

CHAPTER 4. LESSONS LEARNED FROM LTBP

4.1 Introduction

The Lake Tanganyika Biodiversity Project (LTBP) has many notable achievements, including: technical studies in biodiversity, pollution, sedimentation, fishing practices, socio-economics and an environmental education programme; a transboundary diagnostic analysis (TDA) of the threats to Lake Tanganyika's biodiversity; a Strategic Action Programme (SAP) providing a prioritised list of these threats and strategies for ameliorating them; a draft legal convention binding Tanganyika's riparian nations to the sustainable management of the lake's natural resources; and finally a commitment from GEF and the governments of Burundi, D.R. Congo, Tanzania and Zambia to continue this process through a PDF-B grant to support a planning and preparation phase to implement the SAP and ratify the convention.

These achievements were accomplished within a sometimes tense and unpredictable political climate. They were accomplished against numerous technical and logistical obstacles. While we enjoy these victories, we also note that we made some mistakes. This final chapter analyzes our experiences and summarizes the lessons we learned in implementing LTBP so that other projects may benefit from our experiences.

To canvas opinions from the region, questionnaires were sent to all LTBP National Coordinators, Assistant National Coordinators, and to key personnel involved in the technical programme (special studies and Strategic Action Programme). There was a 67 percent return rate for these questionnaires, with all countries having at least two respondents. In addition, the Project Coordination Unit (PCU), members of the agencies forming the NRI Consortium (implementing subcontractor) and some

technical programme leaders contributed their opinions.

This chapter concentrates on issues for which there was broad consensus from the region and from the implementing subcontractors. Where there was not consensus, the statement was qualified or both viewpoints were reported.

4.2 Civil Wars and Insecurity

The African Great Lakes region has been the theatre for considerable conflict and turmoil during the last decade. Burundi has been in a civil war of varying intensity since the assassination of its first democratically elected president in 1993. As a result of a 1996 coup d'état, Burundi was also subjected to an international embargo imposed by neighboring countries.

Nearby, D.R. Congo entered into a revolution backed by Rwanda in 1995 that eventually toppled the former president, Mobutu Sese Seko. Within 18 months the war had re-ignited, this time between the new Congolese government and Rwanda and Uganda. Throughout this project Rwandan troops occupied and controlled eastern Congo, including the lakeshore regions.

As a result of these wars and insecurities and events in neighboring Rwanda, Burundi and D.R. Congo both experienced massive refugee movements. Many displaced people from these three countries sought refuge in western Tanzania.

These are not ideal conditions for conservation initiatives. In our experience, however, while civil war and insecurity typically affect everybody in some way, they are perpetuated by a comparatively small portion of the population. And it is exactly during these times that the natural resource base is most vulnerable and conservation and resource planning initiatives are most

important. Bilateral and multilateral aid to countries at times of war is obviously a sensitive issue. Nonetheless, we found that in spite of the many constraints imposed by civil insecurity, a considerable amount can be achieved. Our experiences with this are outlined below.

4.2.1 Remain flexible and seek creative solutions

The Project Document specified that the Project Coordination Unit (PCU) would be based in Bujumbura, Burundi. Burundi was in a phase III UN security rating at the project's onset, thus following UN regulations, new project headquarters could not be established there. The PCU was relocated to Tanzania, with the Project Coordinator (PC) establishing an office in Dar es Salaam to coordinate the project's policy aspects and the Scientific Liaison Officer (SLO) establishing an office in Kigoma to coordinate the lakeside technical programme. This arrangement had the disadvantages of removing the PC from the lake and separating the PC and SLO by a considerable distance. It was also a sensitive issue for Burundi, which noted that a number of UN projects were operating in Burundi in spite of security constraints and felt that LTBP should as well.

The PCU and regional Steering Committee remained flexible on this point and during the project's third year, the SLO moved her office to Bujumbura. At a SC meeting it was decided that, given the security situation in Burundi, it would be too risky to move both the PC and SLO to Burundi. This caution was borne out when 1.5 years later the UN security rating was increased to phase IV, following the killings of two UN aide workers, and the SLO and facilitators were evacuated. The momentum that would have been lost if both the PC and SLO had been based in Burundi at that time could have been devastating to the project. The SLO returned to the Kigoma Office and was able to make short visits to

Burundi until the security situation normalized six months later. While the project was never able to reunite the PC and SLO in the same location and this, both felt, was a distinct disadvantage, this was probably the best arrangement given the constraints.

In addition to Burundi, this arrangement also allowed D.R. Congo to be engaged in the project. D.R. Congo was under phase IV security during most of LTBP, which stipulates that expatriate staff cannot reside there. However it was fortunate that LTBP's lead lakeshore institution in D.R. Congo, the Centre de Recherche en Hydrobiologie (CRH), was based in Uvira which is a 30-minute drive from Bujumbura. Thus project staff could commute to Uvira when security permitted to meet with Congolese affiliates and tend to the technical and administrative aspects of the programme in D.R. Congo. Congolese staff was also able to commute to the Bujumbura Office and meet with project personnel there.

When Burundi and eastern Congo were both in phase IV security and the SLO and facilitators were relocated to Kigoma, the project was able to continue activities in Uvira and Bujumbura by periodically bringing key partners from national institutions to Kigoma (boat and plane service was functioning) for briefings and technical sessions with project staff. In this way activities were able to continue and momentum was not lost.

When the war re-ignited in D.R. Congo, transportation between Uvira and Kinshasa was cut off. This was another potentially fatal blow to the project for if the National Working Group (NWG) with partners in both locales could not meet, then there could be no meaningful consultation in establishing environmental priorities and the Strategic Action Programme (SAP) in Congo. The project arranged for the Kinshasa and Uvira delegations to meet in a neutral location (Arusha, Tanzania) for their National SAP consultations. This was an added expense, which was offset to some extent by the fact

that the National Sectoral Problem Review and the National Environmental Priorities and Strategies Review were held back-to-back whereas they were two separate meetings in other countries.

It was challenging and oftentimes stressful to function under these constraints. It required sacrifices and flexibility on all parts. We found an ample supply of support, patience and good will from national partners and expatriate staff in dealing with these constraints. This allowed the project to accomplish a considerable body of work in Burundi and D.R. Congo which implicated these countries as equal partners in LTBP and prepared the stage for fruitful regional collaboration.

- Flexible, creative and adaptive management strategies promote progress in unpredictable settings or periods of insecurity.

4.2.2 Maintain a presence

It is a challenge to coordinate activities in countries when expatriate regional staff is not allowed to live there. Still, we found that a considerable amount could be accomplished through emails, telephone calls and short-term visits to the country (as UNDP allowed) by regional staff or visits by national staff to other countries to meet with regional staff. It is important to go to these extra efforts to maintain a presence during times of conflict.

In neighboring Rwanda, conservation and civil war have also come into conflict during the last decade. Studies there have highlighted the importance of maintaining a national presence throughout periods of insecurity in preserving protected areas and the critical role of junior staff in facilitating this (Plumptre 2000; Plumptre *et al.* 2000). During LTBP Rusizi National Park was downgraded to a Natural Reserve and 3,000 hectares were degazetted. The Rusizi River enters Lake Tanganyika in the reserve and it has a unique fish fauna and a bird fauna of global interest.

The productive waters and reed beds associated with the delta may be important to the functioning of the Tanganyika ecosystem. The Reserve is located about 15 km from Bujumbura, hence it was subject to considerable human pressure from displaced people and displaced cattle. For sometime, the park staff had not been able to control grazing, fishing and harvesting of reeds and grasses from the park. The park was a study site for LTBP investigations on biodiversity, sedimentation, fishing practices and socio-economic settings of the nearby populations. When the plan for downgrading and degazetting was announced, the LTBP environmental education team, together with the technical teams organized a seminar/workshop for policy makers and local and provincial officials on the importance of Rusizi National Park. There were informative presentations on subjects ranging from species diversity to honoring Burundi's commitment to the CBD, and there was considerable debate. In the end, the park was downgraded and land was degazetted anyway. We feel that this was a great loss, but perhaps not surprising given the human pressures Burundi is currently facing. The presence of the LTBP teams, however, was important in publicizing the issue. They were able to negotiate to minimize the losses and used the opportunity to promote the importance of biodiversity and the environment to policy makers and the media. They reinforced the message to local populations by hosting an educational campaign in association with World Environment Day at the Reserve.

- Maintaining a reduced presence and continuing to publicize conservation issues during times of conflict brings attention to conservation, and can minimize losses, at a time when natural resources are most vulnerable.

4.2.3 Facilitate regional collaboration

LTBP was able to hold regional meetings, formulate a Strategic Action Programme and draft a Legal Convention during a period of strained relationships among Tanganyika's four riparian nations. This was due, in part, to the close working relationships that members from these countries had formed while collaborating on various technical components of the project. LTBP frequently gathered together national participants in the technical programmes for regional workshops to share their experiences and develop strategies. Nationals assumed key leadership and training roles in some of these initiatives. Facilitating such experiences forced participants to see beyond the prevailing political climate and fostered regional collaboration. Such exchanges are also important to creating regional ownership and cultivating a shared vision (see Sections 4.3 and 4.4).

- Facilitating regional collaboration at all levels (from technicians to policy makers) enables individuals from different countries to form close working relationships. These bonds may permit project work to continue even when the political climate is tense between the countries.

4.2.4 Remain neutral

At all times, but especially in times of uncertainty, it is important that project staff remain politically neutral. The government and armed forces in charge of eastern D.R. Congo changed several times over the project's course. Burundi had four national coordinators during the life of the project. While it is tempting to build close personal alliances with key political figures in an attempt to accelerate progress, these alliances can seriously hinder progress and foster distrust by the successors if/when these people are replaced.

- It is crucial that expatriate staff and national staff in managerial and coordinating roles be agreeable to collaborating with any and all stakeholders and, moreover, be seen to be impartial.

4.2.5 Do not underestimate people's good will during difficult times

It is true that bad times can bring out the worst in people. But in our experience, they can also bring out the best in people. Even before the two recent wars, eastern D.R. Congo was in a dire political and economic state. Employees at the Centre de Recherche en Hydrobiologie, for example, had not received their government salaries for years at time. This is almost a moot point because with the inflation rate in D.R. Congo over the past decade, their salaries, even if they had received them, were not a livable wage. Everyone at CRH, and practically everyone we interacted with in D.R. Congo, was forced to diversify their livelihood strategies. In spite of circumstances that would have discouraged most, CRH staff were still reporting to work and collecting data. When the project arrived and was able to provide some basic assistance (rehabilitation of facilities, funds for activities and allowances) staff became confident, productive and took a new pride in their work. In our experience, people were tired and frustrated with the deteriorating political-economic situation that was beyond their control. They wanted to be a part of something bigger that they perceived to be a good cause. They showed an amazing resourcefulness, energy and good will in their work that was conducted under some of the most challenging circumstances conceivable.

- Small incentives such as basic supplies and materials and the sense of contributing to an important cause and can help stabilize communities during periods of conflict.

4.2.6 Be briefed on security and have contingency plans

LTBP fortunately never had to cope with a volatile security situation where project personnel were in immediate danger. This is probably due to a combination of good fortune and good planning. UN offices and embassies have security plans in place. It is important to become integrated into this system. In addition these organizations run regular security briefing sessions and periodic personal security workshops. We found this framework and these guidelines crucial in planning and executing activities. National staff was also an important source of information about security conditions. A radio network helped keep the project coordinated and updated with respect to security. Because we had contingency plans in place, when expatriate staff were evacuated, the process went smoothly and activities were able to continue under national administration and supervision.

While the security situation can deteriorate suddenly, in our experience it seldom improved suddenly. Working in these conditions is trying. In spite of the situation, a considerable amount can be accomplished toward national and regional goals. The current situation is likely to persist for some time and we hope others will continue work within the constraints. Many people are counting on it and their futures are too important and the resource is too valuable to neglect during such times of need.

- Create security and contingency plans, brief staff and liaise with other organizations on security matters.

4.3 Project Ownership and Partnerships

4.3.1 National and regional ownership

Communications between Tanganyika's riparian states and GEF implementing and executing agencies were very limited during

the long gap between the countries signing the project document and the implementing subcontractors (NRI consortium) beginning work. The countries pointed out that they were not adequately implicated in the project's design and the preparation of the Project Document. Nor were they involved in the selection of the implementing subcontractor. The NRI consortium's technical and financial bid was not circulated to the countries before their staff arrived in the field to begin work, thus the countries had no notions of the technical programme planned for their countries nor the resources available to realize it. All of these things diminished any sense of national or regional ownership of the project from the outset.

- Good communication and transparency between the primary implementing and executing agencies and the partner countries on these aspects is essential.

4.3.2 Need to implicate highest levels of government

Some of the next important steps for the conservation of the lake include ratifying the legal Convention, establishing the Lake Tanganyika Authority, implementing the Strategic Action Programme, and integrating conservation activities into other sectors. These steps will require the participation and commitment of political authorities in the highest levels of government. In retrospect, we regret that we did not, for example, convoke a meeting of ministers from the four countries early on in the project, to begin raising awareness and cultivating support at these levels. It is not clear that this would have been possible, given the prevailing political circumstances in the region at the time, but it is the next important step.

- The next phase should strive to raise awareness at the highest political levels from the beginning.

4.4. National Ownership

4.4.1 Lead institutions and their relationship to the lake

The lead agency for LTBP in all four countries was a department or division in government or a parastatal organization concerned with the environment and/or conservation. The lead agency played a central role in furnishing the National Coordinator (and in some cases the Assistant National Coordinator) and organizing the National Working Group (NWG) which were seen as key components in both implementing the technical programme and formulating the Strategic Action Programme. In most cases the lead agencies had a mandate for creating policy rather than implementing projects and they generally had little experience in working on lake issues. In D.R. Congo, Tanzania and Zambia the lead agencies had no representation near the lake.

LTBP's considerable technical programme, for practical reasons, had to be based at the lakeside of the four countries. This led, in some cases¹¹, to ambiguity as to the appropriate agency to conduct a study. Different LTBP studies adopted different approaches to dealing with this. The Pollution Special Study (POLSS), for example, trained lakeside fisheries researchers in Kigoma and Mpulungu to conduct basic water quality studies. Because the POLSS programme involved weekly sampling and the need for rapid analysis they decided to collaborate with fisheries institutions that were already working on the lake on a regular basis and give them additional responsibilities to study water quality parameters. The Sedimentation Special Study (SEDSS) opted for a different strategy, recruiting geology professors from Dar es Salaam and Lusaka to make periodic visits to the lakeside to guide the technical

programme. Day to day river monitoring was contracted out to individuals living on the lake, but who did not necessarily have an affiliation with a national institution.

Neither strategy proved to be sustainable in the long-term. Without a project presence, monitoring water quality has taken a low priority for institutions mandated to study and regulate fisheries. Likewise, without the material and financial assistance the project afforded, researchers in capital cities are unable to travel to the lake and continue their studies of sediment dynamics, also river gauging has been discontinued in these countries.

In addition to ambiguities regarding the appropriate collaborating agencies, the distance between the lead agencies and the lakeside institutions also hindered collaboration and the development of a collective national ownership. NWG meetings typically occurred in capital cities and lakeside institutions generally felt underrepresented at these events. They expressed frustration by the fact that the project was sometimes represented nationally and regionally by people who had not visited the lake. Collaboration was complicated because the lead agencies and lakeside institutions oftentimes reported to different ministers or branches of government. In our experience, establishing close collaboration between ministries at a distant location where only one ministry has representation is a difficult thing to achieve.

This issue of lakeside representation will diminish somewhat as conservation issues are no longer considered the domain of the conservation sector but rather are integrated into the policies and agendas of all sectors. This, however, requires a major change in national policies and high level political commitment to facilitate it (see Section 4.3). Considerable consultation,

¹¹ This was not an issue for Burundi where the lead institution and all the logical collaborating partners had representation in Bujumbura, the lakeside capital. This might have been an issue for D.R. Congo, but with transportation links severed during the insecurity, the project was forced to rely exclusively on lakeside personnel for its technical programme. Fortunately, the CRH in Uvira already had a broad mandate to cover biological, physical-chemical and socio-economic aspects of the Lake.

coordination and time will be necessary to achieve this. In the meantime future interventions will have to deal with this obstacle. We recommend addressing it at the outset with national meetings implicating all relevant ministries to address the mechanisms for establishing this collaboration. We also point out that the ways to achieve this collaboration and collective national ownership, i.e. by enabling officials from the lead agencies to acquire lakeside field experience and representatives from lakeside institutions and communities to participate in NWG meetings, will have significant budgetary implications.

- Budget money and time and establish mechanisms for facilitating collaboration between the various stakeholder institutions that do not have a history of collaborating and/or are separated by considerable distance.

4.4.2 Assessment of institutional mandates and capacity

In retrospect, some of the confusion noted above could have been avoided if the project development or design had included a formal assessment of institutional mandates and capacities. Lacking such an assessment led to an ad-hoc process of developing working agreements with key institutions, with the Project Coordination Unit (PCU) usually negotiating directly with the director of the institute who may or may not have been mandated from higher levels to participate. In some cases this led to confusing arrangements in terms of responsibilities and accountability. It also exacerbated the impression that the national institutions were servicing the project rather than participating in a task of national importance mandated by higher authorities with the project's support.

- A formal assessment of institutional mandates and capacities should be conducted before implementation and

should be sanctioned by the highest levels of government.

4.4.3 National Coordinators and National Directors

The LTBP midterm evaluation suggested that LTBP National Coordinators should in fact be National Directors. Their seniority (all Directors or Director Generals) and their many other governmental obligations coupled with the many demands of coordinating LTBP national activities would support this. The midterm evaluation suggested recruiting full time NCs employed by the project to tend to the project's day to day administration and facilitation. This structure would also have avoided the conflict of interest noted by UNDP, that the LTBP National Coordinators were responsible for both implementing the project in their countries through the National Working Groups and monitoring or steering project progress through the Steering Committee. Normally these roles should be filled by two different people. Although in some cases the appointment of Assistant NCs mid-way through the project effectively achieved this, we would support a clear separation of roles from the outset.

- Establish the division between implementation and evaluation at national and regional levels early in the project.

4.4.4 Financial Control

Project ownership and financial decisions are linked. It is difficult to assume ownership of a project where budget lines are beyond one's control. LTBP eventually allocated a budget for the NCs to convoke NWG meetings, among other activities. However, some affiliates point out that allocation of part of the project budget to individual countries early in the project would also have strengthened feelings of ownership.

- Budgets and the ability to make financial decisions can enhance national ownership.

4.4.5 Stakeholder Participation

With the caveats noted above, many national stakeholders praised LTBP on its participatory nature and its ability to implicate many different stakeholders in the technical programmes and the strategic planning process. Some LTBP affiliates noted that participation from a wide variety of stakeholders is time-consuming to develop, expensive and may dilute the feelings of ownership of the principal institutions involved. However most collaborators agreed that sustainably managing Lake Tanganyika's biological resources is a cross-sectoral issue and necessarily demands the diverse viewpoints and specializations of a variety of stakeholders. Though some collaborators listed stakeholder groups that should have been better implicated (e.g. village governments and community-based organizations) it was generally felt that LTBP was successful in implicating a broad variety of stakeholders. The diverse technical programmes, the NWG structure in some cases and the SAP planning process were cited as good vehicles for generating broad stakeholder participation. Local participation was repeatedly cited among the project strengths by national collaborators. A formal stakeholder analysis at the project development stage (see Section 4.4.2) would certainly have strengthened and facilitated stakeholder participation.

- Allow time and create forums to establish broad stakeholder participation.

4.5 Execution and Implementation

4.5.1 Cultivating a shared vision

Some of the ideas presented in the special study reports are not new. For example the

idea of extending the boundaries of existing protected terrestrial areas to include adjacent waters has been discussed for a decade (Cohen 1991, Cohen 1992, Coulter and Mubamba 1993, Coulter 1999). Some of these authors emphasize the need for urgent action given the magnitude of the threats to Tanganyika's biodiversity. The irony that we, 10 years later, reiterate some of these same recommendations to extend terrestrial park boundaries is not lost on us. We are perhaps the victims of what Coulter (1999) refers to as 'the present fashion for protracted planning (so-called strategic, iterative, long-term etc.)' which he points out can lead to 'a limbo of planning paralysis.' Coulter (1999) cautions that 'conservation will be retarded critically until the different perspectives can be bridged.'

We would caution that conservation is likely to be neither effective nor sustainable until these different perspectives can be bridged. Numerous studies have demonstrated that imposing a plan will not work (Ghimire and Pimbert 1997, Jentoft and McCay 1995, Mayers and Bass 1999). The plan itself needs to arise through consultation and compromise. LTBP attempted to do this through participatory training and research where national teams were given the chance to collect, analyze and interpret data on the state of the system and discuss it in national and regional fora with a variety of stakeholders. As a result of this process, and based on the habitats and the proportion of diversity that would be afforded some protection, the Biodiversity Special Study endorsed the idea of extending some of the existing terrestrial park boundaries (see Section 3.3.2.1), though they express concern about who will finance these conservation initiatives (see Section 4.6).

- Cultivating a shared vision takes time. It is expensive. But it is a crucial step in the process.

4.5.2 Establishing a coordinated project mission

LTBP's special studies in biodiversity, pollution, sedimentation, fishing practices, socio-economics and environmental education all had important training and capacity-building experiences and produced important outputs in a participatory way. However, they did so with little coordination and consultation among themselves.

Because the special studies did not coordinate sites and methodologies, it is impossible at the project's conclusion, to analyze the various datasets in a concerted or quantitative way. For example, it is not possible to assess and quantify the relative impacts of different threats on biodiversity at a particular site. Different special studies had different plans and different visions. Perhaps because they were contracted to different organizations within the NRI consortium or perhaps through weak scientific leadership, they were never able to work together on a lakewide scale for this larger cause.

There were a few sites where special studies were, to some extent, coordinated (notably the Rusizi Delta (BIOSS, POLSS, SEDSS, FPSS, SESS, EE) in Burundi and several sites near Mpulungu, Zambia) where more than one study collected data. These sites tend to be the most interesting sites for scientific consideration because multiple datasets exist, though for the most part, they cannot be analyzed in a coordinated way.

Coordinating the special studies would have required considerable planning, preparation and cooperation. In the end, less work might have been accomplished overall. But we would encourage future initiatives to attempt such coordination, for it is only through such an approach that the threats to Tanganyika's biodiversity can be compared and quantified in a scientific way.

- Future interventions should work with key participants to create a joint mission statement and harmonize work plans early in the project.

4.5.3 Linking the social sciences and the natural sciences

Linking the socio-economic data with data from the other technical studies (biodiversity, pollution, sedimentation, fishing practices) is perhaps the most challenging aspect of coordinating the technical programmes. Most natural scientists, who have visited the lake, do not refute the claim by the Socio-Economic Special Study (SESS) that it is "the balance between man's activities and protecting the environment that is the important thing" nor their assertion that "the biodiversity of Lake Tanganyika will only be managed sustainably and conserved through programmes of poverty alleviation, livelihood diversification and social and economic development in the lakeshore communities" (Meadows and Zwick 2000). These claims by the SESS team agree with other studies on the importance of socio-economics to conservation success (GEF 1998, GEF 1998). However, balancing conservation and development of local livelihoods is difficult. Most people involved in LTBP had experience in one domain or the other. Integrating data from the natural and social sciences in a meaningful way requires vision and for both groups to stretch their skills and understanding.

- Mechanisms to facilitate collaboration between the social and natural sciences need to be established at the beginning.

4.5.4 Financial incentives are necessary

It was originally intended that national staff would be partially seconded to the project. They would continue to receive their national salaries while committing a portion of their time to LTBP activities. The time and effort that national staff contributed to the project would be considered part of the government's contribution in kind.

In our experience, this plan was perhaps too idealistic and did not account for the socio-economic pressures facing our

national colleagues. The national institutions and economies of Tanganyika's riparian states are struggling and national salaries, when they were paid (see comments in Section 4.2), were very low such that many affiliates, from technicians to General Directors, were forced to diversify their livelihood strategies. Some were lucky to find additional consultancies in their field or in a related field, but many were involved in the private sector, fishing, farming, owning minibuses or taxis, etc. In such a climate, where everyone is forced to work outside of their regular jobs in order to make ends meet, it is unrealistic to expect people to make significant commitments to unpaid work where the benefits (saving biodiversity) seem distant to their immediate needs of feeding and educating their children. In our experience, people did want to contribute to conservation. They perceived it as a good cause and they worked to the best of their abilities with commitment and good spirit. Many collaborators made personal sacrifices and contributed considerably more than was expected of them. But it is unrealistic and unfair to think they would do so without modest financial incentives.

National collaborators pointed out that it is also unrealistic to expect national staff (who sometimes had the same level of training) to work in good faith alongside expatriate regional staff who were earning a comfortable living. Such discrepancies foster resentment rather than collegiality. National collaborators also emphasized the need for incentive payments to be uniform throughout the region and for them to be established and dispersed in a transparent way.

Other GEF reviews (GEF 1998) have noted that financial payments undermine sustainability. We can confirm this. When payments stopped at the project's end, so did the bulk of research and monitoring activities on Lake Tanganyika. However, for the reasons described above, they would have never started in the first place if it had not been for payments.

Once basic research and monitoring on Lake Tanganyika are integrated into the mandates of national institutions and these institutions find adequate funds to fulfil their mandates, we hope the need for financial incentives will diminish. But changing the mandates of national institutions and securing finances to support these changes requires high level political commitment and in a complex project spanning several different ministries in four countries this will require considerable more time and effort.

- Financial incentives do undermine sustainability, but they may be necessary in troubled economies when the rewards of conserving biodiversity are distant from people's immediate needs.

4.5.5 Be sensitive to language considerations and budget time and money for translation

The French-speaking countries (Burundi and D.R. Congo) perceived the project as having a bias toward the anglophone countries (Tanzania and Zambia). A variety of factors contributed to this perception. Important ways to avoid this in the future are to insist that key project personnel be bilingual (see Section 4.5.7) and to budget sufficient time and financial resources for translation. For all countries, in a multi-country project with multiple languages, to feel like equal partners, a considerable amount of time and financial resources must be allocated for translating documents. We found hiring a translator from the region as a full-time member of staff to be economical in the long-term. Funds must also be allocated for simultaneous translation at regional meetings.

- Budget sufficient time and money for translation and insist on language qualifications for regional staff.

4.5.6 Do not underestimate staffing needs

The project began with two full-time expatriate staff based in the region, the Project Coordinator (PC) and the Scientific Liaison Officer (SLO). The PC tended to the government and policy aspects of the project and the SLO oversaw the technical programme and served as the link between the UK-based study coordinators and the field teams. Given the project's complexity (eight technical programmes operating simultaneously in four countries) and its emphasis on capacity building, this design was overly optimistic. We found that full-time, regional-based facilitators having technical, training and some managerial responsibilities were essential for guiding and ensuring the completion of work programmes. They also proved to be more cost-effective and more satisfying to the national institutions (in terms of availability and continued feedback) than short-term visits by consultants.

- Do not underestimate staffing needs. For technical studies where training and capacity-building are important, full-time facilitators based in the region are usually preferable to short-term visits by senior consultants.

4.5.7 Recruitment of international posts

Recruitment of the expatriate, international posts (PCU, special studies leaders and facilitators) received mixed reviews from the region. National partners emphasized that in addition to a good level of competency in their respective fields, these key regional posts required people who were: proficient in both English and French, able to commit the necessary time to their study (for non-full-time personnel) and who had a 'bon esprit' for working under challenging circumstances.

- Consider language skills, but also availability and capacity to work under difficult conditions during recruitment for international posts.

4.5.8 It takes time

Other studies have noted that developing partnerships within governments, the private sector and communities takes time, effort, persistence and financial resources (GEF 1998, Ollila 2000), usually much more than was originally planned. Our experiences confirm this. LTBP would have benefited from an initial preparatory phase to conduct institutional, stakeholder and training needs assessments and establish necessary infrastructure. Lack of adequate preparation time caused significant delays in the technical programmes. The project was consequently forced to begin the strategic planning process before all the results from the special studies were finalized, though the final Transboundary Diagnostic Analysis attempted to compensate for this. A post-special study analysis phase would have allowed for a more detailed and coordinated consideration of the various technical data, some of which was still coming in as the SAP was being formulated.

- Budget the timing of activities carefully and allow for a preparatory phase.

4.5.9 Email links and websites facilitate communications

Long distance telephone connections within and between Tanganyika's riparian nations are extremely expensive. LTBP provided email links for the lakeside stations and the lead agencies. This relatively small investment paid back greatly in terms of increased communication within the region. We found that HF and cellular modems are not as convenient as telephone-line based links (e.g. they are too slow for worldwide web access) but still an important contribution at our more remote stations where telephone service was poor or nonexistent.

In addition to providing international publicity for the project, the LTBP web site was an important resource for project affiliates. All of the important project

documents, including progress reports, steering committee meeting minutes, data and reports from the special studies, the Strategic Action Programme and the draft Legal Convention can be accessed and downloaded from the LTBP web site. It serves as an archive and library for the project. The web site and document database is also available on CD-ROM, especially for those stations that cannot access the internet easily because of poor telephone connections. National collaborators cited these investments in communications and information accessibility as being among the most important outputs of LTBP.

- Email links and websites will increase productivity by facilitating inexpensive communication and document distribution.

4.5.10 Planning for the post-project phase

Project staff and partners expressed dismay at the abrupt cessation of LTBP activities at the close of the 5-year project. While LTBP had a considerable budget for 'sustainable activities,' most of this was used to support the essential national and regional consultations to formulate the SAP. Almost everyone agrees that the SAP is the project's key output and the key to conserving the lake's resources into the future. But many partners recognize other activities, such as monitoring and environmental education, to be important in the short and long-term future of the lake.

LTBP designed a basic monitoring programme as a part of its mandate (see Allison et al. 2000), in which coordinated special study teams would continue to monitor biodiversity, pollution, sediment inputs, and fishing practices at several sites in each country. At a total cost to the region of about \$70,000 US per year, the programme was designed to be minimalist and relatively low-cost with the hope it could attract outside funding or be funded by the four riparian

nations. However, the national governments had not or were not able to commit resources to funding the programme (also emphasizing the Need to implicate highest levels of government see Section 4.4) and the governments nor the project were able to attract outside funding for this on short notice. The same was true for the environmental education campaigns.

It is frustrating to all involved when initiatives begin, refine their methodology, get results and then are forced to stop. Institutional memory, momentum and collaborators' confidence is lost.

- Planning for continued activities and subsequent work needs to begin well before a project's conclusion and requires full, active and collaborative participation between the governments and implementing agency.

4.5.11 Use appropriate technologies

New technologies can have a profound impact. The introduction of email links at the remote lakeside stations changed communication both within and between riparian countries. Some of the project technologies, however, were perhaps overly ambitious for local conditions and the levels of funding available for training. The BLOSS databases and GIS are excellent resources, however, unfortunately they are presently underused and underappreciated. They are currently beyond the technical capacity of most of the appropriate national institutions. Unfortunately they were finished quite late in the project such that there were not sufficient funds to commit to adequate training sessions for these systems.

- Institutional assessments should evaluate technological capacity and project technologies, resources and training sessions should be designed accordingly.

4.5.12 The countries in a multi-country project are different

In implementing multi-country projects, it is tempting to try to treat all the countries the same. Many of our technical studies, for example, designed a single workplan and attempted to execute it in the same way in all four countries. This strategy was thought to be fair and equitable in terms of distributing resources and easier to implement and manage. We found that this strategy, however, almost always produced mixed results. Technical components with a single specific workplan typically succeeded in some countries and failed in others. The success or failure of a programme could often be attributed to some local governmental, socio-economic, cultural, political, historical or other aspect of the area, such as security, proximity to a university or other source of trained personnel, or the strength and level of participation in the local government.

Multicountry projects must recognize, early on, these differences between the countries and tailor workplans to capitalize on opportunities and to compensate for constraints. We found, for example, that our Tanzanian and Zambian stations were located in relatively small lakeside towns such that trained national staff were in short supply and in some cases technical expertise had to be imported from other parts of the countries. These were not constraints at our stations in Burundi and Congo, however, security conditions in these countries greatly impacted the teams' fieldwork and workplans had to be adjusted accordingly.

At the same time, specific conditions in each country afforded unique opportunities as well. Burundi, for example, has its capital on the lakeshore which allowed a number of high-level government officials and politicians to be closely involved in the technical programmes and increased overall public awareness of the project. Tanzania is centrally located with good security and the

only country, during the life of our project, with reliable, regular transport between all the other riparian countries. As such, it served as a local hub for regional meetings and activities. Congo has a large hydrobiological institute with a broad mandate to study aquatic dynamics on the lakeshore. This institution offers special opportunities to integrate workplans and study interdisciplinary aspects of lake dynamics that would be much more difficult to achieve in the other countries. Zambia has very strong village chiefs and governments which allowed the environmental education and socio-economics teams to easily access and work with local communities through the Village Conservation and Development Committees. For a variety of historical reasons, such arrangements do not exist and/or would be unlikely to work in the other countries, but offered an excellent opportunity in Zambia.

In designing workplans for multicountry projects, it is important to create broad regional goals that the countries can work towards in different ways based on their local opportunities and constraints. This underscores the need for thorough institutional assessments in the planning stages of the project (see Section 4.4.2) and requires adaptive management and considerable flexibility on the part of the technical and implementing teams.

- Do not assume that a single workplan is appropriate for all the countries in a multi-country project. Consider the various opportunities and constraints of individual countries and tailor workplans to capitalize on the opportunities.

4.6 Other Considerations: Conservation and Development at Lake Tanganyika

In response to the UN Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, many governments,

international aid agencies and NGOs have adopted integrated conservation and development (ICAD) programmes. These programmes are guided by the Convention on Biological Diversity (CBD) which advocates a utilitarian approach to conservation through sustainable use and equitable sharing of benefits derived from exploiting biodiversity. LTBP tried to conform to this approach, recognizing that there is a moral imperative to ensure that biodiversity conservation does not take place at the expense of social and economic development.

The theoretical basis for ICAD approaches is that there need not be a conflict between conservation and development (in the form of poverty eradication). Indeed, for development to be sustainable the two must be reconciled: maintaining 'natural capital' is integral to sustainable development, and only through development will the poor have the resources and ability to exercise choice in not having to degrade the environment in order to survive. Along the shores of Lake Tanganyika and the other African Great Lakes, where many of the world's poorest people survive by exploiting some of the world's most diverse ecosystems, the need to integrate conservation and development strategies is urgent and great.

Underpinning ICAD approaches is the assumption that the people around Lake Tanganyika can benefit more from conserving biodiversity than they can from overexploiting it. Conserved ecosystem function and proceeds from ecotourism are posited as examples of such potential benefits at Lake Tanganyika (Cohen 1991, Cohen 1992, Coulter and Mubamba 1993, Coulter 1999). However, this key assumption and these proposed benefits warrant critical examination.

There is little data on the economic value of biodiversity in Lake Tanganyika and while the Socio-Economics Special Study provided an image of livelihood strategies in

the Tanganyika Basin, it lacked a rigorous livelihood analysis. Nonetheless, this information and the results of the other special studies allowed Allison *et al.* (2001) to explore these benefits and the link between conservation and development in the Tanganyika Basin. The remaining discussion is based on ideas and conclusions presented in the BLOSS final technical report (Allison *et al.* 2001).

Allison *et al.* (2001) point out that conservation projects can use a mixture of different strategies or interventions. These strategies include: direct protection, economic substitution and linked incentives.

Direct protection is the current model for conservation in Lake Tanganyika and much of the early thinking in developing the Lake Tanganyika GEF initiative (Cohen 1991) was driven by this approach. In direct protection, people are excluded from areas set aside for biodiversity conservation and they benefit little from conservation activities. While this 'fines and fences' approach may work in areas with low population densities, the downgrading in status and the degazetting of land in of Rusizi National Park attest to its failure in areas under high pressure from humans. Given the levels of poverty and livelihood insecurity experienced by many in the catchment area, there is a moral imperative to prioritize development and seek compatibility between development and conservation. The direct protection approach is anachronistic given these human considerations.

The economic substitution approach is another conservation model. In this approach conservation projects attempt to implement livelihood activities such as developing rural industries that provide an alternative to livelihood options seen to threaten biodiversity, such as farming on steep rift valley slopes or fishing with beach seines. The LTBP Socio-Economics Special Study found that such alternatives were difficult to identify, though they were able to

suggest a range of development interventions to increase the value of harvested natural resources and reduce environmentally damaging activities. Providing income generating alternatives to local people that are not linked to incentives for biodiversity conservation does not mitigate against the external threats. People not benefiting from alternative income generating activities remain potential threats to the environment. Like the direct protection model, the economic substitution approach may work in areas of low population density, but again, the high population densities and large numbers of displaced people in the northern basin suggest it is unlikely to be an effective approach throughout the basin.

Finally, ICAD projects fall under the 'linked incentives' model that attempts to link biodiversity and livelihood development strategies. In such approaches both people and biodiversity benefit and are empowered by the conservation initiative. At Lake Tanganyika, the development of sport fishing, ecotourism and the aquarium trade are often cited as examples of ways in which biodiversity conservation can be linked to enhanced livelihood opportunities. While no formal costs benefits analysis has been conducted on this, we believe such thinking to be unrealistic. While other authors have assumed that parks will benefit local people as well as biodiversity in Lake Tanganyika (Cohen 1991, Cohen 1992, Coulter and Mubamba 1993, Coulter 1999), evidence from studies around the world suggests the contrary, that the benefits of protected areas accrue internationally while the costs are borne locally (Wells 1992). Consideration of the political stability, infrastructure, access, and quality of natural features compared to other locales suggests that profitable ecotourism in Lake Tanganyika is not likely in the near future. In Lake Tanganyika the benefits of establishing protected areas are likely to accrue internationally while the national costs for developing parks to promote

ecotourism will be considerable (Allison *et al.* 2001).

Linkages between the most biodiverse areas and livelihood activities in Lake Tanganyika are weak. Most fishing activity targets the species-poor pelagic system, whereas most of the biodiversity is concentrated in the littoral zone. There is a strong link between the six economically important pelagic species and livelihood activities around the lake. This strong link gives us optimism that efforts to conserve the pelagic fish stocks, through changes in livelihood activities (e.g. mesh size regulations or closing certain areas to fishing at certain times) might be successful if accompanied by strong environmental education programmes. But because fishing livelihoods around Lake Tanganyika rely on just a few species, the link between Tanganyika's rich biodiversity of global interest and people's livelihoods is weak. Connections between farming livelihoods and biodiversity are even weaker as loss of the species rich littoral zone to sedimentation will have little impact on farming livelihoods in the greater catchment area. Such weak linkages between biodiversity and livelihoods are not good conditions for ICAD programmes that seek to sustain both livelihoods and diversity by enhancing the values of such linkages (Salafsky and Wollenberg 2000).

These observations lead Allison *et al.* (2001) to conclude:

- Linkages between biodiversity and livelihoods in Lake Tanganyika are weak and indirect at best.
- Linkages between biodiversity and ecosystems function (and therefore provision of ecosystem services) are unproven but also likely to be weak.
- Financial benefits from alternative livelihoods associated with conservation activities are likely to be very limited.

And therefore:

- Self-sustaining ICAD programmes in Lake Tanganyika are not currently feasible. Funding for conservation activities will have to come from external sources if conservation is not to impose costs on those living around the lake.

External funding could potentially come from governments or international agencies. Given that the governments of Burundi, D.R. Congo, Tanzania and Zambia are struggling economies and conservation programmes compete against poverty alleviation, AIDS programmes, food security and civil war/peace initiatives for government funding, it is unlikely the riparian nations will be able to prioritize biodiversity conservation in Lake Tanganyika in the near future.

Allison *et al.* (2001) emphasize that funding for biodiversity conservation should

not come from the local people who value the resources but not the biodiversity. Rather, it should come from those who value the biodiversity but do not need the resources, i.e. the global community. This implies continued international funding of conservation programmes and detailed attention to ways of transferring financial resources for conservation in support of the type of poverty alleviation programmes identified by the LTBP SESS. Such a conclusion is not unique, Allison *et al.* (2001) noted, that other authors have recently questioned the prevailing orthodoxy of development through conservation. Godoy *et al.* (2000) argue that local forest dwellers in Central America should be paid for non-local values of rainforests as an incentive to resist deforestation. The lake dwellers of Central Africa merit the same consideration to preserve the non-local values of Lake Tanganyika's biodiversity.