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NEWSLETTER

International Lake Environment Committee

=Promoting Sustainable Lake Management=

This Newsletter is also available in Japanese.

'World Lake Vision: Call to Action' Symposium

An international symposium entitled 'World Lake Vision: Call to Action' was held on 15 December, 2002, at Lake Biwa Museum's cavernous hall, with about 100 people participating at the event. The symposium was jointly held by ILEC, Shiga Prefecture and UNEP-IETC, for the purposes of letting Shiga residents know about the 'World Lake Vision' (WLV), that is to be presented on 20-21 March (designated as Shiga Day) at the World Water Forum 3 (WWF3).

The morning session started with opening remarks from Governor Kunimatsu, of Shiga Prefecture, Dr. Steve Halls, Director of UNEP-IETC and Professor Kira, Chairperson of the World Lake Vision Committee. In the morning session, Professor Nakamura, Director of Lake Biwa Research Institute, talked about the necessity of the World Lake Vision and Dr. Rast, Associate Professor at Southwest Texas State University, explained the content of the WLV. After these two speakers, Dr. Ide, Assistant Professor at the University of Shiga Prefecture, and Mr. Jeff Thornton, member of, Southeast Wisconsin Regional Planning Commission, gave lectures on the challenges facing WLV. In the afternoon session, Lake Titicaca (Peru and Colombia), Lake Toba (Indonesia), Lake Biwa and Lake Caliva (Zimbabwe) were introduced to show examples of lake management in action. Before ending the symposium, a panel discussion with six panelists took place where opinions were actively exchanged with the participants. The symposium ended successfully with closing remarks from the Executive Director of ILEC, Mr. Hiroya Kotani.

In the days following the Symposium, members of the World Lake Vision Committee held a series of discussions to further develop the WLV. (See pages 2 and 3 for the latest Draft Version of the Document.)

IN THIS ISSUE

The World Lake Vision: A Call to Action

In the century that lies ahead, humanity faces the challenge of developing a civilization fit for a finite planet and one equipped to deal with a mounting scarcity of essential resources such as freshwater. The world's lakes, which are a primary source and storehouse of the world's easily-accessible freshwater, will be a critical arena in this great transition to a society which sustains itself without degrading and depleting its own natural foundation. Many of these lakes are already in jeopardy. The World Lake Vision aims to illuminate this growing crisis, to articulate principles to guide this transition toward managing lakes for their sustainable use, and to provide a practical blueprint for insuring the long-term health of lakes and the integrity of the freshwater required by human societies for their survival and economic development, and for maintaining life-supporting ecosystems ...

It is difficult to overstate the urgency of the problems confronting the world's lakes, which hold more than 90 percent of all the liquid freshwater on our planet's surface. Many of the world's most important lakes are in crisis, beset by a myriad of problems that affect the quantity and quality of the water they contain, the organisms they support, and their ability to meet the water needs of the surrounding human populations. Some suffer from excessive water withdrawals and diversions, while others have witnessed deteriorating water quality because of polluting human activities on the surrounding land. In recent decades, problems originating even beyond the immediate lake basin - notably acid rain and climate change - have added additional burdens to already stressed lake ecosystems.

Despite clear evidence of an escalating crisis, most lakes still lack the kind of well-conceived, integrated plan needed to manage them in a way that both insures their health and supports human water needs over the long term. Current lake management and conservation efforts typically fail because their approach is too narrowly-focused and fragmented. The World Lake Vision responds to the need for practical guidance by offering a comprehensive framework for tackling the daunting lake management challenges that confront us. While this document may prove helpful to a variety of audiences, it aims first and foremost to assist the efforts of citizens around the world who inhabit lake basins.

At the moment the number of severely-degraded lakes is relatively small, but the catastrophic demise of the Aral Sea in southcentral Asia, which is literally disappearing because of the diversion of the rivers that replenished its waters, looms as a warning sign. In the absence of a holistic, integrated approach to pollution prevention and sustainable use, many lakes and the communities that depend upon them may face equally dire fates in the foreseeable future. This would represent a loss far beyond their value as sources of freshwater, food, and recreation. Lakes are also places of great beauty and biological complexity, which have served as cradles of culture and landscapes of human history.

The World Lake Vision provides a set of guiding principles for developing and implementing effective management programs for the world's lakes. These principles augment those already articulated in the World Water Vision, but focus specifically on lakes, their unique characteristics and uses, and the threats they face. It also describes promising strategies to address these threats, which individuals and organizations working at the local, national, and global level can undertake over the longer term.

The Precautionary Principle must be the departure point for such efforts. This political decision-making approach emphasizes that communities and governments should not use the lack of full scientific certainty as a reason to postpone action to prevent serious and irreversible environmental damage, to which lakes are especially vulnerable. The World

Lake Vision also incorporates the Dublin Principles for managing freshwater resources, emphasizing the importance of public participation in water development and management efforts, including the central role of women in these matters.

The seven principles detailed in World Lake Vision provide a blueprint for achieving the transition to managing lakes for their sustainable use.

Principle 1:

A harmonious relationship between humans and nature is essential for the sustainability of lakes.

Principle 2:

Drainage basins are the appropriate units for planning and applying management actions for the sustainable use of lakes.

Principle 3:

A long-term, proactive approach directed to preventing the causes of lake degradation is essential.

Principle 4:

Policy development and decision making for lake management should be based on sound science and the best available information.

Principle 5:

The management of lakes for their sustainable use requires the resolution of conflicts among competing uses of lake resources, taking into account the needs of present and future generations and of nature.

Principle 6:

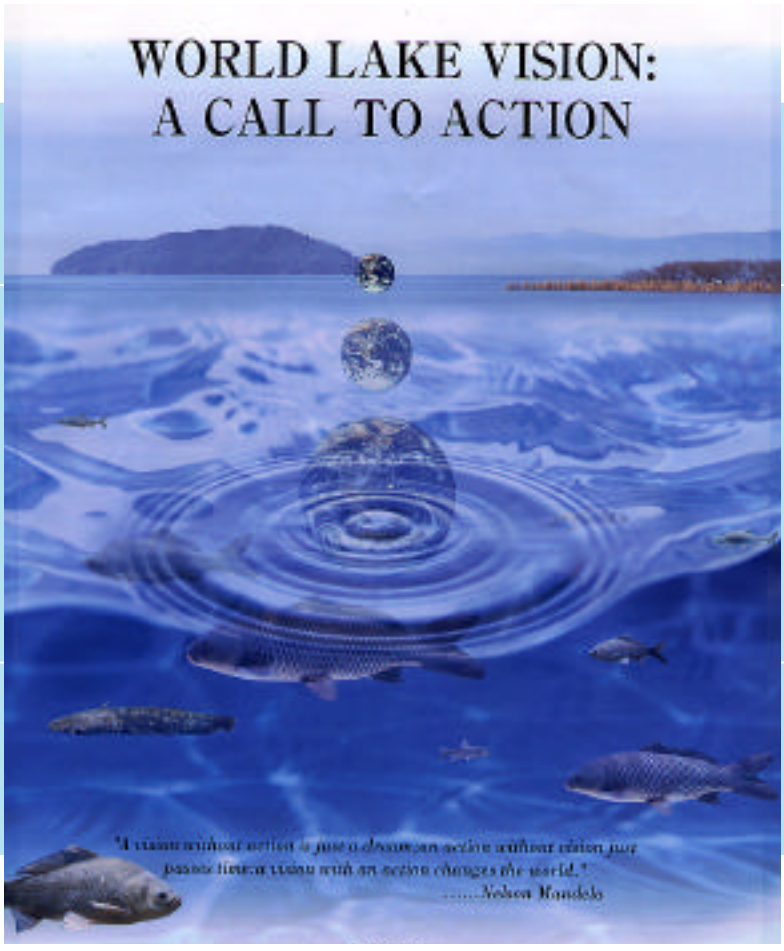
Citizens and other stakeholders must participate meaningfully in identifying and resolving critical lake problems.

Principle 7:

Good governance, based on fairness, transparency and empowerment of all stakeholders, is essential for sustainable lake use.

The World Lake Vision is above all a call to action. The key to the sustainable use of our lakes lies in finding a balance between the water needs of humanity, and the ability of nature to meet these water needs over the long term. This document identifies a wide range of actions and strategies to assist lake communities, decision-makers and others with a stake in lake resources to develop individual lake visions to guide their sustainable use. Indeed, if we are unable to use lakes and their resources in a sustainable manner, there seems little hope that we can achieve this goal for other types of freshwater resources.

This is the latest draft version of the World Lake Vision. After finalisation, the document will be presented at the World Water Forum 3 on Shiga Day - 20-21 March 2003.



3rd World Water Forum:
Details of programs at Shiga Venue

We are happy to announce details of the programs at the Shiga Venue in connection with the 3rd World Water Forum, which is to be held over a period of 8 days between 16-23 March, and in three different locations, namely Shiga, Kyoto and Osaka. (Shiga Day is to be held from March 20 to March 21).

1. Session Meetings

More than 50 session meetings are to be held on the four major topics mentioned below, with a further five sub-sessions dealing with other topics. The venues are Biwako Hall and Otsu Prince Hotel.

(1) 'Integrated Water Resources Management and Basin Management'

(2) 'Water for Peace'

(3) 'Children's World Water Forum'

(4) 'Ministers Meeting on Water, Food and Agriculture'

The following three ILEC-related session meetings will also be held. We very much hope for a strong turnout at these sessions.

'World Lake Vision: A Call to Action' (20/3: 12:30-15:15, Otsu Prince Hotel)

'Strategies & Actions for Implementing the World Lake Vision' (21/3: 8:45-11:30, Otsu Prince Hotel)

'Governors and Chairpersons Meeting for Sustainable Lake Management' (21/3: 5:30-18:15, Otsu Prince Hotel)

If you have not already registered for these sessions, you will need to register at the venue before you can participate in them.

2. Biwako Water Fair / Festival

'The Biwako Water Fair / Festival' is to be held around the venues of the session meetings from 19 to 21 March. At this fair, the results of various activities by NPOs, residents' groups and companies will be exhibited and enjoyable water related evens will also be held. It is free of charge and everyone is welcome to come and have fun. The venues are Shiga Prefectural Gymnasium, Piaza Omi and Nagisa Park.

3. Other relevant programs

On top of the various session meetings and Biwako Water Fair / Festival, some other programs and ceremonies are to be held to further enhance the enjoyment of visitors to Otsu and Shiga Prefecture.

(1) 'Shiga Day Opening Ceremony' (20/3: Lake Biwa Hall)

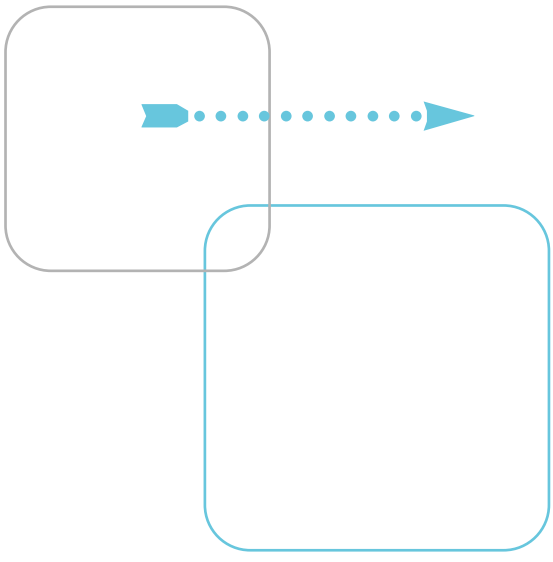
(2) 'Shiga Welcome Reception Party' (20/3: Otsu Prince Hotel)

(3) 'Welcome Concert - Symphony for Youth' (21/3: Lake Biwa Hall)

(4) 'Excursion Program' (Site Visit) (19-22/3: 9 courses)

(5) 'Biwako Water Fair/Festival' - Interchange and Promotion Project (15-23/3: 5 programs)

Moreover, many pre-events are going to be held at different places around Shiga Prefecture before the opening of WWF3. We hope you will have the time to visit and participate in some of these events.



THE NEED FOR BROADER ENVIRONMENTAL MANAGEMENT OF THE LAKE TITICACA BASIN AS A WHOLE

*By Mr. Mario Francisco Revollo

The hydrological basins of Lake Titicaca, the Desaguadero River, Lake Poopo and the Salt Lake of Coipasa constitute a great closed basin shared between the republics of Peru, Bolivia and Chile. This total system, which lies between the coordinates 14°03' and 20°00' south and 66°21' and 71°07' west of Greenwich, is known as the TDPS region. The closed basin system's total surface is 143,900 km^2 and consists of territories of the sub-region of Puno (Peru) and the departments of La Paz and Oruro (Bolivia).

The Desaguadero River connects Lake Titicaca to Lake Poopo. The Laca Jahuira River connects Lake Poopo with Coipasa Salt Lake through a channel 130 km long with a 0.02% slope. Coipasa Salt Lake is connected in high water times to the Salt Lake of Uyuni through the Negrojahuira Channel, about 20 km long. Coipasa Salt Lake has a 60,000 km^2 watershed and an average surface area of 12,000 km^2, with an average altitude of 3,653 meters.

(1) Basin characteristics

Given the TDPS system's high altitude in the Andes Mountains (more than 3,600 m.), the climate is cold at night (8-10°Cyear-round average) and has a moderate climate during the daytime, with annual precipitation that varies from 200 mm in the south to 1,400 mm in the system's north, with the maximum values over Lake Titicaca. The system's main natural threats are climatic and include long, intense droughts, heavy rains and flooding and frequent hailstorms and freezes, all of which cause serious damage to the region's agriculture. Historically, there are records of at least 12 major droughts and 10 floods. During the 1980s these caused roughly $340 million in losses, an average of $34 million per year. The basin's geology is extremely varied, with more than one third (38.6%) being comprised of mountains, another third (33.5%) plains, valleys and depressions, a fifth (19.5%) hills and plateaus of moderate slope and the rest (8.4%) water surfaces

The basin's characteristic ecosystem is the puna, a formation of rigid gramineae grasses and dwarf bushes with coriaceous leaves, forests of *quenoa* (Polylepis) and other trees in the sheltered sectors. The animals most characteristic of these ecosystems are the outstanding bird species, such as condors and flamingos; various camelids, such as llamas, alpacas, vicunas and guanacos; and the world's largest known frog, of the genus *Telmatobius*. There is an impressive richness of animal species, and some are in danger of extinction. In addition, the special conditions created by Lake Titicaca and other highland lakes produce special aquatic vegetation, particularly the *totorales*, or totora reeds, which are of great importance not only ecologically but also economically. The lakes host a great variety of aquatic birds, many migratory, and some native fish that still maintain a certain commercial importance.

(2) Environmental problems in the basin

Intensive exploitation of the natural resources in the area has produced a general degradation of biological resources and the soil, with the exception of some areas of particularly difficult climatic conditions, where remnants of the native flora and fauna have managed to survive. Unsustainable use of resources has resulted in deforestation, extensive erosion, river sedimentation, soil salinization, silting up of lakes and imbalances in watersheds, all contributing to extreme variations in water flows. In addition, lakes and rivers in the TDPS system have been polluted by chemicals from unsustainable and unregulated mining and from foundries producing metals for international exports. Finally, growing urban centers have added pollution due to inadequate sewage systems. In addition to harming the flora and fauna of the area, unsustainable natural resource exploitation in the Lake Titicaca system has significantly impacted the basin's human settlements and the economy.

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*Director Boliviano de la Autoridad Binacional Autonoma del Lago Titicaca (ALT)

(3) Impacts of unsustainable resource exploition on TDPS Basin natural system

Basin soils are being significantly degraded by:

Erosion

67.5% of the soils are affected by moderate to severe erosion. Of these, 39,377 km² (29.9% of the basin's lands) show severe to very severe erosion. Only 4,249 km² of soil have protective vegetation, whereas 57,247 km² should be so protected (excluding the salt lakes).

Salinization

Some 3,449 km², or 2.4% of the basin's soils are classified as saline. Open pit mining uncovers earth rich in mineral salts, which are then carried away by rainwater, contributing significantly to the salinization of the Desaguadero and Poopo and Uru Uru lakes.

Low technological level of the local agriculture

About 46,455 km² (35.3%) of the soils are used for forage and crops for which the soils are inadequate. Soil productivity is also declining due to both primitive agricultural methods and improper use of agrochemicals.

Water quality is being significantly degraded due to:

Organic and bacteriological pollution from urban sewage

Although this is not yet a major problem, there are localized spots where control and restoration measures are needed, particularly in Puno Bay of Lake Titicaca, the Coata River, Lake Uru Uru, and the Seco River, due to wastes from the cities of Puno, Juliaca, Oruro and El Alto, respectively. Pollution of rivers and other water sources limit their uses by humans for drinking water, irrigation or fishing.

Chemical pollution caused by mining and metallurgic industries

Where practiced, mining is the principal cause of environmental degradation. Acidic waters, tailings and cleared material and the effluents from flotation-method concentration plants are highly toxic for aquatic flora and fauna. Lakes Poopo and Uru Uru and the lower part of the Desaguadero River show high concentrations of heavy metals, including cadmium, lead, nickel, cobalt, chromium, tin and arsenic. Metals are found in concentrations higher than permissible limits for human consumption in Lakes Poopo and Uru Uru.

Biological resources, which are deteriorating and in turn disrupting the economy include:

Natural grasslands

Productivity and the state of native flora are declining due to excessive

Titicaca reed

Marshland

demands per hectare of the grasslands, particularly by introduced cattle and sheep. Both the grassland biomass and the natural load capacity are reduced. As a result, animals are thin and underweight and have low levels of meat and milk production.

Plant communities harvested for firewood

21% of the tolars have been thinned or reduced in density for firewood. At present, firewood plants cover only 2.3% of the basin and only 0.7% is made up of forests, which are being over exploited for firewood and construction.

Aquatic vegetation

The area covered by totorales (totora reeds) shrank from 59,132 Ha in 1970 to 40,056 Ha in 1992.

Fish species and communities

Lake Titicaca's native fish species are now in marked decline due to uncontrolled fishing and depredation from introduced species. Fish markets, especially those from the lakes in the basin's south (Poopo and Uru Uru), are weakening due to heavy metal concentrations that may threaten human health.

Other species and genetic reserves

Only traces remain of many Andean flora species which were abundant in the past. At least five species of fauna are rapidly becoming extinct and another 12 are in danger.

Air quality is being degraded by:

Removal and crushing of minerals

The removal and crushing of minerals is also the principal artificial source of air pollution, caused by dust and other suspended particles. The area's semiarid climate and strong winds, particularly around Oruro, magnify the impact of this pollution.

Metal foundries

Metal foundries produce great volumes of sulfur dioxide and arsenic and lead dusts whose effects on the population can be very damaging. Oruro's high rate of birth defects may be linked to the area's many types of mining and industrial pollution. The cement plants of Viacha (Bolivia) and Juliaca (Peru) are important sources of dust pollution.

(4) Management structure and the master plan

The Binational Autonomous Authority of Lake Titicaca (ALT), created by the governments of Bolivia and Peru, set to work in 1996. Its main objective is to promote and conduct action programs that protect the water resources and environment of the TDPS System. A Master Plan contains the basic outlines of coordinated programs to protect the lakes and their tributaries up and down stream. The Master Plan contemplates the following actions: hydraulic regulation and irrigation projects, environmental impact studies, drainage systems studies, sustainable agricultural projects; reforestation initiatives, re-implantation of the totora reedbeds, rationalization of fishing activity, and water decontamination. The Master Plan lays out the need to analyze vegetation coverage; erosion rates and causes, water table levels, water quality and Lake Titicaca biomass. Finally, the Master Plan also proposes a study to evaluate the creation of a Binational Reserve Park in the Desaguadero River area to protect local biodiversity and work to build the capacity of the local population to manage their resources sustainably.

(5) Reaching beyond the watershed

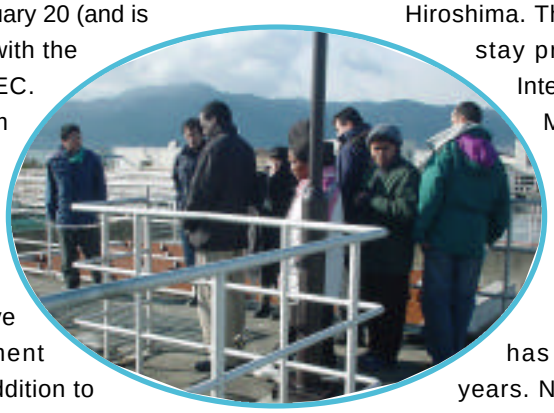
The Binational Authority is just completing the building of regulation gates at the beginning of the Desaguadero River and the dredging of the river, with resources provided by the two governments. In addition, the Authority is working in concert with international organizations such as the EU, OAS, UNDP, GEF and the Swiss Cooperation Agency to carry out a number of small projects on issues such as identifying zones for restricted uses, promoting sustainable agriculture, and protecting water and soil quality. The Authority also serves as the South American representative on the Steering Committee of LakeNet, a global network of over 800 organizations and individuals working to protect lakes. Sharing experience with other lake managers is valuable for problem solving, learning about new and promising approaches, avoiding pitfalls, and promoting lake protection at the global level. Threats to lakes such as the atmospheric deposition of toxics and global climate change need to be addressed beyond any one country's borders. The Authority plans to work with LakeNet to establish a South American network of organizations and people working to protect lakes in South America.

(6) Conclusion

Given the geographic extent of the basin, (143,900km^2), integrated plans for managing both the environment and a growing economy are desperately needed to improve both the quality of the basin and the economic situation of the people living in it. The Authority will need substantial additional funding to implement needed projects to effectively meet the many challenges it faces. The Binational Authority and its partners worldwide face enormous challenges and resources are scarce.

13th Group Training Course in Lake Water Quality Management

The two-month-long 13th Group Training Course in Lake Water Quality Management, one of JICA's group training courses, started from January 20 (and is scheduled to end on March 21) with the participation of 9 trainees at ILEC. Course participants come from Algeria, Brazil, Colombia, Mexico, Nicaragua, Philippine, Tanzania and Zimbabwe.



The aim of this course is for participants to gain comprehensive lake-water-quality management techniques and knowledge. In addition to lectures on various subjects at ILEC, the course includes training on water quality analysis and analytical instruments. The trainees also visited plants and facilities such as water treatment and sewage treatment plants, and attended lectures and site visits in Tokyo and Hiroshima. They also participated in a home-stay program set up by the Kusatsu Inter-people Friendship Association. Moreover, they will also be participating in the World Water Forum 3, so this year the schedule is somewhat fuller than in previous years.

The weather in Japan this winter has been colder than in previous years. Nevertheless, the trainees have worked hard and enjoyed the course. We will carry an article by one of the trainees in the next Newsletter.

The 52nd meeting of the Board of Directors of ILEC

The 52nd meeting of the Board of Directors was held at ILEC offices on 3 December, 2002. Items on the agenda included the amendment of the current fiscal year's activities plan and budget, and the re-election of the members of the council. One big amendment of the current activities was 'Lake Basin Management Initiative: A GEF Project'. Mr. Hamada was elected as the new council member to assume Mr. Goshi's position. All of the items on the agenda were approved unanimously.

The 47th meeting of the Council of ILEC

The 47th meeting of the Council of ILEC was held at ILEC offices on 12 December, 2002. The items on the agenda mirrored fairly closely those of the Board of Directors meeting, including matters dealing with the plan of activities and budget, and the re-election of members. The meeting spent a considerable amount of time discussing the 'Lake Basin Management Initiative'. Mr. Matsushita was elected as a new director member. All of the items on the agenda were approved unanimously.

ILEC

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--Secretariat--

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