

Chapter 9. Mobilizing Sustainable Financing

Local, National and External Funds

Improved lake basin governance costs money—money for new or existing institutions and staff, money for investments in discrete projects, money to compensate “losers” when new policies are introduced. Sustainable lake basin governance means sustainable financing—and financing that is sufficient in quantity and guaranteed over time. Neither condition is likely to be met in many of the world’s lake basins.

In an ideal (and completely unrealistic) world all stakeholders using or affected by a lake and its basin would contribute to the costs of actions and policies needed to maintain ecological integrity and economic sustainability. However, in most lake basins the numbers of people involved are large and the ability of many to pay is very limited. In addition, there is often no effective institutional mechanism to collect money from individuals and make the required investments or payments. And the administrative and financial costs of collecting fees or charges can be substantial.

Lake basin decision makers face two major types of costs: capital investments—usually large and “lumpy” investments in infrastructure like sewage treatment or lake hydraulic works—and day-to-day management costs—largely salaries and modest capital costs and usually referred to as “recurrent costs”. In most developing countries neither cost is met from local resources. This chapter examines what a decision maker can do to at least increase funding for regular, on-going expenses. Capital investments will probably have to continue to be paid by others—national governments or foreign donors.

The Decision Maker’s Complaint

Securing sufficient financial resources is a constant concern. A few excerpts from the LBMI Lake briefs make interesting reading:

- “the Government has been suffering from acute shortages of resources and this has weakened the capacity of remaining extension staff to carry out its activities”
Lake Nakura Brief

- “it is unclear how successful projects developed under the GEF project will continue to receive funding now that the (GEF) project is over” Lake Baikal Brief
- “lack of financial support in general and poor working conditions in particular make it hard for the preserve to function in any normal way” Lake Issyk-kul Brief
- “the assessment rates overall sustainability as unlikely. Staff incentives were reduced with a return to Government salaries. Malawi cannot provide sufficient budget to sustain the lake research program...” Lake Malawi/ Nyasa Brief

Around the world, in rich and poor countries alike, decision makers complain that resources are not enough to do all that needs to be done. While this complaint may be true for almost *any* natural resource, improved lake governance, and the financing that supports it, is often attainable if one is *careful in resource use, creative in identifying new sources of funding, and inclusive in involving stakeholders*. For example, judicious investment in knowledge gathering (monitoring and scientific studies) can help target management interventions so that funds are used efficiently; and, high rates of fee collection can be achieved if users of the lake’s resources are given a genuine say in the management of the lake basin.

In addition, since money is transferable between uses (or, as economists say, fungible), the challenge for decision makers is usually to increase the *aggregate* amount of money available, regardless of the source. While it is often true that international donor funds are often tied to specific activities or investments, these same donor funds are usually additional money and they free-up other money that is not “tied” and can then be redirected to other uses. Consequently decision makers often focus as much on increasing total funding (that is, increasing the size of the “financial pie”) as they do on the allocation of those funds (who or what receives the “slices” of the same pie).

Political will is an essential ingredient in increasing support for and funding for improved lake management. Any funding scheme has to be implemented on order to collect revenues, and this requires political will. The second

essential ingredient is public acceptance and understanding of the new system-and this implies education and awareness building.

This chapter considers three distinct sources of potential funding for improved lake basin governance, and presents examples and the opportunities and cautions about each source of funding. Most of this funding will be for recurrent costs, also referred to as O, M and R-operations, maintenance and replacement-and not for initial capital costs. These three main sources of funding include the following:

- Local sources (including user fees and other locally generated revenues),
- National level financial resources, and
- International funding including both bi-lateral and multi-lateral funds (including the GEF).

Selected examples from the 28 case studies are given to illustrate each type of funding.

Locally Generated Funds

A somewhat new source of funding for improved lake basin governance is *locally generated revenues*, either payment for services (e.g. user fees like drinking water charges or recreational charges) or fines for pollution (e.g. pollution charges like wastewater discharge fees). These funds are collected from various groups and include those who are direct users (and beneficiaries) of the lake resource such as fishermen, those who benefit from the lake as a source of ecosystem services (e.g. various people who benefit from flood mitigation, improved water supply, or enhances amenity values), or those groups whose activities pollute or harm the lake (e.g. industries or municipal wastewater disposal systems).

In this case the definition of “locally generated funds” is broad enough to include revenues from those downstream users who are directly linked via the ecosystem. This means that a downstream beneficiary may be an important source of funding for decision makers. This is especially true if the downstream uses are high valued uses such as drinking water or hydropower generation (and these same users also have a high ability-to-pay, that is, they are well-off). For example, Lake Biwa is fortunate to have large and wealthy downstream stakeholders. Lake Biwa has been very successful in attracting money from Osaka and Kobe for investment and management costs to help protect the Lake’s resources and ensure continuing water supply (both quantity and quality) to these large urban areas. In fact, total public investment in the Lake Biwa region for lake management totals hundreds of millions of dollars.

Private funding is a subset of locally generated funding and is usually only important when the number of stakeholders is very small and the community is both relatively rich

and socially cohesive. One can think of small lakes with a small number of owners/lake users who band together to make needed investments and enforce certain management policies. This has been observed around some small lakes in the US where the primary use is recreational, and in fact most “externalities” have been “internalized” (see Appendix A). This is only rarely seen in practice (usually where the lake is small and the number of stakeholders is also small) and almost never observed in larger lakes or where large numbers of stakeholders are involved. Private funding via donations can be important additional source of money (sometimes targeted to specific management objectives such as biodiversity or cultural conservation).

Although not discussed in the Lake Sevan Brief, a recent study (Wang 2003) has examined the willingness-to-pay (WTP) of Armenians, both inside Armenia but more importantly, the larger and wealthier community of Armenians living abroad. The initial results for residents of Yerevan, the capital, indicate a total WTP of around \$18 per person. This is based on a monthly payment of \$0.50 per month for a 3 year period) to stabilize the lake level and prevent any further lowering of the lake level. Although seemingly not a large sum per person, this is a substantial WTP given the very low income levels in Armenia. Additional research is looking at expatriate Armenian WTP measures and these numbers are expected to be much higher. The challenge, of course, will be to design an effective policy tool to collect some of the WTP, both within Armenia and abroad.

User Fees

Locally generated (and locally retained) financial resources often take the form of some sort of “*user fee*”-perhaps from fishermen or recreational user, or from those who consume a lake resource such as drinking water. A *user fee* is a charge that is paid by someone who *derives a benefit* from the direct, or indirect, use of the lake and therefore has both an interest in the conservation and management of the lake’s environment, and an implicit responsibility to help pay for that conservation and management. Education and public awareness are central components of any new user fee system. For example, user fees from fish pen operators in Laguna de Bay in the Philippines have become an important source of funds for the local lake development and management authority (as discussed in both [Dixon](#) and [Santos-Borja](#)). This example also illustrates the importance of agreeing on a distribution of the funds with responsible institutions, such as local government, and those paying the fees.

Tourism, both national and international, is another excellent example where user fees (admission fees, daily use charges) can be developed and begin to produce revenue for improved lake management. This is a well-established practice and has been implemented in a number of lakes where tourism is an important use-for example, in Lake Nakuru, visitors to the national park to see the flamingos all pay a user fee. This practice could be expanded to other

lakes, especially where there is a clearly defined lake-based recreational activity (c.f. Lake Baringo). An important ingredient for success, however, is the local retention of at least part of the fees collected, couples with public education and communication on the link between resource management and economic activities.

Setting user fees requires considerable judgement. In almost all cases the user fee is less than the true value of the resource being used. This is commonly observed in water supply systems where user fees often just cover operations and maintenance (O & M) costs but do not pay any of the initial capital costs. In irrigation systems user fees often do not even cover O & M costs. This is neither surprising nor a major problem. People do not like to pay for the services of any ecosystem (there is a feeling that natural resources are a gift from nature and should be free!). In addition, setting ANY user fee begins to establish the principle that these resources have value (and alternative uses or opportunity costs). Thus implementing even a partial user fee system starts to send the correct market signal and can begin to generate some revenues for improved management.

Successful introduction of user fees also requires that the population being taxed understand why the fee is being levied and also the population see some result in terms of improved management. If these requirements are not met collection of the fees becomes even more difficult and an adversarial relationship between the users and the decision makers may develop.

Pollution Charges

Fees can also be levied on those whose actions potentially damage the lake and its sustainability. *Pollution charges* or *levies* are therefore a potential source of funding and serve a double purpose-if there is pollution this charge helps generate revenue to address the pollution issues or compensate those who are hurt by the pollution. In addition, pollution charges also serve as an incentive for polluters to decrease their pollution and therefore avoid paying the pollution charges. In theory pollution charges could be paid directly by the polluter to those whose welfare is hurt by the pollution. This is administratively very hard to do so usually these charges are collected by some central institution and then payments are allocated to various groups-both those whose welfare is hurt as well as other stakeholders in the basin. In some cases the charges go to the central treasury and the decision makers must fight to get some share back to pay local compensation. (This is also often the case with user fees.) In Lake Dianchi in China, pollution fees are used (in addition to more commonly observed water supply charges), to raise revenues. [Dixon](#) discusses the situation in Lake Dianchi.

Whether it is a user fee or a pollution charge, the idea is to establish a connection between those who benefit from using the lake resources (or negatively affect its quality), and the costs required to maintain the same resource. These

fees and charges help to generate revenue for improved management. A user fee or a pollution charge also reinforces the idea that a lake and its resources have value and therefore have to be used wisely. As was discussed in Chapter 2, free resources and free goods tend to be overexploited and poorly managed. Resource degradation is common. Think of the condition of many open access resources including oceans and seas, lakes and public parks. When money changes hands (and a market is functioning) it sends the correct signal: a lake and its resources are valuable and scarce, and one has to use the lake resources wisely. Fees and charges help to re-enforce this message (it costs you money to use it) and also help provide funds for needed conservation and protection (to ensure availability of the resource over time).

An independent source of funding?

In addition to creating a cause-effect link between the resource and those who use the resource, user fees and pollution charges also have the very attractive feature of *helping to create local sources of financing, both in terms of collection and control*. This is important to any decision maker since these funds are not entirely dependent on requests to the regional or national treasury. And, as was stated at the beginning of this chapter, nationally-allocated funds are never sufficient in amount nor guaranteed over time.

However, one major potential problem with locally generated financing remains. In many countries the legal framework states that all money collected from user fees have to go to the National Treasury, and money is then re-distributed and allocated based on certain principles. While this approach is the correct one from a pure public finance perspective (taxes and revenues that are collected should be “pooled” and used in their “best and highest valued” uses) the fact is that very little money normally flows back to the lake for improved lake management.

The lack of uncertainty of having access to collected money creates an obvious problem with incentives to collect these fees-local managers are unlikely to collect money rigorously if little or none of the money is then available for local purposes. One potential solution to this problem is to devise a revenue sharing scheme whereby any revenue collected is divided between the generating unit (e.g. the lake management authority) and the local or national government. In the case of Laguna de Bay, fees from fish pen operators are in fact split between the lake authority (LLDA) and local governments. Although national government (and Ministries of Finance or the Treasury in particular) do not like “*revenue-sharing*” proposals, an argument could be made that this approach actually INCREASES resources available at both levels-local and national, since splitting SOME revenue may generate more resources to both sides than not splitting NO revenues! (Put another way-50% of “something” is more than 100% of “nothing”!!!)

An interesting example of precisely this sort of approach is found in Mexico where user fees for national marine parks in the Yucatan Peninsula are now split between the park managers and the local communities, rather than going directly to Mexico City (and never being sent back for local use). To implement this idea, however, took several years of work and the passage of a law in the Mexican Congress expressly allowing this form of local revenue retention and revenue sharing.

The Principle of Cross-subsidization

One well-accepted financing principle is that of cross-subsidization. That is, certain activities (or uses of a lake, for example) can generate a lot of money while other activities generate very little or no money. The principle of cross-subsidization states that “excess” money can be collected from one use to help pay other expenses. Whether or not this should only be done within a sector (e.g. lake fisheries, tourism) or within the lake basin, is a political, not an economic question. Cross-subsidization is justified by the integrating nature of the lake ecosystem and the differing abilities of different parts of that ecosystem to generate revenues to meet the management needs that affect all users.

Sectoral ministries (e.g. the ministry of fisheries or agriculture) typically only look at their narrow sectoral boundaries. Administrative boundaries are just as much a barrier and only in a few cases are the lake basin and the administrative boundary the same (such as is the case for Lake Biwa). This leads to one of the key lessons from studies of integrated watershed management-plan in an integrated framework and implement along sectoral lines. Lake Basin authorities, especially if they have independent sources of funding, can help promote this process by allocating money across different sectoral needs, but sectoral authorities (like a lake fishing commission) is almost never able to break out of the sectoral approach.

Should people pay for “gifts of nature/basic human rights”?

Another issue is whether or not it is appropriate to charge a user fee for a “gift of God” or a basic human need/ right like drinking water. Regardless of ones views on the inherent “right” of people to water, user charges can be justified by the argument that what is being paid for is the *service provided* (e.g. the costs of supplying water), not the resource itself (the water).

Merely saying that “water should be free to all” (or parks or open spaces should also be free) does nothing to help ensure its timely provision. Some countries have enshrined certain “human necessities” in their Constitution, but this is a political issue separate from managing and maintaining the resource.

The special case of the “poorest of the poor”

It has to be recognized that in some situations part of the stakeholder population is truly so impoverished that they cannot pay anything to help better manage the resource

that they depend on. However, rather than starting with this as the assumption for all populations, the special case argument needs to be examined carefully in each case and justified. Often it can be shown that the poor pay more because of the non-delivery of services than would be the case with basic public provision of certain services (such as potable drinking water). In addition, the important point about locally-generated funding is to establish a cause-effect link between the resource and those who benefit from its use. This helps create general public awareness and expectations about appropriate and effective management. Both help create political will to do better resource management.

In conclusion, it is not possible to say what percent of current lake management funding should be locally generated (and retained). While locally generated funds are probably still only a small share of lake management funding in most places, it is the part of the funding package that has the most potential for future growth. In addition, it is the only source of funding over which decision makers and local authorities have control. As the appreciation of the wide range of lake-associated benefits grows, new ways to generate funds locally will develop.

National Funding

Most lake management programs rely, entirely or in part, on financing from the national (or provincial/ state) government, either through sectoral ministry funding or via special appropriations for integrated lake management committees. The Lake Briefs provide details on lake management institutions for lakes as diverse as Victoria, Constance, the Great Lakes, Biwa and Toba. Several of these are international lakes, while Biwa and Toba are national lakes. Still, the intentions are similar-to bring together various interested stakeholders in a meaningful way to improve lake management.

National level funding (and here this refers to any funding above the local level and implies that funding comes from general tax revenues that are collected and then re-allocated) can be a major source of money but is often insufficient in amount and may not be sustainable over time. This is particularly true if the lake in question is remote or populated with a minority population group.

One area where national funding may be both appropriate and essential is capital infrastructure investments. These large, “lumpy” investments-for such things as wastewater treatment or major water supply projects-are rarely funded at the local level. Local resources are often not sufficient or the benefits may be quite wide-ranging and long-term so national level funding is appropriate. See the Lake Dianchi and Lake Toba briefs for examples of national funded infrastructure investments. Additionally, [Wang](#) provides a detailed look at the Dianchi case (as well as for other lakes in southwest China).

Combining locally generated resources with national funding may be an attractive alternative to relying solely on national funds. National funds are usually more “fungible”—they can be used for any of a variety of purposes, while locally-generated funds may have a narrow sectoral focus. For example, local user fees from fishermen will augment available resources but will probably only be spent on fish management—not on other lake management problems, some of which may actually create more benefits per dollar spent.

The institutional (and political) issue of separating *sources of finance*, from the *uses of those resources*, remains. Although lake basin management authorities (or international lake commissions) have the responsibility to look broadly and identify the most appropriate investments or actions that are needed wherever they occur in the basin, it is not always easy to do so. There will always be pressures from the sectoral ministries, or the more vocal groups, to focus narrowly. Worldwide, resource allocation decisions are decided as much by political power and political will, as by dispassionate analysis.

External Funding

Faced with this funding challenge—to rely on locally generated funds (but a source that may be quite small in total amount), or to rely on national funds and the fierce funding competition between the various sectors, ministries and regions of the country—many decision makers look abroad to external funding.

External aid is seen as a way around two important financing problems: first, increasing the amount of money/resources available, and second, breaking the link between the sectoral ministry/source of funds and their use and allowing a wider variety of management issues to be tackled. External funding can be either from bilateral (country to country assistance) or multilateral sources (regional blocks like the European Community or United Nations agencies).

About half or more of lakes in the set of 28 lake briefs have some sort of external support. External funding is often used for infrastructure investments (e.g. sewage and wastewater treatment, water control structures) but also often helps pay research and management costs. The external funding ranges from a marginal share of the total to the bulk of management funding. For these jointly funded activities to be fully effective, there needs to be a clear agreement between the parties about how their respective commitments will be integrated and a mechanism to make sure that each party abides by its commitment. For example, the Japanese government funded the expansion of the Nakuru (Kenya) town water supply and upgraded the town’s sewerage treatment plants to treat any consequent increase in effluent being discharged to Lake Nakuru. However, the benefits from these investments are not being fully realized

because of limited commitment by the Kenyan government to its obligations to water and wastewater management.

External support can take the form of loans that have to be repaid (e.g. loans, both “hard” and “soft”, from the World Bank to a country for lake management as is being proposed for the Aral Sea). “Hard” loans carry market-determined interest rates; “soft” loans carry below-market, highly subsidized interest rates. More desirable from the perspective of decision makers are grants—money that does not have to be repaid. Most bilateral assistance (such as from the European Community and individual countries) and GEF funding are in the form of grants. Some lake projects combine grants with loans. The first phase of the Lake Victoria Environmental Management Program, for example, has two major sources of external funding, a GEF grant of about \$33 million, and a “soft” IDA loan of about \$43 million.

External funding—necessary? sufficient?

External funding (bi-lateral, multi-lateral, GEF) has benefits and costs. It allows decision makers to do more by expanding the financial “pie” and therefore helps pay for various new policies and investments, but may come with certain conditions or biases. In addition, external funding is usually not sustainable over time. For example, the average GEF project is a one-off investment over 3 to 5 years.

Some successful cases of lake management have no or very limited external funding (e.g. Lake Dianchi in China) and, conversely, some lakes with large amounts of external funding have had very little success in implementing effective management plans.

Funding, either domestic or external, must be seen as a “necessary but not sufficient condition” for effective lake management. And development experience in general has shown that long-term financing commitments have to come from domestic sources. Consequently there are important issues about how external funding can be best used and how to ensure a smooth transition to national or local sources of funding.

The Sustainability of External Funding, or, is there life after external funding??

One of the strong lessons from the review of the 28 lake briefs is that it is very important that external funds *play a catalytic, rather than an implementing role* in lake management. There are too many examples of foreign donors financing program or project implementation, with the activities ending as soon as the funding from external sources ends. Effective financing requires that foreign resources help create the conditions whereby local or national resources can continue with management after the external funding ends. One problem noted in several Lake briefs, is the tendency for the external funds to be used to pay for international consultants and not being used to build capacity in the developing countries. Another related problem is that

when externally funded salaries are considerably higher than government salaries, it can be very difficult to retain staff once the external funding ends and salaries revert to the old schedule (e.g. Lake Malawi).

It has been argued that GEF-type payments for global environmental benefits should be on-going since the benefits are on-going. This argument for “international funding for international lakes” implies a longer-term commitment to international lakes of global importance. Although this is clearly desirable to do and conceptually correct, in practice it is not very feasible. The history of international funding is not very promising for this type of initiative. “Donor fatigue” is observed in all sectors, and what is attractive for international funding today may receive only limited support in a few years time. Sometimes external funding is used to help set up trust funds or other mechanisms to help ensure continued funding. Bi-lateral and multi-lateral donors, however, have not been willing to commit to open-ended funding commitments.

One potential promising future source of longer term funding is international payment for environmental services. If global markets develop for certain environmental services (such as we see in the earliest stages for carbon sequestration, perhaps for biodiversity protection in the future) these global markets may form a way in the future to ensure continuing external funding for lake management. This has not happened yet, however, and therefore is not yet an appropriate way to plan for longer-term financial support.

The idea of user fees that was introduced earlier, therefore, offers one avenue for developing new sources of funding. The entire rationale of this report is that healthy lakes provide a wide variety of services and physical products and that decision makers need to do a better job of demonstrating these benefits to the broader community, and eventually to start collecting some payments for these environmental services, payments that can be used to help pay for required management actions. Lake Toba in Indonesia presented one example whereby the lake management authority has been working with various stakeholders to increase its funding base (and its base of political support) for improved lake management. In particular, a major industry, PT Toba Pulp, a pulp producer, is working with the local community to behave in a more “environmentally friendly” manner. In addition, the company will set aside 1% of its net revenue for the use of the local government for improved environmental management in the lake basin. Once implemented, this “user fee” should generate over \$500,000 per year for the local resource management authorities.

Practical Steps towards Securing Additional Funding

Decision makers seek practical ways to increase the financial resources available to them. Ideal sources of funding are those that are sustainable, easy (and cheap) to collect, and help re-enforce lake management objectives. Since

collecting revenue is itself not a costless activity (and it seems counterproductive to spend more to collect the fee than the fee itself generates) astute decision makers look for ways whereby the users/beneficiaries can help share the responsibility for fee collection. This has the greatest possibility when the fee is user-based and the service (fishing, recreation, camping...) is provided by a private business.

Of course the ideal financing combination will be unique to each lake, but the following situations are examples where opportunities exist to secure additional funding from local, national or international sources:

- Lakes with international environmental benefits that make them eligible for GEF funding (c.f. many of the GEF-linked lakes): *funding source-external funds*
- Lakes with major industrial users who can help pay for water management or pollution reduction costs (c.f. Dianchi or Toba): *funding source-pollution charges*
- Lakes with important downstream users who can help pay to ensure their secure water supply and water quality (c.f. Biwa): *funding source-user fees*
- Lakes with well-off lake community user groups who are able and willing to help pay for sustainable resource management (c.f. fishermen in Laguna de Bay; flower growers in Naivasha): *funding source-user fees*
- Lakes with important recreational uses that can be tapped via user fees (c.f. Dianchi, Constance, Great Lakes): *funding sources-user fees, property taxes*
- Lakes with international waters where one partner is more willing (and able) to help pay for improved management (c.f. Peipsi): *funding sources-GEF and other bilateral and international transfers*
- International (external) willingness-to-pay for bequest and/or existence values: *funding sources-NGOs, bilateral and international transfer such as from the GEF*

Starting the process of collecting fees where none were collected before is not easy. People would rather have a service provided for free than pay for it. Experience around the world, however, strongly suggests that much more can be done to increase local (and national) revenue collection, and that when the lake users see that they are also receiving improved services and management as a result, there is wide-spread acceptance of these charges. Given that both national level and external funding is available for many lakes, many decision makers have the luxury of starting small with initial revenue enhancement activities and thereby beginning to build public acceptance (if not active support!) for increasing local revenues. Obviously this is a governance issue that requires a partnership between the various lake stakeholders and active public participation. It

is worth the effort, however, in order to build a sustainable financial base, and establish a clear link between the users of the lake basin and its resources and a responsibility to help pay for some of the management costs.

Key Lessons

- Although international finance is attractive (it often comes as grants that do not have to be re-paid) international finance is also short-term and often targeted to specific issues. Consequently decision makers need to develop both local and national level sources of funding.
- Financing for capital infrastructure investments usually comes from the national level or from international resources; local level funding is an important source of money to help meet routine recurrent expenditures.
- Financing for routine monitoring and lake scientific labs is particularly problematic; this is one area where external financing may play an important catalytic role but should not be relied upon for long term funding.
- It is easier to levy local fees when the money stays in part in local coffers (to pay for current needs) and locals have a say over its use.
- To ensure global benefits from lake projects, particularly in the case of international lakes, a programmatic approach is better than a project-by-project approach. In order to sustainably provide global benefits, global action and close co-ordination among national management agencies is required. This is one case where external funding may be necessary to implement the new management regime.

Further Reading

1. [Dixon](#) provides an in-depth look at the topic of locally-generated funds, namely user fees for the use of natural resources. This paper includes experience from not just lakes but other types of natural resources—all with practical relevance to lake basin managers trying to understand how fees can be instituted as part of a management program.
2. [Wang](#) examines the case of long-term financing for plateau lakes in Yunnan Province, southwest China. This paper includes the major case of Lake Dianchi, one of the three “designated” lakes in China for long-term, substantial funding.
3. [Santos-Borja](#) details the history of the Lake Laguna Development Authority, the authority for Laguna de Bay, Philippines, and one of the key case studies in the LBMi project.