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NEWSLETTER

INTERNATIONAL LAKE ENVIRONMENT COMMITTEE FOUNDATION

— For Better Lake Management —

This Newsletter is also available in Japanese.

MORE CHALLENGES IN '90s

Five years have passed since ILEC was established in 1986. These have been five fruitful years with many environmental problems solved although more still remain. As we head into the 90s, standing on the border between 2 decades, ILEC now faces the question "Where do we go from here?" Some of the answers are provided in a message from Dr. Tolba the UNEP Executive Director which we include in this issue. We hope you will help us to greater success in the years ahead.

ILEC has published a book of its activities in the past 5 years. The publication, entitled "Five years Tracs of ILEC", is available from ILEC's Head Office in Shiga free of charge.

Message From Dr. Mostafa K. Tolba

The rapid rate of socio - economic development in many lake/reservoir basins around the world is increasingly recognized as a threat to their water quality and their environment.

Demands for more irrigation schemes, increased use of fertilizers and pesticides, clearing of forests in upper watershed areas, release of untreated domestic and industrial sewage are causing environmental damage to lakes and their basins. Moreover, many well - intended development projects have adverse repercussions, including forced resettlements of large populations, the spreading of water - borne diseases and aquatic weeds,

and disruption of freshwater fisheries. Many conflicts, on the one hand between upstream and downstream users, on the other hand, between different sectors of the society, have erupted. These developments made clear that new approaches are needed to reconcile conflicting interests on how to use water resources in a sustainable way. More preventive planning and broad involvement of local residents is now widely regarded as essential.

Since its inception in 1986, ILEC has assisted UNEP in tackling some of the most pressing issues. In co-operation with GEMS - GRID, data on the present situation of lakes all over the world have been collected, analysed and published as "Survey of the State of World Lakes". In co-operation with UNEP's water unit, praxis-oriented training materials on environmentally sound management of lakes have been developed. Additionally, several training courses for scientists and administrators, mainly from developing countries, have been organized.

In the 1990s, more challenges for both UNEP and ILEC lie ahead; including:

- Assisting the USSR government in the preparation of an Action Plan for the rehabilitation of the Aral Sea and setting up a mechanism for its implementation. ILEC, in co-operation with GEMS, is also expected to propose new monitoring sites in the Aral Sea and its basin.
- Implementing a master plan for the Lake Chad Basin, in which ILEC should play an active role.



Dr. M. K. Tolba

- Contributing to the further development of Environmental Impact Assessment methods and cost - benefit analysis applied to water projects.
- Elaborating the relatively new scientific tools like Remote Sensing and Geographic Information Systems (GIS). It is also expected that modelling will gain growing importance for planning purposes and in the prediction of environmental changes in lakes. Professionals from developing countries and Eastern Europe should be trained in using these techniques through ILEC - organized training courses.
- As co - organizer ILEC will contribute substantially to the 5th World lake Conference scheduled for May 1993 at Lake Maggiore, Italy. This conference will deal with such timely issues as the effects of tourism on lakes.

UNEP is looking forward to continuing the previous fruitful co - operation with ILEC in the '90s.

〔 Director, United Nations
Environmental Programme 〕

Exeutive UNEP International Environmental Technology Centre

The Governing Council of the United Nations Environment Programme (UNEP) adopted, on May 31, 1991 in Nairobi, a decision on an International Environmental Technology Centre, which had been originally proposed by the Government of Japan. The Centre will be dedicated to transfer of environmentally - sound technologies to developing countries and countries with economies in transition, by means of providing training and consulting services, carrying out research, and accumulating and disseminating related information. Special focus will be placed on environmentally sustainable management of big cities and fresh - water lake/reservoir basins.

The Centre will be an integral part of the UNEP and thereby under its supervision. Satisfactory assurances will be secured concerning the international origin of the technologies and expertise available,with a view to guaranteeing its full international status. The assurances should be reflected in the organizational structure, personnel and programmes of the Centre, through, inter alia' establishment of an International Advisory Board.

Activities of the Centre should also be fully co - ordinated with and complement activities of relevant units of the UNEP, in particular, the cleaner production and other relevant activities of the Industry and Environment office and activities taking place under the auspices of the Global Environment Monitoring System, as well as activities of other organizations the United Nations system.

The Goverment of Japan hopes that the Centre will start its activities at an earliest possible date in 1992.

Attached is the result of a deliberation on the part of Japan , at this moment, to elaborate on the above mentioned decision, taking into account the opinions expressed during the course of the deliberation at the

Governing Council. UNEP is expected to work out the details.

Background

- Adequate supply of fresh - water is the basis of life as well as economic activities. It is,however, becoming scarce in many parts of developing countries.
- Shiga Prefecture has experince and expertise in management of a fresh - water lake called Biwa, the largest one in Japan. the lake supports not only the life and the economy of the Prefecture but also that of millions of people around the prefecture, as the source of River Yodogawa, which flows into Osaka Bay.
- Moreover, the prefectoral government of Shiga and the International Lake Enviroment Committee(ILEC), which is located in the Prefecture, have been already involved very actively in international co - operations in this field for years in co - operation with UNEP. ILEC was indeed establishd in 1986 in response to Executive Director Dr.Tolba's proposal to create an organ to further enhance the international efforts to conserve lake/reservoir environment, which he made on the occasion of the First World Lake Environment Conference in 1984 in Shiga Prefecture. ILEC is playing an active part in supporting the UNEP International Environment Technology centre.

Guideline Book Vol. 3 Was Published

"Lake Shore Management"

Edited by S. E. Jørgensen and H. Löffler

Guideline Book Vol. 3 was published by ILEC and UNEP in September 1990, following the publication of Vol. 1 in May 1989. Volume 3, entitled "Lake Shore Management", looks at all aspects of lake shore management.

The whole spectrum of lake management may be divided into three fields in the special, though these are, of course, closely related to each other.

The management of lake water itself comes first, and the second concerns the management of the whole catchment land area, which is no less important than the others for several reasons.

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Guideline Book Vol. 2

Was Published

"Socio - Economic of Aspects of Lake/Reservoir Management"
 Edited by M. Hashimoto

Guideline Book Vol. 2 was published by ILEC in August 1991.

Although it comes after Vol. 3 it is in fact the latest in the series on Lake Management. As Dr. Evteev says in his foreword to this edition, entitled "Socio-Economic Aspects of Lake/Reservoir Management", this book "should appeal to a wide range of readers from administrators to NGOs, practitioners to academics and it is hoped that all concerned readers will find this guideline book useful in their daily activities."

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M. Hashimoto
(ILEC)

ILEC/JICA LAKE WATER QUALITY MANAGEMENT TRAINING COURSE —"A GLOBAL NETWORK OF WATER ENVIRONMENT SPECIALISTS"—

The "Training Course in Lake Water Quality Management" for developing countries was held mainly in Otsu, Japan from January 16 to March 26, 1991, jointly convened by ILEC and JICA (Japan International Cooperation Agency). ILEC had held a similar course in 1990 for a total of five participants from China Ethiopia, Malaysia, Thailand and the Philippines. Continuing on from the benefits gained in the previous course, this training course was held as an ODA project. The number of participants was increased to a total of nine from China, Indonesia, Malaysia, Thailand, Ghana, Kenya, Zimbabwe, Argentina and Paraguay. The participants were



technical experts and researchers involved in environmental administration or water quality preservation.

The course included lectures and study visits on subjects ranging from limnology and biology to water resource management, public health, water sampling, waste water treatment, water quality and sediment analysis and the history of water pollution control in Japan. Practical training was performed in cooperation with the Laboratory Control for Environmental Micropollutants (Kyoto University), Shiga University and Institute of Public Health and Environmental Science. Nine participants were divided into three groups and practical training was given according to the background of each participant. Also, JETA (Japan Environment Technology Association) in cooperation with HORIBA LTD., and SHIMADZU Corporation gave training in the operation and maintenance of water quality instruments manufactured by HORIBA LTD. and in the principles involved in the Atomic Absorption Spectrophotometer manufactured by SHIMADZU.

In mid-February, a trip made by participants to Tokyo-Tsukuba Science City included visits to the Environment Agency and National Institute for Environmental Studies.



Besides, Environmental Education Project which is Promoting by ILEC was also programmed in the course. participants went on a field trip to primary and junior high schools in Shiga, to inspect the lessons of "acid rain" using collected rain water, personal computer and English short story. For the transfer of "proper technology", Lake Biwa case studies, implemented by Shiga prefecture was discussed by specialists, administrators and the participants. Being the first to write reports, computer simulation was covered.

Finally participants submitted technical reports on lake water quality management based on the knowledge they gained during their course.

ILEC intends to hold this course on an annual basis for about 10 trainees and hopes to make a global network of researches in water environment.

SUPERVISORS OF THE COURSE

Takeshi Goda Vice Director General, ILEC
Dean, Faculty of Engineering
Setsunan University

Saburo Matsui Regular Member, ILEC Scientific Committee
Professor, Faculty of Engineering,
Kyoto University

LECTURERS OF THE COURSE

Tatuo Kira	Chairperson, ILEC Scientific Committee
	Director, Lake Biwa Research Institute
Hiroshi Tsuno	Associate Professor, Kyoto University
Munetsugu Kawashima	Professor, Shiga University
Akira Kurata	Head of Research Section, Lake Biwa Research Institute
Fumitsugu Kusano	Director, Hikone Public Health Center
Fumio Fukada	Section Chief, Environment Authority, Dept. of Consumer Affairs, Traffic & Environment, Shiga Prefectural Government
Toyohisa Nakamura	Assistant Section Chief, Environment Authority, Dept. of Consumer Affairs, Traffic & Environment, Shiga Prefectural Government

COOPERATE COMPANIES, INSTITUTES AND ORGANIZATIONS

Environment Division, Dept. of Consumer Affairs, Traffic & Environment, Shiga Prefectural Government
 Lake Biwa Research Institute,
 Institute of Public Health and Environmental Science,
 Shiga Prefectural Fisheries Experiment Station,
 Agricultural Experiment Station, Shiga Prefecture,
 Shiga Prefectural Sewage Works Corporation,
 Kusatsu Public Health Centre,
 Ritto - nishi Junior High School Daiho Primary School,
 The Water Treatment Centre for the Southern Area of Shiga Prefecture, Yoshikawa Filtration Plant,
 Dai - ichi Eisei Plant, Ohmihachiman City,
 Small - size Sewerage Treatment Plant at Kiryu District,
 Otsu - shi Shiga - cho kumiai Clean Centre,
 Lake Biwa Work Office, Ministry of Construction,
 Amagase Dam Control Office, Yodo River Dam Control Centre, Kinki Regional Construction Bureau, Ministry of Construction,
 Water Quality Bureau, Environment Agency,
 National Institute for Environmental Studies,
 Kasumigaura Water Research Station, NIES,
 United Nations Centre for Regional Development,
 Okayama Prefectural Government,
 Hiroshima Prefectural Government,
 Machida Refuse Resources Recycling Cultural Centre,
 Laboratory Control for Environmental Micropollutants, Kyoto University,
 Otsu Hydrobiological Station, Kyoto University,
 Japan Environment Technology Association.

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ILEC Activities in 1990

January 8 - March 16	ILEC Training Course on Lake Water Quality Management
February	Distribution of "Survey of the State of World Lakes 1989 Report"
February 8 - 21	3rd Expert Group Workshop on River/Lake Basin Approaches to Environmentally Sound Management of Water Resources under the sponsorship of ILEC, UNCRD and UNEP. (Otsu and Okazaki)
February 20	ILEC Osaka International Forum "The Water We Share".
February 19 - 20	Cooperation to "Lake Environmental Forum in Ibaragi" (Tsuchiura)
February 19 - 20	Cooperation to "Lake Environmental Forum in Nagano" (Nagano)
February 21 - 23	3rd General Meeting of ILEC Scientific Committee (Otsu)
February 24	Visit of ILEC members at schools at Kohoku town in Shiga
March	Publication of JICA/ILEC report "Investigative Research into Lake Environment Protection Measures and Appropriate Technology"
April 2 - 5	Participation of an ILEC representative in the meeting on "Baikal International Centre for Ecological Research" (Irkutsk)
April 9 - 17	Mission to GRID/Geneva, IUCN and WHO for the commencement of joint GIS project
April 20 - 26	Participation of an ILEC representative in the meeting to save the Aral Sea, sponsored by UNESCO and Kazav Republic
May 23 - 24	Preparatory meeting between ILEC and Italian Institute of Hydrobiology on the 5th World Lake conference
May 25 - 30	Mission to GRID/Geneva, WHO, IRPTC, IIASA and MARC for future collaboration
May 27, June 3	River water - quality monitoring by school teachers and students for environmental education project in Japan
June 1 - 2	Planning and Cooperation Meeting between ILEC and CRAES for the 4th World Lake Conference Preparatory meeting
June 1 - 8	Mission to PSU, ONEB, GRID/Bangkok, AWB and University of the Philippines for possible collaboration on "Application of GIS for Lake Management"
June 26	Experimental lecture at Kohoku town for lake environment education
June 30 - July 1	Cooperation to "Uminoko - fiesta (a commemoration of Eutrophication

July -	Prevention Ordinance in Shiga)" Mission of two ILEC representatives for data August 11 collection of African lakes	Province for lake data collection
July 29 - August 2	Cooperation to IAWPRC Kyoto Conference	Mission of a scientist to Zhejian Province for lake data collection
August 3	Cooperation to 8th "Lake Biwa Water Festival"	Mission of a scientist to Europe and USSR to discuss ILEC/USSR collaboration
August 3 - 6	Cooperation to "EMECS '90" in Kobe	Cooperation to ESCAP drawing contest
August 8 - 9	Joint training seminar of school teachers and students for environmental education project	Participation of an ILEC member in the 1st expert group meeting for UNEP/USSR project to save the Aral Sea
August 13 - 18	Participation of three ILEC representatives in GEMS/WATER Leningrad meeting to explore ILEC's participation in 1990's	Invitation of Dr. Aladin, Leningrad Institute of Zoology to give lectures on the Aral Sea in Otsu, Kyoto and Chiba
September	Publication of ILEC Guideline Book Vol. 3, "Lakeshore Management"	Cooperation to 'Agriculture and Forestry Festival'
September 4	Bureau Meeting of ILEC Scientific Committee at Hangzhou	Mission of two ILEC representatives to Thailand to finalize ILEC/Thai partners cooperation for "Application of GIS for lake management"
September 4	Visit of Prof. de Bernardi at Otsu to prepare for the 5th World Lake Conference	Mission of a scientist to East Africa for Lake December 11 data collection
September 5 - 9	Convening of the 4th World Lake Conference "Hangzhou '90" jointly with CRAES	Experimental lecture at Kohoku town for lake environmental education
September 11 - 12	Cooperation to Yunnan Lake Management Seminar (Kunming, Yunnan)	Mission of two ILEC representatives to participate in the ILEC/USSR cooperation for the survey of USSR lakes/reservoirs
September 13 - 21	Preparatory meeting on the ILEC's participation in El - Hai Project	
September 4 - 22	Mission of a scientist to Yunnan	

LAKES OF THE WORLD

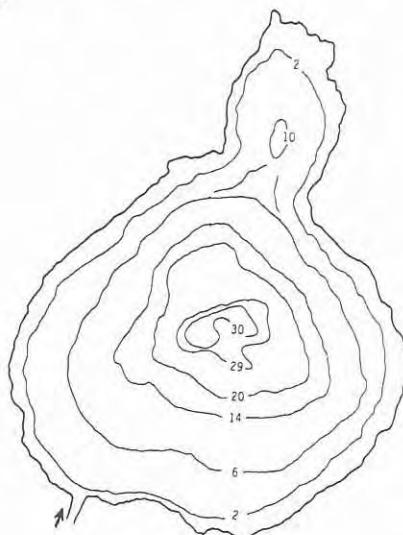
Lake Glubokoe (USSR)

Lake Glubokoe, which is situated 90km west of Moscow, has been under investigation for 100 years since the establishment of a hydrobiological station on its eastern shore in 1891. The lake covers an area of 59ha and is 1200 m long and 33m deep-being exceptionally deep for the Moscow region. Typical of a lake of this depth, it has hydrochemical, hydrological and biological stratifications.

Although, Lake Glubokoe is generally mesotrophic, some parameters are contradictory. Its water salinity ($\text{TDS } 61\text{mg l}^{-1}$) and the buffer capacity are low. The lake is ice-bound from between October and December until April to May. The lake is well protected by a 3km wide zone of swamp and forest from agricultural and other economic activities although it is much visited by sport fisherman.

Since the station was established, various studies have been undertaken, mainly reflecting the formation of Russian limnology. Occasionally the station was used for investigations with purposes other than the elucidation of the lake's ecosystem and has been used as a source

of living material. From 1939 onwards the "Glubokoe Lake" Hydrobiological Station has been affiliated to the USSR Academy of Sciences and presently belongs to the Institute of Evolutionary Animal Morphology and Ecology.



Any discussion on the community of the lake should start from its species composition. In spite of the length of study, only 440 species of animals and 232 species of plants have been recorded (as published in "Lake Glubokoe", 1987). This list has subsequently supplemented with, for example, 33 species of nematods. Nevertheless, the number of species is well below that expected for a lake within an average range of environmental factors. Many groups of invertebrates and algae have yet to be studied.

In the course of the studies performed, information has been accumulated on species composition, water circulation, hydrochemical features, sedimentation, plankton dynamics, benthos distribution, littoral fauna and trophic interrelations.

Investigation of animal remains in the bottom sediments has revealed that the present-day planktonic community, with some fluctuations, has existed for at least 600 years. All data are cited and published in national and other handbooks and treatises.

The present research programme is aimed at 1) understanding biological processes of the lake on the basis of biological adaptations and interrelations; 2) periodical surveys of main communities targeted at recording their biological parameters in their natural state; 3) inventory of species composition of the community of the lake, recording the appearance of new species, irregularly occurring species as well as the disappearance of species; 4) morphological and other studies of Cladocera and of some other invertebrates and 5) elucidation of individual features of the lake.

Recent discussions have focused on the desirability of the internationalisation of activities of the "Glubokoe Lake" Hydrobiological Station. Conditions at the station remain rather modest, but permit a few working benches and common facilities.



Russian limnology thus possesses the ability to support investigations of what appears to be the smallest permanently studied lake in the world.

Recent results have been published in a few volumes of collected papers (containing bibliographies of particular papers), and there has also been a summary volume on the lake.

Ozero Glubokoe by A. P. Shcherbakov, 1978. Moscow, 379 pages. (In Russian)

12 March 1991 - Environmental Problems in the USSR

Dr. Sokolov (project coordinator, Centre for International Projects, USSR State Committee for Environmental Protection) and Dr. Leonov (senior scientific researcher at the Institute for Water Problems, USSR Academy of Science) visited Shiga Prefecture in connection with the Survey of the State of the World's Lakes promoted by ILEC and also held a meeting with some members of the Shiga Industrial Association.

Although the USSR State Committee for Environment-

tal Protection has only recently been established, every effort is being made to improve the national environment by stationing specialists in areas of need.

The Soviet Union, being such a vast country with different races and religions, has many problems that are unimaginable in Japan. Despite this great efforts are being made to overcome these problems. We wish them all the best.

Forthcoming Meetings

Second International Symposium

"Remote Sensing and Space"

* Held from 16 to 18 January 1992 Hat Yai (Thailand)

It will be held as a follow up of the well-received First International Symposium on Remote Sensing in August 1987 by the Prince of Songkhla University, the Faculty of Engineering in close cooperation with a number of national and international institutions in Thailand.

* ORGANIZED BY Prince of Songkhla University(PSU)

* CO-ORGANIZED BY National Research Council of Thailand(NRCT)

International Institute for Aerospace Survey and Earth Science(ITC), the Netherlands
Asian Institute of Technology(AIT)

Griffith University, and the University of Queensland, Australia

Managing Water

A symposium on global and regional water resources management is to be held between 18 and 20 November, 1991 at the Lake Biwa Research Institute, Shiga, Japan. Ten eminent specialists from around the world have been invited to discuss water resources management from both a global and regional viewpoint.

Organized by United Nations Environmental Programme
Shiga Prefecture, Japan

Co-organized by ILEC

Japan Society on Water Environment IWRA

Japan Society of Hydrology and Water Resources

UNCRD

Environment Agency

Ministry of Foreign Affairs

Kansai Economy Federation

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