



No.7 SEPTEMBER 1988

# NEWSLETTER

INTERNATIONAL LAKE ENVIRONMENT COMMITTEE FOUNDATION

— For Better Lake Management —

This Newsletter is also available in Japanese.

## INTERNATIONAL TRAINING COURSE FOR LAKE / WATERSHED MANAGEMENT IN CHINA

An International Training Course on the Management of lakes and their watersheds was held from July 25th to August 12th in Kunming City (Yunnan Province, China), where a restoration scheme for heavily polluted Dian-chi Lake is going to be launched. The Course was organized by the Chinese Academy of Environmental Sciences (CRAES) in Beijing with the International Lake Environment Committee (ILEC) Foundation as the co-sponsor.

Fifty-four participants consisted mainly of environmental engineers and administrators from the local governments of Kunming City, Yunnan Province and other provinces all over China, as well as researchers from CRAES and several Chinese universities. Two trainees from Thailand (one from National Environment Board and the other from Chulalongkorn University) also participated in the course through the support of the Interna-

tional Society of Theoretical and Applied Limnology (SIL).

This was ILEC's first substantial contribution to a training course outside Japan. Three ILEC members, Profs. T.Goda, S.E.Jørgensen and T.Kira, were sent to the Course as trainers. The topics of their lectures were:

Dr. Kira (July 25th to 29th) "An introduction to recent studies on the environment of Lake Biwa, Japan"

Dr. Jørgensen (August 1st to 5th) "Fundamentals of Ecological Modelling"

Dr. Goda (August 8th to 12th) "Monitoring and measurable indices for water resource management"

Case studies on several Chinese lakes were also presented by the trainees and discussed during the Training Course.



Participants of the training course in Kunming  
(This newsletter published with support from the Japan Shipbuilding Industry Foundation)

## THE 2ND EXPERT GROUP WORKSHOP ON RIVER/LAKE BASIN APPROACHES TO ENVIRONMENTALLY SOUND MANAGEMENT OF WATER RESOURCES

The Second Expert Group Workshop on River/Lake Basin Approaches to Environmentally Sound Management of Water Resources: Focus on Policy Responses to Water Resources Management Issues will be held from 16 to 25 January 1989 in Bangkok and Hat Yai, Thailand under the joint auspices of the United Nations Centre for Regional Development (UNCRD), the International Lake Environment Committee (ILEC), the United Nations Environment Programme (UNEP), and the National Environment Board (NEB), Government of Thailand in association with Chulalongkorn University, Bangkok, and the prince of Songkla University, Hat Yai, Thailand.

The purpose of the workshop is:

- (1) To review the findings of the second-year case studies and related resource papers undertaken by collaborating institutions and experts;
- (2) To examine strategies and approaches to water resources development and management in a river/lake basin context with special focus on institutional and organizational arrangements in which management strategies and policy instruments are formulated and implemented; and
- (3) To suggest, on the basis of the workshop deliberations, an operational framework for developing curricula and materials that can be adopted by developing countries for training development planners and water resources managers.

This study seminar program commenced in 1988 as a 3-year project, and this seminar will be held during its second year. This program is specially planned for developing nations, aiming at discussing the effective management of water resources and at training specialists, as the rapid progress of pollution in lakes and rivers, a valuable source of fresh water, has become a serious problem throughout the world. As has already been reported in the previous issue (Newsletter No. 6), the first seminar was held in Otsu and Nagoya last February, with approximately 40 participants from 14 nations and 2 UN organizations.

*⟨Aim of the second seminar⟩*

At the second seminar, problems in policy making will be discussed in more detail, based on the results of the last seminar.

At the first seminar, reappraisal of the structure of various problems regarding water resources management in developing nations by taking basins into account was stressed, since a large number of these problems have been caused by rapid regional development.

Subjects discussed at this seminar were:

- (1) The need for, and the rationale of, a river/lake basin approach to water resources development and management;
- (2) The applicability of river/lake basin approaches to land and water resources development and management;
- (3) Analysis of issues and problems involved in the efforts to integrate environmental and social concerns into the process of water resources development and management;

- (4) Delineation and analysis of water resources management issues and problems in a region-specific socioeconomic and physical environmental context on the basis of case studies prepared by collaborating institutions and experts; and
- (5) Identification of strategies for promoting manpower development in the field of water resources management.

Main problem domains pointed out in case study reports, etc., include the following:

- (1) Environmental and social effects of water resources development scheme.
- (2) Environmental and social problems resulting from water-land use interfaces.
- (3) Conflicts among competing water uses and users with respect to water quantity and/or quality requirements.

Based on the above, more detailed study is considered to be necessary for practical settlement of problems of water resources at the 2nd seminar.

For this purpose, following points on policy subjects are suggested:

*⟨Subjects of the second seminar⟩*

- (1) What policy actions have been taken to respond to the water resources management issues and problems (particularly those identified and analyzed by the case studies in the first year) in terms of management strategies, policy tools and instruments for putting the strategies into effect, and institutional and organizational arrangements for policy formulation and implementation?
- (2) How and to what extent has environmental and social assessment information been reflected at the various stages of water resources development and management (both at the stages of plan formulation and implementation)? What procedures and mechanisms have been adopted?
- (3) What institutional and organizational arrangements have been adopted to facilitate the integration of



Lake Songkla

- land-use decisions with water resources management?
- (4) How and to what extent have conflicts associated with water use and allocation been mitigated and resolved? What strategies, policy tools and mechanisms have been used?
  - (5) What mechanisms have been adopted to facilitate local community participation in the process of water resources management?
  - (6) What have been the major anticipated and unanticipated consequences — economic, social, and political — of water resources management policy efforts?

**< Tentative Program for the 2nd Seminar >**

The seminar will be held from January 16 to 25, 1989. The duration is somewhat shorter than that of the last seminar. The seminar program, shown in the attached table, is renovated mainly on the following points:

- (1) The seminar will be divided into two parts. The first part, which will be held from January 16 to 21 in Bangkok, comprises mainly case study reports for general discussion suitable for the task of this seminar. In the second part, which will be held in Hat Yai from January 23 to 25, water resources management will be discussed more in detail, taking Lake Songkhla as an example.
  - (2) 9 Case studies will be classified into 3 categories according to problem domain, and presented to orientate and develop practical discussion with relevant general reports (resource papers)
- Case studies are allotted to each problem domain as follows:
- a) Case studies on policy responses to environmental and social effects of water resources de-

velopment schemes:

- Saguling Dam and its watershed (Indonesia)
- Robo-Broa reservoir and its watershed (Brazil)
- Lake Biwa and its basin (Japan)
- b) Case studies on policy responses to environmental and social problems resulting from water-land use interfaces:
  - Dian-chi Lake and its basin (China)
  - Winam Gulf of Lake Victoria and its watershed (Kenya)
  - Yahagi River Basin (Japan)
- c) Case studies on policy responses to conflicts in water use and allocation:
  - Laguna Lake (Philippines)
  - Songkla Lake (Thailand)
  - Kasumigaura Lake (Japan)

**Workshop programme (tentative)**

Part I : 16–21 January 1989, Bangkok, Thailand

Part II : 23–25 January 1989, Hat Yai, Thailand

Date	Morning (8:30–12:00)	Afternoon (13:30–16:00 or 17:00)	Evening
<b>Arrival of overseas participants</b>			
S 15			
M 16	Opening session (part I) Keynote speeches	General theme papers	Reception
T 17	Theme I resource paper Case study reports	Case study report Discussion	
W 18	Theme II resource paper Case study reports	Case study report Discussion	
T 19	Theme III resource paper Case study reports	Case study report Discussion	
F 20	Working group (WG)	Working group (WG) Presentation and discussion of WG reports Closing of part I	
S 21	<b>Field visit</b>		
S 22	<b>Move to Hat Yai (*)</b>		
M 23	Opening session (part II) Review papers I	Review papers II Review papers III	WG session
T 24	<b>Field visit in and around Songkhla Lake</b>		
W 25	WG session	Presentation and discussion of WG reports Closing (part I)	WG session
T 26	<b>Departure of overseas participants</b>		

(\*) Participants who will not take part in part II of the workshop will leave Bangkok on Sunday, 22 January 1989.

## THE 6TH IWRA WORLD CONGRESS ON WATER RESOURCES

The 6th IWRA World Congress on Water Resources was held on a grand scale at the Ottawa Congress Center, located approximately in the center of Ottawa, Canada, during 6 days from May 29 to June 3, 1988.

This Congress is an international conference which has been held every 3 years to provide a meeting place for organizations from many nations interested in various aspects of water resources development and management.

During this congress, having the theme of "Water and World Development", an active exchange of opinions took place during the keynote speech, the presentation of papers, the general meeting and on other occasions.

Nearly 600 participants from various fields — engineers, planners, scientists, consultants, students, industrialists, etc. — and from both developing and

advanced nations met at the meeting.

On this occasion, all participants learned a great deal by communicating their experience to each other, making presentations, etc.

Representatives of ILEC attended this congress.

This formal introduction, made possible through the kind offices of UNEP and those concerned, took place during a special UNEP session, "Sustainable Water Resources Development," on the afternoon of May 31 (Tues.).

For this occasion, Prof. Saburo Matsui, a member of the ILEC Scientific committee, reported on the circumstances which led to the establishment of ILEC and the objectives and activities of ILEC, and urgently requested support and cooperation for future ILEC activities from the large number in attendance.

## UNCRD/ILEC OVERSEAS MISSION

As part of the joint project of UNCRD, ILEC and UNEP, "River/Lake basin Approach to Environmentally Sound Management water Resources", UNCRD and ILEC sent a mission to the Philippines and Thailand from August 10 to 19.

The mission participated in seminars held in those countries on the research in the second year of the joint project, at which meetings the aim, focus, details etc. of case studies were discussed. Also, the mission conducted scientific research on Lake Laguna in the Philippines, Lake Songkla in Thailand and regions surrounding these lakes.

Mission members from Japan consisted of Dr. Kenichi Nakagami, Assistant Professor of the Business Administration Faculty of Osaka Sangyo University, Mr. Hideo Harasawa, Senior Researcher of the National Institute for Environmental Studies and four other members. Those who participated in the mission's activities included Ms. D. N. Nepomuceno, manager of the Project Planning and Development Division of the Laguna Development Authority; Ms. V. Espaldon, Research Associate of the Institute of Environmental Science and Management, the University of Philippines (Los Banos); Mr. A. Suphapodok, Deputy Secretary General of the National Environmental Board, Thailand; and Prof. S. Sothibandhu, Dean of the Graduate School, the Prince of Songkla University, Thailand.



Seminar at Songkla University

At the seminars, case study teams of the Philippines, Thailand and Japan outlined their second year research on lakes; this was followed by lively discussion. The results of these discussions and field investigations of lakes in developing nations will be profitably utilized in preparing case study reports, resource papers etc.

## SURVEY OF THE STATE OF WORLD LAKES — Interim Report —

ILEC has been conducting an investigation on the state of the world's lakes as a joint project with UNEP.

This project has been planned and promoted to provide basic and important information on world lakes and their drainage basins. This project was born to inherit and further the aim which was compiled of the Data Book of World Lakes by the Lake Biwa Research Institute and the National Institute for Research Advancement (NIRA) for the Shiga Conference '84 on Conservation and Management of the World Lake Environment.

The objectives of the project include the following:

- (1) Preparation of a data book on the present state of lakes

To collect data, questionnaires were sent to researchers and administrative organs in various countries who could be expected to provide information. However, as organizations which provide information are unknown in many cases, personnel of the secretariat have also been sent to gather information on the scene. Data collected cover not only geographical and scientific aspects, but also a wide range of socioeconomic aspects such as water utilization and treatment. As has already been reported, data for several lakes have been compiled into a looseleaf preliminary publication.

- (2) Preparation of a catalog on the general condition of lakes

There are 253 large lakes with surface areas of more than 500 km<sup>2</sup> in the world. For most of these lakes, however, the breadth of available data is not sufficient to include in the above-mentioned data book. Accordingly, materials have been collected to prepare a simple catalog showing the most basic data. For this catalog, data collection jointly with the Canada Centre for Inland Waters (CCIW) is also planned, as there are a great number of lakes in Canada.

- (3) Case study on environmental conservation

Though the above-mentioned data book shows the present situation of lakes, the history and effectiveness of measures for environmental conservation can only be understood via a more in-depth treatment of the subject. Accordingly, we have asked researchers and administrators acquainted with particular cases to make case studies on environmental conservation for a limited number of lakes. Reports have already been made for several lakes, including Lake Kariba in Zimbabwe and Lake Balaton in Hungary.

## PREPARATION OF THE GUIDELINE BOOKS

The Guideline Book No. 1 "Principles of Lake Management" is now in the last stage of preparation, and will soon be published.

This Book which focuses on lakes and reservoirs, explains the outline of the behavior of substances in lakes, the utilization of models and renovation techniques for water quality control, as well as guidelines for planning and management for the conservation of lake environments. In addition, case studies for Lake Laguna in the Philippines, reservoirs in Brazil and the Saguling Dam in Indonesia will be presented.

## THE 2ND GENERAL MEETING OF THE SCIENTIFIC COMMITTEE, ILEC

The 2nd General Meeting of the Scientific Committee will be held in Budapest, Hungary, from September 18 to 20, 1988, following the 3rd Conference on Conservation and Management of the World Lake Environment.

Topics to be discussed at the Meeting include:

- (1) The 4th Conference on Conservation and Management of the World Lake Environment (China)—discussion on the original plan prepared by China
- (2) Cooperation with IWRA (International Water Resources Association)
- (3) ILEC project
- (4) Adoption of articles on foreign aid in the ILEC Constitution

## DESALINATION PROJECT FROZEN AFTER 25 YEARS, ¥72 BILLION

1988 July the 5th, the Ministry of Agriculture, Forestry and Fisheries decided to virtually scrap the 25-year-old desalination project in Nakaumi and Shinjiko lakes in western Japan, on which the government has already spent ¥72 billion.

The decision was made in response to a proposal presented by the governors of Tottori and Shimane prefectures.

The proposal asserts on the ministry that although desalination is still necessary for the development of the area, it is likely to result in contamination of the water in the lakes.

According to the ministry, the national government's project was started in 1963 to increase rice farmland.

With a budget of ¥99 billion set aside, the project was scheduled to be completed in 1992.

The plan was to drain and reclaim about 2,500 hectares for farming in five areas of Nakaumi lake, which lies in Tottori and Shimane prefectures.

A second purpose was to turn the brackish water of Nakaumi and Shinjiko lakes into fresh water for farming on the reclaimed land and other farms in the nearby area by separating the two lakes from the Sea of Japan with dams.



Shinjiko

## INAUGURATION OF AN EXPERT REGISTRATION SYSTEM TO AID DEVELOPING COUNTRIES (ENVIRONMENTAL AGENCY, JAPAN)

In recent years, the Environmental Agency has been actively promoting cooperation with developing countries in environmental conservation, with the help of local public organizations. To further this aim, the Council for Deliberation on International Technical Cooperation for Environmental Conservation was established at the request of the Chief Cabinet Secretary for deliberation on cooperation for environmental conservation and the establishment of a system in Japan. As a result of this deliberation, in April, the Council produced the report "On Measures for Effective Promotion of Cooperation with Developing Countries for Environmental Conservation". In this report, the Council points out that, in order to improve cooperation with developing countries for environmental conservation qualitatively and quantitatively, it is essential to establish a system which meets requests from developing countries swiftly and efficiently by registering experts who can then be sent to these countries.

Recently, in particular, it has become difficult to cope with the increasing number of requests for technical cooperation from developing countries.

Under these circumstances, the Environmental Agency has decided to implement a system for the registration of experts who can be sent to developing countries. Experts to be registered will be invited in writing from local public organizations and organizations related to the Environmental Agency.

Qualifications required of candidates to be registered experts are as follows:

- (1) Expert knowledge useful for environmental conservation in developing countries, in the following areas: Policy-making, planning, investigation, research, measurement, analysis, knowledge of the legal system, assessment of environment, etc., in fields such as air pollution, water pollution, offensive odors, noise pollution, vibrations, earth pollution, contamination by agricultural fertilizers, land subsidence, waste matter, and protection of nature (natural parks, wildlife reserves, etc.)
- (2) Will to engage in technical cooperation in developing countries in the future as a Japan International Cooperation Association expert
- (3) There are no particular requirements as to academic career, linguistic ability, age, service experience, etc.

# THE FIRST CONFERENCE TO SAVE LAKE CHAD

The First Conference for preparations of a master plan to save Lake Chad took place in the Conference Hall of the Lake Chad Basin Committee (LCBC) Secretariat in N'Djamena, Chad, during 6-12 April, 1988 (Working Group of Experts, April 6-9; Ministers of Environment, April 11-12).

The adverse effect of the current drought in the Sahel belt has resulted in very drastic and alarming changes in the environmental conditions of the Chad Basin and surrounding areas. In view of the situation, the sixth summit of the LCBC held last October decided that a meeting of ministers responsible for environmental matters be convened at soonest to draw up a masterplan to save the Lake. The summit also appealed to international organizations to assist in implementing the master plan. Consequently UNEP has offered to assist the commission with a project to make the necessary studies and draw up the master plan. In the discussions between UNEP and LCBC, it was found necessary to establish a multidisciplinary working group of experts from the member states and all interested organizations to prepare terms of reference for the master plan.

Present were representatives of LCBC member-countries (Cameroon, Niger, Nigeria and Chad), Central Africa, Zaire, Italy, ADB, ECA, EEC, FAC, IUCN, UNDP, UNEP, UNESCO, UNSO, USAID, World Bank, Bonifica and ILEC. In response to an invitation from LCBC, a representative of ILEC attended the Conference in line with cooperation policy to EMINWA Program of UNEP. During the meeting, the global situation of the Lake Chad Basin was examined, and it was agreed that the grave situation needs to be urgently addressed and thus a series of actions was approved namely:

- (1) a study for the Management Scheme leading to the master plan and Action Programme for the Environmentally Sound Management of the Basin's natural resources to be prepared with the assistance of UNEP;
- (2) launching of an international campaign to save Lake Chad. The Ministers have also adopted a resolution on a request for assistance from the Italian Government for necessary studies of an interbasin water transfer from the neighboring Zaire river basins into the Chad basin.

The next meeting of the ministers of the Environment of the Member States of the LCBC will be held in N'djamena in the first half of November, 1988.

## PRESENT SITUATION OF THE BASIN

Centrally located in the African continent, the Basin of Lake Chad covers an area of 2.5 million sq. km, stretching over several countries. It is a closed basin with no outlet to the seas, and about half of its area is desert.

Since the late 1960's the basin has witnessed a prolonged drought with increasing severity. In fact the drought of 1974 and 1984 were some of the worst in the basin's history with as low as 30% of normal rainfall recorded at some stations. Whereas there has been

great reduction in rainfall the evaporation continues to remain high, thereby resulting in an increased deficit in the basin's water resources.

This is evident in the low flows recorded on the basin's



Dried up lake

water courses and reduction in the area of Lake Chad. Thus Lake Chad which until the 1960s occupied an area of up to 25,000 sq. km, has had its area reduced to about one-tenth by the end of the 1970s. Sand dunes from the advancing desert have taken over the dry bed of the Lake Chad. Flow levels on the major rivers, the Chari, Logone and Yobe, have greatly declined. The total flow of the Chari-Logone system for three consecutive years 1983/84, 84/85 and 85/86 was barely equal to the flow for a normal year before the drought.

Other water courses in the basin have not fared better. In fact the rivers Yedseram, Ebiji and Ngadda were totally dry in certain years notably 1984 and 1987. Losses to evapotranspiration in the flood plains continue to characterize the hydrologic system of the basin.



Reduced Lake as in October 1987

# LAKES OF THE WORLD

## MTERA RESERVIOR

The Rufiji Basin Development Authority (RUBADA) has proposed a program for comprehensive, long-term management of the economically significant Mtera Reservoir.

The Mtera Reservoir is situated in the Rufiji Basin of Tanzania's Rufiji River System. With a volume of 3.2 billion cubic meters, and a surface area of 60,000 ha., Mtera Reservoir receives water from a catchment of 68,000 sq. km.

Over 80% of Tanzania's hydropower potential lies within the Rufiji basin, and about 600,000 ha. in the basin are suitable for irrigation development. Fisheries, forestry, and tourism also offer great development potential in the Rufiji Basin.

### CAUSE FOR CONCERN

There are several practical reasons why attention is needed in Rufiji Basin.

In recent years, the fisheries potential of the reservoir has been endangered by an uncontrolled influx of fishermen and the practice of over-exploitative fishing methods.

Deforestation in the upper catchment areas of the Great Ruaha River is causing an increase in soil erosion and sediment transport into the reservoir.

Other concerns include the need to monitor the development of Kariba weed and water hyacinth, which have caused economic losses elsewhere in Africa; and the need to monitor the interaction between the reservoir and wildlife from the nearby Selous Game Reserve.

And, of course, a better understanding of hydrological, biological, limnological and sociological aspects are essential for management, planning, and conservation of basin resources in general.

### PLAN OF ACTION

RUBADA has formulated and proposed the Mtera Reservoir Management Project with the following objectives:

- development of a rational utilization of fisheries resources of the reservoir through fisheries research, education and management of fishing activities.
- promotion of soil conservation through proper land use planning in the draw-down areas and the catchment area in

general.

— study of migration patterns of wildlife with respect to the reservoir in order to devise methods of protecting both wildlife and the shoreline.

— assessment of possible tourism opportunities offered by the reservoir's proximity to the Great Ruaha National Park, and by recreational boating on the reservoir.

— collection and analysis of inflow and outflow data, as well as evaporation data, in order to establish their relationships and recommend an optimum operational regime of Mtera and Kidatu (downstream) reservoirs and power stations.

— execution of biological and limnological studies of the reservoir, as well as inflowing and release waters in order to obtain planning and management data.

### LOCAL AND INTERNATIONAL EXPERTISE

Because of the multi-disciplinary nature of the project, a team of experts of various fields would be required to carry out specific assignments of the proposed project.

Key manpower in land and water resources, agriculture, energy planning and general river basin management planning would be provided by RUBADA. Specialists would be obtained from various institutions in Tanzania.

Initially, however, an international expert in water resources management would be required for a period of three to six months to assist in setting up the project.

### FOR THE PEOPLE

The Rufiji River System is a major source of natural, social and economic resources to the people of Tanzania. The formulation and execution of a sound long-term, comprehensive management program is essential not simply to protect resources, but to advance the well-being of people. The adoption of the RUBADA project has the potential of providing such a stimulus.

abridged from  
R.S.Matondane  
Director of Finance, RUBADA

# INFORMATION

## 4th GAP Group Primary Productivity International Workshop

The Forth GAP International Workshop was held at CREMAL-L' HOUMEA, near La Rochelle, France from 16-22 April 1988. The theme of the meeting was "Microalgal Growth: Input and losses; Practical Approaches". By all criteria this was the most successful of GAP functions to date, with almost all of the eighty participants actually being actively involved in experimentation. The Workshop, which was meticulously organized by Dr. Serge Maestrini, his Local Committee and staff, was held in the new well-equipped CNRS-IFREMER facility.

The laboratory is housed in a former Religious Institution. This setting provided not only appropriate inspiration, but

also very adequate space for four Working Groups in the following topics; Biomass (Coordinator, T.Berman); Oxygen electrodes (Z.Dubinsky); Radioisotopes (M.Tilzer); and stable isotopes (M.Sakamoto). Participants had access to all the laboratory facilities at CREMA-L' HOUMEA and in addition, two research vessels for sampling and experimentation at sea and at a nearby oyster pond.

The Keynote speeches and the experimental results will be published in Marine Microbial Food Webs (Editor, P. Bougis and F. Rassoulzadegan, Station Zoologique, 06230 Villefranche, France).

The Forth International GAP Workshop will have as its theme "Biomass Measurements and Microalgal Dynamics" and will take place in spring 1990. Exact data and locale will be announced shortly.

## FORTHCOMING MEETINGS

### 1. International Seminar on Education and Training in Water Resources in Developing Countries

Date: December 13-17 1988  
Place: Aurangabad(India)  
Secretary: C.V.J.Varma  
Organizing Secretary  
International Seminar on Education and training  
Central Board of Irrigation and Power  
Malcha Marg, Chanakyapuri,  
New Delhi-110021, India  
Tel: (91) (11) 3015984  
Cable: CENBIP (ND)

### 2 . International Seminar for Environmentally Sound Management of Lake and Reservoirs Basin with Emphasis on Water Quality

This seminar is organized by National Institute of Hydrics Science and Technique, HIDRONOR S.A. and Salto Grande Joint Technical Commission and under the auspices of ILEC and United Nation Centre for Regional Development (pending request) will be held in Argentina from October 31st to November 10th 1988.

Secretariat  
INCYBI-CTUA  
Mail Box NP 7-Ezeiza International Airport.  
Buenos Aires-Argentina(1802)  
T.E.: (01) 620-0866/9073

### 3. HYSEA '88 ANNUAL SYMPOSIUM

Date: December 13-16, 1988  
Place: Dapartment of Zoology, Univeresity of Nairobi  
Sponsored: Hydrobiological Society of East Africa  
Secretariat: Dr.W.M.Kudoja  
Zoology Department  
University of Nairobi  
P.O.Box 30197  
NAIROBI-KENYA  
Tel.43181 Ext.503

## PUBLICATIONS

### "Topics in LAKE and RESERVOIR HYDRAULICS"

Editors: Prof.W.H.Graf and U.Lemmin  
Price: 45 Swiss Francs.

This book presents the reviewed and edited papers presented as part of the proceedings of the XXII Congress of the International Association for Hydraulic Research (IHRA) held in Lausanne in 1987. Treated are such topics as: sedimentary aspects, hydrodynamic aspects; hydraulic aspects and engineering aspects.

For purchase write to: Prof.W.H.Graf, Laboratoire d'hydraulique Ecole Polytechnique Fédérale de Lausanne CH-1015 LAUSANNE, Switzerland

---

### CALL FOR ARTICLES

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

---



### INTERNATIONAL LAKE ENVIRONMENT COMMITTEE FOUNDATION

Secretariat  
4-1-1 Kyomachi, Otsu, Shiga 520, Japan  
Tel : 0775-25-1076 Tlx : 5464850 ILEC J Fax : 0775-23-1581  
Cable : ILEC OTSU