ISSN 0912-7402

No.58: December 2013

NEWSLETTER

– Save Water, Save Lakes –

International Lake Environment Committee Foundation

This newsletter is also available in Japanese.

TICAD V Symposium Accelerating the ILBM Process in Africa

ILEC, in affiliation with the Fifth Tokyo International Conference on African Development (TICAD V), organized "The International Symposium for Integrated Lake Basin Management (ILBM) in Africa: Accelerating the TICAD Process through Sound Management of Lakes and Reservoirs" in Yokohama, Japan, on June 1, 2013. The symposium was funded by Japan Fund for Global Environment.

This symposium aimed to review the achievements of the African Lake Basin Management with Sanitation Challenges project (AFSAN), sponsored by the Ministry of the Environment, Japan and implemented by ILEC to improve water and sanitation conditions in East African lakes from 2009 to 2011, and to discuss the significance and need of promoting the ILBM Platform Process in Africa.

At this symposium, Dr. Madhav Chitale from India, the Stockholm Water Prize Laureate in 1993, gave a keynote speech on how sustainable management of lakes and reservoirs could be globally pursued, using some of the Indian cases as a reference for African lakes. Case presentations on Nyanza Gulf of Lake Victoria (Kenya), Lake Nakuru (Kenya), and Lake Chivero (Zimbabwe) were followed by representative researchers. Each presentation focused on the current situations and issues in their basins, respectively. Finally, a panel discussion was organized by the presenters and invited experts, including a representative from United Nations Environment Programme (UNEP). The panelists actively discussed issues and challenges in African lakes, what needs to be done to promote the sustainable lake basin management in Africa, and how the ILBM can contribute to the process, etc.

IN THIS ISSUE

ILBM Platform Process is Growing - Part Ⅲ

The Integrated Basin Lake Management (ILBM) and its Platform Process are being promoted around the world (Figure 1). As a sequel to the articles from the previous Newsletters (No. 56 & 57) that featured ILBM-based activities in Asia, this issue introduces three lake basins in East Africa, namely, Lake Nakuru, Nyanza Gulf-Lake Victoria (Kenya) and Lake Chivero (Zimbabwe). ILEC conducted a three-year project (2009-2012), known as "AFSAN", commissioned by the Ministry of the Environment, Japan, to introduce the ILBM approach to improve water and sanitation conditions in these basins. On June 1 2013, ILEC organized an international symposium to follow up the AFSAN project in Yokohama, Japan in support of TICAD V.

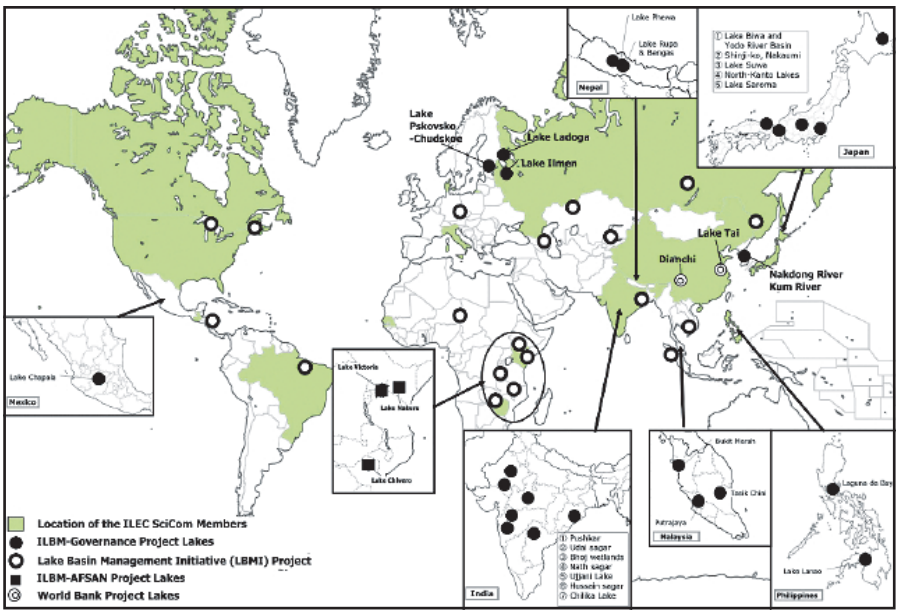

Figure 1. Locations of ILBM Case Studies

1) Lake Nakuru (Kenya)

Lake Nakuru, a closed and shallow alkaline lake, famous for flamingos residing in its basin, is facing a number of issues and challenges. In the last three years, ILEC has been working together with local organizations to promote the ILBM Platform Process to confront these challenges.

After some consultative visits and field visits for the AFSAN project in collaboration with local partners, the Lake Nakuru ILBM Platform Process was formally launched in December 2011. In January 2012, the ILBM steering committee was formalized; Chairman (Kenya Wildlife Service) and the Secretariat (Municipal Council of Nakuru) were also appointed and established, respectively. The committee prepared the initial power point-version of the Lake Nakuru Lake Brief using the ILEC guidelines. Three participatory stakeholder meetings were organized to analyze the Six ILBM Governance Pillars for the Lake Nakuru basin to initiate the Nakuru ILBM Platform Process. Currently, eleven key institutions from governments, NGOs, and CBOs (Community-Based Organizations) are joining together to improve the basin governance through the ILBM Platform Process. The participated members committed to bringing about the results and agreed to meeting and reporting progress bi-annually. They proposed both short-term and long-term actions to meet the challenges: These challenges include 1) siltation of the lake and river sedimentation, 2) poor enforcement of environmental laws, 3) poor solid waste management and urban pollution, 4) sewer blockages/spillage and discharge of untreated factory effluent, and 5) poor sanitation in low income areas.

2) Nyanza Gulf-Lake Victoria (Kenya)

Nyanza Gulf of Lake Victoria is one of the most polluted areas in the Lake Victoria basin because it is a shallow inlet, connected to the main lake only through the narrow Rusinga Channel (three miles wide).

After a field visit and a workshop in Kisumu during the AFSAN project in February 2010, the ILBM Platform Process was initiated with the support of OSIENALA, a local focal point in Nyanza Gulf of Lake Victoria. OSIENALA has brought together the major stakeholders around the Nyanza Gulf, including schools and colleges, relevant parastatals such as KEFRI, KEMFRI, KARI, KFS, local authorities, Lake Basin Development Authority (LBDA), Lake Victoria Environment Management Program (LVEMP), Lake Victoria Basin Commission, relevant ministries and CSOs.

This ILBM team is currently working on a Lake Brief for Nyanza Gulf and implementing the following activities:

1) Community Conservation Projects

LVEP received funding from the World Bank to implement environmental conservation activities. OSIENALA is supporting community conservation projects in the southern shores of Lake Victoria to reduce pollution loads into the lake. The activities include tree planting, riverbank protection and capacity building for soil erosion control by farmers.

2) Integrated Agricultural Practices

In a bid to conserve the fishery resources, OSIENALA in partnership with Oceantec Ltd. (USA) has formed the First Source Kenya to implement this project. The objective is to improve livelihoods in Homa Bay County. The project has four main components, namely, horticulture, fish farming, dairy farming and safe drinking provision.

3) HOPE-LVB Project

HOPE-LVB is a project dealing with human and environmental health along the Lake Victoria basin. In this project, several livelihood activities are implemented to help the community members earn a living while protecting the environment.

3) Lake Chivero (Zimbabwe)

Lake Chivero is the source of drinking water for the cities of Harare and Chitungwiza. The lake is hyper-eutrophic with a high level of nitrogen, phosphorous, and suspended and dissolved solids. As another critical issue, sediments continue to reduce the lake's storage capacity. The reason for this gloomy scenario includes inadequate treatment of sewage and waste water discharged from the cities Harare, Chitungwiza and Ruwa, non-point source pollution, inadequate management of solid waste, and the destruction of natural purification systems.

Possible actions to improve water quality of Lake Chievero were identified in the five year process of establishing the ILBM Platform Process through the collaboration between ILEC and local stakeholder groups. In September 2011, ILEC undertook a field

research in Zimbabwe, and the ILBM Platform Process was established in December 2011. In March 2012, an interim committee coordinated by the University of Zimbabwe was set up and the concept paper was formulated for improving governance of Lake Chivero. In July 2012, Green Bridge – an eco-technological *in-situ* horizontal filtration system – was experimentally installed on the Manyame River by experts from Shrishti Eco-Research Institute (India) and the Zimbabwean ILBM team. As it may take time to fully implement the ILBM Platform Process there, ILEC continues to explore various possibilities to support and encourage local stakeholders to participate in and contribute to the process.

TWAP Global-Scale Transboundary Lake & Reservoir Assessment Initiated by ILEC and Its Partners

The Transboundary Waters Assessment Programme (TWAP) is an international project funded by the Global Environment Facility (GEF) to conduct a global-scale assessment of five major types of transboundary water systems (Lakes, Rivers, Groundwater, Large Marine Ecosystems, and Open Oceans) for the purpose of ranking them in regard to their degree of vulnerability to human impacts. The results of this global assessment will provide the GEF with a means of establishing priorities in regard to the most effective funding allocations within its International Waters portfolio.

After completing an initial medium-size project focusing on the development of assessment methodologies, and in cooperation with the United Nations Environment Programme (UNEP), ILEC initiated a TWAP-FSP (Full-Size Project) to rank transboundary lakes and reservoirs, utilizing a GIS-based spatial and analytical methodology with relevant indicators. This project is being pursued in cooperation with the Research Center for Sustainability and Environment, Shiga University, Japan and the International Center for Watershed Studies, Texas State University, USA.

ILEC has established a Lakes Working Group to undertake the primary lake and reservoir component of TWAP. The Lakes Working Group has made progress in three major activities:

Activity-1: Preparation for assessment of transboundary lake basins

- Delineation of the areal boundaries of approximately 160 GEF-eligible and 50 non-GEF-eligible transboundary lake and reservoir basins, using GIS-based technique, combined with remote sensing data and a digital elevation model;
- Identification of 11 initial indicators to rank the lake and reservoir basins in regard to their vulnerability to human activities. Determining the relative importance of these indicators is a continuing activity being conducted on a sub-continental/regional basis.

Activity-2: Identifying and characterizing sub-continental/regional issues and challenges

- Sub-continental/regional GIS overlay maps, illustrating the hydrologic linkages of the study transboundary lake and reservoir basins to nearby transboundary river basins, groundwater aquifers and large marine ecosystems, have been prepared on a global scale;
- Biodiversity hotspots, land degradation, and land use data also are overlain onto these sub-continental/regional maps, in order to highlight water-related issues and to better characterize each sub-continental/regional area.

Activity-3: Developing an assessment framework and analytical methodology for identifying and assessing global lake and reservoir basin management needs

- Elaboration of a multi-criteria analytical methodology, embodied in the Analytic Hierarchy Process (AHP) assessment framework, for consideration of quantitative and qualitative ranking criteria;
- Development of a comprehensive questionnaire to obtain regional/sub-regional-specific data and information from local experts, and the ILEC Scientific Committee, as a means of augmenting relevant lake and reservoir basin data and filling important data gaps.

General information on the TWAP is available on the TWAP project website (www.geftwap.org), while more detailed information regarding the transboundary lakes and reservoirs component of TWAP is available on the ILEC website (www.ilec.or.jp) and the Meadows Center for Water and the Environment website at Texas State University (icws.meadowscenter.txstate.edu/TWAP.html).

Human Pressures on Coastal and Marine Ecosystems in West and Central Africa

Salif Diop (Senegal)

My present focus and on-going project concern a scientific publication on the overall coastal and marine ecosystems services and benefits and the impacts that can affect them when they are submitted to human and natural pressures (land degradation upstream, sea level rise downstream, salinization and drought impacts phenomena, overexploitation of fisheries resources and mangroves, etc.). The regional focus is on West and Central African estuaries that are indeed home of significant interactions. Strong biological productivity that benefits variety of animal and plant species, specific habitats such as mangroves, sea grass beds and other sand banks explain number of protected areas, parks and other natural reserves that have been created and provide refuge to many endangered species, including most of the migratory birds' flyway of West and Central Africa.

Ecosystem approach has been adopted indicating why if we want to deliver sustainable ecosystems services to respond to human needs in estuarine environment, we have to move into more integration assessment and management of land, water and living resources. Four aspects of the ecosystems approach will clearly be appearing all along this publication. They are related to providing and supplying services, regulating services, supporting services and cultural, recreational and ecotourism services. Indeed, as it appears in several studies and research programs, the overall western and central coasts of Africa, including the main estuaries and deltas, provide series of goods and services to its coastal populations. The most important of them are related to critical fish habitat, wood and charcoal from mangroves as well as space for agriculture, aquaculture, urban development, tourism and transport.

West Africa estuaries in particular when occupied by mangrove ecosystems, play a significant role in terms of ecological functions, flood control, groundwater replenishment, coastline stabilization and protection against storms, retention and export of sediments and nutrients, carbon storage capacity, water purification. Such hydrological and ecological functions explain the various services of mangrove ecosystems within such estuarine environment: they provide benefits to the riparian communities who draw significant income from fishing, rice production, tourism, salt extraction and other resources activities exploitation, including honey harvesting and medicinal plants.

Yet estuaries and other coastal features in West and Central Africa have been experiencing severe decline and degradation for some decades. This is particularly due to a series of drought events, the important climate variability of this area and inter-annual variations and deficits in rainfall that alternate at time with sporadic floods. One of the consequences is that resources are becoming scarce, biodiversity erodes with their negative impacts on local communities and resource dependence is increasing. The adaptive capacities of the local communities – already strained by the financial and technical resources – are

exacerbated by population growth in the coasts. In time of disaster, human and property losses within those estuarine environments are important and deserve particular attention.

With the completion of such first project, I hope that this will constitute a good step that brings together most up-to-date and recent information about selected estuaries and coastal areas, including maps, models, new data and knowledge on recent changes and evolution and their implications in the management of coastal waters of West and Central Africa. The book, once published, will be used as a documentation source for preserving and utilizing the coastal ecosystems and its environment, and be helpful to scientists, foresters, geographers, engineers, government agencies and students dealing with coastal and marine studies and researches.

Professor Salif Diop is a water specialist with extensive experience in various aspects of coastal oceanography, freshwater assessment, aquatic and marine issues, sustainable management, and development. He is a member of the National Academy of Sciences and Techniques of Senegal, the African Academy of Sciences (ASS) and the World Academy of Sciences for the Developing World (TWAS). Currently, he is teaching at the Doctoral School on Water and Environment, Cheikh Anta Diop University, Senegal, after working at UNEP - Division of Early Warning and Assessment (DEWA) as a Senior Officer for nearly fifteen years.

Lakes & Reservoirs
Research and Management
International Lake Environment Committee

Scientific Journal of ILEC
Lakes & Reservoirs: Research and Management

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Volume 18, Issue 2 (June 2013)

A Report from a Former JICA Trainee

Rovshan Abbasov (Azerbaijan)

Dr. Rovshan Abbasov

A participant of the third JICA training course on Integrated Basin Management for Lake Environment organized by ILEC in 2008, Dr. Rovshan Abbasov is currently the head of the Environmental Research Center at Khazar University, the Azerbaijan Republic. The Center is dedicated to providing advanced scientific information for protection, restoration and sustainable use of the Caspian Sea resources. He recently published a new book (available at amazon.com) via Springer Press about his investigations on long-term changes of the Caspian Sea. Here is part of the story from his book about the historic change of the water level of the Caspian Sea.

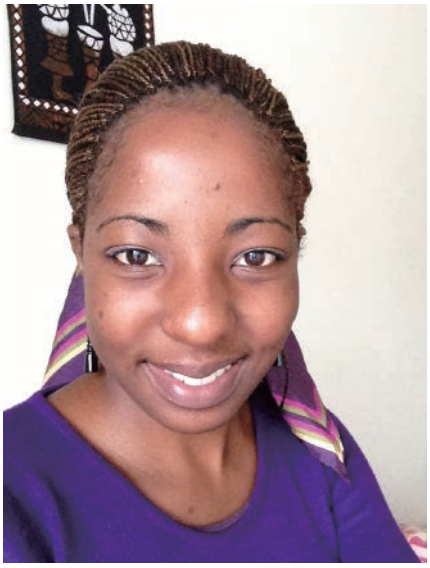
The Caspian Sea is the biggest inland waterbody in the world, located on the Eurasian Continent where the South-Eastern Europe borders Asia. The exploration of rich oil and gas resources has raised the awareness of the importance of the region over the last decades.

Due to climatic oscillations, the Caspian Sea has significant water level fluctuations. Instrumental observations over the Caspian Sea water level were carried out during the period of 1837 to 2010. According to the analysis of these observations, there is a great extent of change in the levels of the sea over the past centuries. Between 1837 and 1931, the sea level fluctuated between -25.5 m and -26.8 m (above sea level). The sea level dropped dramatically by 1.7 m in the next nine years. In 1977, the Caspian Sea reached its lowest recorded level, -29 m, and then started to rise. In 1995, the Caspian Sea level reached its maximum elevation, -26.5 m, that is, a total rise of 2.4 m since 1977.

The time series data in the Caspian Sea water level fluctuations seems to indicate both a long term secular trend and a long range of cyclic fluctuation. Even after removing the long term trend, the residual time series effect still demonstrates cyclic fluctuations. The Caspian Sea case suggests that both the secular long term trend and the long range cyclic fluctuations may exist together in geophysical phenomena. Statistical modeling of the fluctuations of the water level may be performed by combining a long term trend component with a memory component to show inter-relationships between various phases of the time series over a long period of time.

My Internship Experience at ILEC

Nyasha Dumba (Zimbabwe)



Ms. Nyasha Dumba

I carried out my three week internship at ILEC in September 2013. I am a master's student majoring in Water and Waste Management at the Graduate School of Environmental Studies, Nagoya University.

It was a great experience working at ILEC. During my internship, I got to understand why and how ILEC promotes sustainable management of lakes and their basins. As I learnt more about the ILBM concept and the ILBM Platform Process, the relevance of their work dawned on me.

Water is vital for our survival. Lakes in this sense are extremely important storing around ninety percent of the world's accessible freshwater.

The theme of the upcoming Fifteenth World Lake Conference describes lakes as "mirrors of the earth". I understand that the condition of our lakes is a true reflection of human activities. Mirrors do not lie; most of the lakes worldwide showing signs of degradation only reflect our lifestyles.

Zimbabwe is facing deep-rooted challenges in regards to proper lake management. Lake Chivero, the main supplier of water to the capital city, Harare, is highly polluted due to untreated sewage, industrial effluents, agro-chemicals and urban runoff. Lake Chivero is Harare's mirror and in order to change its conditions, we have to act accordingly. I learnt that a management plan is only half the story, the governance aspect is the other half that is often neglected but very crucial.

THANK YOU ILEC FOR THE WONDERFUL OPPORTUNITY.

Overview of ILEC Activities (April - September 2013)

April 7 Delegation from Laguna Lake Development Authority and University of the Philippines visits ILEC 【PIC ❶】

May 10 President of University of Guanajuato visits ILEC

13-16 The Transbounadary Water Assessment Programme (TWAP) - Full Size Project kicks off: Lake Group Inaugural & 1st Expert Group Meeting (Kusatsu) 【PIC ❷】

June 1 TICAD V partnership project: "The International Symposium for ILBM in Africa" (Yokohama)

11 Students from Osaka Kyoiku University visit ILEC

July 8-11 TWAP Southeast/East Asia Expert Seminar & 2nd Expert Group Meeting (Kuala Lumpur / In collaboration with NAHRIM)

13-16 Consultative field visits to Indonesian lake basins (Bogor, Jatiluhur, and Jakarta / In collaboration with LIPI). 【PIC ❸】

August 12 Thai National Mekong Committee Secretariat visits ILEC

September 2-20 A Zimbabwean graduate student from Nagoya University interns at ILEC 【PIC ❹】

4 Members of the Fukushima Prefectural Assembly visit ILEC

6 JICA commissioned training program: "ILBM for Lake Environment" kicks off (Concluded on Nov.1) 【PIC ❺】

12 Students from Ritsumeikan University visit ILEC

13-14 Participation at the 4th International Conference of the SATOYAMA Initiative (Fukui)

16-18 The Fifteenth World Lake Conference Preparatory Meetings and Special Workshops (Rome, Perugia and Castiglione del Lago / In collaboration with USMA) 【PIC ❻】

17 Malawian government officials visit ILEC

19-22 TWAP 3rd Expert Group Meeting focused on the West Africa, North Europe & Mediterranean Sea regions (Perugia)

21-25 Panel exhibition at the Shiga-Biwako Brand Expo (Osaka)


PIC ❶


PIC ❷


PIC ❸


PIC ❹


PIC ❺


PIC ❻

Mr. Hiroya Kotani, former Executive Director of ILEC passed away on May 13, 2013 at the age of 74. Professor Saburo Matsui, a dear colleague and a Member of the ILEC Board of Trustees forwarded the following eulogy.

In Memory of Mr. Hiroya Kotani

Member of ILEC Board of Trustees, Saburo Matsui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It was all too sudden that Mr. Hiroya Kotani passed away. I still cannot get over this loss. Mr. Kotani was a person who genuinely loved Lake Biwa. His eyes were always directed to the natural environment of the lake. Then his thoughts were extended to caring about the environmental protection of the whole Lake Biwa basin, including the agricultural and other industrial activities therein.

Mr. Kotani has played a key role as a leading member of the administrative staff in disseminating information on Lake Biwa and its environmental conservation activities to the world. These included the organization of the First World Lake Conference, which led to the establishment of ILEC, and inviting UNEP's International Environmental Technology Centre to Osaka and Shiga Prefecture.

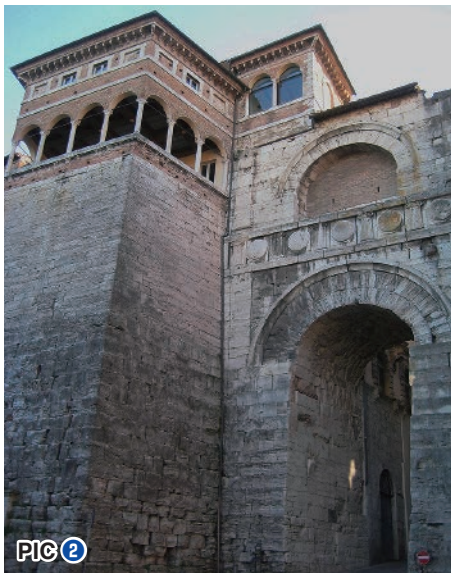
I became involved in Lake Biwa research as a member of the environmental assessment committee of the North-Eastern Lake Biwa Sewage Works Plan in 1982. Then, I started working with him, first as a member of the organizing committee of the First World Lake Conference held in 1984, then as Secretary of the ILEC Scientific Committee in 1987, under the guidance of the Chairperson, the late Dr. Tatsuo Kira. On the occasion of inviting the UNEP Centre to Shiga Prefecture, Mr. Kotani and I went to Nairobi together to participate in the UNEP Governing Council.

It was very informative for me to exchange views and opinions about Lake Biwa with Mr. Kotani because the greater part of my research has targeted Lake Biwa. We will miss a great witness who can tell the environmental history of Lake Biwa. I wish I could have talked more with him about the future of Lake Biwa. May he rest in peace.

Perugia, Italy: The Venue of the Fifteenth World Lake Conference

Somewhere in the middle of bucolic green in the Umbria Region, there stands Perugia (**PIC ❶**). This beautiful hill town has been the center of the region since the ancient times. One of the oldest remains that tells its origin is the Etruscan town walls (**PIC ❷**) built about 2,500 years ago. It is said that the Etruscans settled in the area because of the rich water resource of the region. Other attractions that we cannot miss are the iconic landmark in the main street, Fontana Maggiore (**PIC ❸**) and the thirteenth century aqueduct (**PIC ❹&❺**), now is a promenade, originally built to bring the water up to the fountain located at the higher altitude of the town. Just walking around the old district, you will find medieval wells (**PIC ❻**) and drinking fountains (**PIC ❼**) in every other corner. This historical town of Perugia is hosting the Fifteenth World Lake Conference (WLC15) from September 1 to 5, 2014. We look forward to meeting you there!


PIC ❶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* Please stay tuned and visit the Conference website (www.wlc15perugia.com) for the coming updates!
** The WLC15 First Announcement is available on the above website.

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.