



NEWSLETTER

– Save Water, Save Lakes –

International Lake Environment Committee Foundation

This newsletter is also available in Japanese.

Message from Director General

The International Lake Environment Committee Foundation (ILEC) was established by the Shiga Prefecture in 1986, following the Shiga Conference on Conservation and Management of World Lake Environment of 1984, which was held in Otsu, Japan. The Shiga Conference was the event at which then Executive Director M. K. Tolba of the United Nations Environment Program (UNEP) proposed the establishment of an international committee to realize the trans-generational succession of the Conference and to help the world develop a rational management plans for lakes and their catchment basins.

Since that time, in order to promote environmentally sound management of the world's lakes, ILEC, in cooperation with international and domestic organizations, has been engaged in research activities (e.g., preparation of the World Lake Database, Guidelines of Lake Management Series, and World Lake Vision) and capacity building activities (e.g., environmental education and JICA training courses), and above all, continuation of the World Lake Conferences which inherited the legacy of the Shiga Conference '84.

Many of the environmental conditions of the world lakes and their basins

continue to deteriorate, due to over-exploitation by humans and accelerating global warming. Because of their characteristics, lakes and their basins are water systems that are highly difficult to manage, thus requiring specific consideration. Furthermore, it is no exaggeration to say that sustainable management of lake basins provides a solid foundation to ensure sound management of all water systems. Indeed, it is time that the importance of lakes should be recognized once again on a global basis.

Based on this belief, in recent years ILEC has been promoting Integrated Lake Basin Management (ILBM) globally. ILBM is a concept that assists both government agencies and stakeholder groups, requiring them to understand and appreciate the characteristics of lakes in regard to achieving sustainable management of ecosystem services through long-term commitment to improve lake basin governance.

To further promote this ILBM concept, ILEC also has developed a practical framework, the ILBM Platform, a process whereby all stakeholders are involved in gradually addressing lake basin governance issues. The Platform Process has been established, and even included in



national water management plans and strategies in some major lake basins in developing countries.

Finally, we would like to extend our sincere gratitude to our partners and collaborators for your longstanding support for our Foundation. With our activities having become widely recognized, the Japanese Government designated ILEC as a Public Interest Incorporated Foundation. With this fresh start, ILEC will continue its long-term international commitment for lake environment conservation. Once again, we thank you very much for your continuing support and look forward to our future collaborative activities.

Hironori HAMANAKA

Director General
International Lake Environment
Committee Foundation

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ILBM Platform Process Is Growing - Part II

Integrated Lake Basin Management (ILBM) and its Platform process are being promoted around the world (Fig. 1). As a sequel to the cover article of the previous issue (No. 56), where we introduced you to the ILBM-based activities in 1) the Philippines and 2) Malaysia, this issue features the cases from Nepal and India. In these two countries, ILBM is beginning to take a central role in guiding not only basin community activities, but also national government policies.

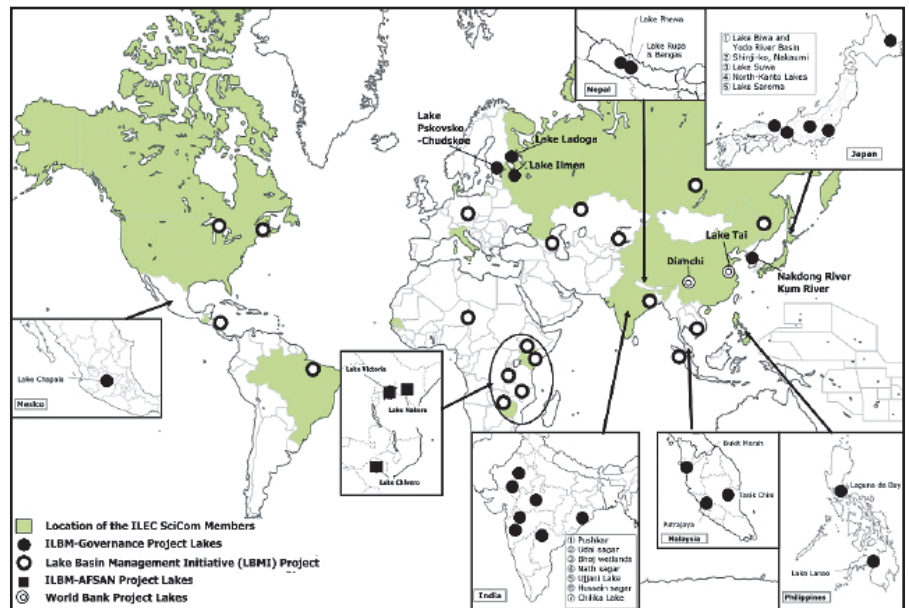


Figure 1: ILBM-related Case Study Lake Locations

3) Nepal

The Nepalese Government established the National Lake Conservation Development Committee (NLCDC) in 2006 within the Ministry of Culture, Tourism and Civil Aviation. The Committee undertook a national survey, identifying nearly 5,400 lakes located in the low and high altitude regions. These lakes serve various purposes for the riparian communities as their vital sources of water and related livelihood possibilities. They also support tourism, playing a key role in the biodiversity conservation in the Himalayan environment.

In December 2008, ILEC conducted an ILBM consultative visit to Lake Phewa, Rupa, and Begnas in Nepal. In March 2010, NLCDC organized a Nepali National Workshop on ILBM in Katmandu and Pokhara in collaboration with ILEC, Ministry of Environment, Nepal and other governmental / international agencies in Nepal. The momentum generated through the initial round of activities is being

expanded to lakes in the high mountains, the mid-hill regions and in the Tarai districts (the wetland areas at the lowest outer foothills of the Himalaya). During the study period, individual Lake Briefs were prepared for Lake Phewa, Rupa and Begnas in the Pokhara Region. In August 2012, two NLCDC representatives visited ILEC and Shiga University, Japan, to discuss the Nepal National Lake Strategic Plan, focusing on biodiversity in the Himalayan alpine lakes. Currently, NLCDC is making efforts to bring their own committee together with the National Wetlands Committee (NWC) to strengthen information-oriented ILBM activities.

4) India

Impounded (lentic) water systems in India, numbering more than one million, can be categorized into natural lakes, reservoirs, ponds, temple tanks, step wells (wells in which the water can be reached by descending a set of

steps) and wetlands. All are relatively shallow and small in size. The proportion of manmade water bodies is much larger than that of natural water bodies. They have historically been subjected to three major causes of resource degradation as follows: (a) due to urbanization, a number of smaller lakes have been reclaimed, drastically reducing the water body morphology; (b) water pollution caused by sewage, nutrient-rich agricultural runoff, and toxic industrial effluents resulted in lost productivity and quality use in such sectors as fisheries, dairy, and recreational activities, and (c) a variety of socio-economic, political and religious factors lead to failure of sustainable management.

The Lake Briefs have been prepared for : (1) the reservoirs located in rivers (i.e., Ujjani Reservoir on the Upper Bhima River, a tributary of the Krishna River; Lake Bhopal or Bhoj Wetland on the Kolans River, a tributary of the Halai River); (2) the impoundments

based on topography (Lake Hussainsagar in Hyderabad; lake Anasagar in Ajmer); (3) temple tanks (Lake Pushkar); and (4) downstream reservoirs of urban areas (Lake Udaisagar and related lakes in Udaipur). An ILBM workshop in India was first convened in August 2008 in collaboration with the Indian Association of Aquatic Biologists (IAAB) for Lake Hussainsagar and Ujjani Reservoir. In August 2009, consultative visits and workshops were conducted in Udaipur, Bhopal and

Pushkar.

In India, the ILBM Platform activities have sprouted out and have been actively pursued in most of the above lake basins, in connection with local traditions, religions and community-based initiatives, presenting a showcase of ILBM Heartware (i.e., soul, culture and memories) activities, typically represented by Jal Dindi, or a water pilgrimage in Pune. In July 2011, supported by ILEC, some African members addressing water and

sanitation issues through ILBM approach visited Ujjani Reservoir (Pune) to learn lessons from their Indian ILBM partners. In February 2013, the first Indian National Workshop on ILBM was co-organized by Chilika Development Authority (CDA), and ILEC in Bhubaneswar, Orissa, India, inviting Environment Minister of the Orissa State Government. ILBM is expected to play a leading role in the National Lake Conservation Plan of India.

Merits of the ILBM Platform Process

As introduced in the previous issue (No. 56), the first step of the ILBM Platform process is to acknowledge the state of their lake basin management by making a Lake Brief, or a collective action report. Guidelines for Lake Brief Preparation (www.ilec.or.jp/en/pubs/p2/lake_brief), published by ILEC, is to help basin communities prepare their own lake briefs. Table 1 shows a general outline of the report, along which the stakeholders can systematically raise appropriate questions for corrective actions.

Table 1: General Outline of a Lake Brief

1. Introduction
2. Description of the Lake (supplemented by Annex 1)
3. Management of the Lake and Its Basin
4. Major “Impact Stories” of the Lake
5. Major Lake Basin Governance Issues
(supplemented by Annex 2)
6. Key Challenges to Lake Governance
(supplemented by Annex 2)
7. References

In particular, these two questionnaires or check lists (Annex 1 & 2, as attached at the end of the guideline) are very useful: one is for data and information on biophysical and managerial issues facing the lake basin (Annex 1) and the other, based on the ILBM Six Pillars (Institution, Policy, Participation, Technology, Information, Finance), is for governance issues facing the lake basin (Annex 2). With its

following merits (Table 2) being identified, the ILBM Platform process is currently growing around the world.

Table 2: Identified Merits of the ILBM Platform Process

- 1. Non-prescriptive design:** The non-prescriptive and flexible narratives of the lake brief allow the basin community’s values, in terms of socio-cultural and historic backgrounds, to be properly reflected in the ILBM Platform process.
- 2. Updating of information:** The periodic revision of Lake Briefs also helps update the issues and prepares the stakeholders to meet new challenges.
- 3. Joint preparation:** The joint preparation of a Lake Brief helps clarify specific needs, challenges, and approaches for productively addressing important lake basin government issues.
- 4. Wide range of issues without prejudice:** The Lake Brief design and the ILBM Platform concept accommodate a wide range of views from stakeholders and individuals without undue prejudice or prerogatives.
- 5. Fostering of common vision:** The ILBM Platform provides a basis for sharing a common vision and for resolving differences in ideas.

Lakes of the World

Lake Rara: The Himalayan Lake Treasure of Nepal

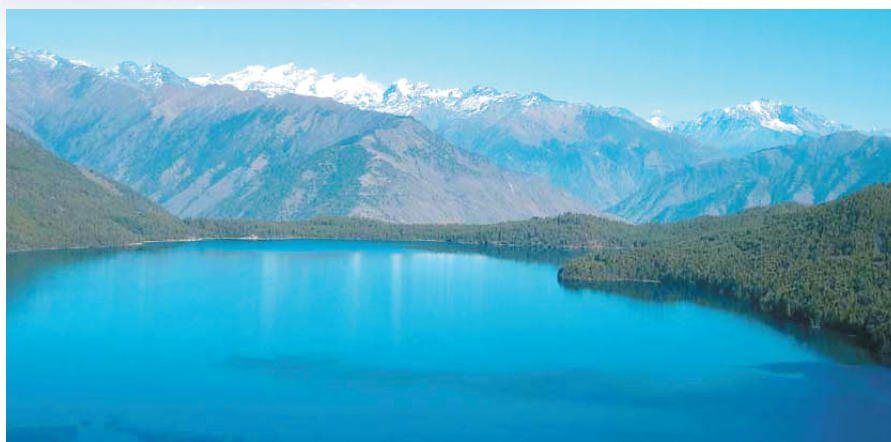
Shailendra Pokharel¹

“Standing as a large deep body of water, there is nothing remotely to compare with Rara in any other proposed conservation area in Nepal” - Melvin Boltin made a note while doing ecological survey in 1976. Now, Rara as the largest Himalayan lake of Nepal occupying a core freshwater body of 10.8 km² at the heart of Rara National Park (RNP) lends its name to the park in 1976. It has been designated as one of the Ramsar sites and also the natural heritages of Nepal. The primary objective of RNP is to protect Rara in recognizing it as the Himalayan lake treasure of Nepal.

Rara lies at an elevation of 2,990 m in Mugu district of Nepal (Karnali Zone: Midwestern Region). It is oval in shape with maximum length of 5 km, width of 3 km and depth of 167 m. There is no perennial inflow except the runoff from the surrounding hills and some streams. The Nijar Khola is the only outflow eventually draining into Mugu Karnali River - one of the tributaries of the trans-boundary Karnali River.

The climate at Rara is as common as to the Himalaya i.e., dry winter and wet monsoonal summer. Winter is severe from December to April. The monsoon is short (July to October). Average annual temperature is over 11°C and rainfall is about 800 mm. With modest facilities, Rara has full potential to attract all seasons / types of visitors.

Basin of Lake Rana is enriched with 1,024 plant species with 4 types of vegetation like blue pine up to 3,200 m often dominated by blue pine (*Pinus wallichiana*), rhododendron (*Rhododendron arboretum*), black juniper (*Juniperus wallichiana*), west Himalayan spruce (*Picea smithiana*), oak (*Quercus semecarpifolia*) and Himalayan cypress (*Cupressus torulosa*); fir (3,200 - 3,600 m) with fir (*Abies spectabilis*) and *Quercus semecarpifolia*; birch-rhododendron (above 3,600 m) often with birch (*Betula utilis*) and dwarf rhododendron



Lake Rara

(*Rhododendron companulatum*); and alpine meadows above the tree-line with alpine scrub (*Juniperus indica*, *Juniperus lindleyana*) and grasses (*Aletris pauciflora*, *Carex atrofusca*, *Juncus himalaensis*, *Kobresia duthiei*, *Parnacia nubicola* and *Polygonum* sp.). Further, the basin environment is wonderful destination for NTFPs and herbal plants.

51 mammals species, 214 species of birds, 3 species of fish, 1 species of amphibian (*Rana rara*) and one species of herpetofauna (*Amphisma platyceps*) are enumerated from the basin which is ideal for endangered musk deer (*Moschus chrysogaster*), Himalayan black bear (*Ursus selenarctos thibetanus*), leopard (*Panthera pardus*), red panda (*Ailurus fulgens*). The basin is an important halting station for migratory waterfowls across the Himalayas. Coots (*Fulica atra*) are plentiful; some time throughout the year. Great-created grebe (*Podiceps nigricollis*), red-crested pochard (*Netta ragina*), mergus merganser and gulls (*Larus* sp.) are among winter visitors. The lake is a home for 3 endemic species of fish such as Schizothorax macrophthalmus, *S. nepalensis* and *S. raraensis*.

Basin of Rara has not been delineated yet, though it extends over Mugu and Jumla districts. Surrounded by snow-clad mountains, deepened amidst dense forest, pranked by diverse

wildlife and intense beauty; such Himalayan lake treasure has not been yet reflected into the livelihoods of people living in the basin. Very nominal of >11,000 people live in buffer zone of the park - which virtually is also the population of the basin - are living with extreme misery, wretchedness and hunger. Some resources - both government and non-government - have annual landing to Rara, but their return at the end often noticed either silence or very nominal.

ILBM Platform is a dynamic and evolving management practice providing opportunity to all stakeholders such as communities, managers, politicians, decision makers and scientists to feel lake as resource that has strength to regulate environment, and also to pay for prosperity to all; at the same time. National Lake Conservation Development Committee - a formal government institution in Nepal for lakes - should look over the silence of Rara at present, and make it very vibrant through ILBM platform process gradually. Lake harmony is next to change livelihood harmony, and Himalayan lake Rara has comparative advantage for it ... it does not need additional cost for natural recovery, what we need is to explore prosperous dimension of the lake following ILBM Platform process.

¹ Dr. Pokharel is the President of Conservation Development Foundation (CODEFUND) Nepal. Contact: shailendrapokharel@gmail.com

Note: This article is based on a management plan of Lake Rara.

Ecosystem Health Assessment Report Card for Chilika Lake

Ajit Kumar Pattnaik (India)

Chilika is the largest wetland along the east coast of India, situated between latitude 19° 28' and 19° 54' N and longitude 85° 05' and 85° 38' E is a designated Ramsar site. This unique ecosystem is known for its amazing biodiversity and is wintering ground for more than one million migratory birds. The highly productive lake ecosystem with its rich fishery resources sustains the livelihood of more than 0.2 million-fisher folk who live in and around the lake. The spatial and temporal salinity gradients resulting from the freshwater flow from the drainage basin and the seawater influx; leads to the unique characteristics of an estuarine eco-system, exercising a continuous and selective influence on its biota. The hydrological alterations resulted in change in its ecological characters and it was added to the list the Montreux Record (the list of threatened Ramsar sites) in 1993. Chilika Development Authority (CDA) initiated the restoration process and after the successful hydrological interventions in 2000, there have been significant improvement of the lake ecosystem and it was removed from the Montreux Record in 2002 by Ramsar Secretariat.

Considering the sensitive lake ecosystem, a close monitoring of the lake is being carried out by CDA to assess the impact of various management interventions. To make the monitoring more robust, buoy mounted sensors are deployed at ten strategic locations to monitor the lake water quality on real time basis at fifteen minutes interval. For wider dissemination of the outcome of the monitoring process and stakeholder engagement, the “Ecosystem Health Report Card” is being adopted by CDA.

The Ecosystem Health Report Card provides the scientific information in clear and simple languages as well as graphics which serves as a basis for better understanding of the health of the ecosystem and also provides opportunities to evaluate the impacts of management actions that are pursued to reach the desired goal. It is

effective means of tracking and reporting the health of a wetland at both local and regional scales. It would also provide a transparent, timely and regionally detailed integrated ecosystem health assessment by setting the ecological thresholds for the Chilika system based on the review of published scientific literature and technical reports.

CDA, in collaboration with the National Centre for Sustainable Coastal Management (NCSCM) and Maryland University, USA, develops an integrated ecosystem health assessment for Chilika Lake and its basin using the identified reporting indicators to create a ranking valuation scheme to compare ecosystem health assessments both geographically and over time.

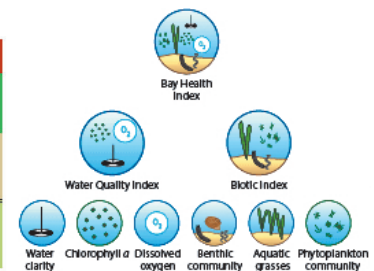
Different ecosystem indices; both physico-chemical and biological parameters are being combined together to create an ecosystem health index. Scientific representation of ecosystem health indexes with spatially explicit maps would be readily understandable by policy-makers, scientists, and most importantly would ensure local-

level stakeholder engagement.

For Chilika Lake, the ecosystem health would be a synthesis of three water quality indicators (Chl-a, DO, water clarity) and three biotic indicators (seagrass, phytoplankton and benthic community). Each parameter is compared with scientifically derived ecological thresholds. The six indicators are combined into one overarching Ecosystem Health Index, which can be presented as the report card score.

The Chilika Lake Ecosystem Health Report Card is unique in the sense that it provides a geographically detailed and integrated approach to form numerical rankings of four reporting regions (Northern, Southern, Central and outer channel) on an annual basis. This approach compliments those focusing on assessment over longer time frames. The geographic detail provided in the report card reflects the complexity of Chilika Lake and its tributaries, and provides information that can help guide and focus on restoration efforts. It is proposed to replicate this in other wetlands and in Laguna de Bay.

Water Quality	Habitat & Lower Foodweb
Dissolved Oxygen	Submerged Aquatic Vegetation (SAV)
Water Clarity (Secchi Disc)	Phytoplankton-Index of Biotic Integrity (P-IBI)
Chlorophyll a	Benthic-Index of Biotic Integrity (B-IBI)



Ecosystem Health Index



Chief Minister of Orissa Being Briefed on the Ecosystem Health Report Card & ILBM (Feb. 6, 2013)

A Report from a Former JICA Trainee

Manuel Guerrero Hernández, M.Sc. (Costa Rica)



Mr. Manuel Guerrero Hernández

Mr. Manuel Guerrero Hernández participated in the Environmental Education Focused on Fresh Water Environment Course commissioned by Japan International Cooperation Agency (JICA) in 2009. Mr. Guerrero is a biologist who has been working for FUNDECOR (a Costa Rican NGO established in 1989) as a coordinator of the Environmental Education Program for twelve years. In this particular year (2013), he has been in charge of implementing water projects in the Foundation. Two of them have special relevance to what he learned from the JICA training course.

GAM Water Trust Found

This project is a public-private initiative that involves the Costa Rican Government, private companies, NGOs, several social actors, and communities. It has been established in the Costa Rica Metropolitan Area (GAM, due to its Spanish name) which supports 54% of the country's population (2,500,000 habitants). Specifically designed for the "Río Virilla" and the "Río Grande" basins, the project has been possible thanks to the donation of \$200,000 from the CRUSA Foundation as the seed investment for the Trust Found. The main goal is to establish a base line diagnosis using GIS and community consultant as primary tools. The creation of an investment portfolio is the final objective, and the target is to identify the principal areas, which have both environmental and ecosystem services.

By using different initiatives, it would be possible to conserve both of the rivers and to create good environmental practices that could serve as mind changers for the habitants of this area. A promotion group has been formed for the

project of some strategic institutions that have their activities in the influence area. This group will become the main board in charge of approving the specific actions to improve and maintain the health of the basins and to assure a better life quality for the people live in the GAM.



A Water Quality Workshop with Macro Invertebrates in Sarapiquí, Costa Rica

Pococi-Guácimo Aquifer Valorization Project

This two-year-project has its main objective to work with two communities in environmental education. An environmental mural contest among the twelve high schools already selected from the area will be organized each year. Participating schools will be asked to paint a maximum of two murals,

representing the great value of the aquifer. This is a valuable technique to show all school communities the importance of protecting these areas. The project will also involve police officers from these two Cantons. A series of workshops on their role in the aquifer protection will be conducted, where participants learn the law, protected areas management, and how to measure the river water quality of the region.

* For more information: www.fundecor.org



A Lecture about How to Implement the "Carbon-Neutral" Framework the Ministry of Public Education (MEP)



A Lecture about the Anthropogenic Influence on the Water Quality of the Sarapiquí River Basin, in the Universidad Nacional (UNA), Costa Rica



Scientific Journal of ILEC *Lakes & Reservoirs: Research and Management*

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Overview of ILEC Activities (October 2012 - March 2013)

2012

October 24-26

Collaboration with Kyoto University's Asian Core Program (ACP):

Scientific Committee Chair Masahisa Nakamura and Assistant Coordinator Yasue Hagihara attended a field trip to Yahagi River basin with Malaysian delegates, (Aichi, Japan). Dr. Nakamura also conducted an ILBM workshop for the delegates. (Shiga, Japan). The delegates were visiting Japan through "ACP: Risk-based Asian Oriented Integrated Watershed Management" (Sponsored by Japan Society for the Promotion of Science - JSPS).



November 7-9

Participation in NALMS 32nd International Symposium

Dr. Nakamura and Scientific Committee Vice-Chair Walter Rast attended the North American Lake Management Society (NALMS)'s 32nd International Symposium, and organized an ILBM session. Mr. Alejandro Juarez (Director General, Corazon de la Tierra, Mexico) who was invited by ILEC presented a Lake Chapala case at the session. During the symposium, posters and publications of ILEC were exhibited (Madison, Wisconsin, USA).

November 22-23

Collaboration with Kyoto University's ACP:

Senior Director Satoru Matsumoto participated in the ACP 2nd Comprehensive Symposium, held as part of "ACP: Risk-based Asian Oriented Integrated Watershed Management", Sponsored by JSPS-Japan (Kuala Lumpur, Malaysia).

December 3-5

WLC15 Consultative Visit

For the Fifteenth World Lake Conference (WLC15, Perugia 2014) preparatory discussion, the ILEC Scientific Committee Members (Drs. Nakamura, Rast and Luigi Naselli-Flores) and Secretariat (Dr. Matsumoto and Ms. Hagihara) visited the local host organization, the Umbria Scientific Meeting Association (USMA), dignitaries of the local universities in Perugia and mayors of the surrounding *comuni* of Lake Trasimeno (Umbria, Italy).



2013

January 15-16

Domestic Workshop on Lake Basin Governance

ILEC collaborated with Shiga University to organize a domestic workshop for governance issues in some Japanese lakes which are not designated by the national law (Shiga, Japan).

January 18 - March 14

8th JICA Training and Dialogue Program

ILEC conducted the Integrated Lake Basin Management for Lake Environment Training Course (Commissioned by Japan International Cooperation Agency) for ten trainees from seven different countries (Argentina, Brazil, Malawi, Myanmar, Morocco, Uganda, and Zimbabwe), including technical staffs and researchers of government agencies and institutions (Shiga and several other prefectures, Japan).



January 20

Rio+20 Wrap-up Symposium

As a presenter and a panelist, Support & Training Division Director Naoya Yamamoto reported ILEC's activities (sponsored by Japan Fund for Global Environment) in Rio+20 (June 2012) at the symposium hosted by Environmental Restoration and Conservation Agency (Osaka, Japan).

February 4-9

1st Indian National Workshop on ILBM & Heartware International Expert Group Meeting

ILEC co-organized the 1st Indian National Workshop on ILBM and Heartware International Expert Group Meeting with Chilika Development Authority (CDA), India. The workshop overviewed ILBM activities in India and discussed problems and issues facing the Indian lake basins, as well as possibilities and opportunities that ILBM can address. On the other hand, the expert group meeting focused on "Heartware", i.e., soul, culture and memoirs, as a new component to enrich the concept of ILBM. From ILEC, Drs. Nakamura, Matsumoto, and Ms. Hagihara presented on the latest ILBM projects, respectively (Orissa, India).



February 27

Director of UNEP-DEWA visits ILEC

Dr. Peter Guilruth, Director of Division of Early Warning and Assessment, UNEP (UNEP-DEWA) visited ILEC to discuss ongoing and expected UNEP-ILEC collaboration projects with ILEC officials including Dr. Nakamura and Secretary General Toshiaki Kagatsume (Shiga, Japan).

March 5-10



ILBM - Heartware International Expert Group Meeting & Symposium

ILEC organized the ILBM - Heartware International Expert Group Meeting and Symposium in collaboration with Research Center for Sustainability and Environment, Shiga University (RCSE-SU), Japan. Following the February Heartware discussions in India, experts from Japan, Asia and USA exchanged their views and opinions on how "Heartware" concept could be adopted into ILBM approach. At the symposium, Governor Yukiko Kada of Shiga Prefecture gave a keynote speech (Shiga, Japan).

ILEC Board Members Reorganized

The new Board Members of ILEC as of April 1, 2013 are as follows:

Trustees

Shinji Ide	Professor, School of Environmental Science, University of Shiga Prefecture
Hideaki Oda	Former Director General, River Bureau, Ministry of Construction
Reiko Nakamura	Secretary General, Ramsar Center Japan
Machiko Nishino	Professor, Biwako Seikei Sport College
Tomoo Kitamura	Former Director General, Department of Lake Biwa and the Environment, Shiga Prefectural Government
Saburo Matsui	Professor Emeritus, Kyoto University
Hiroshi Murata	President, Hiyoshi Corporation

Directors and Auditors

Director General	Hironori Hamanaka	Chair, Board of Directors, Institute for Global Environment Strategies (IGES); Former Vice-Minister for Global Environment, Ministry of the Environment
Deputy Director General	Masahisa Nakamura	Professor, Research Center for Sustainability and Environment, Shiga University
Director	Akio Imai	Deputy Director, Center for Regional Environmental Research, National Institute for Environmental Studies
	Toru Shinohara	Director General, Lake Biwa Museum
	Yoshihisa Shimizu	Professor, Research Center for Environmental Quality Management, Kyoto University
	Satoru Nakashika	Former Director, Environmental Policy Division, Shiga Prefectural Government
	Masako Horikoshi	Professor, Faculty of Home Economics, Kyoto Kacho University

Auditor

Manabu Hishikari	Certified Public Accountant; Licensed Tax Accountant
Takahiro Muraoka	Executive Officer, Kansai Urban Banking Corporation

Advisor

Kei Yamazaki	Former Director General, International Lake Environment Committee Foundation; Former Administrative Vice-Minister, Ministry of the Environment
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11th Term Scientific Committee Comes on Board

The Scientific Committee, comprising a small number of internationally renowned scientists and experts in the field of lake and reservoir management and conservation, is responsible for advancing and implementing scientific matters supporting the aims of ILEC. On April 1, 2013, the 11th term of the Committee commenced, welcoming Dr. Zhengyu Hu from Chinese Academy of Sciences (CAS), who replaced the previous Chinese member Dr. Xiangcan Jin. We would like to express our sincere gratitude to Dr. Jin for his outstanding contribution to ILEC during his twenty-one years of services, including the success of the Thirteenth World Lake Conference held in Wuhan, 2009. The membership for the 11th term is as follows:

The ILEC Scientific Committee 11th Term Members (April 2013 - March 2016)

*Bureau Members

Name	Nationality	Affiliation
Prof. Masahisa NAKAMURA * (Chairperson)	Japan	Research Center for Sustainability and Environment, Shiga University
Prof. Walter RAST * (Vice-Chair person)	USA	International Center for Watershed Studies, Meadows Center for Water and the Environment, Texas State University
Prof. Tsugihiko WATANABE * (Secretary)	Japan	Laboratory of Regional Planning, Graduate School of Global Environmental Studies, Kyoto University
Prof. Nick ALADIN *	Russia	Zoological Institute, Russian Academy of Science
Ms. Adelina SANTOS-BORJA *	Philippines	Department Head, Resource Management and Development Department, Laguna Lake Development Authority
Dr. Richard ROBARTS	Canada	World Water and Climate Foundation
Prof. Sandra AZEVEDO	Brazil	Carlos Chagas Filho Biophysics Institute, Brazil Federal University of Rio de Janeiro
Prof. Luigi NASELLI-FLORES	Italy	Department of Environmental Biology and Biodiversity, University of Palermo
Prof. Daniel OLAGO	Kenya	Institute for Climate Change and Adaptation & Department of Geology, University of Nairobi
MSc. Juan SKINNER	Guatemala	Dept. Research and Environmental Quality, Lake Atitlan Basin Authority
Prof. Salif DIOP	Senegal	The Doctoral School on Water and Environment, Cheikh Anta Diop University
Dr. Ajit PATTNAIK	India	Chilika Development Authority
Dr. Zhengyu HU	China	The Institute of Hydrobiology, Chinese Academy of Sciences

The Fifteenth World Lake Conference (Perugia 2014)

The next World Lake Conference (WLC15) will be held in Perugia, Italy in 2014.

- **Date:** September 1-5, 2014
- **Venue:** Perugia, Umbria, Italy
- **Host:** Umbria Scientific Meeting Association (USMA2007)
- **Co-Host:** International Lake Environment Committee Foundation (ILEC)
- **Theme:** Lakes, the Mirrors of the Earth: Balancing Ecosystem Integrity and Human Wellbeing

● **Targeted Participants:**

Multi-sectoral participation from academia, government (national/local), enterprises, citizens (including NGOs) and international organizations from all over the world is expected.

● **Official Website:**

www.wlc15perugia.com

* Conference details (program, local information, conference registration, etc.) will be available on the website in due course.

* For any clarifications, please contact us at wlc15@ilec.or.jp, or + 81-77-568-4569.



INTERNATIONAL LAKE ENVIRONMENT COMMITTEE FOUNDATION (ILEC)



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*The latest issue and back issues of this newsletter are also available on our website above.