Wetlands and Poverty Reduction Project

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

A Policy Brief

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

IWMI International Water Management Institute

WETLANDS INTERNATIONAL

Buitenlandse Zaken Ontwikkelingssamenwerking

Study Objectives, Rationales and Methodology

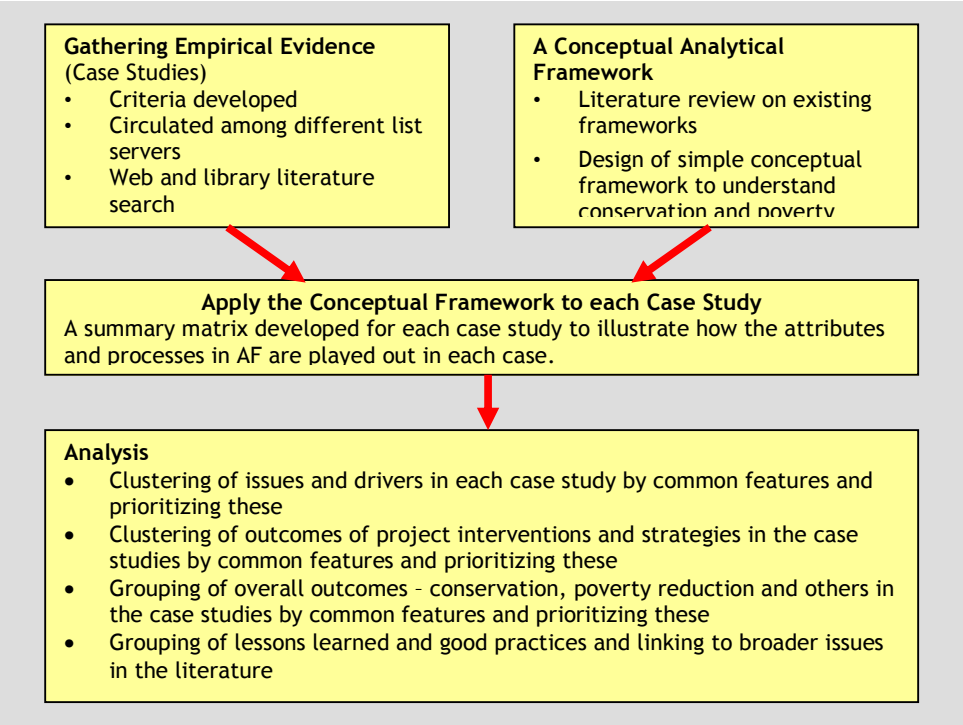
Objective and Rationale

A review of good practices and lessons learned in creating mutually supportive links between human well-being and wetlands management with respect to poverty reduction and conservation in wetlands was undertaken by the International Water Management Institute (IWMI) with the support of Wetlands International (WI). The underlying rationale for 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. 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. This assessment 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.

Methodology

Identification of lessons and good practices constituted a desk-based study using completed or near-completed projects as case studies. In addition, an e-forum discussion on wetlands conservation-poverty reduction held with practitioners working on wetlands and poverty issues in different parts of the world, and other existing literature on integrated conservation and development approaches were two other important sources of information that complemented the case studies. Based on a set of 11 criteria that was developed for this review, seven case studies from Asia, Africa and South America were selected out of almost 50 projects. Whilst no single case study was expected to represent all the criteria, the criteria were 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. One common feature in the selected case studies was that there were management initiatives at these wetland sites that attempted to address both conservation and poverty issues (although to varying degrees).

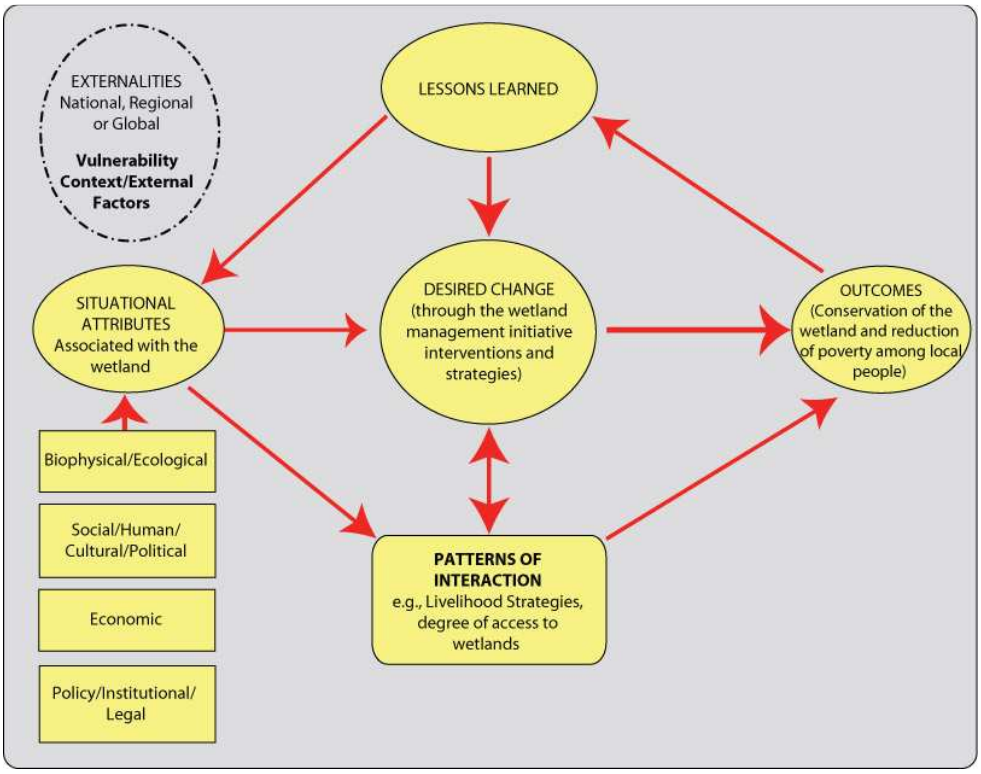
Figure 1. Methodology adopted to identify lessons and best practices to achieve conservation and poverty reduction in wetlands



Concurrently, a conceptual Analytical Framework (AF) was developed to help capture and organize the varied dimensions involved in linking conservation and poverty reduction in wetlands based on a review undertaken of existing frameworks. As shown in Figure 2, in our conceptual AF, 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**. Patterns of interaction are complex and not necessarily linear. 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. The **lessons learned** from achieving a certain outcome through a management initiative would feed back in an adaptive manner to enhance further interventions. This adaptation would include taking cognizance of the changes to the situational attributes resulting from the previous interventions. Lessons may be learned during project implementation or highlighted after project completion. 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 situational attributes and patterns of interaction, but also directly impact the outcomes.

Figure 2. Analytical Framework for understanding conservation and poverty reduction within wetlands



Case studies covered in the study:

1. Lake Fundudzi Conservation Project (part of the Mondi Wetlands Project), South Africa.
2. Sustainable Exploitation of Lepironia Grassland Integrated with Local Traditional Handicraft Conservation Project, Vietnam.
3. Integrating Conservation with Rural Development at Cao Hai Nature Reserve, China.
4. Integrated Resources Management Programme in Wetlands in the Muthurajawela Marsh Negombo Lagoon (MMNL) complex.
5. Mamirauá Sustainable Development Reserve Project, Brazil.
6. Joint Wetlands Livelihoods project in the Hadejia-Nguru Wetlands, Nigeria.
7. Developing markets for watershed services and improved livelihoods - Conservation of Bhoj Wetlands through Incentive Based Mechanisms, India.

Definitions

Good Practice - 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.

Lesson Learned - 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.

Limitations of the Study

One key constraint was the limited ability to independently verify information provided for each case study. 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. Another difficulty encountered was the identification of suitable case studies that included an integrated conservation and poverty reduction approach **and** had progressed sufficiently in their implementation (either they were completed which was preferable or were nearing completion) to provide a basis for learning.

KEY FINDINGS

By comparing the results and approaches used in the case studies with those of earlier integrated conservation and development projects cited in existing literature, it is clear that learning to create the conditions for effective integrated approaches is an iterative and adaptive process whereby past lessons have been taken on board and put into practice. Nevertheless, being an iterative process, the current case studies have also highlighted weaknesses and successes in strategies adopted and subsequent outcomes, and it is important to learn from these and thus contribute to the continuous learning cycle that these integrated approaches demand.

Can wetlands be managed sustainably and contribute to poverty reduction and, if so, to what degree?

It will be case-specific

Although the collective contribution of wetlands to the well-being of poor people at the global scale is acknowledged as being diverse and significant, the situation for a particular wetland will vary. The case studies reflect this variability. In some projects, household incomes increased as a result of improved wetland management practices. For example, in Phu

> In Cao Hai, success in improving the economic status of households through pilot projects resulted in families that were not micro-credit recipients emulating the recipient groups through loans taken from better-off relations. In this way, the entire community became mobilized. Improved household income made it possible for households to contribute towards village-level initiatives. The challenges posed to each recipient group and to the villages as a whole through the micro-credit scheme helped expand people's outlook on their lives and roles in their own communities. The collaboration and joint problem solving and organization required contributed to higher self-belief and better village cohesion, leading to a shift away from stakeholders asking what 'the project' or 'the government' should do, to discussion on what they could do as individuals and as a group. Similarly, in Mamirauá and the Hadejia-Nguru Wetlands (HNW), collective action through pilot programmes appear to have provided communities with the knowledge, confidence and organizational capacity to articulate their demands for services from relevant agencies. In HNW, communities now act as a powerful lobby force through media and State and National Assemblies to support the wetland and basin level stakeholders achieve their objectives.

My, household income increased from less than $1 a day to between $1.9 to $3.1 a day, while in Cao Hai, income increased from Yuan 857 to Yuan 1,980. In others, insufficient data was available to allow for a clear assessment, while in at least one case study, the wetland is under sever pressure (Muthurajawela Marsh Negombo Lagoon). What should also be emphasized is that income is but one dimension of human well-being. Acquisition of new skills, social organization and, above all, the emergence of individual and collective belief in the ability to effect change also emerge as fundamental conditions for economic, social and political growth.

Nevertheless, several factors will combine to determine whether a specific wetland can reduce poverty levels of local communities without being degraded. These include characteristics of the wetland that define its current and future productivity which must be linked to the nature and demands of human populations that live in and around it. A key feature of many factors is their variability over time, making the wetland-people relationship a dynamic one.

Limits to a wetland's productivity must be recognized when assessing its capacity for poverty reduction

Each wetland will have a natural limit to the ecosystem services it can sustainably provide. This limit will be influenced by a wetland's size, stability and biophysical characteristics. For example, small, dynamic coastal wetlands may be less stable, and their productive functions (e.g., food production, flood prevention) may change over time.

> The Muthurajawela Marsh Negombo Lagoon in Sri Lanka is a relatively small, shallow barrier-built coastal system severely threatened by siltation and pollution. It has shrunk in size and its depth has declined significantly affecting fish and prawn production and flood control. Its biophysical characteristics combine to produce weak currents insufficient for flushing sediments and pollutants from the system, while sediment and pollution load continue to grow as development activities expand upstream.

While human interventions to artificially maintain or enhance productivity may be possible, their high costs may mean such investments are often beyond the scope of many projects and governments.

> One of the most significant costs involved in maintaining the Muthurajawela Marsh Negombo Lagoon as a productive system was the engineering work required to stabilize the mouth of the lagoon to allow water exchange with the ocean year-round. This would involve dredging the narrow and shallow channels that convey water to the lagoon. This was estimated at costing the project over US$200 million. Being a barrier-built system, the lagoon is inherently shallow and increasing siltation plus weak currents threaten to further reduce the water depth below that required for the lagoon's functioning.

A wetland's impact on poverty will depend on local population size relative to its productivity, and perhaps, more importantly, on demographic trends

From a poverty reduction perspective, productivity of a wetland may be expressed as its capacity to enable significant household savings. These savings can be used to invest in other aspects of human well-being beyond food security such as health care and education, as well as investments at the community scale (e.g., common infrastructure) or financial capital (e.g., a death donation fund).

In the Cao Hai wetland, an external evaluation of the micro-credit schemes indicated that where household income increased, this additional income was commonly invested in education and health care. Similar behavior was reported from Phu My in Vietnam where better organized and trained handicraft manufacture using wetland grasses increased household incomes from between $0.6 and $0.8 a day to between $1.9 and $3.1 a day. In Muthurajawela Marsh-Negombo Lagoon, a primary concern of fisher-families was their inability to earn adequate income from the lagoon to invest in their children's education and, thus, facing fewer prospects for breaking out of their dependence on the declining fisheries.

The degree to which household income can be raised will depend on whether the combined demands of the human population depending on the wetland have surpassed what the wetland can support sustainably. In situations of poverty and geographical isolation where the local wetland may be the only resource, investments in better resource management, social mobilization and market access has the potential to succeed in enhancing both wetland conservation and local livelihoods.

In the Phu My wetland in rural Vietnam, the low local population density provided the space to combine livelihood development strategies based on the wetland, and biodiversity conservation through a zoning system. Income generation took the form of upgrading the traditional occupation of handicrafts made of *Lepironia* grass from the wetland. Strategies to access more affluent local and international markets were developed and the production system was organized and technologically upgraded to meet the expected demand. This was possible as the wetland's production of *Lepironia* grass could match this demand without adversely affecting key habitats, especially for rare birds.

The high levels of poverty and relatively low population densities relative to wetland size and productivity also worked in Mamirauá, a seasonally flooded forest in the Brazilian Amazon. Here too, a zoning and collective market access scheme for fisheries management combined resource conservation and more secure wetland-based livelihoods. Collective negotiation by the communities reduced dependency on middlemen and saw prices of their fish rise from R$3/kg to R$8/kg.

In Muthurajawela Marsh-Negombo Lagoon in contrast, a high density of fishermen and diminishing lagoon productivity made town-based employment the preferred option for young people, and fisher families sought to invest in their children's education. The wetland's proximity to a rapidly expanding urban center also led to rapid population growth driven by rural migration. Investment in non-wetland livelihoods diversification was thus a significant project strategy to divert pressure from the lagoon.

Changing consumption patterns and demography demonstrate the need to diversify local development options if wetland conservation is to be viable in the long-term

The seemingly natural transition in people's focus from meeting basic needs to greater material acquisitions as they move out of poverty suggests that the relationship between wetlands (and any ecosystem) and people is more complex, with long-term impacts, and not simply a case of moving people out of poverty. How many people can be served by a specific wetland will thus depend not only on current population, but on what those people's longer-term aspirations are in terms of their well-being and how these change over time. The higher the levels of material well-being people aspire to, the less viable a wetland may be in terms of providing the income needed to realize such wants. Increases in local population due to natural trends or in-migration will exacerbate the pressure on a wetland's resources. Initiatives must thus be linked to and encourage broader regional development that provides for livelihoods diversification not necessarily linked to wetland resources. Failure to do so is likely to make sustainable wetland resource use arrangements vulnerable to contextual changes in the long-term.

In the Muthurajawela Marsh-Negombo Lagoon the wetland's proximity to a rapidly expanding urban center drove both rapid population growth through rural migration and more materialistic lifestyles. Investment in non-wetland-based livelihoods diversification was consequently a significant project strategy to divert pressure from the already over-exploited wetland.

Does poverty drive wetland degradation or result from it?

Both - it will be case-specific

Wetland degradation and high levels of poverty were common to each case study. However, whether poverty was a driver of wetland degradation or resulting from it was shown to vary. What was clear was that once wetland degradation began a cyclical relationship between it and poverty arose resulting in cycles of deeper environmental degradation and poverty.

Poverty as a driver of wetland degradation

Lake Fundudzi is South Africa's only inland freshwater lake. Dependence on the wetland is high as the area's primary productive resource. Fishery is the main source of protein for the majority of households and its water is used to support livestock. In an attempt to improve food security, a large number of new fruit orchards and vegetable gardens were established in the catchment and cultivated in winter and summer. Poor land use planning resulting from a fragmented institutional scenario and poor awareness meant the clearing of natural vegetation for cultivation and housing was haphazard and began to drive excessive lake sedimentation. This was exacerbated by cultivation on steep slopes without soil erosion control measures. Promoting participatory wetland rehabilitation and land use planning for sustainable land use to bolster local incomes thus became the priority for the project.

Poverty as a result of wetland degradation

The Hadejia-Nguru Wetlands (HNW) is an inland delta in northern Nigeria towards the center of the 84,000 km^2 Hadejia-Jama'are-Komadugu-Yobe Basin (HJKYB). The basin supports 18 million people, 1.5 million of whom reside in the HNW. The predominance of farming, fishing, livestock rearing and wild resource collection indicate a high dependence on the rich wetland ecosystems that in the early 1990s were estimated to provide $167/ha in local benefits compared to only $29/ha from irrigated agriculture upstream. Drastic changes occurred with the construction of two dams and two large-scale irrigation schemes that caused the wetlands, which historically exceeded 2,000 km^2 during peak flooding, to dwindle to 413 km^2. Poor dam design and operation severely altered both the volume and timings of water flow in the basin, subjecting some parts to prolonged flooding and others to prolonged drought. The resulting wetland degradation undermined many key livelihoods and restricted access to infrastructure and services such as credit and markets. Livelihood failures severely aggravated poverty and resulted in abandoned villages and further ecological degradation as people exploited other natural resources to cope with the loss of primary production systems.

Is dependence on wetlands an adequate incentive for sustainable use?

It may help in the short-term to organize stakeholder groups, but may be counterproductive in the long-term once stakeholders raise their material expectations.

Direct dependence on wetlands was a common basis for organizing communities for better resource management in several case studies. It suggests dependency is a strong motivator in participating in resource management planning processes.

In the Muthurajawela Marsh-Negombo Lagoon, the project was able to mobilize a lagoon fishery group large enough to dissuade a local politician from building a fisheries harbor at the mouth of the lagoon. Such an action would block water exchange between the lagoon and the sea and hasten the demise of the lagoon and its fish and prawn fisheries. Explaining these consequences to the lagoon fishermen united them in the interests of the common cause that resulted from their livelihoods being rooted in the lagoon. In Mamirauá, the local fishermen were mobilized by the prospect of ensuring good fish yields for future generations and better controlling access to the fisheries by outsiders.

However, the possibility of integrated outcomes through voluntary participation rather than wetland-based income generation alone was also illustrated where 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 not only to the provision of alternate livelihood avenues, but also to the attitudinal changes that made people more receptive to conservation/sustainable use messages. Despite the availability of scientific tools and funding, the ability to induce positive thinking remains central to processes of change that require adoption of new ideas and skills and trade-offs between conservation and poverty reduction objectives.

In Cao Hai, two micro-credit schemes appear to have helped recipient households to improve their incomes and the communities as a whole to invest in shared capital such as schools and roads. The micro-credit schemes also actively discouraged the selection of alternate incomes based on wetland resources and thereby helped ease dependency on the wetland. Nevertheless, rather than lose interest in the wetland, the community agreed to participate with the Nature Reserve staff in developing and enforcing a zoning scheme that provided habitat for biodiversity but also provided the community access to wetland resources.

What is the advantage of an integrated approach in balancing sustainable wetlands use with poverty reduction?

The drivers of many ecological problems in wetlands lie in human decisions and activities at various scales, from the individual, the household and the community, at national level and beyond. Conversely, development activities that do not assess their impacts on ecosystems run the risk of undermining the resource supporting the well-being of the target communities or that of others. Resolution of such issues will, therefore, involve viewing the development challenge from both ecological and human perspectives. Integral to such an approach is the need to base policy or interventions on an understanding of why specific issues persist, what drives them and how these link wetlands and people. In most cases, these relationships are found to be a complex web of cause and effect scenarios that cover several situational attributes (biophysical and ecological; social, human, cultural and political; economic; and policy, institutional and legal) of the wetland. Of particular importance is the fact that a change in one attribute is likely to manifest in changes to one or more attributes.

In Cao Hai, the project had to overcome serious conflict between the Nature Reserve (NR) authority and local communities due to the NR rules that prohibited resource use. The NR authority had pursued an inflexible approach to enforcement rather than explore the possibility of compromise through dialogue, whilst the community members saw little choice but to challenge the NR rules. The NR authority viewed the issue as one of maintaining ecosystem integrity, while the people saw it as access to food security and other basic needs. The project recognized the importance of both needs, which made clear the role of dialogue and compromise if the issue was to be resolved. Equal weight was thus given to understanding the challenge from the 'wetland for biodiversity' perspective and the 'wetland for people' perspective, with the aim of identifying where a mutually acceptable compromise lay. To implement this strategy, the project took particular care to involve a broad range of skills that covered both ecological and social sciences. The ecological skills helped understand the nature and productivity of the wetland while the social skills helped create avenues for dialogue between the NR staff and the communities. This took the form of an effective micro-credit scheme that sought to raise household incomes whilst reducing their dependency on the wetland. By involving the NR staff in administrating this scheme, dialogue and an understanding of each others' perspectives was possible. One result was the willingness of both groups to compromise which cleared the way for a zoning plan whereby the wetland would support the needs of biodiversity as well as the needs of local communities.

The approach was similar in Mamirauá where, before reaching the goal of sustainable fisheries management, the project had to create the social conditions necessary for the people's willingness to participate in the planning and implementation of a zoning scheme. The project had the added challenge of overcoming distrust of outsiders, which was also a feature in other case studies. Demonstrating genuine intentions and communicating the project's strategy for better resource management and how this can benefit the community was only possible because the project recognized the importance of the multi-dimensionality of the issues at the outset and was equipped with the appropriate array of skills.

The examples cited above also make clear the importance of a project's ability to overcome the debilitating psychological effects of poverty and marginalization for creating a collective mind-set conducive to open and participatory dialogue; to appreciate the need for sustainable resource use; and willingness to compromise and be part of a negotiated solution that would include voluntary adherence to rules of sustainable resource use. This has been described as "a process of understanding, establishing trust and problem solving" (Cao Hai).

Linking social development to conservation through an integrated approach to income diversification and micro-credit

While micro-credit is a common, if not standard, practice amongst development initiatives and many conservation projects as well, an integrated view of micro-credit may enable such schemes to achieve a win-win result of enhanced livelihoods and better conserved wetlands. Some key lessons in this respect are:

- If income diversification is viewed only from the perspective of deflecting dependency on a resource, then the micro-credit scheme is liable to fail. Its function of reducing resource use must be linked to its income-generating potential.
- Always evaluate the ecological implications of an alternate livelihood strategy to ensure diversification does not lead to unsustainable resource use. This is especially relevant when the scheme involves a pilot project: some impacts will be hidden until the project is scaled up.
- Link micro-credit to ecosystem conservation not by basing alternate livelihood strategies on the wetland, but by making participation in conservation a condition of the credit scheme. Moreover, linking livelihood diversification to the wetland may in fact restrict the options available for effective and sustainable livelihoods.

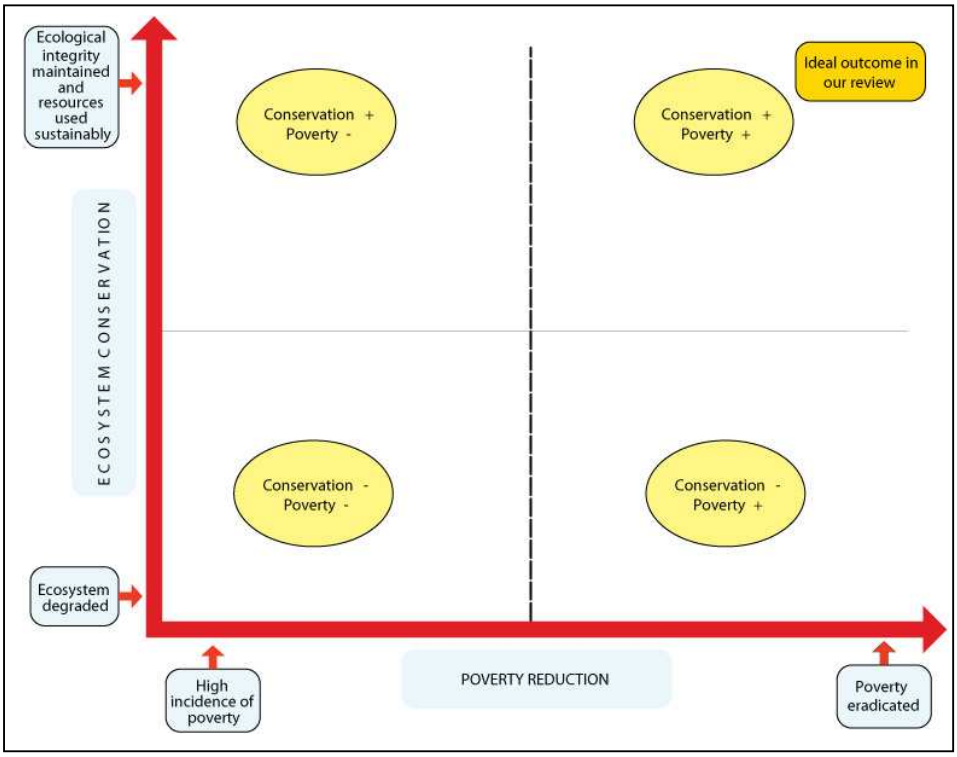
In the Muthurajawela Marsh-Negombo Lagoon, the micro-credit scheme had mixed results. Reasons included failure to evaluate the potential of each alternate income to raise household income, and to evaluate the market potential for the new products. One explanation for these methodological shortcomings may be the dominant focus on the wetland's conservation and the lack of understanding of what conditions were necessary for a successful micro-credit programme.

During the micro-credit pilot programme in Cao Hai, most groups chose pig rearing as their livelihood activity. Whilst this seemed appropriate from a household income perspective, the project realized that were this to be the preferred livelihood activity when the programme is expanded, it would result in an unsustainable level of vegetation collection from the wetland as feed for the pigs. This demonstrates the need to balance pure economic logic with the needs of sustainable resource use.

Identifying trade-offs to create space for balancing wetland management with poverty reduction

Sustainable resource use implies an inherent limitation to the degree of exploitation possible, and will often require measures to limit access to, and extraction of, resources from an ecosystem in line with its productive capacities. Such limitations from a people perspective is likely to mean some individuals or groups losing access to the resource or are restricted in harvest quantities. While such arrangements may work to secure the resource base in the long-term, the short-term poverty impacts may be negative unless they are balanced by other interventions that compensate for loss of access. Thus, sustainable resource arrangements are most likely to require negotiated trade-offs between maintaining long-term ecosystem integrity and maximizing short-term economic gain. Figure 3 indicates the possible outcomes of an integrated approach. Where a particular intervention will lie in this matrix will depend on the specific ecological and human conditions in operation and the project team's skill in identifying and negotiating the best possible trade-offs between conservation and poverty reduction.

Figure 3. Possible outcomes when integrating sustainable resource use with poverty reduction



Trade-off mechanism: Zoning
In the case of the Mamirauá Sustainable Development Reserve in Brazil, a key focus of the project was on ensuring the sustainability of the fisheries which, being an open-access system was prone to over-harvesting by the local communities as well as by commercial operators from outside the local communities that would also undermine the resource available to the communities. The project thus worked to establish a body of community-developed and administered rules regulating access to the fisheries and harvesting using a zoning system to provide for both species conservation and exploitation. These efforts were supported by attempts to develop alternate incomes through a locally administered ecotourism lodge.

Trade-off mechanism: Linking conservation to micro-credit
In Cao Hai, one of the conditions of micro-credit was that each recipient group would commit to a conservation activity of their choice, based on an evaluation of conservation issues in the wetland and its surrounding areas. Activities such as tree planting on slopes to reduce siltation was promoted in this manner, as was the willingness of communities to participate with the Nature Reserve personnel in developing and administering a management plan for the wetland based on its zoning. This was possible because the micro-credit scheme was perceived to offset any restrictions placed on access to the wetland.

The high vulnerability to externalities means it is critical to invest beyond the wetland and across a broad range of situational attributes associated with the wetland

The prevalence of externalities was a feature in several case studies, and further supports the view expressed in existing literature that a site-specific focus is unlikely to lead to be adequate for lasting impacts where the influence of externalities is strong. Externalities can take many forms such as hydrological interventions, natural disasters, change in national and global economic climate, climate change, policy change, civil unrest and migration. Thus, the role of wetlands in development must be viewed within the broader landscape, biophysical, political and economic (regional, national and global) scales if ecosystem-local community development trade-offs are to be sustainable.

Hydrological change in the Hadejia-Nguru Wetlands (HNW): A case for planning at the river basin scale
The dependence of the wetlands on the supply of upstream water in seasonal flows left it vulnerable to upstream interventions. The interventions occurred in the form of two poorly constructed and managed dams which significantly altered the volume, timing, duration and distribution of water flows through the basin. Ecological degradation driven by water scarcity in some areas and excessive flooding in others led to the collapse of primary livelihoods, which, in turn, led to further cycles of ecological degradation and deepening poverty as people resorted to other resource uses for survival (i.e., replacement of primary livelihood activities with others such as cultivation on sloping land). In this case the overarching need for basin-wide water governance meant a focus on individual wetlands in the basin would be futile. Consequently, in its attempt to promote basin-scale integrated water resources management, the project was faced with over 100 different groups of government and non-government resource user/regulator organizations in the transboundary Hadejia-Jama'are-Komadugu-Yobe Basin (HJKYB) of 84,000 km^2 .

Migration and pollution in Muthurajawela Marsh-Negombo Lagoon
While biophysical characteristics of the Negombo Lagoon made it vulnerable to siltation, the process of siltation and pollution was significantly hastened by rapid urbanization in the surrounding landscape driven by migration and upstream industrial and urban discharge. Muthurajawela Marsh was threatened by encroachment and land conversion for housing, driven by migration and its impact on land prices which were no longer affordable to the poor. Rapid urbanization also presented alternative livelihood options for resource users who wished to breakaway from a dependence on lagoon fisheries, and thus altered the user-wetland dynamics.

In view of the dynamic nature of many of the situational attributes that define people-wetland interaction (i.e., biophysical and ecological; social, human, cultural and political; economic; and policy, institutional and legal), a critical question to consider is how conservation and poverty reduction strategies suited to the present can deal with change. A key lesson in this respect is the need to invest across the various situational attributes on which households draw on for resilience and adaptation in times of change.

Unrealistic time frames will erode the advantages of an integrated approach from the outset

The need to accommodate adaptive management processes

Adaptive management emerges as a vital feature of an integrated approach that involves seeking cohesion between a diversity of variables (e.g., biophysical and ecological; social, human, cultural and political; economic; and policy, institutional and legal) over which the project will have only limited influence at best. A process of continuous monitoring, learning and adjustment must be established from the outset to provide the flexibility to identify and respond to a course of events that is largely outside the control of the project. Justification for the additional time required for such an approach lies in the greater chance of achieving impact resulting from the cycles of continuous learning that generate more pragmatic and timely interventions.

Since its inception, the Hadejia-Nguru Wetlands project had undergone cycles of development in its thinking and design in response to broad analysis and reflective learning from the processes the project had catalyzed. For example, 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 further focus and reshape the project's objectives/activities and those of its stakeholders. At key stages, between 2002 and 2007, the project's logical framework, therefore, underwent transformations to reflect new directions in which the process has led the project. The Implementation Phase Log frame sees a marked departure from the project's orientation at output and purpose levels laid out in the Inception Phase Log frame.

Capacity building is time intensive

Change can be a difficult process for individuals and communities, especially when communities 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 intensions. Only then will implementation of project activities become feasible. 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.

In Phu My, wetland conservation through a protected area, handicraft production and linking with export markets were all new "concepts" to the community. Thus, key people in the community had to be consulted first and this was a time consuming exercise. It took five years for the community to fully accept the project. Thus, change was gradual and incremental to ensure the pace of change was in line with the ability of communities to absorb new information, skills and compromises. Forcing change too quickly would have resulted in the project being rejected. Change through several iterations made its long-term sustainability more likely.

Operating at larger scales can require more time

Although timescales are specific to each project, a situation where drivers of key issues operate over a large geographical scale is likely to mean a greater degree of complexity in terms of the political and institutional landscapes involved and the number and diversity of stakeholders to be accommodated.

In the Hadejia-Nguru Wetlands the issue was scale given the critical link to basin hydrology and proliferation of over 100 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 was a key feature in project strategy. 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 proved to be critical, especially in the context of change processes that went beyond the project's implementation term.

Strong support from policymakers is key to the success of wetland management interventions

While the case studies illustrate the importance of developing coalitions of actors to promote change, several also highlight the pivotal role of political champions if the change necessary is to be realized.

Prior to the project in Mamirauá, Brazil had one of the most conservative protected area (PA) policies and legislation in the South American Region. Inclusion of people within protected areas, let alone participatory resource stewardship, was considered hearsay by many environmentalists. At the project's inception, having an Ecological Station status meant that human settlements or any biodiversity use (including tourism) was prohibited in Mamirauá, leaving the project with no legal basis to develop participatory resource management processes. The project's success in convincing the Federal Government to include a new people-inclusive PA category owed much to the support received from the Governor of the State of Amazonas. In contrast, in the Bhoj Wetlands in India, failure to realize a Payment for Environmental Services (PES) arrangement between downstream urban water users and upstream farmers may be explained partly from the failure of policymakers to adopt the idea of PES and to promote consensus-building.

This policy brief draws on the findings of the report *Senaratna Sellamuttu, S.; de Silva, S.; Nguyen Khoa, S.; Samarakoon, J.* 2008. Good practices and lessons learned in integrating ecosystem conservation and poverty reduction objectives in wetlands. Colombo, Sri Lanka: International Water Management Institute; Wageningen, Netherlands: Wetlands International. 73p, on behalf of, and funded by, Wetlands International's Wetlands and Poverty Reduction Project.