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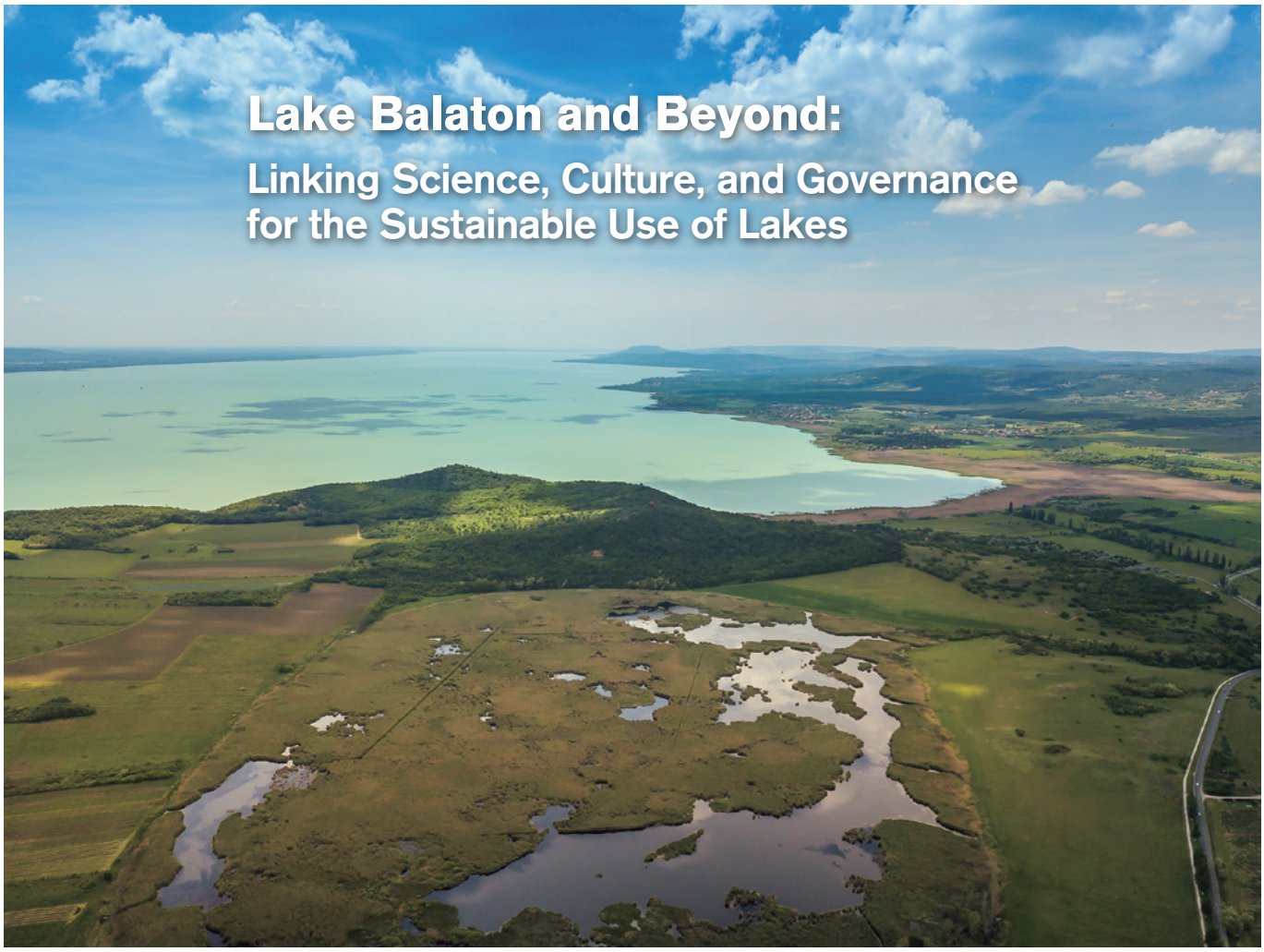
NEWSLETTER

– Save Water, Save Lakes –

International Lake Environment Committee Foundation

This newsletter is also available in Japanese.



Lake Balaton and Beyond:
Linking Science, Culture, and Governance for the Sustainable Use of Lakes

Taking into account the availability of freshwater resources on Earth, we can see how extremely important the lakes are. However, lakes are not simply storage of fresh water. They are complex natural, social and economic systems. From a global perspective, the importance of standing water is mainly due to their utilization as a source of drinking water, but lakes also play outstanding roles in terms of water transport, agriculture or tourism. In addition, besides their economic utilization, we must not forget about their essential role in regard to protecting both aquatic and terrestrial biodiversity.

The 19th World Lake Conference will be organized from November 7th to 9th, 2023 at Lake Balaton, which is the largest freshwater lake in Central Europe. Lake Balaton is one of the most significant natural treasures of Hungary. It is a popular tourism destination due to the pleasant temperature of the lake, the favourable climatic conditions, the variety of beautiful landscapes, and the diversity of cultural-historical assets.

With a surface area of 600 km², 78 km in length, 6.6 km width, and an average depth of 3.2 m, Lake Balaton is one of the shallowest large lakes in the world. Located in the Transdanubian

IN THIS ISSUE

region of West Hungary, the Lake Balaton catchment area, including the lake itself, is 5775 km2. However, Lake Balaton is very vulnerable at the same time mainly due to its very shallow profile and the fact that through heavy reliance on tourism, the socioeconomic consequences of ecological deterioration can be severe and immediate.

Lake Balaton will host the World Lake Conference for the second time. In 1988, the 3rd WLC was organized at Keszthely, while this year Balatonfüred will provide a venue for the event. The conference in 1988 focused mainly on water quality problems, such as eutrophication, acidification, and toxic substances.

Sailing boats on Lake Balaton

Lake Balaton, like many other lakes in the world, has been threatened by eutrophication. The overgrowth of floating microscopic algae (phytoplankton) was mainly due to increased phosphorus loads carried by the Zala River. Trophic levels in the lake increased dramatically in the 1970s. In summer, algal blooms caused by filamentous nitrogen-fixing cyanobacteria (blue-green algae) became regular. The dominant cyanobacteria in Lake Balaton (Cylindrospermopsis raciborskii, Aphanizomenon, and Anabaena species) were potential toxin-producing organisms.

In order to restore the original ecological status of the lake, a large-scale restoration program was initiated in the early 1980s. The main elements of the program included the discharge of wastewater from coastal settlements, the dephosphorization of wastewater, and the construction of the Kis-Balaton Water Protection System. Due to these measures, the external phosphorus load of the lake decreased to about one-third. Consequently, the biomass of planktonic algae has also decreased gradually and significantly.

After successfully solving the major water quality problems by 1995, Lake Balaton had to face newly emerged problems, namely the effects of climate change. A negative water balance which started in 2000 and lasted for 4 years, caused the shallow lake's water level to drastically decrease, severely impacting vegetation, biodiversity, and local livelihoods.

These events highlighted that the region is uniquely vulnerable to various constellations of natural and human-induced changes, particularly as it struggles with other institutional, economic and social challenges as well. However, Lake Balaton is not alone in such kinds of problems. In spite of the fact, that lakes have different geographical features, they have to face many environmental and economic problems in the world.

The common goal is to dedicate more attention to the sustainable management of lakes and to find the balance between the objectives of lake conservation and the objectives of the economic and natural utilization of lakes. In order to ensure the sustainable utilization of lakes, a comprehensive and integrated approach is needed. Therefore, the theme of the 19th World Lake Conference, 'beyond lakes', intends to contribute to achieving this goal.

The conference will focus on the water-related environmental problems of Lake Balaton and other large lakes in the world, and it will introduce modelling and rehabilitation options. However, the conference also aims to present appropriate and effective lake management tools to maintain the ecosystem services provided by lakes. Accordingly, the conference will also be in line with the resolution on Sustainable Lake Management (SLM) adopted by the United Nations Environmental Assembly (UNEA) in March 2022.

Kis-Balaton area

The 19th World Lake Conference will be a forum, where scientists and researchers, lake management experts, policy-makers, government actors, and interested citizens, coming from all over the world, can meet to discuss current and relevant lake management problems and to look for solutions together. In order to learn more about the diversity of lakes worldwide, come to Lake Balaton for the 19th World Lake Conference. More information about the event is available on the conference website: https://www.worldlakeconference-balaton.hu/en

(contributed by Lake Balaton Development Coordination Agency)

Report from a Former JICA Training Participant

Gerta Lubonja (Albania)
General Director
Water Resources Management Agency

The Outstanding Universal Value of Ohrid Lake

Lake Ohrid is the oldest lake in Europe and one of the world's few ancient lakes, such as Lake Baikal in Siberia and Lake Tanganyika in the East African Rift Valley. Formed as a result of tectonic rifting forces that pull east and west, it exists for millions of years in geographical isolation, being home to many endemic species. It provides refuge for numerous endemic and relict freshwater species of flora and fauna dating from the tertiary period. As a deep and ancient lake of tectonic origin, Lake Ohrid has existed continuously for approximately two to three million years. Its oligotrophic waters conserve over 200 species of plants and animals unique to the lake. Some are eagerly sought after, such as the famous Ohrid Trout, while others are hardly noticed, like tiny yet beautiful diatoms and a variety of molluscs and sponges. The Lake Ohrid region is one of the oldest human settlements in Europe. People have been drawn to its dramatic and beautiful setting for thousands of years, for spiritual and religious contemplation, fishing in rich waters, or growing crops in the fertile surrounding soils. Evidence of past settlements can be seen in churches, monasteries and basilicas—in particular around Ohrid and Lin Peninsula. Multiple layers of intangible cultural heritage including songs, dances, cuisine and festivals reflect how the local culture has adapted and continues to enjoy a vibrant life around this enduring lake.

The Lake Ohrid region, a mixed World Heritage property covering circa 95,000 ha, was first inscribed for its nature conservation values in 1979 and for its cultural heritage values a year later. These inscriptions related to the part of the lake located in North Macedonia. The property was extended to include the rest of Lake Ohrid, located in Albania, in 2019.

The immediate catchment area is of 1,129 km2, but the effective catchment extends into the Lake Prespa basin due to an underground karst connection. The phenomenon of groundwater movement from Prespa to Ohrid is internationally recognized and is one of the most interesting natural phenomena. Lake Ohrid is hydrogeologically connected to Lake Prespa, which sits around 150 m higher than Lake Ohrid (depending on water level variations). The hydraulic connection between Lake Prespa and Lake Ohrid, through the karstic massif, makes Lake Prespa its most important source of water, contributing over 40 % of its water. It only takes six hours for the water to travel through the karstic system from Zavir/Zaveri to Tushemisht, which means that any change in the quality of Lake Prespa's waters would also affect - almost immediately - Lake Ohrid.

Groundwater is invisible, but its influence is visible everywhere. Although we do not see it, it is under our feet and is a hidden treasure that enriches our lives. But human activities and climate change are rapidly increasing pressure on groundwater resources.

World Water Day is celebrated every year on March 22 and is a mechanism that serves to increase awareness about the use of water resources. In order to highlight this event, but also due to the fact that UN 2022 theme on World Water Day was making the invisible visible, we organised a boot camp and training activity with high school pupils of Pogradec city. The programme was composed as a simulation of groundwater pollution and water parameters testing afterwards. This "celebration" emphasized the importance of groundwater to human health and the environment. The goal of WRMA (Water Resources Management Agency) is to consider research and data when it comes to groundwater, as well as to enlighten people about the importance of groundwater for the country, as the main source of drinking water in Albania. Educating people, especially youth will help to attract future water professionals, contribute about innovative approaches to maintain groundwater-dependent ecosystems. Knowing how groundwater flows through the subsurface and what factors influence its quantity and quality, was the main objective of this activity.

In spite of all the international and national protection measures, unplanned urban development, inadequate wastewater and solid waste management, habitat alteration, destruction and depletion of natural resources, mining activities, infrastructure development and intensive tourism activities continue to threaten the region's heritage.

A range of serious protection and management issues still require strong and effective action by the riparians. These include the urgent need to protect the water quality of the lake and therefore maintain its oligotrophic ecological function; concerning tourism and associated legal and illegal development and the impacts of development on habitats and species, including on the lake shores. There is also evidence of climate change impacting the whole area, such as through the warming of the lake. These issues also require international attention since they cannot be tackled at local level.

Road to SLM (Sustainable Lake Management)

A resolution on “Sustainable Lake Management” was adopted at the 5th United Nations Environment Assembly (UNEA 5.2) held in Nairobi, Kenya, in March 2022. From the drafting stage of this resolution, ILEC has been working with the Government of Indonesia, the proposing country. This was the first resolution addressing lakes and reservoirs at the international level and became a major step toward mainstreaming lakes in the global water agenda.
In cooperation with the United Nations Environment Programme (UNEP) and relevant government agencies, we have been promoting international cooperation, including human resource development for people involved in lakes around the world. And we will link this growing momentum to discussions at the 19th World Lake Conference (WLC19) to be held in the fall of 2023, as well as to the realization of sustainable lake management around the world.

Sep.

Jan.

FY2022 JICA Knowledge Co-Creation Program
Government officials and a university professor from nine countries (Albania, Bangladesh, Cambodia, Cote d’Ivoire, Nicaragua, Nigeria, Philippines, Bolivia, and Botswana) participated in learning about environmental conservation efforts in Lake Biwa based on the ILLBM concept.

ILEC Autumn International Events
- Scientific Committee General Meeting
- International Symposium 2022
  “Fostering the Value of Lakes for Future Generations”

Oct.

UN 2023 Water Conference
ILEC vice president will speak at a side event on “SLM” to be cohosted by the Indonesian government and UNEP at the UN Headquarters.

Mar.

Oct.

WLC19

2023

Dec.

Technical Cooperation for Improving Lake Water Quality in Indonesia
We were commissioned by the Ministry of the Environment of Japan to undertake the “Technical Cooperation for Improving Lake Water Quality in Indonesia” project jointly with IDEA Consultants, Inc. This project focuses on agricultural land, livestock load, soil runoff, and domestic wastewater treatment to contribute to solving problems.

2022

May.

UNEP-ILEC International Webinar on
“Taking a Major Step Toward Mainstreaming Lakes”
We invited representatives from the Indonesian government, the Japanese Ministry of Environment, UNEP, etc. to the related event to the 4th APWS. The event had 135 participants from 20 countries.

Apr.

4th Asia-Pacific Water Summit (4th APWS)
Government leaders from the Asia-Pacific region attended this event. We exhibited a booth jointly with Shiga Prefecture and called for the mainstreaming lakes.

Mar.

Sustainable Lake Management Resolution
Adopted at UNEA5.2

Jul.

Oct.

PESSVA Project Launched in Collaboration with
the National Water Research Institute of Malaysia (NAHRIM)
With a grant from Japan Fund for Global Environment, the “PESSVA (Participatory Ecosystem Service Shared Value Assessment)” project was implemented for Chendoroh Lake in the state of Perak, Malaysia. The project promotes integrated efforts to use and conserve basin resources by involving various stakeholders, including residents, fishermen, and organizations, in the assessment of the value of target lakes.

Loktak Lake, a Unique Wetland of North-East India

Ajit Kumar Pattnaik
Vice President
Wetlands International, South Asia

Loktak Lake is the largest natural freshwater lake in the northeastern region of India. It represents an extraordinary story of natural antiquity, diversity, beauty and human sentiment. It is considered the lifeline of Manipuri, is deeply embedded in their culture, and plays a vital role in the ecological and economic security of the Manipur state. The lake is oval with a maximum length and width of 26 km and 13 km, respectively. The lake's depth varies between 0.5 to 4.58 m, with an average depth recorded at 2.7 m. There are 14 hills varying in size and elevation, appearing as islands, in the southern part of the lake, transforming it into heaven on earth. The lake is rich in biodiversity and has been designated as a wetland of international importance, i.e. Ramsar site.

Loktak Lake has a unique macrophytic ecosystem called '*Phumdi*' (a Manipuri word meaning floating mats of vegetation). The largest area of the *Phumdi* in Loktak Lake is in the Keibul Lamjao National Park, which is home to Manipur brow-antlered deer (*Rucervus eldi eldi*), a highly endangered and endemic species of the lake. The habitat exclusively consists of floating meadows and an elevated strip of hard ground that dissects the park into northern and southern zones. Loktak Lake has been broadly divided into three zones, viz., northern, central and southern zone, based on the existence of Phumdi, drainage network, open water area and human activity.

The catchment of the lake includes drainage sub-basins of the Manipur River Basin and its associated tributaries up to the Ithai Barrage. The catchment covers an area of 4,947 km2 and constitutes 22% of the total geographic area of the state. The lake has been the water source for hydroelectric power, irrigation, and habitat for several plants used as food, lake fish, fodder, fuel, medicines, biodiversity, recreation, and a host of ecosystem services. Despite this, Loktak is under severe ecological and anthropogenic pressure and is fast degrading. Due to the change in the ecological character, it is included in the Montreux Record* by Ramsar.

Ecosystem services and biodiversity of Loktak Lake complex are under stress due to lopsided developmental planning within the basin. Water resources development projects for flood mitigation, agriculture and hydropower generation have led to the modification of hydrological regimes, seriously impacting the wetlands' ecosystem. The hydrological regime of the lake is drastically altered due to the construction of the Ithai barrage downstream of Loktak in 1984 entailing regulation of lake levels for hydropower generation. The barrage converted a naturally fluctuating water level of the lake into a reservoir leading to inundation of peripheral areas, loss of migratory fisheries, reduction and degradation of national park habitat, decline in water quality and siltation. Rapid growth of population in the hills has led to expansion in areas under shifting cultivation enhancing lake siltation and loss of flood attenuation capacity. High levels of urbanization within the upstream reaches with inadequate sewerage systems have led to the dumping of untreated sewage into the lake, leading to a decline in water quality. Inundation of peripheral areas due to constant water levels forced an occupation shift from traditional agriculture to fisheries-based livelihood systems. Declining resource base with increasing population pressure forced the propagation of harmful fishing practices, ultimately leading to phumdi proliferation and choking of the central sector of the lake. The ultimate effect was the impoverishment of livelihoods and the enhancement of poverty within wetland communities.

The process of development and implementation of restoration plans for Loktak Lake needs to be accompanied by governance improvements at the basin level. Such an approach underpins the Integrated Lake Basin Management (ILBM) framework which calls for achieving sustainable management of lakes through gradual, continuous and holistic improvement of basin governance, including sustained efforts for integration of institutional responsibilities, policy directions, stakeholder participation, scientific and traditional knowledge, technological possibilities, and funding prospects and constraints (RCSE and ILEC, 2014). Recently the Government of Manipur approached the Asian Development Bank for assistance in the restoration of Loktak Lake. A strategic plan for the restoration of Loktak is underway based on the ILBM Platform principles with an objective for restoration and sustainable lake management.

Loktak Lake with traditional circular fishing enclosure (Attaphum)

Loktak Lake Panoramic view

* Montreux Record: The list of Ramsar wetlands where changes in ecological character have occurred, are occurring, or are likely to occur.

The 14th Term Scientific Committee Comes on Board

The 14th ILEC Scientific Committee was launched in April 2022. The committee members are renowned scientists and managerial experts with a depth of experience in the field of lake basin management, providing their expertise and playing the regional focal point role for all ILEC activities.

Our Activities Overview (FY2022)

April
- 23-24 Participation in the 4th Asia-Pacific Water Summit (Kumamoto)
- 29 Dr. Kazuhiko Takemoto, the president, received the Order of the Sacred Treasure, Gold and Silver Star 【PIC❶】

May
- 18 W International Webinar in conjunction with the 4th Asia-Pacific Water Summit

June
- Formulation of ILEC Mid-Term Framework for 2022-2025 【PIC❷】
- 7 Receipt of a donation from Kinki Rokin Bank
- 10 Receipt of a donation from Kansai Mirai Bank, Limited


PIC ❶

July
- 24-30 Participatory Ecosystem Services Shared Value Assessment (PESSVA) Workshop (Kusatsu)

August
- 6 Cohosting "Parent-Child Workshop for the future of Lake Biwa" with Kinki Rokin Bank and Certified NPO Biwako Houjounosato (Kusatsu) 【PIC❸】
  *About 50 parents and children participated. After receiving a lecture on the environmental impact of plastics, they cleaned up the lakeside.
- 24-27 Pre-meeting of ILEC Scientific Committee General Meeting (Kusatsu)


PIC ❷

September
- 1-22 W JICA-KCCP Training Program Part 1

October
- 12-15 ILEC Scientific Committee General Meeting (Kusatsu)
- 15 H International Symposium 2022 "Fostering the Value of Lakes for Future Generations" (Kusatsu)
- 24-29 PESSVA Field Visit in Malaysia (Kuala Kangsar, etc.)


PIC ❸

November
- 7-11 Lake Biwa Model Study Program for Administrative Agency Officials in Hai Phong City and Quang Ninh Province, Vietnam (Kusatsu, etc.) 【PIC❹】
- 7-11 WLC19 on-site Preparatory Meeting in Lake Balaton Area (Siófok, Balatonfüred, etc.)
- 14-17 Courtesy Visit to UNEP Nairobi Office (Kenya)

December
- 19-25 Indonesia Field Visit and the first Workshop (Semarang)


PIC ❹

2023

January
- 11-30 H JICA-KCCP Training Program Part 2 (Kusatsu, etc.)

March
- 3 JICA Regional Understanding Program (Kusatsu)
- 22-24 Participation in UN 2023 Water Conference, and speak at a side event (New York)

W Web H Hybrid (Onsite + Web)

WLC19
Call for Participation

The 19th World Lake Conference will be held in Balatonfüred, Hungary, in November 2023. Balatonfüred is a resort town on the northern shore of Lake Balaton with many historic attractions. It is easily accessible by train or bus from the capital, Budapest, which is only one to two hours away. The beautiful city of Budapest, known as the "Pearl of the Danube", is also a World Heritage Site and well worth a visit.
We recommend taking the opportunity to visit there, too.

- Dates: November 7-9, 2023
- Venue: the Balatonfured Conference Hall (tentative name, currently under construction)
- Theme: "Beyond the lakes: linking science, culture and governance for their sustainable use"

Further information on registration and the content of the event will be posted on the official WLC19 website as it becomes available.
https://www.worldlakeconference-balaton.hu/en

Thank You for Your Support! FY2022

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