

The Role of Protected Areas in Lake Basin Management

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Main messages

- a) Protected areas must be understood and managed in the context of their surrounding ecological and cultural landscapes; decisions regarding conservation (including designation of protected areas) and management of lake basins should adopt the ecosystem approach.
- b) Protected areas within lake basins must be of a sufficient size to be ecologically and functionally viable.
- c) Protected area legislation must be supported by effective regulatory and management prescriptions.
- d) Intergovernmental treaties provide a vehicle for the establishment of protected areas in a basin-wide context, and particularly across international borders.
- e) Transboundary protected areas can enhance biodiversity conservation, promote cooperation and resolve conflicts.
- f) In designating protected areas within a lake basin, consideration should be given to using the IUCN Protected Area Management Categories (1994).

Introduction

Protected areas are the cornerstones of national and international conservation strategies. They act as refuges for species and ecological processes that cannot survive in intensely managed landscapes (such as those found in lake basins) and seascapes. They provide space for natural evolution and future ecological restoration.

Protected areas are created for a wide variety of purposes, which include the following:

- Preservation of species diversity
- Preservation of genetic diversity
- Preservation of genetic material for human industry
- Preservation of ecosystem diversity
- Preservation of ecosystems' functions and values, including areas supporting human activity such as watersheds
- Economic reasons such as tourism
- Recreational purposes
- Research purposes
- Preservation of sites of cultural significance
- Preservation of aesthetics

Protected area management and conservation efforts typically fail because their approach is too narrowly-focused and fragmented. Now more than ever, we need to see protected areas in their wider context – as vital reservoirs of biodiversity for the world, often as a key component of national prosperity, and as providers of sustainable benefits for people living nearby. They should not be seen as isolated areas where no one may tread but as an integral and valued part of the land use of a country; not as land or water "set aside" for conservation but as areas that fulfil a wide range of functions and provide benefits beyond their immediate boundaries to the locality, the nation and the world, including:

- Provision of **environmental services** – such as water, fisheries and soils; e.g. around a third of the world's largest cities rely on protected forests for their drinking water;
- Maintaining **natural resources** – e.g. many aquatic protected areas provide breeding grounds for the fish to support coastal communities and to insure against over-fishing;
- Defence of **local cultures** – an increasing number of indigenous and traditional peoples are finding refuge in protected areas and some are setting up their own protected areas;
- **Mitigation of climate change** – through e.g. the buffering against storm activity and sea-level rise provided by mangroves;
- **Reduction of border tensions** – transboundary protected areas have been used to help reconciliation in areas of past conflict, particularly through the Peace Parks initiative;
- **Providing economic benefits and poverty reduction** – for local communities e.g. Lake Victoria generates an annual GDP of US\$ 3-4 billion, providing more than 25,000 people with an average annual income of US\$ 90-270 per capita while the creation of Lake Kariba produced a viable regional fishery in an area in which freshwater fish were previously absent from the diet of Zimbabweans (ILEC, 2003).

Context and purpose of this paper

The Lake Basin Management Initiative is being implemented by the World Bank with funds from the Global Environment Facility (GEF), and it is being executed by ILEC, with support from LakeNet. LakeNet's participation is funded through a grant from USAID as a joint project with Saint Michael's College (Colchester, Vermont, USA) and through the GEF.

The general objective of this initiative is to strengthen capacity for improved lake and reservoir basin management at local, provincial, national and global levels. The project will assess and draw lessons from the achievements and implementation of several GEF/Bank and non-GEF projects. The particular objectives are to document experiences through case studies; facilitate the sharing of experiences between managers and stakeholders; accelerate learning and implementation of effective lake and reservoir management; and improve the quality of lake and reservoir management.

The project is expected to contribute insights on how to manage lakes and reservoirs sustainably. In doing so, it will also strengthen the ability to manage complex ecosystems sustainably, and address critical policy, investment and other issues constraining effective and sustainable lake and reservoir management. The expected outcomes of the project include lessons for improving GEF and World Bank- supported lake management projects; improved understanding and enhanced capacity for implementing and addressing the principles of sound lake management; and improved sharing and dissemination of information on lake management programmes to national and local governments, lake management practitioners, NGOs, and other stakeholders in lake basins.

The project is studying management experience on 10 lakes for which there have been GEF-funded international waters or biodiversity conservation projects and on 22 lakes for which there have been no GEF-funded projects. The study has commissioned an "Experience and Lessons Learned Brief" for each of 28 lake regions, with a total of 32 lakes (the five North American Great Lakes are covered in one brief).

This paper analyses the "Experience and Lessons Learned Briefs" with respect to the treatment of the role of Protected Areas (PA) in lake basin management. The purpose of the analysis is two-fold: first, to evaluate the treatment of this topic in the individual experience briefs (presented as Appendix 2); and second, to develop an empirical global picture of the topic, on the basis of compilation of the treatment of the subject in all of the individual lake case studies.

Treatment of the topic

Definition of "Protected area:"

IUCN – The World Conservation Union defines a protected area as:

"an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources and managed through legal or other effective means."

A protected area is defined by the **Convention on Biological Diversity** as:

"a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives."

The **Global Biodiversity Strategy** has defined a protected area as:

"a legally established land or water area under either public or private ownership that is regulated and managed to achieve specific conservation goals."

For the purposes of this paper, the term “protected areas” has not been defined rigorously, but draws on all of the above and includes all designations at the local, provincial and national level, such as municipal, state or provincial, and national parks; restricted forests; and conservation areas, wildlife preserves and nature sanctuaries. The term also includes ‘soft law’ designations under global conventions, including Biosphere Reserves, World Natural and Cultural Heritage sites, and Ramsar sites.

The role of protected areas in lake basin management

The World Lake Vision – A Call to Action (World Lake Vision Committee, 2003) makes two specific recommendations with regards the role of protected areas within lake drainage basins:

- ***Protect forests and vegetation in the drainage basin*** -- *A key to reducing excess sediment and pollutant loads to lakes is to protect natural vegetation, often in the form of forests, savannahs and prairies along inflowing tributaries, from development pressures. The presence of vegetation and other substantial ground coverage reduces the velocity of water flowing over the land surface, as well as promoting the removal of some types of water pollutants before they can reach lakes and their inflowing tributaries. Reforesting or revegetating cleared areas, therefore, are important preventative measures for enhancing the sustainable use of lakes and their resources. Maintenance of a mosaic landscape through protection of natural wetlands and other natural buffer areas is a good practice for protecting waterways in urban and rural areas. Protection of forests and woodlands enhances the production of water from water source areas.*
- ***Establish protected areas within lake drainage basins*** -- *It is important that local, provincial and national governments, as well as international agreements and programs (e.g., Ramsar Convention, Convention on Biological Diversity, the IUCN World Conservation Union’s commission on protected areas, UNESCO Biosphere Reserve and World Heritage Site Programmes), work expeditiously to insure that critical areas within the lake drainage basin landscape mosaic are identified and protected. Such protection should be maintained over the longer term, and be sensitive to the traditional uses of such areas by indigenous peoples. Establishment of active use areas as buffers around protected areas has proven effective in the management of such areas. Private reserves, created by individuals or non-governmental organizations, also are appropriate protection measures in some areas. In*

addition to major tributaries, known spawning or breeding grounds for key species, including springs, floodplains, steep slopes and surrounding forest, are critical areas requiring protection. Further, once they are under protection, the effective and wise use of lands and aquatic systems, in partnership with stakeholders, are essential.

Lessons learned concerning the role of protected areas in lake basin management

1. Protected areas must be understood and managed in the context of their surrounding ecological and cultural landscapes; decisions regarding the conservation (including designation of protected areas) and management of lake basins should adopt the ecosystem approach.

Protected areas are the gateway to the conservation effort but they can no longer be viewed as distinct, separate entities. They must be understood and managed in the context of their surrounding ecological and cultural landscapes. The need to adopt an ecosystem approach to the conservation and management of lake basins, including those that cross international borders, comes across in all 28 experience briefs but receives special mention in the briefs from Bhoj Wetland, Lake Xingkai/Khanka, Lake Ohrid, Lake Victoria, Lake Naivasha, Lake Dianchi, Lake Malawi/Nyasa, the Great Lakes and Lake Tucarui.

The ecosystem¹ approach is a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. It is based on the application of appropriate scientific methodologies focused on levels of biological organization, which encompass the essential processes, functions and interactions among organisms and their environment. It recognizes that humans, with their cultural diversity, are an integral component of ecosystems. The ecosystem approach does not preclude other management and conservation approaches, such as biosphere reserves, protected areas, and single-species conservation programmes, as well as other approaches carried out under existing national policy and legislative frameworks, but could, rather, integrate all these approaches and other methodologies to deal with complex situations.

Participants in the Vth World Parks Congress, in Durban, South Africa (2003) recognized that “The integration of inland water protected areas into lake and river basin management frameworks offers the potential of a range of win-win opportunities. These protected areas can link biodiversity conservation with water and food security, poverty reduction flood and flow management and human health objectives. Protected areas are a vital component of conserving and managing freshwater resources, ecosystems and biodiversity. Their establishment is best

¹ “Ecosystem” means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit”. (Article 2 of the Convention on Biological Diversity)

undertaken through the processes of integrated river basin or watershed management, including the development of an adequate network of representative protected areas.”

The *Programme of Work on Protected Areas* adopted during the recent 7th Meeting of the Conference of Contracting Parties to the Convention on Biological Diversity (February, 2004) recognizes this concept in its preamble: “Protected areas, together with conservation, sustainable use and restoration initiatives in the wider land-and seascape are essential components in national and global biodiversity conservation strategies.”

In pursuing the ecosystem approach, the lake basin must be recognized as the basic unit for planning and management, and a firm societal commitment and proper public participation must be pursued. This will require new arrangements that integrate human activities with conservation goals. Protected areas must fit within an overall strategy of landscape management that includes compatible human activities.

In the Great Lakes, the federal governments of Canada and the US have signed a series of treaties and agreements dating back to 1906, which have been incorporated into federal law on both sides of the border, and which, since the mid-1950s, have embrace the ecosystem approach to lake basin management.

Efforts to adopt a basin-wide approach to land-use planning and management in Lake Baikal began in 1987, with the enactment of watershed management legislation, and culminated in the development of a land-use plan for the entire Lake Baikal watershed in 1996. Unfortunately the experience brief reports that plan has suffered in implementation because of poor political support and because it was based on planning systems developed in the United States.

The Lake Nakuru brief reports that in recent years the government has considered the possibility of gazetting the Lake Nakuru basin as a protected area (PA) in recognition of its environmental significance and to help mitigate the serious threats to sustainable development and conservation of the entire basin.

In some instances, protected areas may be able to be physically linked through landscape corridors so that the original spatial character of the ecosystem can continue to function, as recognized in the Lake Constance brief. In Lake Cocibolca, legislation is proposed that will declare a “Corridor of Sustainable Development for the Municipalities contained in the Watershed of Great Lakes and San Juan River”; this initiative will link the many protected areas, Ramsar sites, archaeological and cultural monuments within the lake basin.

2. Protected areas within lake basins must be of a sufficient size to be ecologically and functionally viable.

The Lake Xingkai/Khanka brief recognizes that the relatively small area of the reserved territory on the Russian side is not sufficient to ensure the preservation of biodiversity. The Lake Issyk-Kul National Preserve constitutes a mere 0.05% of the overall territory of the region; its proximity to towns and villages, livestock operations, and other heavily-used sites, severely threatens its future viability.

The Lake Constance brief states that events such as the “flood of the century” in 1999 demonstrate that the protected areas within the lake basin are much too small to provide adequate protection for its biodiversity. It goes on to recommend that in nature reserves in densely populated areas, sufficient buffer zones must be established.

Even where protected areas remain intact, effectiveness can be reduced by isolation and fragmentation if surrounding use changes dramatically. The Lake Nakuru brief reports that over the years, the Lake Nakuru National Park has become an “island of nature surrounded by a sea of humanity”. The potential effects of this insularization are considered particularly worrying based on similar experiences from Nairobi National Park, which is forecasted to eventually lose over 80% of its species, and the Serengeti National Park, which is expected to eventually lose about 70% of its species (Soule et al., 1979 cited in Mwangi, 1994). In Lake Tanganyika increasing land pressure adjacent to the national park and the lack of alternative livelihood options is resulting in resource conflicts between parks and neighbouring communities. In Lake Malawi/Nyasa, the National Park/World Heritage Site is the only protected area in the lake and it has come under increasing pressure from the surrounding villagers (who use the resources of the Park) and from tourism (there are plans for hotels, golf courses, and casinos).

3. Protected area legislation must be supported by effective regulatory and management prescriptions

Growth in the extent of protected areas has not always been matched by effective management: many protected areas have not been legally established and have no management capacity – so-called “paper parks”. Even many legally gazetted protected areas remain at risk. Threats range from immediate problems, like poaching, illegal logging and mining, settlement, and uncontrolled fires, to longer-term problems such as toxic contamination and climate change; these pressures are driven by underlying causes including poor governance, poverty, greed and lack of alternative livelihoods. The quality of protected areas can suffer from, for instance, removal of species through poaching, general ecological damage, and, in extreme cases, almost total destruction. Lack of funding hampers management while human population pressures increase stresses.

The Lake Chad brief recognizes the need to formulate and enforce access rules with regards protected areas. It reports that although the Lake Chad Game Reserve is legally protected, local communities have claimed the land for settlements, farms, and cattle grazing and as bases for fishing. Similar situations exist within the same basin e.g. in the Hadejia-Nguru wetlands (where there are some forest reserves and small areas that are under National Park status, but local populations also heavily use these areas), and Gashaka Gumti Park (which suffers encroachment by cattle grazers and farmers). Further examples of this are also illustrated in the briefs from Lake Tonle Sap, Issyk-Kul and Cocibolca where poor or the complete lack of, enforcement have rendered protected area legislation ineffective.

Regulatory tools that provide for the management of the lakes resources can sometimes be as effective as protected area legislation; these should be combined with efficient enforcement, and community-based initiatives to sensitize local people and decision-makers to the importance of

maintaining the integrity of the lake ecosystem for human wellbeing. Lake Biwa has had notable success with this approach. The core lake is not currently protected under legislation (although this has been recommended in the brief) but the sum total of combined regulatory approaches has resulted in greater degree of ‘protection’ for the lake’s resources through wise management.

4. Intergovernmental treaties provide a vehicle for the establishment of protected areas in a basin-wide context

International treaties, e.g. Ramsar, World Heritage, Biosphere Reserves - while not without its share of criticisms - allow for the establishment of a network of protected areas within a lake basin. This holds particularly true for transboundary systems where conflicting national protected area legislations may apply. While international treaties and agreements do not offer a template for resolving transboundary protected area disputes, they can help set agreed objectives and mandates, which are generally not intended to be automatically binding by law. Parties to international agreements have made high level decisions and are obliged to meet commitments by passing national law. The Lake Chad brief cautions that it is not just a matter of getting a protocol or convention ratified that makes it work, but the degree to which it is binding on member States; this depends very much on the political will and commitment of the member countries.

The Lake Naivasha experience illustrates how international designations can leverage protective measures at the national level: it reports that as a consequence of the Ramsar designation, the Kenya Wildlife Service (KWS), the custodian of Kenyan Ramsar sites, became an important and influential partner of the Lake Naivasha Residents’ Association (LNRA). In 1996, the stakeholders agreed on the Management Plan and the Government of Kenya officially approved the Plan. The Lake Naivasha Management Implementation Committee (LNMIC) was then formed and charged with executing the Plan.

In another example, as part of its efforts to establish the Tonle Sap Biosphere Reserve, the Government of Cambodia adopted a “Strategy and Action Plan for the Protection of Tonle Sap” and established the Tonle Sap Biodiversity Reserve Secretariat to coordinate and oversee implementation of the Plan.

In 2000, Cameroon, Central African Republic, Chad, Niger and Nigeria designated Lake Chad a transboundary Ramsar site; but not all states had ratified the Convention at that time. However, this initiative and commitment on the part of the riparian states has resulted in international funding support to enable Ramsar designation, including funds for the development of a management plan for the entire lake basin.

The Lake Tanganyika experience shows that regional intergovernmental treaties can be equally effective as a vehicle for cooperation within a sometimes tense and unpredictable political climate. The *Convention on the Sustainable Management of Lake Tanganyika* (signed in June 2003) is a legal convention binding the riparian nations to the sustainable management of the lake’s natural resources. Under the Convention, a legal institutional framework for the cooperation between the four riparian countries has been established, in the form of a regional

permanent management body, the Lake Tanganyika Authority; among its tasks is the identification and designation of protected areas within the lake basin.

In the Great Lakes area, transboundary treaties and agreements, which are supported by federal law on both sides of the border, have provided the framework for protection of the basin's resources.

5. Transboundary protected areas can enhance biodiversity conservation, promote cooperation and resolve conflicts

Ecosystems and species do not recognise political borders, which were usually defined for historical and geo-political reasons, without reference to ecological functions or processes. Protected areas that are established and managed across borders - Transboundary Protected Areas² or Parks for Peace³ - can therefore provide an important tool for coordinated conservation of ecological units and corridors.

The idea is emerging that transboundary protected areas not only conserve biodiversity but can also be powerful symbols and agents of cooperation, trust, confidence-building and conflict resolution. Of course, the creation of a protected area will not in itself resolve a political border dispute but protected areas can be part of the resolution settlement.

More efforts are needed to raise awareness about the potential benefits of transboundary protected areas to allay national concerns such as those experienced at Lake Kariba where a proposal to establish a Biosphere Reserve, which would have brought together various stakeholders and institutions in the management and utilisation of the resources of Lake Kariba and its environs, was rejected by the authorities largely because of sectoral propriety considerations.

The Lake Kariba, Chad, Constance and Xingkai/Khanka briefs note that in designating transboundary protected areas, it is important to harmonize legal and regulatory frameworks at the local, national and regional levels. The Lake Ohrid Conservation Project has been remarkably successful in this regard: new environmental laws and regulations are being developed and implemented in both Macedonia and Albania because of the recognized need to establish an appropriate legal framework for better management of the entire lake basin. The

² **Transboundary protected area (TBPA):** An area of land and/or sea that straddles one or more boundaries between states, sub-national units such as provinces and regions, autonomous areas and/or areas beyond the limits of national sovereignty or jurisdiction, whose constituent parts are especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed cooperatively through legal or other effective means (IUCN definition).

³ **Parks for peace (also sometimes called peace parks):** Parks for peace are transboundary areas that are formally dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and to the promotion of peace and cooperation (IUCN definition).

Lake Constance experience states that a legally binding framework, including management plans and monitoring systems for all protected areas along the entire shore and lake area spanning all riparian nations, is necessary, and recommends that the criteria for EU Natura 2000 regions be adopted by all riparian states, and supported by allocation of the necessary staff and financial resources.

6. In designating protected areas within a lake basin, consideration should be given to using the IUCN Protected Area Management Categories (1994).

The Lake Sevan experience notes the need to ensure that national protected area legislation correspond to international standards, particularly to commitments taken upon accession to international treaties. It cites as an example the fact that the “Law on Especially Protected Natural Areas” in Armenia does not correspond to the IUCN categories of protected areas.

IUCN categorises protected areas by management objective and has identified six distinct categories of protected areas:

I. Strict Nature Reserve/Wilderness Area: protected area managed mainly for science or wilderness protection

II. National Park: protected area managed mainly for ecosystem protection and recreation

III. Natural Monument: protected area managed mainly for conservation of specific natural features

IV. Habitat/Species Management Area: protected area managed mainly for conservation through management intervention

V. Protected Landscape/Seascape: protected area managed mainly for landscape/seascape protection and recreation.

VI. Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems.

Interestingly, the last decade has witnessed a dramatic increase in the number of IUCN Category VI protected areas (definition, objectives and criteria presented in Appendix 1). The reasons for this are first, that very few areas remain “uninhabited” or where human populations can be ignored when declaring protected areas, as it was usually done in the past. Secondly, it reflects a growing trend of using local communities’ experience and practices in land and resource use as a basis or as a component of protected areas management. Oltremari (2000) in his assessment of case studies from South America concludes rightly that this trend will become increasingly important, and that arrangements with communities will also be a key strategy for the expansion and strengthening of the protected areas systems; further, he highlights the growing role that native communities will play in this process.

Given the high degree of dependence of lake basin communities on the lake ecosystem, as clearly exhibited in all 28 experience briefs, an assessment should be conducted of the suitability of Category VI status for protected areas within lake basins.

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Appendix 1: CATEGORY VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

Definition

Area containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

Objectives of Management

- to protect and maintain the biological diversity and other natural values of the area in the long term;
- to promote sound management practices for sustainable production purposes;
- to protect the natural resource base from being alienated for other land-use purposes that would be detrimental to the area's biological diversity; and
- to contribute to regional and national development.

Guidance for Selection

- The area should be at least two-thirds in a natural condition, although it may also contain limited areas of modified ecosystems; large commercial plantations would *not* be appropriate for inclusion.
- The area should be large enough to absorb sustainable resource uses without detriment to its overall long-term natural values.

Organizational Responsibility

Management should be undertaken by public bodies with an unambiguous remit for conservation, and carried out in partnership with the local community; or management may be provided through local custom supported and advised by governmental or non-governmental agencies. Ownership may be by the national or other level of government, the community, private individuals, or a combination of these.

Appendix 2

Summary of protected area status, lessons learned, suggestions, and remarks in the individual experience briefs which relate to the role of protected areas in lake basin management

Experience brief	Legally Protected Areas	Ramsar/World Heritage/Biosphere Reserve	Lessons learnt / Remarks
Aral Sea			
Baikal	<ul style="list-style-type: none"> ○ 33% of the Selenga watershed on the Russian side is under some type of protected area status (categories are: National Park (16%), Natural Anthropological Reserve, National Wildlife Refuge, National Nature Reserve, and Reserved Forest). ○ World Heritage site status was expected to boost international and domestic tourism; domestic tourism has increased significantly. 	<ul style="list-style-type: none"> ○ Ramsar site in Russia (Selenga Delta, 1994) & Mongolia (Terhiyn Tsagaan Nuur, 1998). ○ UNESCO World Heritage Site in Russia (1996) 	<ul style="list-style-type: none"> a) State and international funding for resource protection efforts have significantly declined in recent years in line with shift to focus on “economic development”. b) GEF project (1996): includes component which aims to strengthen the institutional framework for protected areas.
Baringo	<ul style="list-style-type: none"> ○ Four community managed wildlife sanctuaries established. 	<ul style="list-style-type: none"> ○ Ramsar site (2002) 	
Bhoj Wetland		<ul style="list-style-type: none"> ○ According to the Ramsar List, this site was designated in 2002, but brief makes no reference to this. 	<ul style="list-style-type: none"> a) Proposes that the catchment area of the lake be declared a protected area. b) Proposes the declaration of lakes as protected areas and establishment of a lake protection authority.
Biwa		<ul style="list-style-type: none"> ○ Ramsar site (1993) 	<ul style="list-style-type: none"> a) Notes that a major challenge for Shiga today is to develop a new legal system not only to <i>protect</i> but also to restore and revitalize the lake.

Chad	<ul style="list-style-type: none"> ○ The Lake Chad Game Reserve is currently the only protected area on Lake Chad. However, this reserve is a conservation area only in theory and local communities have claimed the land for settlements, farms, and cattle grazing and as bases for fishing. A similar situation exists in the Hadejia-Nguru wetlands where there are some forest reserves and small areas that are under National Park status, but local populations also heavily use these areas. ○ Proposed establishment of a giant transboundary protected area by Nigeria, Cameroon and Birdlife International. ○ Gashaka Gumti Park (Nigeria) is protected but suffers encroachment by cattle grazers and farmers, while Tchabal-Mbabo (Cameroon) is not currently protected at all. 	<ul style="list-style-type: none"> ○ Lake Chad (Cameroon, CAR, Chad, Niger and Nigeria) designated a transboundary Ramsar site in 2000; but not all states have ratified the Convention. A GEF project has been approved for Ramsar designation, including a management plan for the lake and the basin. ○ Ramsar site (Niger 2001 & Chad 2001) 	<ul style="list-style-type: none"> a) In protected areas, it is necessary to formulate and enforce access rules for adherence locally, nationally and regionally. b) It is not just a matter of getting a protocol or convention ratified that makes it work, but the degree to which it is binding on member States. Such a step depends on the political will and commitment of the member countries.
Champlain	<ul style="list-style-type: none"> ○ The Lake Champlain Basin Program sponsored a wetland acquisition strategy to permanently protect almost 9,000 acres of wetlands in the Champlain Valley. 		
Chilika	<ul style="list-style-type: none"> ○ Forest and vegetation in the catchment declared “Protected Forest” ○ “Nalabana Bird Sanctuary” declared within the wetland. 	<ul style="list-style-type: none"> ○ Ramsar site (1981) 	
Cocibolca	<ul style="list-style-type: none"> ○ A total of 51 protected areas, varying in type and size, have been identified in the basin. Thirty-three of these have been 	Ramsar site(s)? – ref to Ramsar sites in brief but no additional info.	<ul style="list-style-type: none"> a) The existing constitutional mandates, institutional mandates, laws, and international agreements suggest

	<p>established in Costa Rica and 18 in Nicaragua. The main types of protected areas found in the basin are: biological reserves, national parks, wildlife refuges, protected areas, and nature reserves.</p> <ul style="list-style-type: none"> ○ Proposed to have a Law which would declare Corridor of Sustainable Development for the Municipalities contained in the Watershed of Great Lakes and San Juan River. This initiative would integrate the many protected areas, Ramsar sites, Archeological and cultural monuments, and would help the nomination of the Lake Cocibolca as UNESCO world natural heritage, requested by Nicaraguan government. 		<p>that there is a sufficient regulatory framework to direct environmental management actions, biodiversity preservation, and sustainable development. The major limitations are associated with the institutional, technical, and organizational capacity to enforce compliance with this regulatory framework and the lack of public awareness which facilitates legal action in every country.</p>
<p>Constance</p>	<ul style="list-style-type: none"> ○ Switzerland considering Ramsar designation ○ Areas in Germany and Austria have been nominated for the NATURA 2000 network of nature preserves being planned by the European Union. ○ In order to protect the valuable and sensitive shallows, which make up about 17 % of the total lake surface, totally and partially protected areas have been established in the Lake Constance shoreline. 	<p>a) Ramsar sites in Austria (1982) & Germany (1976) but not Switzerland.</p>	<ul style="list-style-type: none"> a) Events such as the “flood of the century” in 1999 demonstrate that the protected areas are much too small and do not present adequate space in which flora and fauna can find refuge. b) Regulations for water sport and hunting, as well as for other forms of interaction with the natural landscape must be internationally coordinated along a uniform basis for all comparable protected areas in the shore zones and shallows. c) In the case of transboundary lakes, a legally binding concept including management plans and monitoring systems for all protected areas along the entire

			<p>shore and lake area spanning all involved nations is necessary. This nature concept should follow international criteria (recommended: Criteria for EU Natura 2000 regions) and allocate the necessary staff and financial resources.</p> <p>d) Public awareness necessary.</p> <p>e) In nature reserves in densely populated areas sufficient buffer zones must be established.</p> <p>f) Ecological land use planning should consider the establishment of green corridors to connect biotopes.</p>
Dianchi			
Great Lakes			<p>a) Transboundary treaties and agreements: 1909: U.S.-Canada Boundary Waters Treaty 1955: Convention on Great Lakes Fisheries (international treaty that has been incorporated into federal law on both sides of the border) 1955: Great Lakes Commission (through this, the eight Great Lakes states have begun working collaboratively on basin-wide ecosystem management issues). 1972: Great Lakes Water Quality Agreement (does not have treaty status, but it has been incorporated into federal, state and provincial law on both sides of the border; places greater emphasis on the ecosystem approach).</p>
Issyk-kul	<ul style="list-style-type: none"> ○ Issyk-Kul Biosphere Reserve: zonation plan; national laws enacted to support designation. 	<ul style="list-style-type: none"> ○ Biosphere Reserve (2001) ○ Ramsar site (2002) 	<p>a) Environmental problems in all four zones in the biosphere reserve are the result of</p>

	<ul style="list-style-type: none"> ○ Within Issyk-Kul oblast, there are eight specially protected natural areas: two national preserves, five game reserves and one national park. 		<p>economic activity; mitigation measures must take into account economic development.</p> <ul style="list-style-type: none"> b) The Issyk-Kul National Preserve constitutes a mere 0.05% of the overall territory of the region. c) Many resolutions aimed at protecting the lake and improving the work of the preserve have been passed, but in general these have been poorly implemented, or not implemented at all.
Kariba	<ul style="list-style-type: none"> ○ Ground level operational contradictions: the section of the reservoir in the Zimbabwe territorial waters is administered as a national park to control user activities on the lake and regulate the fishery industry; there are areas adjacent to the lake on the Zimbabwean side dedicated to wildlife conservation and tourism; however no such provisions exist on the Zambian side. 		<ul style="list-style-type: none"> a) Several years ago, the Man and Biosphere Committee proposed the establishment of a biosphere reserve, which would have brought together various stakeholders and institutions in the management and utilisation of the resources of Lake Kariba and its environs. These proposals were ignored by the authorities largely because of sectoral propriety considerations.
Laguna de Bay	<ul style="list-style-type: none"> ○ Attempts to protect the lake as a protected site have long been abandoned in favour of unavoidable demand for water and fish. ○ The Angono petroglyphs located in Binangonan Rizal is protected as a cultural heritage site. ○ Only remaining forested area (Mt. Makiling) was declared a Forest Reserve in 1910. 		
Malawi/Nyasa	<ul style="list-style-type: none"> ○ Lake Malawi National Park is the only protected area in the lake. The Park has come under 	UNESCO World Heritage (1984)	<ul style="list-style-type: none"> a) Important to embrace an ecosystem approach to solving the problems in the lake.

	considerable pressure in recent years from the surrounding villages, which use the resources of the Park, and from tourism. There are plans for hotels, golf courses, and casinos.		
Naivasha	<ul style="list-style-type: none"> ○ Boundary of Ramsar site limited to the area within the road around the lake. ○ The headwaters of the Malewa, the main water source for the lake, are protected within the Aberdare National Park and the adjoining gazetted forest. ○ Two other national parks (Hells Gate and Longonot) in the vicinity of the Lake – used for tourism. 	<ul style="list-style-type: none"> ○ Ramsar site (1995) 	<ul style="list-style-type: none"> a) Ramsar designation leveraged institutional and management actions at national level to enhance protection of the site. b) The LNRA has taken a more holistic approach to management realising that the Ramsar site could not be protected without addressing the problems in the whole lake basin.
Nakuru	<ul style="list-style-type: none"> ○ Lake Nakuru National Park (1957) is Africa's first bird sanctuary (1961). Park has generated revenue for the Government, & contributed to the socio-economic development of Nakuru town and its environs through tourism development. ○ Between 1964 and 1972 a global funding-raising effort resulted in the expansion of the protected area to include the entire lake and land purchased from surrounding farmers to create a buffer zone. ○ In 1994, the government in a highly controversial move de-gazetted over 20,000 ha of the Eastern Mau Forest on the western divide of the catchment basin, a major national watershed, and the source of 	<ul style="list-style-type: none"> ○ Kenya's first Ramsar site (1990) ○ UNESCO World Heritage Site (brief mentions WH designation but no date given) 	<ul style="list-style-type: none"> a) Over the years, the National Park has become an “island of nature surrounded by a sea of humanity”. The potential effects of this insularization are particularly worrying. b) The government has considered the possibility of gazetting the Lake Nakuru basin as a protected area (PA) because of its environmental significance. c) International Conventions have helped lobby the Government to improve lake conservation. d) Land is a very scarce resource in Nakuru area and the Park would have been turned into other uses were it not gazetted by the Government as a protected area.

	feeder streams to Lake Nakuru.		
Ohrid	<ul style="list-style-type: none"> ○ Under an MOU signed in November 1996, representatives of the governments of Albania and Macedonia agreed to “coordinate and adopt laws and regulations necessary for the protection of Lake Ohrid with regard to pollution prevention, water use and fisheries management, etc.” In both Albania and Macedonia, the major management efforts have focused on designating protected areas, and supporting national laws and regulations; but lake still threatened by eutrophication, bacterial pollution, metal pollution, habitat destruction, decline in fish catch, sand & gravel extraction due to poor enforcement & regulation. ○ Prime Ministers of Albania, Macedonia, and Greece issued a Declaration on 2nd February 2000 announcing the creation of the “Prespa Park” as the first transboundary protected area in southeastern Europe. 	<ul style="list-style-type: none"> ○ UNESCO (1979): Macedonia ○ Ramsar site: Ohrid-Prespa (1995) 	a) Recognized need to establish an appropriate legal framework for better management of Lake Ohrid and its watershed.
Peipsi	<ul style="list-style-type: none"> ○ Peat bogs and marshes within protected areas 	<ul style="list-style-type: none"> ○ Ramsar site Russia (1994) 	
Sevan	<ul style="list-style-type: none"> ○ The land between the lake and surrounding circular road is under the protection of Sevan National Park (1978) three types of land zones: reserved, recreational and economic. 	<ul style="list-style-type: none"> ○ Ramsar site (1993) 	a) An important limitation of Armenian environmental legislation is that many of the laws do not correspond to international standards, particularly, to commitments taken upon accession to the Ramsar Convention and

			Biodiversity Convention. In particular, the Law on Especially Protected Natural Areas is not corresponding to the IUCN categories of protected areas (2000) to the status of different protected areas.
Tanganyika	<ul style="list-style-type: none"> ○ Gombe Stream National Park & Mahale Mountain NP 	<ul style="list-style-type: none"> ○ Convention on the sustainable management of Lake Tanganyika (signed in June 2003): a legal convention binding the riparian nations to the sustainable management of the lake's natural resources; a commitment from GEF and the governments of Burundi, Congo, Tanzania and Zambia to continue this process through a PDF grant. These achievements were accomplished within a sometimes tense and unpredictable political climate. The Convention establishes a legal institutional framework for cooperation between the four riparian countries, in the form of a regional permanent management body, the Lake Tanganyika Authority. 	<ul style="list-style-type: none"> a) Increasing land pressure adjacent to national parks and the lack of alternative livelihood options is resulting in resource conflicts between parks and neighbouring communities. The problem is compounded by a decline in the resources available to parks from central government as part of policies promoting decentralised management.
Titicaca	<ul style="list-style-type: none"> ○ Sajama National Park Proposed: Lake Titicaca National Reserve & Two new protected neighbour areas 	<ul style="list-style-type: none"> a) Ramsar site (Bolivia 1998, Peru 1997) 	<ul style="list-style-type: none"> a) Ecotourism is potentially important, but it will be necessary beforehand to define a system of protected areas duly planned with minimum facilities for national and international visitors.
Toba		<ul style="list-style-type: none"> ○ Proposed by UNESCO to be designated as a Biosphere 	

		Reserves, lack of the Presidential Decree.	
Tonle Sap	<ul style="list-style-type: none"> ○ Eight fish sanctuaries, seven located inside the permanent lake and one near the mouth of the Tonle Sap River; set aside for the protection of fish stocks, to improve fish recruitment and to provide dry season refuge areas for mainly non-migratory fish. 	<ul style="list-style-type: none"> ○ Boeng Chhmar Ramsar site (1999). ○ Tonle Sap Biosphere Reserve (1997), covering all of the lake plus a significant part of the floodplain; established by Royal Decree. It is divided into three zones: core zones, buffer zone and transition zone; Strategy and Action Plan for the Protection of Tonle Sap adopted in February 1998 & Tonle Sap Biodiversity Reserve Secretariat formed. 	<ul style="list-style-type: none"> a) Poaching and illegal fishing rampant; enforcement is poor; current zoning plan is aimed at commercial exploitation and sustainable management of the fish resources.
Tucurui			<ul style="list-style-type: none"> a) A viable solution can only be found if the entire watershed ecosystem is taken into consideration by the management and a strong integration of science and management is incorporated in the project.
Victoria			<ul style="list-style-type: none"> a) Ecological challenges do not recognize international boundaries. Addressing these issues effectively and in a sustainable manner calls for an ecosystem-oriented approach that includes international cooperation. b) Although Uganda's wetlands are protected most of them are still being reclaimed and degraded.
Xingkai/Khanka	<ul style="list-style-type: none"> ○ Lake Xingkai National Reserve (P. R. China) and Khankaisky National Nature Reserve (Russia). 	<ul style="list-style-type: none"> ○ Ramsar site (Russia, 1976) – area designation 310,000 ha but subsequent boundary delineation exercise resulted in only 14% of the Ramsar site now legally protected 	<ul style="list-style-type: none"> a) Inefficient management because of lack of unified plan and authoritative organization. b) Reclamation and industry in core of the protection zone - one of the main reasons for

		<ul style="list-style-type: none"> ○ According to the Ramsar List designated by China 1992 but brief says it's not a Ramsar site. ○ Lake Xingkai added to the Northeast Asian Crane Site Network in 1997. 	<p>environment problems in the lake and its basin.</p> <ul style="list-style-type: none"> c) The rather small area of the reserved territory can not ensure preservation of biodiversity. d) As a whole, the system of specially protected natural territories in the Russian part of the Khanka Lake basin requires further development – needs expansion of the reserve, conflict resolution, maintenance of special protection regime, creation of new, and protection of the existing areas – all of this requires financial assistance. e) Transboundary reserve proposed. f) The national PA legislation of the riparian countries differ – need for more harmonized management and regulations between the parks.
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Explanatory notes:

Ramsar Sites, or Wetlands of International Importance, are defined under the Wetlands Convention, signed in Ramsar, Iran, in 1971. In order to qualify as a Ramsar site, an area must have "international significance in terms of ecology, botany, zoology, limnology or hydrology." The Convention on Wetlands is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are presently 138 Contracting Parties to the Convention, with 1,370 wetland sites totalling 119.6 million hectares, designated for inclusion in the Ramsar List of Wetlands of International Importance. Further information available on-line at: <http://ramsar.org/>

Biosphere Reserves are terrestrial and coastal/marine environments recognized under UNESCO's Man and the Biosphere Programme. Selected for their value to conservation, they are intended to foster the scientific knowledge and skills necessary for improving the balance between people and nature, and for promoting sustainable development. Ideally, fully functional biosphere reserves perform three main roles: (i) conservation in situ of natural and semi-natural ecosystems and landscapes; (ii) the establishment of demonstration areas for ecologically and socio-culturally sustainable resource use; and (iii) the provision of logistic support for research, monitoring, education, training, and information exchange. Each biosphere reserve consists of three elements: a minimally disturbed core area for conservation and research; a buffer zone where

traditional land uses, research, and ecosystem rehabilitation may be permitted; and a transition area. Biosphere reserves are nominated by national governments and remain under the sovereign jurisdiction of the state where they are located. As of July 2003, there are 440 biosphere reserves in 97 countries. Several transboundary countries share biosphere reserves. These sites are counted only once in regional and world totals. Further information available online at: <http://www.unesco.org/mab/>

According to the **World Heritage Convention**, a "Cultural heritage" area is a monument, group of buildings or site of historical, aesthetic, archaeological, scientific, ethnological or anthropological value; a "Natural heritage" area designates outstanding physical, biological, and geological features; habitats of threatened plants or animal species and areas of value on scientific or aesthetic grounds or from the point of view of conservation. UNESCO's World Heritage mission is to: a) encourage countries to sign the Convention and ensure the protection of their own natural and cultural heritage; and b) encourage States Parties to the Convention to nominate sites within their national territory for inclusion on the World Heritage List. As of July 2003, there are 754 properties which the World Heritage Committee has inscribed on the World Heritage List (582 cultural, 149 natural and 23 mixed properties in 129 States Parties). Further information available online at: <http://whc.unesco.org/nwhc/pages/home/pages/homepage.htm> .