start by addressing the psychological and emotional orientation of people (e.g., distrust, low self-belief) that impedes the will to take action. Extensive dialogue and demonstration activities (especially in CS2, CS3 and CS6) combined with training in new skills were necessary to undo the negative experiences that result from people’s poverty and poor governance. It is only when a belief in the possibility of change is created that the process of collective goal setting and organization begin. Where influence was required over a large geographical and institutional landscape as in CS6, with over 100 different organizations across the basin, it took the project about four years to catalyze the formation of a strong stakeholder coalition for the basin, capable of sustaining the collective efforts of its members beyond the project. In CS7, the issue was overcoming differences in cultures and mind-sets between urban and rural stakeholders.

***Lesson: Social organization and institution building can directly counter some governance weaknesses and set in motion broader processes to address others***

Mobilizing the significant untapped capacities in human effort and ingenuity can go some way to compensate for governance failure and concurrently begin social movements for change. Social

mobilization was adopted by each case study, and was the primary agent of change in most in dealing with issues solvable locally and those that required change at larger scales. The classification of communities as being poor may tend to obscure this basic human capacity. In CS6, for example, inter-community dialogue instigated the will to act by emphasizing shared problems (e.g., siltation and invasive Typha) and the power of collective effort for resolving local resource use conflicts that communities had struggled to resolve on their own.

Another function of institutional development emerges from CS7 where the upland farmers whom the project needed to convince to adopt organic farming, were not operating through farmer organizations. This meant that negotiations were required with individual farmers which was both time intensive and increased the risk of stalling the process due to a few farmers' unwillingness to participate. The organization of farmers into farmer organizations thus presented a better chance of reaching consensus through internal peer support to push collectively for the desired results.

***Good Practice: The method of conveying information and conducting dialogue should correspond to the nature of the target audience***

In CS7, workshops and panel talks helped to initiate dialogue with media and corporate houses, while painting competitions got the attention of schoolchildren and their parents. A street play in the local language elicited more favorable responses from the people living in poor households. Targeted but informal meetings with higher-level bureaucrats were useful in moving the process forward. With the other stakeholder groups the film 'Lake Matters' often worked as a good starting point for discussion on the issues related to the Bhoj Wetland.

***Good Practice: Link institutional development with tangible benefits to as large a constituency as possible***

Ensuring the relevance of local institutional development to people's well-being is key to attract the participation of people living in highly dynamic and uncertain circumstances created by their poverty and external events beyond their control (e.g., flooding in CS6, exclusionary PA policies in CS3 and CS5, and resettlement in CS4). Prospects for institutional building, including the ability to manage political agendas are enhanced where potential beneficiaries are many, so that a widely shared interest provides the nucleus for organization. Group size is especially important in situations where local political power is legitimized through an electoral system, as demonstrated in CS4 where the large constituency of lagoon fishermen was able to collectively resist proposed changes to the lagoon's structure despite political pressure. This implies, however, that effective organization may be more difficult in smaller less productive ecosystems, although CS2 and CS3 suggest that this is possible where political agendas are not prevalent.

***Good Practice: Work with existing structures and local authority figures where they have credibility***

Individuals or local institutions deriving their authority through culture may also possess a more legitimate status in communities when compared to those in whom authority is vested by formal rules. The work of the church and employment by the project of the same social mobilizers provided an entry-point and existing networks for the project to demonstrate its intentions and the benefits its activities offered in CS5. This was particularly important in this case where distrust of outsiders was prevalent and other local networks were absent. Savings on time and other resources were also significant. Although the temples were not used as the principle organizational unit, the project in CS2 recognized the importance of Buddhism in the Khmer community. Project goals, objectives and activities were developed in consultation with the monks, and effective support was received from the village pagodas in communicating with communities. Furthermore, the absence of corruption or political interference in the project was attributed partly to its visibility and approval of authority figures. The project in CS4 also paid close attention to the fact that most people in the area are Catholics and that the blessing and support of the church would add credibility especially in the early stages. In CS1, this role was performed by the village chiefs.

***Lesson: Where scale is important, institutional development will need to occur vertically as well as horizontally***

As the cause and effect of specific issues may manifest at different scales, interventions will often need to be multi-scale in approach, for instance by resolving basin-scale problems to reduce local conflict, as in CS6. The emerging institutional framework for IWRM in the basin was held together by the linkages between stakeholder forums at community, state and basin levels that evolved out of the platforms catalyzed by the project at each level. Institutions to link local stakeholders to decision-making processes assume greater importance where local problems owe their existence to decisions taken elsewhere.

***Lesson: Generating a critical mass for change is a multi-dimensional process***

The case studies suggest that achieving a critical mass for change is the cumulative product of action on several fronts, as issues tend to be entrenched in a web of multiple situational attributes. In CS6, this included stakeholder engagement, strategic communications, building consensus and coalitions, and monitoring institutional change which also spanned local, state and basin scales. Coalitions and alliances are critical especially where the magnitude of change needed dwarfs the capacities of a single project. This was the case in CS6 with over 100 stakeholders, where strategic alliances included other projects, government agencies at various levels, local networks and the media which was deployed to involve the public and maintain pressure on decision-makers.

***Lesson: Do not take for granted that existing local organizations are representative***

When identifying local NGOs and CBOs, the project in CS6 assumed that this is most efficiently done by reference to the registry of these organizations. However, as many such organizations were unregistered, they were absent in the preliminary multi-stakeholder workshops. Even when a registered NGO or CBO is located, this does not ensure that representation is inclusive especially of the economically and socially marginalized, as who is represented will depend on the politics within each organization. Relying entirely on existing organizations, therefore, appears to be a poor substitute for conducting a more in-depth first hand stakeholder assessment from which to identify representation, especially when wetland conservation and poverty reduction are to be balanced against each other.

***Lesson: Ensure local institutions do not mirror local sociopolitical constraints***

In CS3, the choice of local leaders to assist TUP groups was originally given to the village leaders, many of whom appointed themselves. Their authoritative approach proved to be counterproductive, and subsequent stages of TUP allowed the groups to select the coordinators for each village during their training. In CS1, the issues were nepotism and corruption involving senior community members who would recommend their relatives to win tenders pertaining to lake restoration work.

***Lesson: The larger the stakeholder group mobilized, the more effective will be the project's ability to deal with political interference***

The influence of politicians can be positive or hugely disruptive depending on whether a project provides opportunities for or threatens political and financial ambitions. Success in thwarting attempts by the then Minister of Fisheries to build a fisheries harbor in a manner that will adversely impact lagoon fisheries in CS4 demonstrates the need for large-scale organization where too many votes are at risk. However, it is often impossible to completely remain free of some form of political interference - as illustrated by the fact that in CS4, local politicians managed to hijack the settlement programme to the extent that some of their supporters had to be made beneficiaries even though they were not the most vulnerable families.

#### ***4.4.5 Project development and management***

While the lessons and good practices highlighted in this section apply to most projects, their particular relevance to those seeking integrated conservation-poverty reduction outcomes should not be discounted. Unlike initiatives that seek either conservation or development, it may be argued that integrated approaches present a greater challenge in recognizing competing interests and seeking trade-offs and compromises to reach equilibrium between the conservation and development

objectives. The greater complexity involved in this balancing process thus calls for highly effective project design and management in a manner that enables the capture of a wide breath of information and perspectives and the handling of a broad spectrum of stakeholders. This in turn has implications for the composition of skills and approaches to project management as elaborated below.

#### 4.4.5.1 Project conceptualization and development

##### ***Good Practice: Minimize assumptions in project design***

Every project is unique overall in its range of challenges and the underlying interaction of situational attributes. While full knowledge of these complex contexts is unrealistic at the outset, at least the key assumptions about a wetland's conservation status and its links to local poverty and viable project strategies should be tested through data collection, dialogue and analysis. This will help understand what the project can realistically expect to achieve within its time frame and budget, and what approach is most appropriate. While this may be time-intensive at the beginning, the situational clarity and resulting strategic focus provide the foundations for project success or failure, and is thus critical. In CS6 for instance, recognizing the vastness and complexity of the geopolitical landscape (basin), the overall strategy was to set in place key institutional frameworks, dialogues and partnerships necessary to sustain change processes beyond the project.

##### ***Good Practice: Articulate data requirements, rationales and related budget and time frame to donors at the outset***

Ensure the data collection component in project proposals pays attention to all the attributes that set the project context (as specified in the Conceptual Analytical Framework described in section 3.2.2 of this report). Specify what data is to be collected, at what level, why it is needed, the time required and budget. This may minimize the potential for misunderstandings between the project and donor who may not otherwise appreciate the complex nature of the work involved, and significant results can be overlooked as was the case in CS5 where progress was deemed to be slow as the logistical and other contextual challenges were not well understood by the donor and its team of evaluators. See the sections 4.4.1.1 to 4.4.1.6 above for further details.

##### ***Good Practice: Construct strategy and expectations based on the scale of cause-effect relationships***

Where the cause and effect of specific conservation-poverty issues manifest at different scales, interventions will also need to be multi-scaled, for instance, by resolving basin-scale problems to reduce local wetland degradation and poverty. The broader institutional and political landscape the project needs to influence needs to reflect project strategy, time frames and budget if change at a larger scale is deemed to take longer (more stakeholders and conflicts to resolve).

#### 4.4.5.2 Managing change

##### ***Lesson: Building credibility and trust***

These have been fundamental to the success of the project. Key approaches included sound science at policy level; understanding local context in a multi-dimensional manner; and the use of existing local institutions, local leaders (e.g., religious leaders, village heads) and social benefits as entry strategies. The smooth running of the project is directly related to good communication and proper consultation with all relevant stakeholders and especially authoritative figures. However, while providing social services can help gain local acceptance, this strategy risks creating unrealistic expectations and dependence.

##### ***Lesson: Mobilizing and managing change processes will require flexibility and an incremental approach***

Building stakeholders' capacity to effect and sustain change is a slow process of understanding diverse views, building mutual trust and inspiring a desire for collective action. Change can be a difficult process for individuals and communities, especially when working with indigenous communities

who have known certain traditions for generations and invest their faith in them. Introducing new ideas takes time. It is a process based on trust and many iterations of explanation, clarification and demonstration of goodwill and intentions. Only then will implementation of project activities become feasible. In CS2, the protected area, handicraft production, export markets and wetland conservation were all new “concepts” to the community. As experienced in CS5, rural communities’ time horizons are very different to that of ‘professionals’. Key people in the community have to be consulted and this can take time. A lack of response does not, therefore, mean a lack of action. It took five years for the community to fully accept the project. If each iteration is relatively small, adjustments can be made more easily. Thus, change should be gradual and incremental to be sustainable. Forcing change too quickly can result in it being rejected.

In CS6, the issue was scale given the critical link to basin hydrology and proliferation of actors at local, regional, national and transboundary levels. This required a particularly flexible project structure given the limited ability of a single project to influence this broad social, economic and political landscape. Outcomes could, therefore, not be taken for granted as the possibility of change to existing scenarios and assumptions was high. The willingness and space for adaptive implementation thus appears to represent a key feature. It took three years to build enough commitment for change, before changes to institutions and processes became possible. Building networks of stakeholder alliances and strong local community and government partnerships was critical if change processes are to fulfill their functions that may lie beyond a project’s term.

***Good Practice: Maintain project independence to avoid capture and retain flexibility to work with all stakeholders***

The decision not to align with any specific state agency was emphasized in CS6 in particular as it allowed the project to avoid inheriting the inter-agency as well as agency-community politics that too close an affiliation would have generated. The project also avoided capture by not being dependent on a single agency, and has been able to deal with stakeholders using an issue-based approach. By being free of a single agency’s agendas, the project was able to make the issues pertaining to the wetland and people the focus of dialogues. This does not, however, mean that political and institutional support is not important, as made clear in other sections in this synthesis. The point being made here is the distinction between obtaining the requisite political and institutional support through confidence and consensus building, and not becoming beholden to or associated with the agenda of any one agency or individual.

***4.4.5.3 Monitoring and evaluation***

***Lesson: Continuous M&E to give direction to flexibility***

The need for constant evaluation at personal and project team levels was a critical feature in several projects (CS1, CS2, CS5 and CS6) given the varying combinations of complex context, difficult logistical conditions and relatively unknown regions. The projects thus had a strong experimental aspect which inevitably required an iterative process of learning through constant self and project evaluation. In CS6, by the time project implementation commenced in mid-2002, its Project Memorandum, developed between 1998 and 2001, was already out-of-touch with the rapidly changing reality on the ground. Further understanding of the opportunities and constraints met by stakeholders in the course of implementing solutions, gleaned through continuous monitoring of the process, helped to focus and reshape the project’s objectives and activities and those of its stakeholders. By eliciting responses from a wide range of groups including DFID advisers, the JWL management team, and stakeholder coalitions and action groups as part of a ‘participatory monitoring and evaluation’ (PM&E) system, the feedback was rich in perspectives and ideas for alternative influencing strategies. Central to this process was a ‘broad theory of institutional change’ with broad milestones and indicators, to assist project staff guide and assess progress of stakeholders towards achieving broad objectives. Consequently, JWL’s logical framework underwent transformations to reflect new directions in which the process has led the project at key stages. The Implementation Phase Log frame saw a marked departure from the project’s orientation at output and purpose levels laid out in the Inception Phase Log frame.

Thus, the process of continuous monitoring, learning and adjustment was fully justified by the major changes it brought about in the way the project has conceived. Facilitating this kind of adaptive approach requires a great deal of flexibility and adaptability in project management to respond to a course of events that is largely outside the control of the project and largely determined by project stakeholders' actions.

***Good Practice: Design flexible reporting and discussion processes based on the varying strengths of project staff***

A project's staff is likely to represent a range of different educational, cultural and behavioral characteristics that is likely to make the application of a single method of reporting and evaluation counterproductive. In CS6, for instance, most project field staff did not possess good report writing skills as their minds and time were focused, and better employed, on coping with the pressures of working with stakeholders, and responding to the ever-changing situation (of their natural and political environment). Many preferred to report on a continuous, informal basis with colleagues and/or in the context of staff meetings at which such matters are the focus of discussion. Having another member of staff to regularly guide these discussions and record the main points in line with the suggested reporting format has provided a good alternative means of capturing the process in this case.

***Good Practice: Most Significant Change (MSC) approach to identify key lessons***

MSC reporting was one of the most popular and effective tools developed by community level action groups for monitoring changes in the wetland villages they work in. Less time consuming than most PRA activities and less confusing than most evaluation questionnaires, this tool eliminated the need for subsequent ranking. Capturing a range of MSCs from a range of locations within the area quickly established a picture of what's happening in the area, and enabled action group members to provide feedback to their colleagues in other action groups and to plan their next moves in response (CS6).

***Good Practice: Clarify the role of external evaluators and their relationship with the project***

The lack of a clear articulation of the role of external evaluators, especially the limits to their jurisdiction can result in difficulties between the project and donor as was the case in CS5, since neither the evaluators nor the project team are clear where the boundaries of the evaluators are.

#### *4.4.5.4 Exit strategies and sustainability*

Building stakeholders' capacity to effect and sustain change is a slow process which, to be sustainable, must progress through incremental changes. In CS6, it took three years for enough commitment alone, before changes to institutions and processes became possible. Time frames required for this will most often reach well beyond that of a single project, and will thus depend on the network of stakeholder alliances for future support. Building strong local community and government partnerships is thus critical if change processes are to fulfill their functions that may lie beyond a project's term.

***Good Practice: Seeing the project exit strategy from the starting line***

In almost all the case studies, project staff clearly appreciated that too much dependence on or dominance by the project and its personnel would be detrimental to the sustainability of initiatives that depended primarily on the capacities of the people and institutions of the area. In CS3, the project was careful not to undermine the capacities of those who will be left once the project ends, namely, the CNR staff and the local communities as well as the local government. The project's willingness to place the decision-making power over social organization and activities in the hands of community-elected representatives was, thus, a strategy borne out of these considerations at the very beginning of the project. Thus, a clear understanding of the post-intervention situation was used to inform the project's objectives and mode of operation. Similarly, in CS4 and CS5, while often initiating activities (e.g., sustainable fisheries management planning), the project team was mindful of allowing decisions on the details (e.g., rules regarding sustainable fisheries) to be driven primarily by the communities. Inadvertently presiding over the decision-making process would have caused the project to lose credibility and decisions to lack acceptance and hence adherence.

***Good Practice: Institutionalize wetland wise use principles within government structures and processes***

The limited project life span and fragility of local institutional arrangements for resource management in CS1 made it vital to institutionalize wetland wise use in the interests of post-project sustainability by integrating it into the government's institutions and strategic planning. Government jurisdictions allow agencies to accomplish certain activities that NGOs cannot (e.g., provide large-scale funding or amend policies or laws), while NGOs can do other functions more effectively than governments (e.g., developing stakeholder capacity, participation, and implementing projects on the ground). Collaboration is crucial to bringing and focusing these complementary assets together. Attempts at integrating new resource management arrangements and organizational platforms into government policy, administrative and budgetary decision-making processes were a feature in all the case studies given the need to ensure continuity.

A common approach to this end was the establishment of communication with local and other decision-makers from the outset, and the careful management of these relationships to ensure they were kept appraised of project activities, progress and rationales. In CS4, a stakeholder steering committee was set up which included the relevant government agencies as well as the local resource users and NGOs. Reference made to the CTFs in CS3 in terms of replication in other sites by the Secretary of Guizhou Provincial Committee at a provincial meeting suggests a degree of official recognition of the project's success. This was possible due to efforts made by the project to keep local government involved as a project stakeholder from the inception.

**4.4.5.5 The project team**

***Good Practice: Reflect the diversity of stakeholders for political intelligence and access to stakeholders***

Having a project team comprised of seconded government employees from each of the basin states, covering each of the concerned sectors and different tiers of government was a huge asset to the project in CS6; regarding the breadth and depth of political intelligence they are able to gather daily. When a policy window opened or an opportunity to influence a particular key stakeholder arose, the team was usually aware and ready to take advantage. Likewise, when plans were afoot in some quarters to disrupt or to capture the process of reform, project staff invariably found out and effected a timely response, allowing the project to remain ahead of political change.

This will also avoid conflict by providing employment and other sources of income and may also reduce project costs. Failure to do this may cause resentment that will manifest as opposition, and will represent missed opportunities to provide quick, tangible and meaningful benefits to local well-being, and goodwill towards the project.

***Good Practice: Align skills and attitudes with project context and priorities***

The people-centered approach employed in all case studies demonstrated the importance of having the correct composition of skills and attitudes amongst project personnel. While the need for technical/scientific skills is appreciated, what emerges from the case studies is the importance, especially in integrated conservation-poverty reduction projects, of finding the right people for social and institutional development work, who are able to combine technical knowledge with an appreciation of local norms, understand varying perspectives, and who are prepared to spend months away from their homes, in the wetland sites. Immersed social mobilization proved to be important, for example, in CS4. In almost all the case studies, the ability to work with people very different to oneself in a non-intrusive nonjudgmental way lay at the heart of winning trust and acceptance as well as building an accurate and detailed understanding of the complex social, cultural and political landscapes and their links to natural resources and their use.

Technical, scientific and social science knowledge were not the only features that represented valuable assets. In CS4, for example, perhaps not surprisingly, trained social mobilizers proved more capable of winning the trust of the local communities far more easily than science graduates with no experience of community work, although they were technically very sound. The character of each staff member in terms of his/her ability to consistently be aware of their own attitudes and assumptions emerged as a

key determinant of project success. In CS2 and CS3, for instance, the ability to listen when assumptions are shed was identified as being critical especially where the ability of stakeholders to verbally communicate what they are thinking may be poor owing to low education levels. This same limitation would also influence their ability to understand what project staff intended to communicate, and such methods of communication may need to be adjusted once the varying capacities of stakeholders are better understood. This would become particularly important in areas with a history of external interventions that have not met local expectations, where resulting cynicism amongst stakeholders becomes an added barrier. Overall, some of the valued personal qualities include insight, dedication to learning, patience, humility and communication skills.

***Good Practice: Ensure gender balance***

Particularly where local culture is dominated by men, the presence of women in the project team facilitates more informative interviews and also provides an effective avenue for advocacy at both household and community levels. Given that women utilize natural resources as much as men do in many cultures, having the viewpoints of both genders on the situational context and local priorities helps gain a fuller and more realistic assessment of the viability of potential solutions. As demonstrated in CS3, women may also be better suited to maximize the poverty reduction impacts of micro-credit given their apparently greater propensity for saving, awareness of household needs and knowledge of local markets.

***Lesson: Sound financial management helps achieve project efficiency and transparency***

Financial management capacity is a key component of project management and should be clearly reflected in project staff composition as well as in the project governance structures. In CS1, for example, poor planning for distributing funds for wetland rehabilitation services resulted in tension regarding how the funds were to be spent. As a result, and due to poor monitoring, some funds were misappropriated by community members.

***Lesson: Enthusiasm, charisma and vision of the project leadership can overcome obstacles especially at the policy level***

The considerable lobbying in CS5 at policy level regarding the highly sensitive issue of change to Brazil's long-standing PA system required politically astute marketing skills - an ability to sell an idea or a vision in a credible way, which the Project Director was adept at doing. His enthusiasm, charisma and ability to see the bigger context of the project enabled him to access high level decision-makers and sell the project in a manner that was meaningful to them. It was, however, noted that this style of management did have a trade-off between creative ideas and attention to administrative detail which tended to suffer as a result.

***4.4.5.6 Project-donor relations***

***Lesson: Cultural differences in communication can result in serious misunderstandings***

Where there is a meeting of different cultures and languages, dialogue should be taken in the expression of ideas or opinions to ensure the words chosen to do so are not misinterpreted. This was especially the case in CS5 with independent reviewers appointed by the donor who were unfamiliar with cultural sensitivities.

***Good Practice: Take context into consideration when evaluating project results***

The estimated \$1.50/ha cost of the project in CS5 is high if one was to apply the same cost to the immense area of the entire Amazon. However, the high project costs were due to the absence of many precedents for the project in Brazil where people and the environment had traditionally been viewed in isolation, and significant transaction costs given the remoteness, vastness and lack of infrastructure. Thus, context is important when assessing costs. Furthermore, it should also be recognized that a key feature of the work in CS5 was its demonstration value, and the magnitude and values of the policy level changes it achieved. It is also likely, thanks to this demonstrative value, that similar approaches in the area will be less costly as was the case in the neighboring reserve



of Amanã where people adopted sustainable use approaches without a ‘project’ because they had already seen and heard what could be done. These impacts are less readily quantified, but are amongst the most important impacts.

***Lesson: Imposition of changes in donor priorities should be carefully applied to ongoing projects***

In CS5, there was a radical shift in donor policy in 1997 whereby poverty reduction became the core focus. Projects such as Mamirauá, whose primary goal was biodiversity conservation, albeit through participatory approaches, no longer sat comfortably within this new policy regime. The project was thus deemed not sufficiently ‘poverty-focused’. This meant that Mamirauá’s wider poverty reduction impact went unacknowledged despite the fact that it was instrumental in moving Brazil towards pro-poor conservation by incorporating people into protected area concepts and community based management in Brazilian policy and legislation.

***Good Practice: Ensure the terms and conditions of the donor-project relationship are fully understood by all throughout the project process***

Administrative misunderstandings between the project and the donor due to lack of communication in CS5, hampered project implementation and thus the outcomes. Face-to-face meetings necessary to prevent problems spiraling out of control were lacking and divergent ideas and interpretations of the project’s objectives persisted. There was an over-reliance on ad hoc and unrecorded discussions and meetings between donor staff and the late Project Director that were not transmitted to others in each organization.

## 5. Conclusions and Insights

Overall, many of the lessons identified in the wetlands related case studies we reviewed re-enforce the insights from past attempts at integrated approaches as identified in the *Introduction* to this report. This leads to the conclusion that the nature of the integrated approaches pursued in wetlands will be similar to those applicable in other ecosystems. An important exception, however, are wetlands whose biophysical attributes cause major changes to the other characteristics of the wetlands and the services provided to people.

Whereas much of the generic literature cited in the *Introduction* draws from perceived failures of particularly early examples of ICDPs, the lessons as well as the strategies adopted in the wetland case studies and underlying analysis of the challenges suggest that many of the lessons identified in the literature have been taken on board and put into practice, subject to some variation, of course, with respect to different lessons. Perhaps this is not surprising considering most of the wetland case studies were initiated more recently. Therefore, there has been an adaptive approach utilized, where lessons on how to deal with the various issues pertaining to integrated approaches, have been incorporated into the wetland projects. However, this is an iterative process and the wetland case studies have also highlighted weaknesses in some of the strategies adopted and subsequent outcomes and it is important to learn from these mistakes and thus contribute to the continuous learning cycle that these integrated approaches demand. Some of the key insights in relation to conservation and poverty reduction in wetland systems that have come out of our review are described below.

### ***Have wetland conservation and/or wise use been shown to directly or indirectly influence the poverty status of communities associated with wetlands, and if so under what circumstances?***

The ability to address the fundamental question of whether wetland wise use has been shown to directly or indirectly influence the poverty status of communities associated with wetlands is limited to the constraints of the study as detailed in the *Methodology*. The lack of an opportunity for first hand verification and the limited availability of external project evaluations are of particular relevance. Nevertheless, some conclusions may be drawn from the available information, particularly from CS3 and CS4 where the impact on household income was the focus of external evaluations. In CS3, incomes were found to have increased overall, with a significant percentage of participating households ranking the alternate livelihood activity as their primary income source. References to the investment of savings in other capitals such as health also suggest positive impacts, although information on the prevalence of this behavior was not included. In contrast, the evaluation of CS4 returned a more patchy impact, with uncertainty with regard to the sustainability of several alternate livelihood strategies due to poor assessments of market potential. Whether this factor can fully account for the results, however, is uncertain given the seeming desire of resource users to help their children escape their dependency on the ecosystem. This suggests that while some degree of poverty reduction may have been possible if the alternate income component had been better implemented, the orientation of the communities suggest this may not be the preferred option, bringing in the aspect of scale into play in terms of the magnitude of impact on poverty. It does suggest that the degree of impact on poverty may depend on the type of poverty in question (for example, whether the local people were suffering from transient or chronic poverty - a fact that does not appear to have been looked at in any of the case studies reviewed).

Moreover, the available stock of goods from an ecosystem fluctuates between fixed limits. Wise use implies that harvesting must always be regulated between these limits for sustaining productivity. The individual share of goods in a conserved ecosystem fluctuates accordingly. In the face of external pressures such as inflation, rising cost of living and absence of access to alternative employment or supplementary income, poverty generally tends to increase.

### ***Have wetland conservation and/or wise use been shown to enhance biodiversity conservation in the wetland sites?***

Interestingly, it must be noted that overall there appears to be no quantitative measure of the success of biodiversity conservation achieved by each of the case studies. While there are varying

reasons for this omission, one common reason would have been the difficulty of measuring these changes over the short time-span of the projects - many of these ecosystem-related changes would need longer time periods over which to measure significant improvements.

### ***Is resource dependency necessary for willingness to conserve?***

While incentives (e.g., alternate income, investments in health, education and infrastructure) help to offset compromises often required of communities when establishing sustainable use arrangements, several case studies also emphasize the significant role of the attitudes and psychological orientation of target communities towards the external interventions (e.g., trust, acceptance) as well as their view of their situation within society and their ability to influence events. In fact, the lessons in this regard suggest that establishing trust, acceptance and overcoming a sense of disempowerment constitute fundamental conditions for local institutional building and participatory planning. The role of pilot activities as part of a phased approach has proven to be effective in providing the opportunities and time to test the sincerity of project objectives and actors, commence the process of learning new skills and confidence building, test potential solutions to any problems arising, identify common objectives and build cohesive social platforms to take action.

According to both CS2 and CS3, it is also claimed that the willingness to balance use with wetland conservation emerged even where alternate income development was in fact reducing the overall dependence on the wetland. This counterintuitive willingness is attributed to the provision of alternate livelihood avenues, but also to the attitudinal changes that made people more receptive to conservation/sustainable use messages. This also explains why emphasis on traditional awareness creation was relatively low as this alone could not have generated the same responses.

### ***Potential for poverty reduction should be approached cautiously on a case-by-case basis when used as a justification for conserving a specific wetland***

Although the general statement that wetlands contribute diversely and significantly to incomes and other aspects of especially rural people's well-being is widely accepted, this assertion becomes less of a certainty when dealing with a *specific* wetland, as may often be the case in project-based interventions. Here, the degree to which the wetland can contribute to localized poverty reduction will depend on a range of factors, some of which will be difficult to manipulate. Factors to emerge from the case studies, literature review and the e-forum as being fundamental to this question are the productivity and stability (i.e., the ability to provide a sustained level of natural resources in the long-term) of the wetland and social trajectories especially population and consumption trends.

The larger scale and more dynamic wetlands (generally in excess of 10,000 hectares) may be more able to provide the resource base needed for a meaningful number of households. The high productivity of larger wetlands such as the Sunderbans Delta (about 5,000 km<sup>2</sup>)<sup>5</sup>, supports harvesting at levels that enables significant savings at the household level, and can be invested in other aspects such as healthcare and education. Although this natural productivity may be further enhanced through investments such as fish culture, the wetland's ecological and biophysical characteristics will be the main determinant. Many smaller coastal wetlands on the other hand have self-destructed because they were small and were situated in ecologically vulnerable positions (e-forum). Therefore, conservation of such wetlands or maintaining their productivity will require significant investment by the state on a scale that cannot be met by local communities. The proposed restoration of the Negombo Lagoon in CS4, for example, was allocated about US\$200 million under the Coastal Resources Management Project supported by the Asian Development Bank (CRMP 2004). Thus, if optimal ecological functioning is ensured through such investments, the income and savings of dependent populations can increase despite some population increase.

### ***Incentives need to capture the attention of a significant section of stakeholders to be viable***

Continuing from the above points, the productivity of a wetland needs to not only make possible income levels that sustain households above the 'poverty line', but must be able to do this for a significant percentage of households to provide the impetus for collective action for resource

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<sup>5</sup>E-forum summary

stewardship and protection of their interests. This will be easier where the wetland supports a predominant livelihood activity as was the case in several case studies. In addition to localized resource use planning, the importance of constituency size is perhaps one of the few ways to deal with a range of external actors whose motives are contrary to sustainable use. In CS5, the fishermen were numerous enough for collective planning and the common concern of resource users from outside the PA provided a common point of focus. Similarly, in CS4, the united front presented by the lagoon fishermen in opposition to the plans of politicians to alter the structure of the lagoon risked losing too many votes.

### ***Long-term wise use strategies need to look beyond poverty reduction***

From the sustainable/wise use perspective, poverty reduction will not be the end of the wetland-development relationship, as household consumption levels are unlikely to plateau once basic needs are satisfied. As the experiences in CS4 illustrate, a major motivation of the resource use patterns of fishermen was the maximization of savings to be used for other aspects of well-being, especially the education of their children as a way out of the dependency on natural resources. Higher disposable income is likely to be accompanied by more attention to material attractions that require further increases in earnings. This process, as recognized in the literature, will reach a point where desired incomes can no longer be provided by sustainable harvesting regimes irrespective of the system's productivity. Changing household consumption patterns will be compounded by population growth (such as the case in CS4), especially where this is sudden as in the event of in-migration. The lack of alternative employment in CS6 was demonstrated when water regime changes degraded or reduced access to productive natural resources including wetlands. The long-term sustainability of the achievements in CS2 and CS3 is also unclear if the relatively small populations grow and consumerism takes hold with its attending material attractions.

Therefore, what will be important in the long-term for sustainable wetland use is the ability for wetlands to support the long-term development aspirations of the local people. Consequently, resource dependence as a long-term basis for wise use may be counterproductive if increasing pressure on the natural resource base cannot be diverted to alternate sources of non-resource based income. Broader economic growth in the area that will create such jobs thus emerges as another critical aspect in determining the long-term viability of the people-wetland dynamic.

The lessons above have significant implications for the premise that the involvement of local and indigenous people in wetland management can substantially contribute to effective management practices that further Ramsar's wise use objectives<sup>6</sup> and the ability of wetland wise use to contribute to the Millennium Development Goals 1<sup>7</sup> and 7<sup>8</sup> (Resolution IX.14 on wetlands and poverty reduction, Ramsar Convention Secretariat 2005). They demonstrate that, in practice, the degree to which poverty reduction can be achieved will vary significantly, and that the willingness of communities to participate in sustainable resource stewardship is subject to a wide range of ecological, biophysical, social and economic conditions that are open to varying degrees of influence by external actors.

### ***The role of water/hydrology in determining wetland productivity and sustainability***

The vulnerability of wetlands dependant on freshwater supplies was illustrated especially in CS6 with the anthropogenic interference in the natural flow of water through the basin, which resulted in people being impacted due to loss of wetland services as well as too much water. This illustrated the co-dependence of wetlands and people on freshwater flows. A wetland's hydrology is also generally extrinsically linked to activities upstream and this means that local people pay for the actions of others upstream. For instance, sedimentation due to excessive soil erosion featured in more than one case study, as did the conveyance of agricultural and urban pollution (for example, CS1, CS4 and CS6). While there are other ecosystems that utilize water for some of their characteristic functions, in the case of wetlands, the dependency on water for many of its services to people, which may be argued, is fundamental. Moreover, water in minimum quantity and quality, and specific timing, in the

<sup>6</sup> Guidelines for establishing and strengthening the participation of local communities and indigenous people in the management of wetlands (Ramsar Convention on Wetlands 1999)

<sup>7</sup> Reduce the proportion of people who suffer from hunger by half

<sup>8</sup> Ensure environmental sustainability

case of seasonal wetlands, is crucial to deliver the essential ecosystem services to people.

***The problems are fundamentally about people and their interactions***

By and large, while ecology and biophysical characteristics may impose certain constraints and pose risks to human well-being under some circumstances, the majority of conservation and development challenges owe their existence to people's behavior and the choices they make. Though this may sound obvious, it underscores the need to approach what may manifest as ecological problems through a human lens if real change can be expected. In this respect, the strong emphasis on people's attitudes, emotions, motives, social processes, project personnel and skill requirements and people-oriented differential learning processes in the case studies is not surprising. This should have significant implications for the constitution of project teams and the balance between biological and physical sciences and social sciences in addition to other interpersonal skills.

***An integrated approach needs to begin with a willingness to understand context through multiple disciplines and perspectives***

The multi-disciplinary nature was another key feature in several projects, and the lack of adequate attention to this aspect was seen in CS4 by the external evaluation of the livelihoods development component. Following on from the point made above, the major rationale for a multi-disciplinary approach stems from the complexity of human behavior and linkages between social, cultural, economic, political, policy and institutional landscapes all driven by people and all bearing upon the fate of ecosystems. The answers to most challenges will thus lie in a thorough understanding of the context at the outset, ideally of project development rather than implementation. As such, this reality challenges both conservationists and development practitioners to find ways to better integrate the work, but first their perspectives.

***The power of externalities to override local interventions***

The prevalence of externalities has been a marked feature in many of the case studies on which this report is based, and further supports the view expressed in the literature that a site-specific focus is unlikely to lead to lasting positive results given the increasing interconnectedness within and between nations. Having to address influences at multiple scales may be seen as a major driver in changing the characteristics of the project-funding methodologies and project strategies. It will necessitate even greater resources and time frames, and given the lesser degree of influence of a single project at larger scales, lays greater emphasis on strategic partnerships. An excellent illustration of this was provided in CS6 where poor basin water management and the lack of institutional frameworks at the local, basin, and national scales not only dominated project strategy, but left much to be achieved despite five years of work. Moreover, attention to current trends in global markets (e.g., fuel prices) and their knock-on national and local impacts highlight the need to acknowledge the limitations of wetland conservation best practices as mechanisms for poverty reduction when placed within a broader geoeconomic canvas. Negative externalities flowing from policies and market forces that arise both at the national and global levels may fundamentally influence poverty among wetland dependent communities even when wetland conservation best practices exist. Protection from negative externalities that aggravate poverty will depend upon the economic strength of family units (households) that enable social mobility and access to choices strengthened by health, education and relevant infrastructure. Therefore, strategies dealing with wetland-poverty relations must include investments across a broad range of services such as education, healthcare and other infrastructure if external shocks are to be minimized and hard-won resource stewardship arrangements are not to be overrun.

***Sustainability - what does this mean in practical terms?***

While an array of factors influencing sustainability are well documented in existing literature (though what these will be in a specific context will vary), the temporal dimension to sustainability should be more expressly recognized in the context of a dynamic world shaped by multiple and linked trade-offs. When considering the sustainability of wise use and incentive mechanisms, therefore, several elements such as the characteristics of the wetland and local communities and externalities such as overarching policy climate will come into play. What's more, all of these are liable to change over time or even suddenly. The sustainability question, therefore, should consider how strategies

suited to the present can deal with change. A key lesson expressed in this respect in the literature on ICDPs is the need to invest across the various capitals on which households draw on for resilience and adaptation in times of change. The question that remains is, what precisely is reasonable to expect from interventions in terms of their sustainability, and how should this be defined in temporal terms? Although the case studies offer some insight into making this point, there was insufficient information overall to answer this question.

***Processes of change occur incrementally over long time frames with fundamental implications for conventional funding processes***

The time spans of the case studies dealt with in this report vary from approximately two years to over ten years, with an average time span of seven years. In several instances, further work remains to reach project objectives. While the context and scale make timescales specific to each project, to expect truly robust outcomes from especially short time frames (such as 2-5 years) is unrealistic and exerts a self-defeating burden on the project. The need for donors to re-examine funding cycles is thus critical if quality outcomes are what is desired. At the same time, it is also a challenge for project managers to incorporate innovative and diversified funding strategies in project implementation.

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PO Box 2075, Colombo  
127, Sunil Mawatha, Pelawatta  
Battaramulla, Sri Lanka.

Tel: +94-11-2880000

Fax: +94-11-2786854

Email: [iwmi@cgiar.org](mailto:iwmi@cgiar.org)

Web: [www.iwmi.org](http://www.iwmi.org)



PO Box 471  
6700 AL Wageningen  
The Netherlands

Tel: +31 31 7486774

Fax: +31(0) 317 486770

Email: [post@wetlands.org](mailto:post@wetlands.org)

Web: <http://www.wetlands.org>