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NEWSLETTER

INTERNATIONAL LAKE ENVIRONMENT COMMITTEE

— For Better Lake Management —

This Newsletter is also available in Japanese.

FOUNDING COMMITTEE MEETING

On April 24,1987 at Hotel New Otani in Chiyoda-Ku, Tokyo the Founding Committee met to incorporate the International Lake Environment Committee (ILEC) into a foundation.

ILEC is a non-governmental organization (NGO) established on February 21, 1986, for the purpose of promoting the preservation of lake environments of the world. For all assistance given in various forms by United Nations Environment Programme (UNEP), ILEC fundamentally depends upon Shiga Prefecture for financial support. ILEC now confronts the issue of developing future activities and building a firm basis for operation, including securing a stable and independent source of revenue.

The plan to incorporate ILEC into a foundation met with approval at the 2nd general meeting held from February 18 through 20 this year. Shiga Prefecture, in response to this, appropriated 200 million yen in its budget this fiscal year as an initial endowment. ILEC intends to make a start as a foundation with this endowment, eventually increasing its basic assets with contributions from general business firms.

The ILEC Bureau Meeting, held on May 11 this year in Otsu City, deliberated and approved the proposed amendment of the ILEC Constitution to change the organization for incorporation into a foundation.

ILEC is scheduled to complete coordination of its Articles of Association, business programs, etc. with the Environment Agency and the Ministry of Foreign Affairs, which are to be competent authorities for ILEC. Then a formal application for approval to be inaugurated as a foundation will be submitted in September this year.

≪Participants in Preparatory Meeting of ILEC Foundation≫

Prof. Takeshi Goda	Professor, Setunan Univ. ; Regular Member and Treasurer of ILEC.
Mr. Bunbei Hara	13th Minister, Environment Agency ; National Diet Member (House of Councilors) ; Secretary, Unions of Diet Members for Problems on Global Environment.
Mr. Hosai Hyuga	President, Kansai Federation of Economic Organization.
Mr. Minoru Inaba	Governor, Shiga Prefecture.
Mr. Sukio Iwatare	National Diet Member (House of Representatives) ; Secretary, Unions of Diet Members for Problems on Global Environment.

Prof. Ichiro Kato	Adviser to Environment Agency ; Emeritus Professor, Tokyo Univ.
Prof. Tatuo Kira	Director, Lake Biwa Research Institute ; Regular Member and Chairperson of ILEC ; Emeritus Professor, Osaka Municipal Univ.
Prof. Jiro Kondo	President, Science Council of Japan ; Emeritus Professor, Tokyo Univ.
Prof. Shuichi Mori	President, Shiga Univ. ; Emeritus Professor, Kyoto Univ.
Prof. Azuma Okuda	Emeritus Professor, Kyoto Univ.
Prof. Tsunahide Shidei	Emeritus Professor, Kyoto Univ.
Mr. Masayoshi Takemura	National Diet Member (House of Representatives) ; Secretary, Unions of Diet Members for Problems on Global Environment.
Mr. Minoru Ueda	15th Minister, Environment Agency.
Prof. Kiyo-o Wadachi	President, Central Environmental Pollution Council.
Mr. Kei Yamazaki	Former Vice-Minister, Environment Agency

≪Proceedings≫

(1) On the incorporation of ILEC

Mr. Minoru Inaba, Governor of Shiga Prefecture and advocate of incorporation, delivered the opening address.

(2) On the progress up to the incorporation

Prof. Tatsuo Kira, Founding Committee representative, made a report on the progress in the incorporation of ILEC.

(3) Designation of the chairman

Prof. Tatsuo Kira was installed as chairman.

(4) Agenda items

The following items on the agenda were discussed:

1 - Matters pertaining to the establishment of a foundation for International Lake Environment Committee

After the explanation of the prospectus by the secretariat of the Founding Committee (hereinafter referred to as the "secretariat"), the chairman proposed to establish a foundation for International Lake Environment Committee; his proposal met with unanimous approval.

2 - Matters pertaining to the Articles of Association

After explanation by the secretariat and deliberation at the request of the chairman, the proposed Articles of Association for the International Lake Environment Committee Foundation were unanimously approved.

3 - Matters pertaining to the inventory

The details of assets owned by the foundation at its inauguration were unanimously approved.

4 - Matters pertaining to the business programs and budgets

The business programs and budgets of revenues and expenditures for fiscal 1987 and 1988 were unanimously approved.

5 - Matters pertaining to the designation of directors, councilors and scientific committee members

The chairman presented for deliberation a draft list of the board of directors, the councilors and the scientific committee members. Eleven directors including Mr. Kei Yamazaki (a former Vice-Minister of Environment Agency), 10 councilors including Mr. Minoru Ueda (the 15th Minister of Environment Agency) and 15 scientific committee members including Prof. Tatsuo Kira were unanimously designated.

6 - Matters pertaining to the recommendation of candidates for advisers

After discussing the candidates for advisers presented by the chairman, 5 persons including Mr. Masayoshi Takemura (a member of the House of Representatives and a former Governor of Shiga Prefecture) were unanimously designated as candidates for advisers for recommendation to the board of directors after the inauguration of the foundation.

7 - Matters pertaining to the designation of representative

Prof. Tatsuo Kira was designated as the representative.

ILEC's BUREAU MEETING

To determine the policy for control and management of tasks confronting ILEC, a meeting of the ILEC Board of Directors was held on May 11 and 12, 1987, at the ILEC office in Otsu City.

At the meeting Mr. Tatsuo Kira, Chairperson; Ing. C.E. Bauer, Vice Chairperson; Prof. Takeshi Goda, Treasurer and Dr. Michio Hashimoto, Secretary-General were present.

After a report on the status of the incorporation of ILEC including the meeting of the Founding Committee, held on April 24, 1987, an amendment of the ILEC Constitution, the Articles of Association and management of the funds were deliberated. After some changes, the proposed Articles of Association and other plans were approved.

14TH SESSION OF UNEP GOVERNING COUNCIL

During 8-13 June, taking the opportunity of the 14th Session of UNEP Governing Council, held 8-19 June, Prof. Kira and two ILEC staff members visited UNEP headquarters in Nairobi to discuss the further development of the ILEC/UNEP joint project. They also talked with Hungarian delegates about their cooperation in the 3rd World Lake Conference "Balaton '88".

On 10 June at the Committee of the Whole of the Governing Council, Prof. Kira stated that ILEC was established in 1986 to serve as a catalyst to promote environmentally sound management of lakes. This is to be accomplished by international exchange of informa-

tion on rational management of lakes. ILEC's activities include integration of a data-book on large lakes of the world, publication of guidelines, and organization of workshops and training courses in co-operation with UN organizations, IGO's and NGO's. ILEC will participate in the implementation of the EMINWA Programme.

SADCC COUNTRIES COME TO AGREEMENT ON ZAMBEZI ACTION PLAN

The Conference of Plenipotentiaries on the Environmental Management of the Common Zambezi River System met at Harare, Zimbabwe, during 26-28 May, 1987. The following SADCC(Southern African Development Co-ordination Conference) countries participated in the Conference: Angola, Botswana, Mozambique, Tanzania, Zambia, Zimbabwe and Namibia represented by the UN council for Namibia.

On the basis of the deliberations, the Conference on 28 May adopted the agreement on the Zambezi Action Plan(Zacplan). In the agreement it was stated that the Zambezi Action Plan should be a SADCC programme with the assistance of UNEP. Dr. M.K. Tolba, UNEP's Executive Director, said in his address at the opening session that this was the first time in the world that countries with a shared river system had agreed to cooperate in its management.

The draft Zacplan being considered requires US$ 12 million for the first phase from this year (1987) to 1989. The first phase of the plan emphasizes information, assessment, planning and training because despite its importance, little is known about the Zambezi river basin, its problems and potential, water quality and quantity, climate, flora and conservation.

The Minister of Natural Resources and Tourism of Zimbabwe, Mrs. C.V. Chitepo, who chaired the meeting, said poor management of the river could, for example, affect the might of Victoria Falls, thus affecting tourism. It could also affect the generation of power at Kariba for Zimbabwe and Zambia and at Cabora Bassa.

Among observers from UN bodies, IGO's and NGO's, ILEC participated in the Conference, and is expected to support the implementation of Zacplan, especially in the field of lake management.

TRAINING PROJECT

The most important problem with which developing countries are now confronted in their preservation of lake environments is a shortage of capable personnel. A great need is evident for the development of personnel for lake environment preservation. ILEC, therefore, has decided to make one of its main projects the holding of training seminars for regional development and lake environment preservation in developing countries. As a tentative measure, ILEC will support, under the joint auspices of ILEC, UNCRD and UNEP, training Seminars for lake environment all over the world, mainly in practical ways. Seminar workshops will focus on environmental preservation and administration for the maintenance of water resources of lake and river regions.

(Aims)

The aims of these seminar workshops are ① to furnish decision-makers, researchers and high-ranking government officials in developing countries with opportunities to study environmental and social measures for the development and preservation of water resources from the viewpoint of the regional planning of lakes and rivers, and ② to support developing countries in their environmental planning and control in the field of the regional planning of lakes and rivers.

For these seminars, case-study groups are organized in developing countries and their studies are made public, not only to seminar participants, but also to others so that many may derive benefit from these seminars.

(Outlines of the activities)

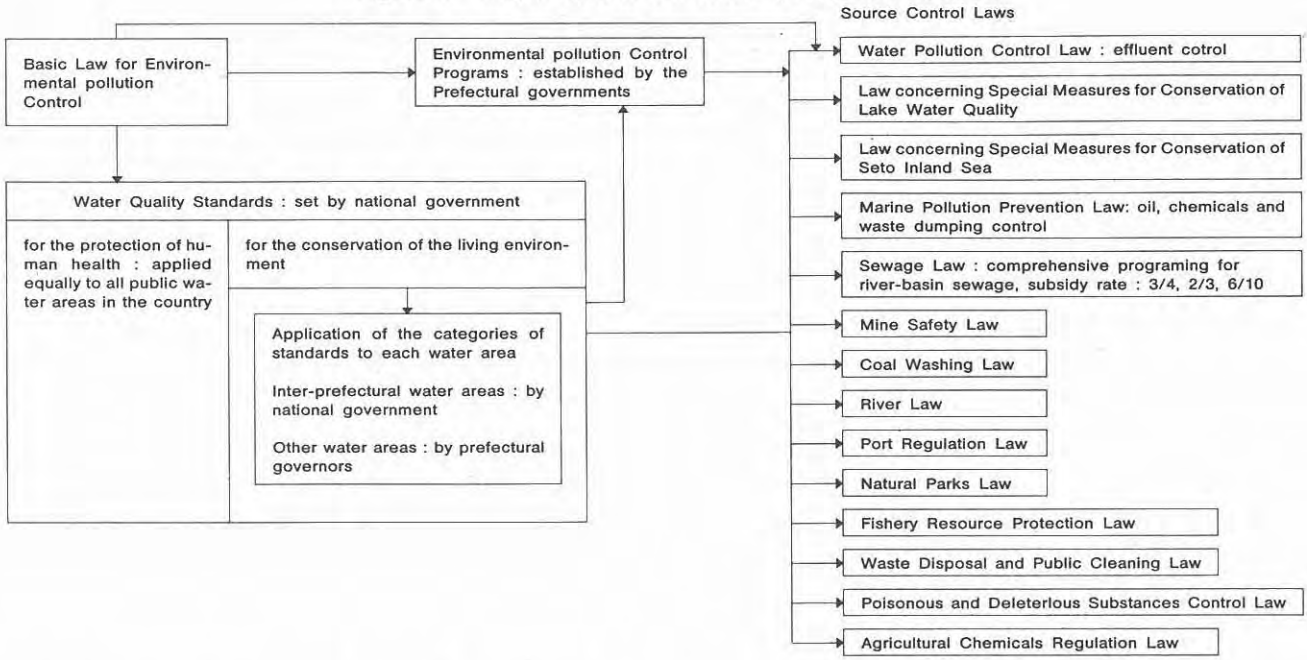
Case studies of six specific lakes in developing countries and the preparation of their outlines for publication will commence in 1987. Seminar workshops will be held in Otsu and Nagoya in mid-February, 1988. Participants of these seminar workshops will be ① decision-makers and high-ranking government officials of developing countries, ② specialists and researchers who will report on the interim findings of their case studies of lakes and rivers in developing countries, ③ those who will report on a summary of these case studies (including members of ILEC) and ④ representatives of UNEP and other organs of the United Nations.

LAKE WATER QUALITY MANAGEMENT IN JAPAN

1. A Brief History

As a result of rapid economic growth, concentration of population and industry, and insufficient coverage of public sewerage treatment, water pollution in public

Figure 1 Legal System for water quality management



waters became a great concern in Japan in late 1960's.

To cope with this water problem, the Japanese Government had introduced an integrated legislative scheme including the Basic Law for Environmental Pollution Control (1967), the Water Pollution Control Law (1970), etc.

The Japanese Government has made great efforts to attain the Environment Quality Standards in public waters established by the Basic Law for Environment Pollution Control, mainly by the effluent control based on the Water Pollution Control as well as by increasing the coverage of public sewerage treatment system based on the Sewerage Law. Nevertheless, in semi-closed seas and lakes, more comprehensive countermeasures including the treatment of the household effluent are needed. For improving the water quality in semi-closed seas the Area-Wide Pollution Load Control System was introduced in 1978 by amending the Water Pollution Control Law and for lakes, the Law concerning Special Measures for Conservation of Lake Water Quality was established in 1984.

2. Legal System for Water Quality Management Policy

The present legal system for water quality management of Japan is shown in figure 1.

3. Environment Water Quality Standards

The Environment Water Quality Standards first established by the Cabinet Order on April 21, 1971 are divided into two types: those that need to be achieved and maintained to protect human health and those that need to be achieved and maintained to conserve the living environment. Standards relating to human health are nationally uniform to be applied to every public water area. Standards relating to living environment are divided into three categories of public water areas such as rivers, lakes and coastal waters and to be applied and to be set for each category according to utilization of waters.

Application of categories of standards relating to living environment to each water area are to be made by the Minister of the Environment Agency for 47 interprefectural water areas stipulated by the Cabinet Order and by the prefectural governors for other water areas.

The Environmental Water Quality Standards for lakes (natural lakes, reservoirs, marshes, and artificial lakes with more than 10 million cubic meters of water) are shown in table 1.

4. Enactment of Clean Lakes Law

The Law concerning Special Measures for Conservation of Lake Water Quality - Clean Lakes Law was enacted and promulgated on July 27, 1984 and enforced in March 1986. The law is intended to lay down a basic policy for the conservation of lake water quality and opens the way for the enforcement of special measures for those lakes which are in great need of action to meet the Environmental Water Quality Standards. The aims of the law can be summed up in two points. Firstly, the law introduced well-defined regulations and other measures to cope with those pollution sources for which the conventional effluent controls do not work because of the special nature of the lake environment. Secondly, the Law provides for 1) drafting, for each of the designated lakes, a Lake Conservation Plan stipulating such environmental conservation projects as sewerage construction and regulatory actions for the reduction of pollutant load, and 2) implementaion of various conservation measures which are to be coordinated or promoted under such plan. (figure 2)

In pursuant to this law, six lakes including Kasumigaura, Inbanuma, Lake Biwa, Kojima Lake and Lake Suwa, were designated, and the related prefectures formulated lake water quality conservation plans.

Kohki Nakajima, Environment Agency.

Figure 2 Outline of Clean Lakes Law

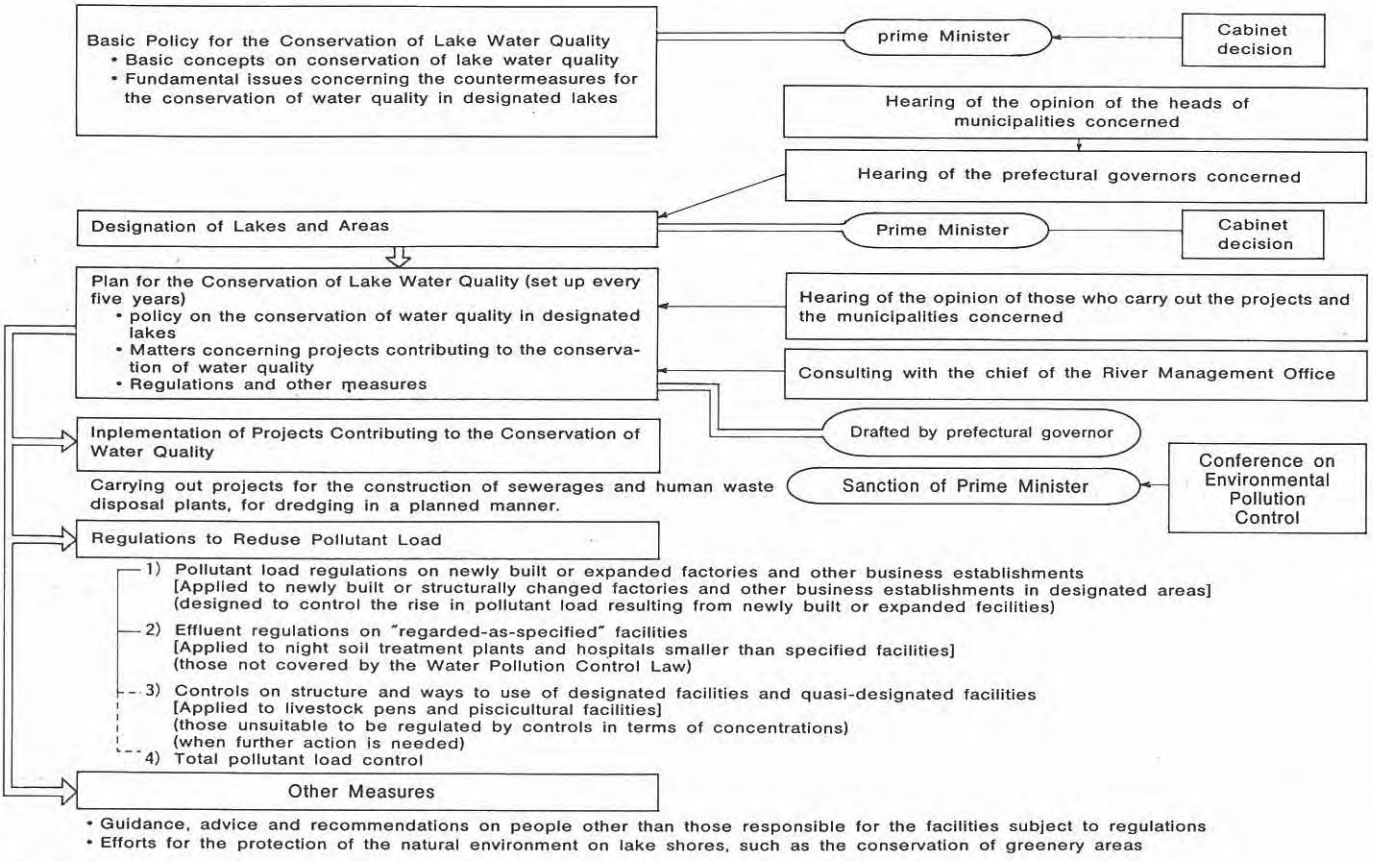


Table 1. Water quality standards related to the concervation of the living envirommment

(1) Lakes (natural lakes, reservoirs, marshes and artificial lakes with more than 10 million cubic meters of water)

Category	Item / Purposes of water use	Standard Values*				
		pH	Chemical Oxygen Demand (COD)	Suspended Solids (SS)	Dissolved Oxygen (DO)	Number of Coliform Groups
AA	Water Supply, class 1 ; fishery, class 1 ; conservation of natural environment, and uses listed in A—C	6.5—8.5	1 mg/l or less	1 mg/l or less	7.5 mg/l or less	50 MPN/100 ml or less
A	Water supply, class 2 and 3 ; fishery, class 2 ; bathing, and uses listed in B—C	6.5—8.5	3 mg/l or less	5 mg/l or less	7.5 mg/l or more	1.000 MPN/100 ml or less
B	Fishery, class 3 ; industrial water, class 1, agricultural water, and uses listed in C	6.5—8.5	5 mg/l or less	15 mg/l or less	5 mg/l or more	
C	Industrial water, class 2 ; conservation of the environment	6.0—8.5	8 mg/l or less	Floating matter such as garbage shall not be observed	2 mg/l or more	

Notes: 1. Conservation of natural environment ; Conservation of scenic spots and other natural resources.
2. Water supply, class 1 : Water that requires treatment by simple cleaning operation, such as filtration.
Water supply, class 2 : Water that requires treatment by normal cleaning operation, such as sedimentation and filtration.
Water supply, class 3 : Water that requires treatment by highly advanced cleaning operation including pretreatment.
3. Fishery, class 1 : For aquatic life, such as trout and bull trout inhabiting oligosaprobic water, and those of fishery class 2 and class 3.
Fishery, class 2 : For aquatic life, such as fish of the salmon family and sweetfish inhabiting oligosaprobic water and those of fishery class 3.
Fishery, class 3 : For aquatic life, such as carp and silver carp inhabiting β-mesosaprobic water.
4. Industrial water, class 1 : Water given normal cleaning treatment such as sedimentation.
Industrial water, class 2 : Water given advanced treatment by chemicals.
Industrial water, class 3 : Water given special cleaning treatment.
5. Conservation of the environment : Up to the limits at wichi no unpleasantness is caused to people in their daily life (including a walk by the riverside, etc.)

(2)

Category	Purpose of water use	Standard values	
		Total nitrogen	Total Phosphorus
I	Conservation of natural environment, and uses listed in II—V	0.1 mg/l or less	0.005 mg/l or less
II	Water supply classes I, 2 and 3 (excluding special types) ; Fishery type I, bathing; and uses listed in III—V	0.2 mg/l or less	0.01 mg/l or less
III	Water supply class 3 (special types), and uses listed in IV—V	0.4 mg/l or less	0.03 mg/l or less
IV	Fishery type 2, and uses listed in V	0.6 mg/l or less	0.05 mg/l or less
V	Fishery type 3 ; industrial water ; agricultural water ; conservation of the living environment	1 mg/l or less	0.1 mg/l or less

LAKES OF THE WORLD

WUHAN EAST LAKE

East Lake is a famous scenic Lake in China. To the south of the lake there are green hills including Luojia Hill and Mo Hill. To the north of it, a number of artistic buildings have been built. The hills and water pavilions reflected in the lake, green trees in luxuriate woods, and blueish green ripples dancing on the water surface in the breeze, and a beautiful landscape attract innumerable tourists from all parts of the world.

East Lake, the largest lake in the city of Wuhan, Hubei, has a surface area of 33 square kilometers and mean depth of 2.5m (maximum depth 4.8m), water storage of 80 million m^3 and maximum volume of 1.24 billion m^3. The catchment area of the lake is about 190 square kilometers. The annual total input of water to the lake amounts to 1.5 billion m^3.

East Lake is a multifunction urban lake, providing recreation resorts, fisheries and one of the important tap water sources for the city. The eutrophication process of East Lake has been intensified due to increasing industrial and domestic pollution of its catchment area since the 60's and eutrophication is the most serious environmental problem in the lake now. Apart from industrial waste water, the nutrient input is derived from several sources, including domestic sewage, land runoff and polluted rainwater, etc. Domestic sewage is becoming a more and more important source of nutrient loading into the lake. The measured nitrogen and phosphorus loading from discharged domestic sewage amount to about 64 percent and 60 percent respectively, of the total loading of whole lake. The eutrophication of East Lake is a problem that calls for an immediate solution. The research carried out by Hubei Provincial Institute of Environmental Protection in recent years has been aimed at the following:

a. Hydrodynamic balance of nitrogen and phosphorus,

b. Dynamic distribution of nitrogen and phosphorus, emphasis being placed on the release of sediment and nitrogen, and phosphorus distribution in the water body.

c. Developing a model relating spring time total phosphorus concentration to summer time chlorophyll-a concentration of the lake, which provided a means for estimating and predicting the effects of change in phosphorus concentration on algal biomass.

In the meantime, by means of phosphorus loading graphs of the Vollenweider Model and the Dillon Model, the phosphorus capacity for the lake was also calculated.

This useful research aroused the attention of Hubei Provincial Government and resulted in strong support for action. The research in these fields provided scientific evidence for the restoration of East Lake, and it has proved to be of practical value in making cost-benefit analyses of a nutrient reduction programme to reduce algal density. The researchers were awarded a prize from the Government for their excellent work.

Hubei Provincial Government and Wuhan City Government are very concerned about pollution and are serious about taking measures that will lead to the recovery of East Lake. The Government of Wuhan City has proposed a long-term project for control of water pollution in East Lake, and the Government of Hubei Province approved this project in 1982. There are two aspects of this environmental engineering project. Firstly, a system to divert domestic sewage from the lake must be built. Secondly, an advanced treatment plant must be constructed to treat the diverted waste water. Both projects were started in 1984 and they are being constructed at the present time. This project will play an improtant part in water pollution control and water quality improvement of the lake. In addition, an ordinance for the environmental management of East Lake will be enacted. It is expected that these actions will help enhance the beauty of East Lake.

Peing Jinxin, Director of office,
Hubei provincial Bureau of Environmental Protection, China.

REPORT ON THE COURSE/WORKSHOP

"LIMNOLOGY AND MANAGEMENT OF RESERVOIRS" SPONSORED BY ILEC.

1) Period : 5 March - 11 April, 1987.

2) Locality and Institution: Center of Hydric Resources and Applied Ecology, University of S. Paulo, School of Engineering S. Carlos, S. Paulo State.

3) Number of participants in the course: 32.

4) The course was sponsored by Organization of American States, ILEC, Secretary of Environment of Brazil, and Ministry of Education.

5) All of the participants of the course were from South American Countries, specifically: Argentina, Brazil, Guatemala, Honduras, Nicaragua and Panama. Figure 1 shows the main hydrographic basins in South America and the regions from which each of the South and Central American participants came. The profile of the students was varied: some were working in hydroelectric companies, some were university lecturers and some recently finished their university degree. The background of the participants was also varied: chemists, engineers, biologists, ecologists, physicists and geographers. This was an interdisciplinary group that actively partcipated in discussion, field and laboratory work, seminars and excursions. A monograph was prepared by five different groups of students.

Figure 1 : Regions of original of participants in the Course Limnology and Management of Reservoirs, by hydrographic basins, in South and Central America. Countries: Argentina, Brasil, Guatemala, Honduras, Nicaragua, Panama.

6) At the end of the course a workshop was conducted. The workshop consisted of three different activities: conferences by invited speakers, a poster session, and discussion groups. The discussion groups considered an examination of the "state of the art" and propositions in the following topics: eutrophication, phytoplankton of reservoirs, planning and management of reservoirs, sedimentation in reservoirs, public health and reservoir construction, zooplankton of reservoirs, limnological methods for study of reservoirs, fish population dynamics in reservoirs, and modelling of reservoirs.

7) Approximately 200 people participated in the workshop.

8) Thirty-one posters were presented.

9) The participants in the workshop came from the following countries (including invited scientists) : Argentina, Brazil, Denmark, Guatemala, Honduras, Japan, Nicaragua, Panama, Paraguay and Poland. Several case studies were presented and discussed.

This was the first meeting in South America to bring together limnologists, managers of hydroelectric companies, and professionals from consulting firms to discuss their common problems concerning basic ecological mechanisms functioning in reservoirs, and implications on the management of these ecosystems. The discussion centered around preventive plans for the reservoirs to be built over the next decade and remedial measures for existing functioning reservoirs.

The main conclusion of this workshop is that considerable expertise exists in South America in relation to basic information for reservoirs. Management techniques are improving and with the scientific community providing management groups with the necessary background information, more efficient prevention, prognosis and remedial measures will be produced. Also, consideration was given to social, economic and health aspects of reservoir construction and management in the general ecological context.

The proceedings of this workshop (full text of papers, conclusions, reports of the discussion groups) will be published as soon as possible as a special issue of the scientific journal of the Brazilian Society for Progress of Science. Dr.S.Jørgensen and Dr.C.Bauer participated in the course/workshop.

J.G. TUNDISI
Coordinator of Symposium
ILEC MEMBER

THIRD INTERNATIONAL CONFERENCE ON THE CONSERVATION AND MANAGEMENT OF LAKES "BALATON '88"

First announcement of Third International conference on the Conservation and Management of Lakes "Balaton '88" which scheduled September 11–17, 1988 was circulated from Organizing Committee, and its contents follow below.

INVITATION

The Hungarian Academy of Sciences and the National Authority for Environment Protection and Nature Conservation have the pleasure to invite you to the

THIRD INTERNATIONAL CONFERENCE
ON THE CONSERVATION
AND MANAGEMENT OF LAKES,
"BALATON '88"

organized under the auspices of the International Lake Environment Committee.

The aim of the Conference—similarly to the previous ones held on the shore of Lake Biwa, Shiga, Japan in 1984 and on Mackinac Island, Michigan, USA in 1986 dealing with lakes and their environment—is to promote the interaction between natural sciences and socio-economic studies and the information transfer between scientists and those working in operative areas. It also offers excellent opportunity to compare lake conservation practices in countries of different economic development and social structure. This will be more than a scientific conference. Participants dealing with practical aspects of lake conservation and management are highly welcome.

The programme includes

- Plenary lectures
- Free communication
- Poster demonstration

MAIN TOPICS

1. Eutrophication and its control
2. Effect and control of acidification and toxic materials
3. The effects of tourism on lakes
4. Modelling of lakes
5. The state and special problems of lakes and reservoires in developing countries
6. The role of international organizations, governments, local authorities, economic and public organizations in the conservation and management of lakes.

After the Conference study tours are planned to different Hungarian lakes, reservoires and rivers.

Proposals for preconference workshops, seminars are welcome.

Chairman of the Organizing Committee:
Prof, János SALÁNKI, Director

Secretary:
Dr. Sándor HERODEK
Balaton Limnological Research Institute of the Hungarian Academy of Sciences

Hungary—8237, Tihany, POB. 35
Phone: (36—') 86 48006
Telex: 32427 mtabk. h

The 2nd Cicular, containing detailed information on travelling registration fee, accomodation, abstracts, etc. will be distributed by October, 1987.

CALL FOR ARTICLES
Those who wish to contribute to ILEC Newsletter are invited to send manuscripts to the secretariat.

ILEC
INTERNATIONAL LAKE ENVIRONMENT COMMITTEE
Secretariat
c/o Shiga Prefectural Government, 4-1-1 Kyomachi, Otsu, Shiga 520, Japan
Tel : 0775-25-1076 Tlx : 5464850 ILEC J Fax : 0775-25-1186
Cable: ILEC OTSU

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