



Information on InfoMAB

The collection, handling and dissemination of information on the MAB Programme at the national, regional and global levels is a key ingredient of programme implementation and ultimately in determining the relative success of MAB. There is, however, a gap to be filled in the current MAB Information System in order to provide news quickly and efficiently from and for the MAB community of research workers, teachers, decision-makers, natural resource managers. The diversity of MAB-related activities and research projects is such that many forms of communication are necessary - the MAB Report Series, Technical Notes and State of Knowledge reports being examples. Others include MAB news releases in periodicals, including Nature and Resources, INTECOL Newsletter, Forêt Méditerranéenne, Wallaceana, etc. or the MAB-2 Newsletter prepared under MAB-Czechoslovakia. However, several MAB National Committees have already begun a simple news exchange system using newsletters - some of which (e.g. MAB-USA, MAB-Canada, MAB-Australia) are published regularly. The Unesco Regional Office at Montevideo Uruguay issues a "Boletín-ECO" devoted to MAB activities in Latin America. InfoMAB, presented here for the first time, is not a substitute for these efforts, but rather

a complement at the international level. InfoMAB will be published when there is enough accumulated information to warrant its compilation and distribution to those working in MAB; it will therefore (at least initially) not be issued on a regular basis, nor will it remain static in presentation. Above all, it is a vehicle for international dissemination of MAB information, which means it depends on MAB National Committees for project news, data on publications, announcements of meetings, training seminars, etc. In order to keep InfoMAB updated and dynamic, InfoMAB needs information from you, sent via the MAB National Committee of your country. All news, queries, suggestions, criticisms and comments should be addressed to the MAB Secretariat, Unesco, 7 Place de Fontenoy, 75700 Paris, France.

MAB Management Unit created

In order to improve the management of the MAB Programme within the Unesco headquarters' structure, the Director-General has decided to consolidate within one unit (the Division of Ecological Sciences) the staff and MAB activities in the natural and social sciences sectors of the Organization. This move is intended to reinforce the cohesiveness and interdisciplinary character of MAB within the new framework provided by Unesco's 1984-1989 Medium-Term Plan.

contents

Major Ecological Issues
MAB General
Tropical Forests/Savannas
Marginal Lands
Urban Systems
Conservation

Postgraduate Training Courses
MAB Publications
Annotated Bibliography
Meeting Timetable
News from the Man and the Biosphere Secretariat

MAJOR ECOLOGICAL ISSUES

Acid rains - problems, discussions and solutions

There is an increasing recognition of the scientific evidence of the link between sulphur (SO_x) and nitrogen (NO_x) compound emissions and the deposition of acids (sulphuric and nitric) or ammonium compounds in the environment.

This deposition of SO_x or NO_x may be either through precipitation (wet deposition) or through a settling process (dry deposition) - usually on vegetation or moist surfaces. The former phenomenon is best known as acid rain, although acid snows and fogs also occur. The primary sources of SO_x and NO_x emissions are coal, gas and oil power plants (particularly for steel, cellulose and electric industries) and automobile emissions.

Acidic deposition has a direct effect on the pH level of all surfaces on which it occurs, be this on water, as in lakes or streams, vegetation or buildings. In aquatic systems, the effects on the flora and fauna has been well chronicled; the increased acidity of North American and European streams and lakes has risen from a norm of pH 5 or 6 to pH 4 or lower. This has resulted in the "death" of these streams and lakes, as the native fauna and flora cannot reproduce or survive in such acidic environments. On vegetation, acid deposition results in decreased productivity, defoliation and death. It is estimated that more than one third of forests in the Federal Republic of Germany are severely damaged or dying as a result of acid deposition. Over half of the 244 assessed forests in Sweden are seriously damaged, with 1 out of every 10 trees either diseased or dying. Solid surface deposition of acids has resulted in damages to such well-known monuments as St. Mark's Cathedral in Venice, Cleopatra's Needle in London and the Obelisque in Paris, through a constant chemical erosion of the buildings' surfaces by sulphuric acid. Solid surface acid deposition also seriously affects

soil pH. Increased acidity results in the release of certain toxic metals as aluminium and mercury, as well as directly damaging root systems of many plants. These damages are predictable and costly. Methods of controlling emissions do exist to avert continuing damage. The commonest of these are:

1. installation of "stack scrubbers" in the smokestacks of coal, oil and gas-fired power plants;
2. using desulphurised fuels - such as fine pulverised coal;
3. using desulphurised fuels which have had physical or chemical "washes" before burning;
4. injection of a base, usually lime, during combustion. Lime Injection Multistage Burning (LIMB) is such a method.

All these methods are rather costly and are therefore not attractive to the industries who would have to use them. However, on the other hand, the sulphur product emissions from certain industrial processes, notably chemical, cellulose and metallurgical industries - can be used to make lucrative by-products, such as industrial sulphuric acid. This kind of "acid co-generation" may serve as an economic incentive to certain industries to reduce their gaseous sulphur emissions.

These "process sulphur" emitters, however are only a part of the problem. Regulatory solutions will probably be required for other major acid emitting industries, for automobile emissions and "energy sulphur" emitters. This is a complex process as, in order to convince governments and the public of the need and worth of such regulations, more hard data are needed on the cause and effect and the long term costs of acid deposition. In particular, data are required on topics such as: point source proof for acid emission, associated health costs from lung disease, costs for loss of timber over a period of 10-20 years of acid precipitation, cost in loss of fisheries etc.

The complexity of this regulatory process is frequently compounded by the international nature of air pollution and acid deposition. In the northern

hemisphere, serious debate has evolved over the question of energy sulphur production in one country, where it has associated economic benefits, and sulphur or nitrogen acid deposition in another country, where it has associated environmental damages and costs. In such cases, the question is raised, often very bitterly, as to who must pay for the acid deposition damages - a common answer being that either emissions are substantially reduced or the acid pollution produced must pay for associated damages. International legal institutions have not yet developed any adequate system for arbitrating or regulating such international disputes. Recognition of both the severity and immediacy of the problem of acid deposition, and of the need for present solutions was accorded at the recent international meetings on acid rain in June 1983 in Geneva and in March 1984 in Ottawa, Canada. These meetings resulted in the signature by 10 countries of a declaration to reduce the pollution which leads to acid rain. The main points of this declaration were:

- (i) reduction of annual sulphur emissions by at least 30% of 1980 levels as soon as possible but at least by 1993;
- (ii) recognition that further reduction might be necessary;
- (iii) need to decrease nitrogen oxide emissions.

MAB has been actively following the question of acid deposition and has helped to organise various expert meetings and related research. The experts' meeting on "Air Pollution and Stability of Coniferous Forest Ecosystems", organised by the MAB National Committee for Czechoslovakia on 1-5 October 1984 in the Beskdy mountains, is one such activity. Indeed, MAB is interested in encouraging long term research on the biological effect of acid deposition, particularly as there is a need for the long term monitoring of major ecological stresses. In this respect, the international biosphere reserve network can play a major role, by providing a network of sites for baseline research on the effects of such acid deposition.

MAB GENERAL

Africa leads the way in Yamassoukro

At the invitation of the MAB National Committee of the Ivory Coast, whose Chairman, Mr. Balla Keita, is also Chairman of the MAB Council, an experts' meeting of French-speaking African countries will be held in Yamassoukro from 27-30 August 1984. The meeting has received support from MAB-France, the Agence de Coopération Culturelle et Technique (ACCT-France) and MAB-Unesco. A total of 22 francophone countries of the African continent will be sending representatives and there will also be specialists from Canada, Fed. Rep. of Germany, France and Spain. Mr. Balla Keita, who is also Minister of National Education and Scientific Research of the Ivory Coast, has invited key specialists working within MAB to meet together to review the participation of francophone African countries in the MAB Programme and to determine priorities and directions for the future. A review will be presented for each of the main themes for discussion, tropical forests and savannas, arid and semi arid lands, conservation of natural heritage and urban systems, as well as an analysis of the problems of organising, coordinating and financing future activities under these themes. Emphasis will also be given to the role and the future of MAB National Committees, for example in running and financing pilot projects, and the strengthening of regional and international cooperation in the fields of research, training, information exchange and documentation. The results of the Yamassoukro meeting will be presented to the MAB Council at its December session.

Applying traditional technologies in modern development

A new international project on ethnobotany and ethnobiology is being launched by MAB in order to revitalize and apply traditional knowledge and techniques in ecologically sustainable development. Indeed, the wealth of

environmental knowledge of traditional cultures which is still used in many tropical or marginal areas is of great interest and value to mankind, as well as constituting part of the cultural heritage. MAB has worked in this field before with projects such as the chinampas of Mexico or the agro-sylvicultural projects in East Kalimantan (Indonesia), but on a relatively restricted and specific scale.

The new project will serve on a more global scale and will initially focus on the publication of source and reference material. Future research and demonstration projects will be concentrated in MAB biosphere reserves, which have an important role to play in the long term survival of traditional cultures. For further information, please contact Mr. Jacques Barrau, Laboratoire d'Ethnobotanique et d'Ethnozoologie, Museum d'Histoire Naturelle, 57 Rue Cuvier, 75005 Paris, France. Mr. Barrau would also be interested to learn of other countries interest in cooperating in this MAB activity.

Regional Seminar on Environmental Perception - Latin America

The first regional seminar on Perception of Environmental Quality (MAB Project 13) was held in Montevideo (Uruguay) at the Unesco Regional Office for Science and Technology (ROSTLAC), 24-27 April, 1984. MAB scientists from fifteen countries attended, presenting their research on topics as diverse as urban planning, to ethnology to soil science, in order to see how they might use environmental perception in their work. Scientists from five ongoing MAB projects gave overview papers on their research as a general introduction to the field.

The emphasis of the meeting was to show how the integration of natural and social sciences, through the use of environmental perception studies, can help make scientific research more practical and applicable to the broader public sector. Some of the conclusions

of the meeting were as follows:

1. Perception studies are a very useful approach in Latin America for the integration of natural and social sciences;
2. Public participation in environmental research is essential to increase the usefulness and applicability of such research for a broader public audience;
3. Integrated, community-based, low technology projects such as the integrated farms (chinampas) of Xalapa, Mexico are a model to be followed in encouraging environmentally sustainable rural development.

Results of the meeting will be published at the end of the year.

For more information contact B. Orejas at the Unesco Regional Office at Montevideo (Uruguay).

New ecology institute founded

The University of Chile, Santiago, has recently founded an Institute of Ecology whose work will contribute to better understanding the environment and improving natural resource management in Chile. It is to be noted that the Director of this Institute, Mr. Alberto Veloso of MAB Chile, along with Ms. Mary Kalin, Mr. Jose Valencia and Ms. Carolina Villagrín of the University of Chile, won the \$10 000 Faivovich Prize in 1983 for their work on Andean ecosystems carried out under a MAB 6 project.

MAB future to be discussed in December

The International Coordinating Council of MAB will meet for its 8th session at Unesco Headquarters on 3-8 December to decide upon the future directions of the MAB Programme. The original 14 project approach served its purpose of providing an initial framework for MAB activities, but it is realised that further concentration is needed to use more efficiently the scarce economic and human resources available in view of the pressing needs of research and training on the key environmental problems of the biosphere.

Accordingly, this session will be one of

the most important ICC meetings since the launching of the MAB programme in 1971.

It is recalled that the MAB-ICC consists of 30 countries, as elected at the 22nd Unesco General Conference. For the 8th session, these are: Benin, Bulgaria, Burundi, Byelorussian Soviet Socialist Republic, Canada, Chile, China, Colombia, Cuba, France, Germany (Federal Republic of), Guyana, India, Italy, Ivory Coast, Japan, Kenya, Lebanon, Malaysia, Mexico, Morocco, Nepal, Nigeria, Spain, Sweden, Syrian Arab Republic, Union of Soviet Socialist Republics, United Republic of Cameroon, United States of America, Zambia.

The draft agenda has been circulated to the MAB National Committees of the Council. All other MAB National Committees are invited to send representatives to attend the Council session as observers. As was indicated in the MAB Circular letter n° 12/84, all National Committees are requested to inform the MAB Secretariat as soon as possible of the name(s) of their representative and/or experts.

MAB at the national and local levels in Central Africa

Heightening public awareness to the need to rationally use and conserve natural resources was the objective of the national MAB seminar, held in Bangui, Central African Republic on 1 to 4 February 1984. This seminar drew together the members of the MAB National Committee for the Central African Republic and representatives of the various ministerial departments concerned with environmental matters. Review papers, some of which were presented in the local language, dealt with topics of local interest including agricultural systems based on slash and burn clearance of forests, bushfires, pesticides and aquatic ecosystems, poaching, use of biomass and renewable energy, etc.

This seminar, which was supported by Unesco-MAB, drew up 14 recommendations on training and research related

to the topics of discussion.

MAB postcards

In early 1984, the MAB National Committee for Indonesia, with the National Biological Institute (LBN) of Indonesia, produced a series of a dozen postcards as part of their informal environmental education activities. These colour and black and white postcards depict the winning entries of a children's drawing and painting competition, organised by MAB Indonesia. Subjects include village life, volcanoes, airport scenes and real and imaginary animals. These pictures have also been used to prepare a calendar for 1984.

Further information can be obtained from the MAB National Committee for Indonesia.

The 25th International Geographical Congress will be held in Paris (France) from 27 to 31 August 1984. About 1,800 geographers from some 70 countries have registered for the congress, which is organised every four years by the International Geographical Union (IGU) in one of its member countries. As in the past, Unesco is a co-sponsor of this Congress. A major part of the Paris Congress Programme and a number of the 38 pre-Congress Symposia are of great relevance to the MAB Programme. Moreover, close links have been developed over recent years between Unesco-MAB and a series of IGU Commissions and Working Groups which work on MAB-related issues such as mountain geo-ecology, resource management of drylands, perception of the environment and on cartography of a dynamic environment.

TROPICAL FORESTS/SAVANNAS

News on the African Biosciences Network

Officially established by ICSU and Unesco in 1983, the African Biosciences Network (ABN) consists of the member

countries making up the three sub-regions of East and Southern Africa, Central Africa and West Africa. Its purpose is to help the African Nations to build up their own infrastructure so that they are better able to undertake their own research on pressing problems in agriculture, food production, medicine, and other areas of biotechnology that confront them. Emphasis lies on linking the small groups of scientists and technologists in individual countries to collaborate effectively through the concept of networks, which is the hallmark of the International Biosciences Network. On 18-20 July 1984, the Regional Executive Committee of the ABN met for the third time in Dakar (Senegal) to establish regional and subregional programmes for the network. Of particular interest is the International Symposium on African wildlife which will be held on 8-11 December 1984 in Kampala, Uganda. For more information on the ABN, please contact Ms. E. Wangari at the Unesco Regional Office, Dakar.

International savanna symposium

The management of the world's savannas was the theme of an international symposium held at Brisbane, Australia, from 28-31 May. Sponsors included the Australian MAB National Committee, CSIRO, the Australian Academy of Sciences, Unesco-MAB and other international organisations. Some 180 participants from 21 countries took part. The first two days were devoted to a series of invited papers dealing with the structural and functional aspects of the savanna ecosystems of different regions. The third and fourth days comprised papers concerning land-use effects, problems and solutions in savanna lands. The symposium proceedings are to be published by the Australian Academy of Sciences: further information can be obtained from Mr. J.C. Tothill, Division of Tropical Crops and Pastures, CSIRO, Cunningham Laboratory, St. Lucia, Brisbane,

Queensland, Australia.

One particularly interesting outcome of the symposium was the proposal for a collaborative programme of research on "Responses of savannas to stress". The rationale of such a proposal is to develop a predictive understanding of the structural and functional ways in which savannas respond to different kinds of stress such as drought, grazing, or clearing in order to determine the "critical limits" of such changes and thereby develop management techniques to increase productivity and reverse the widespread degradation of savanna lands. This proposal is of special interest for the development of collaborative MAB research in the tropics.

From swamplands to farmlands

A new centre for research, training and demonstration in agro-pisciculture will be opening this year in Nacajuca, Tabasco State, Mexico. This centre is one of the several follow-up activities of the original MAB chinampas - or integrated farming - project in Xalapa, Mexico, undertaken by the National Institute of Biotic Resources Research (INIREB) of Mexico. The chinampas agricultural system is highly productive, simple and inexpensive, involving the combination of aquaculture and intercropping. The basic concept has been adapted to different ecological regions of Mexico such as Veracruz and Puebla States. In Nacajuca, particular success has been achieved with the production of mussels and papayas. The new centre is funded by local, State and Federal agencies but the local people are primarily responsible for running the experiments on integrated farming systems. The centre is expected to expand, and its work will also include the establishment of a series of ecological reserves in Tabasco State, using the MAB biosphere reserve concept as a model, but on a smaller scale.

More information on the chinampas integrated farming system, including publications and audio-visual

materials, can be obtained from: Mr. Fernandez, Integrated Farm Project, INIREB, Apartado Postal 63, Xalapa, Mexico.

MARGINAL LANDS

Conference on Mediterranean-Type Ecosystems

Mediterranean-type ecosystems - characterized by sclerophyllous fire-adapted brush vegetation - are the most geographically dispersed ecosystems in the world, with examples in the continents of North and South America, Africa, the Mediterranean basin proper, and Australia. It is, therefore, fitting that scientists from these separate regions meet at periodical intervals to review research findings and compare similar management problems and solutions.

The 4th Conference on Mediterranean-type ecosystems was held at Perth, Australia on 13-17 August 1984 and supported by Unesco-MAB. Conference symposia topics included: diversity of mediterranean-type ecosystems and their distribution, fire, resilience, weed invasions, man-induced perturbations, grazing, recovery from disturbance, mineral nutrition, morphology and life-form.

For more details, contact the Conference and Development Office, University of Western Australia, Nedlands, W.A. 6009, Australia.

International Rangeland Congress

Unesco-MAB was a co-sponsor of the Second International Rangeland Congress which was held in Adelaide, Australia, from 13 to 18 May 1984. About 450 specialists from 32 countries participated in this major scientific event which took place four years after the first congress held in Denver, USA. One of the 13 congress symposia was devoted to MAB activities concerned with rangelands. Convened by Mr. R.A. Perry, Australia, this sym-

posium focused its attention on a small number of selected examples of MAB activities concerned with rangelands and took as its approach that man is the key element in making any improvements in a grazing system. The examples presented were: the joint Morocco-USA project to develop a professional network in range sciences in Morocco that now encompasses research, formal education, and extension services; the Integrated Project on Arid Lands (IPAL) in Kenya; and the project "grazing ecosystems and socio-anthropological organisation in Chile". Comparing the Congresses of Denver and Adelaide, some participants felt that some progress had been made in interdisciplinary studies on rangelands, particularly concerning the integration of social and economic aspects with natural sciences and modern technology. In addition to the publication of the Congress proceedings by the Congress organizers, the papers presented at the MAB symposium will be published in a separate volume thanks to the initiative of the range scientists at Utah State University and the financial support of the U.S. Grazing Lands Committee for the MAB Programme. More information on the latter can be obtained from Mr. Peter Joss, CSIRO, Private Bag Deniliquin, New South Wales, 2710, Australia.

A new Centre for Mountain Research and Development

On 5 December 1983, the International Centre for Integrated Mountain Development (ICIMOD) was inaugurated in Kathmandu, Nepal, by the Prime Minister of Nepal. The Centre is an autonomous institution whose aim is to provide the scientific knowledge and trained personnel needed for ecologically sound and economically viable development for the Hindu Kush-Himalayan region, both the high mountain and dependent lowland areas. The opening ceremony was attended by representatives of all eight countries having territories in the Hindu Kush-Himalayas (Afghanistan, Bangladesh, Bhutan, Burma, the People's Republic of

China, India, Nepal and Pakistan), as well as by the Director-General of Unesco, Mr. Amadou-Mahtar M'Bow and the former Executive Director of UNEP, Mr. Maurice Strong. The four initial sponsors of the Centre - Nepal, Federal Republic of Germany, Switzerland and Unesco - were brought together under the framework of the Man and Biosphere Programme (MAB). The Centre will act as a (i) clearing house for ecologically-sound development activities, (ii) a documentation centre for multi-disciplinary research, (iii) an information dissemination service, (iv) a consulting service in scientific and technical matters and (v) a focal point for training and applied research. The first Director of the Centre is Mr. Colin Rosser. For more information readers should contact the International Centre for Integrated Mountain Development, 4/80 Jawalakhel, GPO Box 3226, Kathmandu, Nepal.

China and the integrated control of land desertification

The People's Republic of China has long been active in combating desertification, for example in fixing sand dunes around the fringes of the vast Gobi Desert. The MAB National Committee of China is organising an international symposium on "The Integrated Control of Land Desertification", in Lanzhou, Gansu Province, from 4-16 September 1984. The Chinese have invited some 20 specialists from countries in Africa, Asia and Latin-America which have similar desertification problems, as well as from Australia, France, the Netherlands and the USA which have the scientific interest and the financial capacity to support research to resolve these problems.

Co-sponsored by Unesco-MAB, the symposium will provide an opportunity to share notes on the state of knowledge and on the current research on desertification, including the use of integrated measures. There will be field excursions to observe and to discuss China's experience in the research and control of desertification.

For more details, please contact the MAB National Committee for the People's Republic of China.

Reconciling conflicting land uses in high mountains

On 17 to 18 April 1984, the MAB National Committee for the Federal Republic of Germany organised a seminar at Berchtesgaden (FRG) to bring together research workers involved in MAB projects in the European Alps. The meeting made a review of the status of such projects in Alps, with a summary of results, discussed the use of systems analysis and modelling as a research tool in MAB projects, and took note of the newly launched project to reconcile agriculture, tourism and conservation in the Berchtesgaden Alpine Park. The proceedings of this meeting will be published in German and will be available from the MAB National Committee of the Federal Republic of Germany.

Ecology and land use in subarctic birch forests

A meeting on subarctic birch forest was held in Hallormsstaur (Iceland) in September 1983, in the framework of the Unesco-MAB Northern Science Network. Discussions were held in relation to different studies and problems related to seed collections, ecophysiology, woodland surveys, variation and evolution of *Betula*, on nutrients and water, herbivory, plant-animal interactions, mapping. Scientists from the following countries attended the meeting: Finland, Iceland, Norway, Sweden. For more information about this meeting, write to: Prof. Henrik Wallgren; Department of Zoology; Division of Physiology; University of Helsinki. Arkadiankatu 7, SF-00100 Helsinki 10 (Finland).

URBAN SYSTEMS

Barcelona's centre for urban ecology
A new centre called the "Centre del

"Medi Urbi" for the study and the enjoyment of the urban environment was opened in Barcelona, Spain, in January 1984. This centre forms part of the MAB-Spain activities under its programme on urban systems. The centre is both a museum and a school as a large part of its activities are devoted to teaching the public about the urban environment. A main objective of the centre is to encourage public participation in the growth and future development of the city and in ensuring the quality of life for future inhabitants. Regular publications about the centre's work in Catalan are envisaged.

More information can be obtained from Mr. E. Fernandez-Galiano, Chairman, MAB National Committee for Spain, Departamento de Botánica, Facultad de Biología, Madrid 3, Spain, or directly from "Centre del Medi Urbi", Passeig de la Circumvallació, Barcelona-3, Spain.

International experts' meeting on ecological approaches to urban planning

In a joint effort by Unesco-MAB, UNEP and the USSR, an international experts' meeting on ecological approaches to urban planning will be held on 24-30 September 1984 in Suzdal, USSR. The meeting will focus on three main themes: integrated planning; specific case studies of the experiences in various urban systems; public participation in the planning process. Amongst the concerns in the papers to be presented at the meeting are: urban self-sufficiency including food and fuel resources; natural environments in urban systems; and involvement of the community in the decision making process.

Over 100 scientists from more than 20 countries throughout the world are expected to attend the meeting.

CONSERVATION

Wetlands Convention Conference held in the Netherlands

More than 140 representatives of

52 countries met in Groningen, Netherlands on 7-12 May 1984 at the Second Conference of Contracting Parties to the Convention on Wetlands of International Importance especially as Waterfowl Habitat. It is recalled that this Convention, more often referred to as the "Ramsar" Convention after the town in Iran where it was adopted in 1971, aims to promote the protection of wetland areas as diverse as bogs, peatlands, streams and rivers, salt marshes and mudflats, which are increasingly under pressure for conversion to agriculture, industry and housing.

The Convention is managed by a Secretariat at IUCN; however, Unesco is the governmental organisation at which countries deposit their instrument of ratification. As at August 1984, there are 36 Contracting Parties which have recognised almost 300 wetland sites of international importance, some of which, such as Hortobágy National Park (Hungary), Doñana National Park (Spain) and Ichkeul National Park (Tunisia) are also MAB Biosphere Reserves.

The Conference in the Netherlands provided a second occasion for all the Contracting Parties and interested organisations to meet together to discuss wetland protection in general and the future development of the "Ramsar" Convention. One important output of the Conference was the approval of a Spanish and an Arabic text of the Convention which should encourage participation of countries from regions as yet under-represented among the Parties. (A French text had been approved earlier, facilitating the adherence of francophone countries.) The Conference participants also examined the question of setting up and financing a full-time Secretariat or Bureau to serve the Convention in the future.

More information on the "Ramsar" Convention can be obtained from IUCN, Avenue du Mont Blanc, 1196 Gland (Switzerland).

Biosphere Reserves in the Sudano-Sahelian region

From 6-16 December 1983, a training session on the problems of managing biosphere reserves in the Sudano-Sahelian region of Africa was held at Bamako (Mali). This seminar was supported by UNEP and Unesco under a joint project for establishing biosphere reserves in arid and semi-arid lands and had a practical emphasis, with training sessions being conducted in the field in the Boucle de Baoulé Biosphere Reserve (Mali). The seminar drew up recommendations for future activities linking conservation and development. Organised jointly by the MAB National Committee of Mali and the Institut du Sahel, this meeting drew specialists from Benin, Bourkina Fasso (ex- Upper Volta), Cameroon, Chad, Guinea, Ivory Coast, Mali, Mauritania, Niger, Senegal and Togo.

Biosphere Reserves - Since the First International Biosphere Reserve Congress

Conservation, science and society.

The Proceedings of the First International Biosphere Reserve Congress will be published as Volume 21 of the Unesco series "Natural Resources Research". This volume contains the scientific contributions to the congress, presented according to the three main themes of: biogeographical coverage and representativity of the network; international cooperation in scientific research and monitoring; reconciling conservation and development. The English version will be available at the end of 1984. The French, Spanish and Russian versions will be published in 1985. This Congress, held in Minsk, (BSSR/ USSR) in September 1983, brought together for the first time biosphere reserve managers, scientists working on conservation-related research and monitoring, as well as experts in environmental education and training. It is recalled that the purpose

of the meeting was to review different experiences in establishing and managing biosphere reserves throughout the world, and to help to prepare an action plan to serve as a framework for future activities, reinforcing the role and functioning of the international biosphere reserve network.

Action Plan for Biosphere Reserves.

The draft of the Action Plan, revised to take account of comments from the participants at the Congress, will be presented for adoption to the MAB Council at its forthcoming meeting in December. It is recalled that the draft Action Plan states nine objectives for expanding the global coverage of the network and upgrading the multiple functions of individual biosphere reserves. Specific research projects, training and monitoring activities, etc. will be subsequently worked out, to be carried out under the umbrella of MAB and with support from members of the Ecosystem Conservation Group, made up of FAO, UNEP, Unesco and IUCN.

New proposals for Biosphere Reserve Designation.

The MAB Secretariat has received to date 9 new proposals for Biosphere Reserves, which will be decided upon by the Bureau of the MAB Council in December 1984. Please note that new proposals using the official nomination forms should be sent by the MAB National Committee concerned to the Secretariat not later than 15 November 1984.

Wetlands Meeting

The 2nd INTECOL Wetlands Conference of about 130 wetland specialists from 30 countries took place at Trebon Biosphere Reserve, Czechoslovakia. Sponsored by Unesco MAB, the ten-day meeting (13-22 June) covered a broad range of subjects related to wetlands: their inventories, response to change, soils, micro-climate, plant adaptations and dynamics. The results and papers are being

prepared for publication in two volumes (available early 1985). For more information, contact: Mr. J. Kvet, Department of Hydrobotany, Trebon, Czechoslovakia.

Bureau of World Heritage Committee Meets for 8th Session

On 4-7 June 1984, members of the World Heritage Bureau met at Unesco Headquarters. It examined 39 cultural and natural properties which had been nominated by States Parties to the World Heritage Convention for inclusion on the World Heritage List. A final decision on all nominations will be taken at the 8th Session of the World Heritage Committee in December 1984.

The Bureau also discussed the need for tentative lists of properties which countries intend to nominate to the World Heritage List in the next few years. The Bureau was particularly concerned by the critical situation of the World Heritage Fund, which is insufficient to meet all the requests from States Parties for technical co-operation and training related to the protection of World Heritage properties. It is to be noted that 82 countries now adhere to the World Heritage Convention, the latest additions in 1984 being Mexico, the United Kingdom, the Yemen Arab Republic and Zambia.

Preservation of the Genetic Material of Wetlands

The Srebarna Biosphere Reserve, a freshwater lake lying next to the River Danube in Bulgaria, will be the site of a forthcoming symposium on "The role of wetlands in the preservation of genetic material" to be held on 8-12 October 1984. Organized by the MAB National Committee for Bulgaria, this symposium aims at linking the research on wetland ecology with the measures that need to be taken to ensure wetland protection and management: a basic liaison function of biosphere reserves.

It is recalled that Srebarna was established as a reserve in 1942 and has

been designated under the "Ramsar" List of Wetlands of International Importance. In 1977, it was accepted as a biosphere reserve and in 1983 it was included in the World Heritage List as it provides a habitat for endangered birds such as the Dalmatian pelican and the glossy ibis. More information on this symposium can be obtained from Mr. S. Nedialkov, Chairman, MAB National Committee for Bulgaria; 2, rue Gagarine; 1113 Sofia (Bulgaria).

LIST OF POSTGRADUATE TRAINING COURSES ANNUALLY HELD AND SUPPORTED UNDER THE TRAINING PROJECTS OF THE DIVISION OF ECOLOGICAL SCIENCES

Post-Graduate Training Courses in Soil Science and Plant Biology Universities of Granada and Sevilla (Spain)

Annually from 8 January to 25 July. Courses offered in **Spanish**. Applications and information requests should be forwarded to: Doctor Manuel Lachica Garrido; Estacion Experimental del Zaidin; Avenida de Cervantes; Apartado 419; Granada (Spain).

Deadline for application: 30 September 1984

International Post-Graduate Training Course in Limnology

Institute of Limnology and Water Protection, Austrian Academy of Sciences. Courses offered annually in **English**. 10 participants from developing countries. For further information write to Austrian Diplomatic Mission in your country or directly to Limnologisches Institut, Berggasse 18/19; 1090 Vienna (Austria).

Deadline for application: 31 October 1984.

International Post-Graduate Training Course in Integrated Surveys

Unesco-ITC Centre for Integrated Surveys, Enschede (Netherlands)

Annually from 1st October to 30 June. Courses offered in **English**. 15-20 participants mainly from developing countries. Requests for applications and further information should be forwarded to: ITC-Centre for Integrated Surveys; P.O. Box 6; Enschede (The Netherlands). **Deadline for application: 1st January 1985**

Post-Graduate Training Course in Soil Science

International Training Centre for Post-Graduate Soil Scientists, State University of Ghent/Belgium
Course lasts two academic years from 1st October to 15 July. Courses offered in **English and French**. 25 participants, mainly from developing countries. Requests for information should be forwarded to: The International Training Centre for Post-Graduate Soil Scientists; 44, Rozier, 9000 Ghent (Belgium). **Deadline for application: 31 March 1985.**

International Post-Graduate Training Course on Ecosystem Management

Technical University of Dresden (German Democratic Republic)
Annually from beginning October to end of July. Courses offered in **English**. 15 participants, mainly from developing countries. Applicants must be recommended by an official government authority of their home country. For further information regarding application requirements and fellowship requests write to: Institute für Wasserwirtschaft; DDR 119 Berlin; Schnellerstrasse 140; (German Democratic Republic); telex: 112368 jfw dd; telephone: 635-2821; or from the nearest Diplomatic Mission of the GDR. **Deadline for application: 31st March 1985.**

Post-Graduate Course in Integrated Study and Rational Use of Natural Resources

Universities of Paris, Montpellier, Toulouse (France)
Annually from September to August including field work in a developing

country. Courses offered in **French**. 15 participants, mainly from developing countries. For further information contact: Commission française pour l'Unesco; 21bis, rue la Pérouse; 75116 Paris (France).

Deadline for application: 1st May 1985

MAB PUBLICATIONS

Only Unesco publications can be obtained from the MAB Secretariat; requests for others should be addressed directly to the MAB National Committee or the author concerned.

Please note that the MAB Secretariat would like to receive at least two copies of new MAB publications by MAB National Committees in order to compile and update the MAB Bibliography.

Brown, S.; Lugo, A; Silander, S.; Liegel, L. 1983. Research History and Opportunities in the Luquillo Experimental Forest. USDA Forest Service General Technical Report SO-44.

Communauté Economique des Pays des Grands Lacs (C.E.P.G.L.). 1983. Rapport du séminaire sur l'environnement et le développement dans les pays de la C.E.P.G.L. organisé conjointement par la C.E.P.G.L. et l'Unesco à Gisenyi du 7 au 11 novembre 1983. C.E.P.G.L., Gisenyi. (Rwanda).

Davis, B. (Ed.). 1984. MAB Australian Newsletter. Australian National Commission for Unesco. Australian Government Publishing Service, Canberra.

Deutsches Nationalkomitee MAB. 1983. Ziele, Fragestellungen und Methoden. Ökosystemforschung Berchtesgaden. MAB-Mitteilungen 16, Bonn (Federal Republic of Germany). (Objectives, problem areas and methods of the Berchtesgaden MAB Project.)

- Franz, H.P.** 1984. Der deutsche Beitrag zum Unesco-Programm "Der Mensch und die Biosphäre" (MAB): Stand, Entwicklung, Ergebnisse und Ausblick. Analyse eines umfassenden Forschungsprogramms. MAB-Mitteilungen 18, Bonn (Federal Republic of Germany). (The German contribution to the Unesco programme on "Man and the Biosphere" (MAB): present status, development, results and perspective. Analysis of a comprehensive research programme)
- Heidecke, D.** 1984. Untersuchungen zur Ökologie und Populationsentwicklung des Elbebibers, *Castor fiber albus* Matschie, 1907. Zool. Jb. Syst., 111, pp. 141. (Studies on the ecology and population dynamics of the Elbe River beavers.)
- MAB-Indonesia.** 1983. The Bugis at Banyuasin, Upang Delta South Sumatra. Panitia Program MAB Indonesia, Dokumen 33, Jakarta.
- MAB National Committee for Byelorussian SSR.** 1983. Report on scientific research work in the Byelorussian SSR in the Unesco-MAB Programme in 1983. MAB-BSSR, Minsk. (In Russian).
- MAB National Committee for Byelorussian SSR.** 1984. Working group on project 96: information on the progress of scientific research on sub-project 96 of the Unesco MAB Programme "Geological consequences of the systematic use of pesticides and the means of combating harmful organisms in terrestrial and freshwater ecosystems". MAB-BSSR, Minsk. (In Russian).
- MAB National Committee for USSR.** 1984. Interactions between environmental transformations and the adaptive, demographic and genetic structure of human populations. Abstracts of the International Conference on MAB Project 12 of the Unesco MAB Programme. MAB-USSR, Moscow.
- Rambelli, A.; Persian, A.M.; Magg, O.; Lughini, D.; Onofri, S.; Riess, S.; Dowgiallo, G.; Puppi, G.** 1983. Comparative Studies on Microfungi in Tropical Ecosystems. MAB-Unesco. Rome.
- Renevey, B.** 1984. Evaluation ornitho-écologique du paysage de la région d'Aletsch. Fachbeitr. Schweiz. MAB-Information 20. Bern.
- SCOPE-MAB-ISEM-SIL.** 1984. Abstracts from the 2nd INTECOL Wetland Conference. Trebon, Czechoslovakia. Vols I and II.
- Seidel, E.** 1984. Aktivitäten der DDR im Unesco-Programm "Mensch und Biosphäre" Sonderinformation pp. 2-84. Zentrum für Umweltgestaltung, Berlin. (Man and Biosphere.)
- Seidel, E.; Eschner, D.** 1984. Bewirtschaftung von Biosphären-Reservaten. Sonderinformation pp. 1-84, Zentrum für Umweltgestaltung, Berlin (Management of biosphere reserves.)
- Unesco.** 1983. Directory of Ecologists working in the African region/Répertoire des Ecologistes travaillant dans la région africaine. 2nd Edition/2ème Edition. Unesco Regional Office for Science and Technology for Africa/Bureau Régional de Science et de Technologie de l'Unesco pour l'Afrique. Nairobi.
- Vasiliev, V.P.; Borsuk, O.P.** 1984. Aerospace Monitoring of the Ecosystem. Nauka Publishers, Moscow. (In Russian).
- Voloshin, V.V.** 1984a. Scientific bases for organizing a network of biosphere reserves in the Ukrainian SSR. MAB-Ukrainian SSR, Kiev. (In Russian).
- Voloshin, V.V.** 1984b. On the realisation of the MAB Programme in the Ukrainian SSR. MAB-Ukrainian SSR, Kiev. (In Russian).

Annotated Bibliography

di Castri, F.; Baker F.W.G.; Hadley, M. (Eds.). 1984. Ecology in Practice. (Parts 1 and 2). Published for Unesco by Tycooly International, 6 Crofton Terrace, Dun Laoghaire, Co. Dublin (Ireland). Part 1: 524 pp., Part 2: 396 pp.

This work is based on the working documents and results of the Man and the Biosphere Conference "Ecology in Practice: Establishing a Scientific Basis for Land Management", which was held at Unesco in Paris in September 1981. It presents a major analysis of land-use systems in humid and semi-humid tropics; the management of grazing and marginal land; ecosystem conservation; urban planning; information systems needed for education and decision-making.

MAB National Committee for Spain. 1984. International Seminar on Mediterranean Deltas. Tortosa (Spain). 19-22 May 1980. 158 pp.

This work marks the resumption of MAB activities on Mediterranean deltas. In 1975, a research project was undertaken in the Nile, Danube, Rhône and Pô Deltas. After a 5-year period, the scientists involved in this project felt the need to renew contacts, to exchange their experiences and to redirect their research projects. The Tortosa seminar was held to respond to these needs.

The work contains a set of scientific results attained not only in the domain of physical sciences, but also in human and economic sciences, on the Ebre,

Nile and Pô Deltas. It contains scientific as well as organizational recommendations for the continuation and development of the study at a national and international level.

Guillaumet, J.L.; Couturier, G.; Dosso, H. 1984. Recherche et aménagement en milieu forestier tropical humide: le Projet Taï de Côte d'Ivoire. MAB Technical Notes 15. Unesco, Paris.

This technical note presents a review of the activities undertaken in one of the MAB pilot projects in the humid tropics, namely the Taï Forest in Ivory Coast. Uninhabited for many hundreds of years, the South-West of Ivory Coast presents a microcosm of the changes, possibilities and problems which are prevalent in many regions of the humid tropics, including displacement of populations, land transformation and conflicting land uses. This is also a region where scientists have had the possibility of improving knowledge on the functioning of tropical forest ecosystems while at the same time contributing to the development of tropical forests of the African continent. The review of results in this technical note is presented following the main themes of the Taï research project: physical environment; man and his activities; cultivated fields and their constraints; vegetation structure and dynamics; human health; the National Park and nature protection; cartographic presentations. A final chapter gives criticisms and perspectives on the project, as well as suggestions for a new phase of research work at Taï.

MEETING TIMETABLE

	Title	Contact Person
AUGUST 1984		
13-17	14th International Mediterranean Ecosystem Conference Perth (Australia)	D. Bell, Conference and Development Office, University of W. Australia, Nedlands, W.A. 6009 (Australia)
27-30	Meeting of MAB National Committees for Francophone African Countries Yamoussoukro (Ivory Coast)	MAB Ivory Coast, Ministère de l'Education nationale et de la Recherche scientifique, Abidjan (Ivory Coast)
27-31	25th International Geographical Congress; Unesco HQ, Paris	Organizing Committee, 19, rue Isidore Pierre, 14000 Caen (France)
27-31	First International Science Network Symposium on Research and Monitoring in Circumpolar Biosphere Reserves Waterton Biosphere Reserve, Alberta (Canada)	N. Simmons, MAB Northern Science Network, P.O. Box 248, Pincher Creek, Alberta TOK 1W0 (Canada)
SEPTEMBER 1984		
1-20	International Symposium on the Integrated Control of Land Desertification Lanzhou (China)	Yang Hanxi, MAB China, 54, Sanlihe, Beijing (China)
16-23	I.U.F.R.O. (International Union of Forest Research Organizations) Symposium on Human Impacts on Forests Strasbourg (France)	H. Oswald, Centre national de recherches forestières, Champenoux 54280 Seichamps (France)
24-30	International Meeting of Experts on Ecological Approaches to Urban Planning Suzdal (USSR)	MAB Secretariat/Unesco
OCTOBER 1984		
1-6	Air Pollution and Stability of Coniferous Forest Ecosystems Beskydy Mountains (Czechoslovakia)	E. Klimo, University of Agriculture, Faculty of Forestry, Zemedelska 3, 662 66 Brno (Czechoslovakia)
8-12	International MAB Symposium on the role of wetlands in the preservation of genetic material; Ecological Station of the Srebarna Biosphere Reserve (Bulgaria)	MAB Bulgaria, 2, rue Gagarine, 1113 Sofia (Bulgaria)

14-21 Regional Seminar on Sand Dune Fixation
Baghdad (Iraq)

ACSAD; P.O. Box 2440,
Damascus
(Syrian Arab Republic)

OCTOBER/NOVEMBER 1984

29 Oct.-
2 Nov. 8th Session of the World Heritage
Committee; Buenos Aires (Argentina)

MAB Secretariat/Unesco

NOVEMBER 1984

5-10 Regional Technical Working Group for
Research on Tropical Pastures
Porto Alegre (Brazil)

Instituto Interamericano
de Ciencias Agrícolas
(IICA), Turrialba
(Costa Rica)

12-16 Improved Utilization of Natural
Resources and Rangelands in Semi-
Arid and Arid Regions
Mendoza (Argentina)

Instituto Argentino de
de Investigaciones de las
Zonas Áridas (IADIZA),
Mendoza (Argentina)

13-16 MAB Regional Seminar on Man's Impact
on Coastal and Estuarine Ecosystems
in Asia; Tokyo (Japan)

Y. Takai, Chairman;
Organizing Committee,
Department of Agri-
cultural Chemistry,
University of Tokyo,
Bunkyo-ku, Tokyo (Japan)

27-29 Conference and Workshop on the
Management of Biosphere Reserves in
Developed countries
Gatlinburg, Tennessee (USA)

W. Gregg, MAB USA,
Dept. of the Interior,
National Park Service,
Washington, D.C. 20520
(USA)

Sub-Regional Meeting on the Management
of Mediterranean Sylvo-Pastoral
Ecosystems; Sevilla (Spain)

MAB Spain; Chairman,
Facultad de Botánica,
Universidad Complutense,
Ciudad Universitaria,
Madrid 3 (Spain)

DECEMBER 1984

3-8 8th Session of the MAB International
Co-ordinating Council; Unesco HQ, Paris

MAB Secretariat/Unesco

1985

FEBRUARY 1985

Regional Training Seminar on Wetland
Management for Spanish-Speaking
Specialists; Everglades National Park
(USA)

Florida International
University, Florida (USA)

International Symposium on the Effects of
Different Sizes of Reserves on Diversity
Manaus (Brazil)

T. Younes, IUBS,
51, blvd. de Montmorency,
75016 Paris (France)

NEWS FROM THE SECRETARIAT

Francesco di Castri who, since 1971, had served as Secretary of the MAB International Coordinating Council and Director of the Division of Ecological Sciences, resigned from his post at the end of January 1984 to become the new Director of the Centre d'Etudes et de Recherches Phytosociologiques et Ecologiques (CEPE) of the French National Scientific Research Centre (CNRS). His new address is:

F. di Castri, Directeur,
Centre d'Etudes Phytosociologiques
et Ecologiques Louis Emberger
Route de Mende
B.P. 5051
34033 - Montpellier-Cedex
Tel. (67) 63.91.30

On behalf of Mr. di Castri's many friends and colleagues from all round the world, INFOMAB conveys our gratitude for his unflagging inspiration and leadership in the MAB programme and wishes him success and happiness in his new position.

Bernd von Droste, following the departure of Francesco di Castri, was appointed Director ad interim of the Division of Ecological Sciences and Secretary ad interim of the MAB International Coordinating Council in February 1984. Mr. von Droste who joined the MAB Secretariat in 1973 was mainly involved in the development of the international biosphere reserve network in addition to his work as Secretary for the "natural" part of Unesco's Convention concerning the protection of the World's Cultural and Natural Heritage.

Leo Teller has recently taken up his new post in Beijing as the Unesco Representative to the People's Republic of China. Mr. Teller is in a key position, apart from his other duties, to promote MAB work in China in the coming years. His address is:

L. Teller, Head
Unesco Office for Science
and Technology in China
United Nations Building
2, Dongjiejie Sanlitun
Beijing
(People's Republic of China)

Arturo Gomez-Pompa, Chairman of MAB Mexico, a well-known MAB scientist who was also past Chairman of the MAB International Coordinating Council in Mexico, has been spending part of his sabbatical leave as a consultant to the MAB Secretariat to assist in the preparation of the 8th session of the MAB-ICC to be held at Unesco's Headquarters, 3-8 December 1984.

Elizabeth Wangari, took up her new post as Programme Specialist in Environmental Sciences at the unit of Unesco's Regional Office for Science and Technology based at Dakar, Senegal, on 1st August 1984. Ms. Wangari previously worked at Headquarters on MAB activities in anglophone Africa.

Pier-Giovanni d'Ayala, a social anthropologist who formerly worked in the Social and Human Sciences Sector of Unesco, was transferred to the MAB Secretariat as from May 1984. Mr. Ayala has already been collaborating with MAB for a number of years.

Matuka Kabala, formerly working as regional adviser in Ecological Sciences at the Regional Office for Science and Technology for Africa, Nairobi and Dakar, joined the Division of Operational Programmes at Unesco Headquarters in November 1983. He also works on MAB activities in Africa south of the Sahara, in particular with the francophone countries.

Richard Bill has been seconded by Parks Canada to work with the MAB Secretariat for a two-year period. Since his arrival in October 1983,

Mr. Bill has been mainly involved in the natural heritage programme of the Division (biosphere reserves and World Heritage Convention) and the Northern Science Network.

Laurie Wayburn of USA is assisting the MAB Secretariat until December 1984 to help with the organisation of the International MAB Expert Meeting on Ecological Approaches to Urban Planning, to be held in Suzdal (USSR) on 24-30 September 1984, and also with MAB work in Latin America.

unesco

Programme MAB

7, place de Fontenoy
75700 Paris, France
Téléphone: (1) 568.10.00
Télex: 204461 Paris