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ECONOMIC AND SOCIAL COUNCIL

GENERAL

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Fourteenth session
Agenda item 6

INTERNATIONAL CO-OPERATION ON WATER CONTROL AND UTILIZATION

Report of the Secretary-General under Council resolution 396 (XIV)

Addendum

SELECTED STATEMENTS OF ACTIVITY BY INDIVIDUAL INTERNATIONAL ORGANIZATIONS 1/

1/ With few exceptions the statements were submitted during the period September to November 1951. The majority following form the outline which was suggested by the United Nations in the circular request for information (see E/2205, annex A).

Page

Other organizations: (continued)

/United

United Nations

UNITED NATIONS SCIENTIFIC CONFERENCE ON THE CONSERVATION AND UTILIZATION OF RESOURCES

The following is a list of the meetings at which papers on water resources and related papers were considered. See the Conference Proceedings (E/Conf.7/7), volume indicated, for these papers. See also the Index Volume (VIII).

Volume I: Plenary Meetings

The World Resources Situation - 17 August 1949
A World Review of Critical Shortages - 18 August 1949
The Interdependence of Resources - 18 August 1949
Soils and Forests - 19 August 1949
Methods of Resource Appraisal - 25 August 1949
The Adaptation of Resource Programmes - 26 August 1949
Assessing Resources in Relation to Industrialization Plans - 27 August 1949
Education for Conservation - 30 August 1949
Resource Techniques for Less-Developed Countries: A Symposium - 1 Sept. 1949
The Integrated Development of River Basins - The Experience of the Tennessee Valley Authority - 5 September 1949
The Integrated Development of River Basins - A Symposium on Public Policy - 5 September 1949
Review of the Conference - A Symposium on Future Lines of Study and Directions for Progress - 6 September 1949

Volume III: Fuel and Energy Resources

New Developments in Production and Utilization of Energy - 31 August 1949

Volume IV: Water Resources

The Appraisal of Water Resources - 19 August 1949
Water Supply and Pollution Problems - 22 August 1949
Comprehensive River Basin Development: A Symposium - 23 August 1949
Drainage Basin Management - 24 August 1949
Water Control Structures - 26 August 1949
Flood Control and Navigation - 29 August 1949
Irrigation and Drainage - 30 August 1949
Hydro Power and Other Water Uses - 1 September 1949

Volume V: Forest Resources

Protective Functions of the Forests - 25 August 1949

Volume VI: Land Resources

Methods of Soil Conservation - 19 August 1949
Organization and Evaluation of Soil Conservation Programmes - 22 August 1949
Soil Surveys and Research in Relation to Soil Conservation - 23 August 1949
Opportunities for the More Effective Use of New Agricultural Lands - 31 August 1949

/Volume VII:

Volume VII: Wildlife and Fish Resources

Changes in Abundance of Fishery Population - 22 August 1949
Developing Fisher Resources - 25 August 1949
Fisheries Statistics and Technological Development - 2 September 1949
Management and Cultivation of Fresh Water Fish - 24 August 1949
Research in the Conservation and Utilization of Marine Resources -
1 September 1949

UNITED NATIONS TECHNICAL ASSISTANCE

Under Resolutions 200 (III) (Annex A) and 304 (IV) of the United Nations General Assembly, and Resolution 222 (IX) (Annex B) of the United Nations Economic and Social Council, the United Nations has the responsibility for extending technical assistance in all economic development fields which do not fall within the purview of the specialized agencies.

The United Nations is responsible for the following specific fields concerned with water resources and their development and use:

Comprehensive development surveys (water resource appraisal for use);

Combined resource development of an area, region or valley (water resource appraisal for all purposes - recommended best use, administration and control);

Industrial development (water requirements - surface and underground);

Power development (study, planning and development of water resources for hydro-electric plants);

Flood control;

Public administration of water resources;

Inland water transport;

Water supply for cities and towns (surface and underground treatment, etc.)

The United Nations has three types of programmes through which technical assistance is given to countries requesting this service:

I. Experts in the various phases of work in water control and utilization may be furnished; these may work individually on particular problems or serve in an organized team or mission.

II. Fellowships may be extended to selected local workers in the field; these permit the fellow to study practical work in his field in more developed areas.

III. The United Nations may organize training centres, seminars, schools, institutes, tours, etc. and demonstrations in a country to which local technicians from one or more countries may be authorized to attend; a qualified staff gives instructions and conducts the conferences.

The technical assistance that has been requested by governments for each type of service under these programmes is given below:

/I. Service of

I. Service of experts, teams of experts and missions

In this list are technical assistance services performed or to be performed in the field of water resources and their utilization and control.

In addition to the specific services requested, it should be remembered that the basic organization the United Nations seeks to establish in each country provides a representative for all technical assistance activities, whose office serves to integrate all phases of development into a balanced programme - including studies on water resources and their utilization and control.

The following specific requests for technical assistance have been received: (The country, the nature of the request and its present status are given).

1. Afghanistan:

(a) Economic planning - integration of plans for development of resources - involved hydro-electric power and water supply. Work under way.

(b) Industrial consultant - involves industrial\services to new communities in the Helmand Valley. Now being supplied.

(c) Water for irrigation and other purposes. Work under way.

(d) Underground water appraisal: for development in specific areas; for industrial water supply for homes, cities and villages; and for irrigation. Under the general direction of an expert in hydrological work, a team consisting of one geologist with hydrological experience, and two engineers to operate drilling, testing and geophysical equipment, will study underground water resources to determine location, quantity and quality of water available. Equipment consisting of drilling rig, pumping and testing equipment, essential geophysical equipment will be furnished by the United Nations, and local technical personnel will be instructed in its use in guiding a programme of water development in Afghanistan. (This project being duplicated in other countries). Foreign and local staff and equipment being assembled.

2. Bolivia:

(a) General survey mission, including experts in the field of river

development for hydro-electric power and water supply for cities and industry, and an expert in irrigation (FAO) has completed its work. Report published.

(b) Integrated development, planned through a combined administration and technical staff, being recommended to Bolivia for its employment.

(c) Expert on hydro-electric power development requested. Now being recruited.

3. Ceylon:

(a) Expert to advise on flood control. In process.

4. Colombia:

(a) Expert to study natural resources and recommend conservative use. In process.

(b) Expert in hydraulic engineering. In process.

(c) Expert in port facilities. In process.

5. El Salvador:

(a) Comprehensive mission, including chief of mission, economic development expert, hydro-electric power expert, public works expert, port facilities expert and industrial development expert; water resources included in general survey. Mission now working in El Salvador.

6. Greece:

(a) Community development, including water resources for water supply. Work under way; general report published.

(b) Additional requests under consideration.

7. Haiti:

(a) General mission, involving survey of resources and development of plans for the country, including water resources for hydro-electric power, water supply, industry and irrigation (with FAO co-operation.) Report published.

(b) Resident representative seeking integration of developmental work.

(c) Additional experts now serving in Haiti in connexion with the comprehensive development of the lower Artibonite river valley.

8. India:

(a) Palakarnarni Swamp housing and settlement project, involving expert on problems of flood control, drainage and irrigation. Report published.

/(b) Request

(b) Request for expert and equipment for underground water resource appraisal for development. (This is a similar project to the basic project on underground water resources described under Afghanistan above). In process.

(c) Demonstration project on inland water transport. In process.

(d) Other requests pending.

9. Indonesia:

(a) Economic planning advisors to serve to study resources and plan public utilities, hydro-electric power, water supply, etc. In process.

10. Israel:

(a) Hydrological expert to advise on surface and underground waters for development. Work under way.

11. Iran:

(a) Expert to advise on port facilities. Work under way.

(b) Expert on hydro-electric power development. Expert being recruited.

(c) Demonstration of water resource appraisal using technique of aerial photographic studies to map resources to guide ground exploration and development. Demonstration work completed. Report being published.

12. Libya:

(a) Expert on hydrology of underground water.

(b) Expert on hydro-electric power development.

13. Pakistan:

(a) Expert on underground water resources.

(b) Expert on river survey and flood control, and irrigation problems.

(c) Expert and equipment for basic underground water resource appraisal for developments planned. Request being clarified.

(d) Expert on inland water transport.

14. Peru:

(a) Expert on hydro-electric power plant.

15. Somalia:

(a) Exploratory mission on resources and development. Now in Somalia.

/16. Turkey:

16. Turkey:

(a) Experts on survey and utilization of water resources, including planning and execution of developmental projects in hydro-electric power, flood control and irrigation.

(b) Port improvement. Five experts in this field of work. Under consideration.

(c) Library on flood control to be supplied.

17. Yemen:

(a) Experts on development of small hydro-electric plants.

18. Yugoslavia:

(a) Experts on construction of hydro-electric power projects.

(b) Demonstration electrification of villages and use of electricity.

(c) Experts to advise on hydro-meteorological services.

II. Fellowships and scholarships of the United Nations extended in fields of water resource control and utilization

The United Nations has granted fellowships to persons from various under-developed countries for study in the field of water resource control and utilization. The attached list shows the home and host countries and the fields of study of the fellows. Brief reports of these fellows are on file in the Fellowship Division of the Technical Assistance Administration.

Home country	Host country	Subject
1. 1949		
Bolivia - 2 fellows	United States (Puerto Rico)	Hydraulics
Brazil	United States of America	Resource appraisal
Brazil	United States of America	Combined resource development
Brazil	United States of America	Thermo and Hydro-electric plants
Burma	United States of America	Combined resource development
China	Netherlands	Water control
China	United States of America	Water control

/Ecuador

Home country	Host country	Subject
Ecuador	United States (Puerto Rico)	Combined resource development
Egypt	France	River transport
Greece	United States of America	Electricity production
Haiti	France (Algeria)	Water control
Iran	France	Thermo and hydro-electric installation
Philippines	United States of America	Hydro-electric plants
Pakistan	Canada	Water control
Pakistan	United States of America	Combined resource development
Thailand	United States of America	Promotion and planning of economic development
2. 1950		
Brazil	Canada	Power plants and electrification
Burma	United Kingdom	Hydro-electric power
Greece	France	Water power exploitation and development; irrigation hydraulic research
Israel	Netherlands	Regional development
Israel	United States of America	Combined resource development
Mexico	Netherlands, France and United Kingdom	National and regional planning for economic development
Pakistan	New Zealand	Power plant construction and operation
Pakistan	Netherlands	Combined resource development of an area or region
Philippines	New Zealand	Power plants and water resources
Yugoslavia	France	Hydro-electric plants

/3. 1951

Home country	Host country	Subject
3. 1951		
Brazil - 2 fellows	Canada	Hydraulic and thermal power resource appraisal; power plant construction and operation; electrification, industrial and rural
Brazil	United States of America	Hydraulic and thermal power plants
Burma	United Kingdom and Netherlands	Inland water transport
Ecuador	Chile	Hydraulic and thermal power resource appraisal
Finland	Canada	Inland water transport
Guatemala	United States of America	Combined resource development
India	Australia	Combined resource development
India	United States of America	Combined resource development
India	United Kingdom and Sweden	Hydro and thermal electric power plants, construction and operation
India	Sweden	Water resource appraisal
Iraq	United States of America	Irrigation, flood control
Iraq	United States of America	Inland water transport
Israel	France	Combined resource development
Israel	Netherlands	Regional planning
Pakistan	Netherlands	Surveying of inland waterways
Thailand	United States of America	Hydraulic and thermal power resources appraisal
United Kingdom - Malaya	United States of America	Combined resource development with related subjects
United Kingdom - Southern Rhodesia	Italy	Irrigation - water supply and hydro-electric schemes

H III. Conferences, seminars and technical information on water utilization

1. The United Nations conducted a three-months' tour of Asia, Europe and North America for a group of inland water experts who were engaged in the examination inter-alia of river conservancy measures in the countries visited, to determine their applicability to conditions in their own countries. This is to be followed by demonstration projects in India and Pakistan devoted to experimental efforts at improvement of inland water craft used in the region. The results of this study trip are set forth in the Interim Report of the Expert Working Group on Inland Water Transport from Asia and the Far East, E/CN.11/TRANS/L.9.

2. The United Nations conducted, in co-operation with FAO and the International Bank, three training centres on the Economic Appraisal of Development Projects, at Lahore, Pakistan, in 1950 for countries of Asia and the Far East; at Ankara, Turkey, in 1951 for countries of the Mediterranean Basin; and at Santiago, Chile, in 1951 for Latin American countries. Each of these training centres involved as an important subject, the consideration of irrigation, drainage, combined river development, hydro-electric development and other water utilization projects. Such projects were used for illustration and their specific problems prominently considered in the major course lectures (See Book II, Formulation and Economic Appraisal of Development Projects, United Nations 1951). In addition, special lectures were devoted to this subject at Lahore, Pakistan, and comparable consideration was given to them at the other two training centres (See Book II, Formulation and Economic Appraisal of Development Projects, United Nations 1951). For example:

Waterlogging and reclamation of saline land in Punjab, Pakistan, pages 603-621 op. cit.;

Problems involved in planning, appraising and preparing a report of an irrigation project, pages 621-641;

Planning the development of Asian fishing industries, pages 641-671;

Multi-purpose river projects, pages 701-745;

Appraisal of cost and benefit of flood control works, pages 745-767.

3. The United Nations has under consideration a proposal from the Economic Commission for Asia and the Far East to hold a training centre in that region

/for training

for training in flood control and water utilization. This centre would consider projects in this field in somewhat the same manner as that employed in the training centres in the Economic Appraisal of Development Projects, except that specialization on this subject would make it possible to give more attention to the special problems involved in their formulation and appraisal. It is proposed that this training centre be started in 1952.

4. The United Nations also has under consideration a proposal from the Economic Commission for Asia and the Far East to convene a working party in the standardization of hydrological measurements. This project was initiated by a recommendation of the Regional Technical Conference on Flood Control held in New Delhi, India, on 7 - 10 January 1951 by ECAFE.

5. Through United Nations technical assistance and ECAFE, sets of selected books dealing with the techniques of flood control have been made available to countries of Asia and the Far East. Fifty-seven offices and institutions in thirteen countries have requested sets of these flood control books.

6. The United Nations has under consideration a suggestion from an official of the Government of India that it organize a travelling exhibit of the latest geological instruments, including those employed in the search for water. The representative of the Government of Turkey has expressed an interest in having such an exhibit shown in his country.

ECONOMIC COMMISSION FOR ASIA AND THE FAR EAST

A. BUREAU OF FLOOD CONTROL

I. General character and activities of the Bureau

1. Origin and purposes:

The importance of flood control to the economic development of Asia and the Far East was well recognized by ECAFE as early as 1947. As its second session in December 1947, the Commission, taking note of the fact that of the thousand million human beings who live in the ECAFE region almost one-half live in the valleys of great rivers and are subject to the danger of floods which bring famine in their wake and cause millions of casualties every year, and considering that large-scale problems of flood control are problems peculiar to Asia, recommended the establishment of a bureau of flood control to deal with this problem. This proposal was subsequently considered and approved by the Economic and Social Council and the Bureau was established in April 1949.

In dealing with problems of flood control, the Commission stressed that flood control is fundamentally a part of, and cannot be separated from, unified river basin development. The work of the Bureau is drawn up in accordance with this principle and consists essentially of: (1) investigation of methods of flood control and water resources development, in co-operation with the technical organizations of countries in Asia and the Far East region, with a view to securing improvement, (2) promotion of international co-operation on flood control and allied works with special reference to international rivers, (3) technical advice and assistance to governments and (4) clearing house service for the exchange and dissemination of technical information.

As water control and utilization are closely related to other phases of economic development, the work of the other divisions of the Secretariat of ECAFE having responsibilities for related subjects are co-ordinated with those of the Bureau, such as the compilation and analysis of economic data by the Research and Statistics Division, investigation of the potential resource, development and use of hydro-electric power by the Industrial Development Division, and the study of navigation problems by the Transport Division. Furthermore, the Bureau maintains constant co-operation with the Far East Regional Office of the Food

/and Agriculture

and Agriculture Organization on problems relating to watershed management and the Indo-Pacific Fisheries Council on problems of inland fisheries.

2. Membership: Member and associate member governments of ECAFE:

Australia, Burma, China, France, India, Indonesia, Netherlands, New Zealand, Pakistan, Philippines, Thailand, United Kingdom, United States of America, Union of Soviet Socialist Republics as members and Cambodia, Ceylon, Hong Kong, Korea, Laos, Malaya and British Borneo, Nepal, and Viet-Nam as associate members.

3. Organizational structure:

The Bureau is a part of the Secretariat of the ECAFE for all administrative and financial matters. The permanent staff of the Bureau comprises one chief, two experts, one engineer, two assistants, one engineering draftsman, one secretary and one tracer. Besides the permanent staff, the Bureau engages short-term consultants to carry out specific projects.

4. Principal activities:

A. Improvement of flood control methods and joint study with technical organizations of the region on problems of common importance to countries of the region such as the silt problem, river bank revetment and river training, etc.

B. Investigation and promotion of multiple-purpose unified river basin development.

C. Technical advice and assistance to governments.

D. Promotion of international co-operation on water control and utilization including flood control on an international river and international technical standards in hydrological records and measurements.

E. Clearing house service for the exchange, dissemination and publication of technical information on water control and utilization.

5. Geographic area of activity:

The geographical scope of ECAFE includes the following countries: Burma, Brunei, Cambodia, Ceylon, China, Hong Kong, India, Indonesia, Korea, Laos, Malaya and Singapore, Nepal, North Borneo, Pakistan, Philippines, Sarawak, Viet-Nam and Thailand; this area is known as the ECAFE region.

6. Budget and methods of financing:

One hundred thousand dollars per year financed by the United Nations. In

addition to this, funds are provided under the United Nations technical assistance programme for special projects undertaken in co-operation with the latter programme as for example the provision of US $13,500 in 1951 for distribution of technical books on flood control and allied subjects.

7. Relationships with other organizations:

The Bureau works in close co-operation with national and regional technical organizations of countries of the ECAFE region as well as with the specialized agencies of the United Nations. International technical organizations related to water control and utilization are invited to attend technical conferences organized by the Bureau.

II. Information on individual projects in the field of water control and utilization

(Projects are given in the order of priority and the numbers 1, 2, 3, etc. follow the outline of the United Nations circular request for information.)

A. Improvement of flood control methods;

1. Subject matter: flood control;
   Type of activity: analytic studies of a technical nature;
   Geographic coverage: ECAFE region.
2. Started April 1949; continuing project.
3. Three experts and one engineer, one and one-half man-years annually.
4. Chief engineers, superintendent engineers, research directors of national and regional technical organizations of countries of ECAFE region.
5. Salaries and travel of international staff (salary: US $15,000; Travel: US $4,500).
6. Reduction of flood damage by improvement of methods of control.
7. Discussions held during investigation trips with the technical experts of organizations of countries of the region.
8. Results of the studies published in the Flood Control Series: No. 1 - Flood damage and flood control activities in Asia and the Far East; No. 2 - Methods and problems of flood control in Asia and the Far East.

B. The silt problem:

1. Subject matter: basic problems relating to water control and utilization.

/Type of

Type of activities: research and experiment;
Geographic coverage: ECAFE region.

2. Started January 1950; continuing project.
3. One expert, one-quarter man-year annually (US $2,500).
4. Two research officers and several assistants, from India and Thailand.
5. Equipment subsidized by the United Nations, $3,000 annually.
6. Basic information to be made available for the use of the technical organizations.
7. Joint study and experiment with Punjab Irrigation Research Institute of India and Hydraulic Laboratory of the Royal Irrigation Department of Thailand.
8. A preliminary study entitled the "Silt Problem" was published by the Bureau in mimeographed form for the Regional Technical Conference on Flood Control; final study not yet ready for publication.

C. Bank protection and river training:

1. Subject matter: flood control, navigation and irrigation;
Type of activity: analytical study;
Geographic coverage: ECAFE region.
2. Started June 1951; continuing project.
3. One consultant, one-quarter man-year annually.
4. Chief engineers, superintendent engineers, research directors of technical organizations of countries of the region.
5. Salary and travel for internal staff (salary: US $2,500; Travel US $800.
6. Information will be made available to member and associate member countries of ECAFE and their technical organizations.
7. Observation and investigation to be carried out by technical organizations of the region using a standard form prepared by the Bureau to enable comparison of results on the same basis.
8. Preliminary study published by the Bureau as a working paper under review by technical organizations; final result not yet ready for publication.

D. Investigation and Promotion of multiple-purpose unified river basin development:

1. Subject matter: comprehensive development and use of water resources;
   Type of activity: analytical study and technical guidance to national organizations for planning and execution of multiple-purpose projects.
   Geographic coverage: ECAFE region.
2. Started September 1951; continuing project.
3. One expert and one consultant, one man-year annually.
4. Chief engineers, superintendent engineers, research directors of technical organizations of countries of the ECAFE region.
5. Salary and travel for internal staff (salary: US $10,000; travel US $1,000).
6. Specific guidance to technical organizations.
7. Working in co-operation with the national and regional technical organizations of countries of the region.
8. Final result not yet ready for publication.

E. Flood prediction, flood control and water resources development of the Mekong River Basin below Burma-Laos Border.

1. Subject matter: flood control and water resources development;
   Type of activity: promotion of international co-operation on international river;
   Geographic coverage: Cambodia, Laos, Thailand and Viet-Nam.
2. Started August 1951; continuing project.
3. Two consultants and one expert, one-half man-year annually.
4. Experts from countries concerned.
5. Salary and travel of internal experts (salary: US $5,000; Travel US $900).
6. Study of flood prediction system, flood control schemes and investigation of possible water resources development.
7. In co-operation with the national technical organizations of the countries concerned.
8. Result of project not yet ready for publication.

/F. Standardization of

F. Standardization of terminology, records and methods of hydrological measurement.

1. Subject matter: hydrology;
   Type of activity: international technical standards;
   Geographical coverage: countries within ECAFE region.
2. Started June 1951; to be completed December 1952.
3. One expert, three-quarters man-year.
4. Hydrological experts of countries of the ECAFE region.
5. Salary (salary US $7,500).
6. Preparation of standards for the use of the countries of the region.
7. In close co-operation with technical organizations of countries of the ECAFE region.
8. Final results not yet ready for publication.

G. Clearing-house service and publication of technical information for ECAFE region.

1. Subject matter: flood control and water resources development;
   Type of activity: collection and publication of technical data and information;
   Geographic coverage: ECAFE region.
2. Started April 1949; continuing project.
3. One editorial assistant, one-half man-year annually.
4. None.
5. Salary US $2,000; printing US $4,000.
6. Exchange and publication of technical information.
7. Information and data supplied by the various technical organizations of the region.
8. Publication of a quarterly entitled Flood Control Journal and a Flood Control Series.

H. Co-ordinating the utilization of existing facilities and research programme of hydraulic research stations.

1. Subject matter: flood control and water resources development;
   Type of activity: co-ordination of research;
   Geographic coverage: ECAFE region.
2. Started June 1951; continuing project.
3. One expert, one-quarter man-year annually.

/4. Research

4. Research engineers of hydraulic laboratories of the ECAFE region.
5. Salary annually (salary US $2,500).
6. Pooling of research facilities for the common interest of countries of the region.
7. In close co-operation with hydraulic laboratories of countries of the region.
8. Co-ordination of research programme published annually in the Bureau's Flood Control Journal.

I. Regional technical conference on flood control.

1. Subject matter: flood control;
   Type of activity: exchange of experience through conference;
   Geographic coverage: ECAFE region.
2. January 1951.
3. Four experts and one engineer, one and one-half man-year.
4. 123 experts from member and associate member countries of the ECAFE region.
5. Salary and travel for internal staff (salary: US $15,000;
   Travel: US $3,000).
   Conference expenditure US $500.
   Printing of publication US $12,000.
6. Exchange of experience in the field of flood control and allied problems with a view to securing improvement.
7. In close co-operation with technical organizations of the region, related specialized agencies of the United Nations and international technical organizations.
8. Proceeding of the conference published as No. 3 of the Flood Control Series.

J. Asian training centre for water resources development.

1. Subject matter: comprehensive development and use of water resources;
   Type of activity: educational activity;
   Geographic coverage: ECAFE region.
2. Proposed to be convened in 1952.
3. Ten lecturers (including staff from United Nations Headquarters), two and one-half man-years.

4. Ten lecturers

4. Ten lecturers from countries of the ECAFE region.
5. Salary and travel for internal staff and outside staff (salary: US $25,000; travel US $6,600); other expenditure US $2,000.
6. Training of young engineers in the field of multiple-purpose unified river basin development.
7. In co-operation with governments of the region, the United Nations technical assistance programme and specialized agencies of the United Nations.
8. To be published in 1953.

K. Working party on the standardization of terminology, methods and records of hydrological measurement.

1. Subject matter: hydrology;
   Type of activity: international technical standards;
   Geographic coverage: ECAFE region.
2. Proposed to be convened in 1952.
3. Two experts one-half man-year.
4. Hydrological experts of countries of the ECAFE region.
5. Salary and travel for internal staff (salary: US $5,000; Travel US $1,000).
6. Standards for the use of the countries of the ECAFE region.
7. In co-operation with technical organizations of countries of the ECAFE region..
8. Not yet ready for publication.

L. Distribution of books on flood control and allied problems including water resources development in co-operation with United Nations technical assistance.

1. Subject matter: flood control and water resources development;
   Type of activity: dissemination of information;
   Geographic coverage: ECAFE region.
2. Started June 1951, to be completed in December 1951.
3. One expert - one-sixth man-year.
4. -
5. US $13,500 by United Nations, internal staff US $2,000.
6. Improvement of knowledge in flood control methods and water resources development in member and associate-member countries of the ECAFE region.
7. -

B. FUTURE PROGRAMME OF WORK OF THE BUREAU OF FLOOD CONTROL

The programme of work of the Bureau of Flood Control for 1952 and subsequent years is given in the annual report of the Bureau for 1951 (E/CN.11/311). The work programme consists of continuing and ad hoc projects covering subjects relating to river basin development, flood control methods, flood control of international rivers, hydraulic research, hydrological measurement and advice and assistance to governments etc. While the Bureau will continue its activities as given in its work programme, it is well to consider the principal directions along which the Bureau's work should be developed. This is deemed desirable as the Commission is to continue its work indefinitely. In considering the development of its future work, the Bureau proposes to lay emphasis on the following two principles:

1. Concentration on only a few projects of fundamental importance to the economic development of the region; and

2. Emphasis on such works as require international co-operation and could best be dealt with by an international organization like the Bureau.

1. Multiple-purpose unified river basin development

During the past two and one-half years the work of the Bureau has been confined mainly to flood control. Stress has been laid on improvement of existing flood control measures following investigation of flood control methods, the initiation of joint programmes of research and experiments, the bringing together of experts at a regional conference, etc. In dealing with the flood problems, it became at once apparent to the Bureau that flood control could not be separated from other aspects of water resource development. For example, the possible development of water power and irrigation, as well as of navigation, should be considered when reservoirs are contemplated for flood control. In fact it has often been found that flood control projects are not economically justifiable in themselves; they are of benefit only when other advantages such as water power, irrigation, navigation etcetera can be realized simultaneously. The Regional Technical Conference on Flood Control duly recognized the integral nature of the water resource problem, and the Commission at its seventh and eighth sessions approved the shift of emphasis on the Bureau's work from treatment of flood control as an isolated subject to the broader aspect of multiple-purpose unified river-basin development.

/If, as generally

If, as generally accepted, civilization is the result of the proper combination of water, land and people, then the importance of water resource development to the economic progress of the region becomes readily apparent. The control of floods, as well as the most efficient use of flood waters for agriculture to solve the food problem, the generation of power to meet the needs of industrialization, the management of watersheds so as to ensure the continuous use of land for agricultural production, and the improvement of waterways for navigation are all of basic importance to the countries of the region. These inter-related subjects could well be selected as basic projects of the Bureau.

With the aim of promoting water resource development in the region, the Bureau, closely co-operating with the Technical Assistance Administration, specialized agencies and other divisions of the Secretariat, suggests the following method of approach to the problem:

1. Study and analysis in co-operation with technical organizations of the region, of problems of common importance to the region such as:

   (a) The comparative study (technical and economic) of various methods of water resource development (a large dam as against a series of small dams; earth and rock-filled dams as against concrete dams; the balanced use of human labour and mechanical power; priority of different phases of development i.e. of flood control, navigation, irrigation, power, navigation etc.).

   (b) Analysis of the experience gained and the difficulties encountered in water resource development projects in the region.

2. Preparation and publication of a technical series covering basic principles and techniques for handling water resource development projects for the use of countries of the region, and the dissemination of technical information relating to water resource development.

3. Organization of a training centre, in co-operation with the United Nations technical assistance programme, on water resource development for the training of engineers, the promotion of exchange of technical personnel and the utilization of training facilities on projects now under execution in countries of the region.

4. Convening of a regional conference on water resource development.

5. In co-operation with the United Nations technical assistance programme providing technical advice and assistance to countries of the region, as and when requested, on water resource development projects.

/2. Flood control

2. Flood control and water resource development of international rivers

Among the international rivers of the region the better known are the Red, Mekong, Salwee, Irrawaddy, Brahamputra and the Indus. The resources of these international rivers, with the possible exception of the Indus, have not been developed at all, and even their potential resources have hardly been explored. Bearing in mind that the development of such large rivers is essentially of a long-range nature, it is deemed desirable to investigate the possibility of such development, and to organize collection of basic data at an early date so as to ensure thorough planning. Further, individual flood control projects have been, and are being, executed in some countries along international rivers. Such structures may adversely affect other countries. It thus appears necessary that some degree of agreement should be secured before the problem becomes acute.

It would appear that the Bureau, as a subsidiary body of the United Nations, is best suited to promote the kind of international co-operation called for. It is also the intention of the Bureau, when participating in the investigation of river basin development, to consider such development without any regard to political boundaries, and also to strive to emphasize the principle of the maximum benefit for all the people of an entire river basin.

The Bureau, with the co-operation of Thailand, Laos, Cambodia and Viet-Nam in 1951 started work on the Mekong River, an international river. This work will be continued in 1952, and other river basins will be similarly taken up in succeeding years.

3. Co-operation with headquarters

Both the subjects mentioned above relate to water resource development. Recognizing that the Secretary-General, pursuant to Resolution 346 (XII) adopted by the Economic and Social Council on 9 March 1951, will soon publish a report on international activity in the broad field of water control and utilization which will be discussed by the Economic and Social Council in May 1952, it is hoped that Headquarters will make the fullest use of the Bureau in implementing the decision of the Council.

C. SUB-COMMITTEE ON ELECTRIC POWER

I. General character and activities of the Sub-Committee

1. It is generally recognized that the extent of power development in a country can be regarded as an index of the economic prosperity and the standard of living of the people. Almost all industrial projects in the countries of the ECAFE region have been based on the availability of electric power. No project on industrial development can be considered complete without an assessment of the quantum of electric power required and the cost thereof. Further, power production has formed an integral part of large river valley development schemes. It is therefore felt that any study of economic development of the region would be incomplete without the study of the problems connected with power development. In accordance with the recommendations of the Committee on Industry and Trade (E/CN.11/I&T/18) the Economic Commission for Asia and the Far East (ECAFE) approved the formation of a sub-committee on electric power. The first meeting of the Sub-Committee is scheduled to be held at Rangoon (Burma) from 11 to 14 January 1952.

2. The membership of the organization consists of member and associate member countries of ECAFE.

3. It is a sub-committee of the Committee on Industry and Trade of ECAFE, serviced by the Industrial Development Division of the ECAFE Secretariat with the assistance of a consultant.

4. The main function is the study of problems connected with generation, transmission and distribution of electric power in the ECAFE region. With this end in view, despite the limited time at the disposal of the ECAFE Secretariat due to late recruitment of the consultant, the following reports of studies are being presented to the first meeting of the Sub-Committee:

A. Power projects and organizational problems.

B. Relationship between industrial and power development.

C. Requirements and availability of electric power plant.

Draft programme for 1952 consists of the following studies and investigations:

A. Rural electrification.

B. Co-ordinated development of hydro and thermal power.

C. Statistical bulletin.

D. Advisory services.

5. Geographic area of the activity will be the same as the geographical scope of the Commission.

6. ECAFE budget to be financed by the United Nations.

7. It is envisaged that activities will call for close contact with the Technical Assistance Administration and the Economic Commission for Europe of the United Nations, the United States ECA Mission in the several Asian countries and the Commonwealth Consultative Committee. Contact will shortly be established with the national and regional technical organizations of the countries of the region.

II. Information on individual projects in the field of water control and utilization

Present Programme:

A. Power projects and organizational problems.

1. Subject matter: energy production;
Type of activity: analytic study of technical nature;
Geographic coverage: ECAFE region.
2. Started March 1951; completed October 1951.
3. One member and one consultant.
4. Nil.
5. Salary: US $3,000; travel: US $600.
6. The recommendations made are designed to assist countries in making much needed power expeditiously available.
7. To work in co-operation with the national and regional technical organizations of the countries of the region.
8. E/CN.11/EP/2.

B. Relationship between industrial and power development.

1. Subject matter: energy production;
Type of activity: analytical study of a technical nature;
Geographic coverage: ECAFE region.
2. Started March 1951; completed November 1951.
3. One member and one consultant.
4. Nil.

/5. Salary:

5. Salary: US $3,000; travel: US $600.
6. Makes recommendations on achieving co-ordination between industrial and power development.
7. In co-operation with the national technical organizations of the countries of the region.
8. E/CN.11/EP/3.

C. Requirements and availability of electric power plant

1. Subject matter: energy production;
   Type of activity: analytic study of technical nature;
   Geographic coverage: ECAFE region.
2. Started March 1951; completed November 1951.
3. One member and one consultant.
4. Nil.
5. Salary: US $3,000; travel: US $600.
6. Gives a bird's eye view of the position regarding requirements of electrical equipment of the region and also indicates the available manufacturing capacity in Europe and recommends action for making the best use of available European manufacturing capacity. Suggests establishment of a factory for manufacturing heavy electrical equipment in the region to meet existing and growing demand.
7. In co-operation with the national technical organizations of the countries concerned.
8. E/CN.11/EP/5.

Programme for 1952:

A. Rural electrification:

1. Subject matter: utilization of electrical energy;
   Type of activity: analytic study of technical nature;
   Geographic coverage: ECAFE region.
2. Approximate date of completion: 1952.
3. Two members.
4. Nil.
5. Salary: US $3,500; travel: US $800.

/6. If some

6. If some progress is achieved towards a solution of the problem of supplying electric power economically, to scattered rural loads a forward step will have been taken towards economic uplift of the region.
7. The study may involve close co-operation with the Economic Commission for Europe.
8. Publication of document.

B. Co-ordinated development of hydro and thermal power.

1. Subject matter: energy production.
   Type of activity: analytic study of technical nature.
   Geographic coverage: ECAFE region.
2. Approximate date of completion: 1952.
3. Two members.
4. Nil.
5. Salary: US $3,500; travel: US $800.
6. The study is intended to bring out past and present trends and consequences of unbalanced development.
7. In co-operation with the national technical organizations of the countries of the region.
8. Publication of document.

C. Statistical bulletin:

1. Subject matter: energy production;
   Type of activity: collection and publication of technical data and information;
   Geographic coverage: ECAFE region.
2. Annual publication.
3. Two members.
4. Nil.
5. Salary: US $3,500; printing: US $2,000.
6. It is proposed to develop and compile a statistical bulletin, for the present to be issued annually, containing, inter alia, data on hydro and thermal generation and capacity by types of plant, transmission lines by length and voltage, consumption of fuels by type and quantities, and efficiencies and load factors attained,

utilization of electric power by heavy and light industries, agriculture, farms and homes.

7. In co-operation with the national technical organizations of the countries concerned.

8. Annual bulletin will be issued.

D. Advisory Services

1. Nature of project: advisory service;
   Type of activity: rendering advice of technical nature;
   Geographic coverage: ECAFE region.
2. Continuing project.
3. One member
4. Nil.
5. Salary: US $3,000; travel: US $1,000.
6. Technical advice rendered on specific problems on request from governments of countries of the region is expected to assist them in expeditious completion of their projects.
7. In co-operation with the national technical organizations of the countries concerned.

D. PROJECTS IN THE FIELD OF INLAND AND INTRA-COASTAL NAVIGATION

I. Improved design and operation of craft

1. Subject matter: investigation of the possibility of a pilot project covering craft and operation under the United Nations technical assistance programme.

The project will include experimentation with suitably designed tugs, pusher-craft, or other means of moving country boats and barges on inland waterways.

Geographically, the pilot project will cover all countries in the ECAFE region where country boats are the principal means of transportation on inland waterways.

2. Preliminary work started in 1950; continuing until about 1954.

3. One expert on inland water navigation - three-quarters of a man-year.

4. Four experts and six mechanics:

- one expert on barge design, construction and operation - one man-year;
- one expert on power-craft and power unit employed in moving inland transport - one man-year;
- one expert on inland water transport navigation and traffic handling and direction - one man-year;
- one expert on cost accounting to maintain records of costs of construction, maintenance and operation - one man-year;

These experts can be drawn from countries having inland water transport conditions similar to those in the region.

- six mechanics to test barges and power units, maintain craft operation and furnish other mechanical assistance - one man-year each.

5. (a) Estimated cost of technical assistance to be supplied by the United Nations: US $100,000.

(b) Estimated cost of machines, machine tools, barges and power-craft: US $150,000

(c) Cost of United Nations experts and mechanics: US $33,000

(d) Cost of local government employees: US $27,000

(e) Other costs: US $60,000.

/6. In nearly

6. In nearly all the countries of the region where inland waterways play a major role, the country boat is universally used. Although the problem of the utilization of country boats varies from country to country, the advantage of a pilot project, by means of which a suitable common type of power craft for purposes of towing, etc. may be evolved, is obvious. Similarly river and canal conservancy, although solely the concern of individual governments when considered from the point of view of navigation are fields regarding which the knowledge and experience of each country can be shared by all for the common benefit.

7. The main co-ordinating body for the scheme as a whole will be the Inland Waterway Sub-Committee of the Inland Transport Committee of ECAFE.

8. A full and detailed report on the conclusions reached as a result of the experimentation conducted under the pilot project will be published as a United Nations transport document, and will be available to all interested governments both within and outside the region.

II. Study tour by a team of inland waterways experts

1. A team of ten experts on inland water transport and two observers drawn from Burma, India, Pakistan, Thailand and Viet-Nam has been undertaking a study trip to countries in the region and certain countries in Europe and the United States to study technological advances in the field of inland water transport.

2. Study trip commenced 1 August and was to be completed by 15 November 1951.

3. One expert on inland water transport - one-half man-year.

4. Ten experts on Inland navigation drawn from Burma, India, Pakistan, Thailand and Viet-Nam and two observers from India.

5. About US $62,000[1/] to be met by United Nations technical assistance.

6. Countries will benefit from the experience gained and the observations made during the trip in improved types of craft, and inland waterway navigation methods with a view to the more efficient utilization of inland water transport resources of the region.

1/ Approximate estimate only.

/7. The work

7. The work of co-ordination will be done by the Inland Waterway Sub-Committee of the Inland Transport Committee of ECAFE.

8. An official report will be prepared by the team of experts embodying the main observations which will be available to all governments of the region.

III. Dissemination of information concerning inland navigation

1. Collection and dissemination of information and documentation concerning inland transport in connexion with quarterly issues of the Transport Bulletin.

The ECAFE Secretariat collects technical information on the various aspects of inland water transport and publishes it in the form of a quarterly bulletin, which is distributed with a view to the widest dissemination of the information.

2. Work started in 1950. This is a continuing project.

3. One staff member - one-sixth man-year.

4. Nil.

5. About US $2,000 per year.

6. Information on the latest technological advances in the field of inland water transport both within and outside the region will be made available to all interested governments.

7. Inland Transport Division of the ECAFE Secretariat.

8. Quarterly Transport Bulletin issued as a regular feature of the work of the Secretariat.

E. PUBLICATIONS OF ECAFE

Flood Control Series

No. 1 Flood damage and flood control activities in Asia and the Far East, published October 1950.

No. 2 Methods and problems of flood control in Asia and the Far East, published December 1951.

No. 3 Proceedings of the Regional Technical Conference on Flood Control, in two parts: Part A - Conference discussions; Part B - Conference papers, mimeographed copy distributed April 1951, to be published 1952.

Flood Control Journal

No. 1 to No. 8, a quarterly published since September 1949, which reviews the recent activities in water control and utilization of the ECAFE region.

Working papers of the Bureau of Flood Control

Preliminary report on the standards of terminology, records and methods of hydrological measurements.

Preliminary report on the investigation and promotion of multiple-purpose river basin development, in three parts: Part 1, basic principles in planning and execution of multiple-purpose river basin development; Part 2, the role of multiple-purpose basin projects in the economy of the ECAFE region, and Part 3, country survey of the ECAFE region.

Preliminary report on the investigation of bank revetment and river training.

The silt problem.

Preliminary report on flood prediction, flood control and water resource development of the Mekong (international river).

Chapters in the annual Economic Survey of Asia and the Far East

Flood control and water resources development, Economic Survey of Asia and the Far East, 1949, chapter XV, pp. 359-379.

Irrigation and water power, Economic Survey of Asia and the Far East, 1950, chapter I, pp. 19-30.

ECONOMIC COMMISSION FOR EUROPE

(In addition to formal studies directed towards particular aspects of water utilization for hydro-electric development or operation, the Electric Power Committee and Secretariat engage from time to time in enquiries, assist in negotiations between government representatives, and in general keep under review problems which affect hydro-electric energy production in Europe).

A. Legal problems affecting international co-operation for hydro-electric development

(1) This is an analytical study of a type comprised particularly within heads (ii), (iv) and (vii) of Annex B.[1]

A survey of the international agreements arrived at throughout the world in connexion with hydro-electric development on rivers and lakes forming or crossing international boundaries has been published and is now to receive unrestricted distribution.

A separate legal study has been carried out in respect of factors affecting transfers and exchanges of electric energy (see 8 below).

A recommendation on this subject has been drawn up by a special Group of Legal Experts set up under the Electric Power Committee and has now been addressed to governments. This sets out conditions designed to facilitate the joint hydro-electric development of rivers and lakes of common interest.

(2) This study has been pursued under a high priority over the period 1949-1951. Work may be continued in the near future.

(3) The study has been carried out on a part-time basis by the head of the Electric Power Section, and with secretarial assistance.

(4) A Group of Legal Experts has been set up under the Electric Power Committee. No outside experts have been employed.

(5) Part-time internal staff costs as stated above. Publication costs should not exceed US $150.

(6) Many examples exist in Europe of international waterways affording important hydro-electric potential. Schemes of this kind have often been held up by lack of agreed principles for apportioning costs, taxes, labour

1/ Of the United Nations circular request for information.

/and materials

and materials. The results of the study should facilitate and speed up construction in such cases.

(7) Other professional organizations are represented at meetings of the Electric Power Committee.

(8) Document No. E/ECE/EP/98 - Legal aspects of hydro-electric development of rivers and lakes of common interest. Document No. E/ECE/EP/117 - hydro-electric development of contiguous rivers and lakes - Recommendation No. 2.

Document No. W/EP.5/2 - Comparative national legislation governing the import and export of electric power. Document No. E/ECE/EP/116 - Legislation concerning transfers of electric power across frontiers - Recommendation No. 1.

B. Investigation of water power resources

(1) This is an analytical technical study with an economic orientation and falling particularly within heads (i), (ii), (iv) and (vii) of Annex B. The main object is to assess the water power resources of the different regions of Europe on a consistent basis, taking into account alternative definitions based on gross, technical and economic possibilities respectively. To this end it is necessary to arrive at operational definitions; to develop techniques for uniform rapid survey of the basic factors; and to arrive at recommendations to governments which will provide a common framework for future national publications in this field.

The investigation is required for the following reasons:

(a) Hydro-electric power is being developed in Europe as rapidly as circumstances allow and within perhaps 20 - 30 years will be fully exploited. Yet the surveys of hydro resources published in different countries vary widely in definition, method, coverage and date of publication, so that it is not possible accurately to assess or compare development possibilities in different areas.

(b) This question is important also in respect of the development of international transfers and exchanges of electric power, which depend on the distribution and seasonal character of hydro-electric possibilities.

Similar difficulties exist in respect of the distribution of hydrologic factors affecting plant operation. The preparation of maps showing the

/distribution

distribution of seasonal specific flow, specific mean flow, and year-to-year deviations from the mean, is a related goal of the study.

The project relates in principle to all European countries, but so far work has been mainly confined to the catchment basins of central Europe.

(2) It is intended to produce a definitive study on gross potential resources in 1952. The analysis of technical and economic potential will probably be issued separately. The study has high priority in the programme of ad hoc projects.

(3) Part-time work by one technical officer with secretarial and occasional statistical assistance.

(4) A Group of Experts of the Electric Power Committee has been set up to report on the work, but no outside experts have been employed as consultants and none is envisaged.

(5) Apart from internal staff costs, which are difficult to assess accurately because the work is on part-time basis, perhaps 1000-1500 dollars will be needed for special printing, including maps in colour constructed as part of the work.

(6) See also under (1). An inventory of Europe's water power potential on a consistent basis, for use in planning international development, and recommendations to promote uniformity in future national assessments.

(7) Co-operation with other organizations where possible for provision of basic data - in particular with the International Association of Hydrology and the World Meteorological Organization. The Group of Experts and the Secretariat were represented at the Congress of the International Association of Hydrology. Other orgsnizations concerned with electric power are represented at meetings of the Committee on Electric Power.

(8) Document No. W/EP.1/3 - Gross Potential Water Power Resources of Central Europe. Further publications are planned for 1952.

See also document No. E/ECE/EP/113 - Report by the Group of Experts on Study of Gross Potential Hydro Power Resources in Central Europe Adopted by the Committee on Electric Power on 1 October 1951.

C. Rural electrification

(1) A general analytical study to discover, in the light of experience acquired in technically advanced countries of Europe, the best way to carry

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out the electriciation of an agrarian country. (The degree of attention to be given to problems of water utilization is not yet known, although the subject is highly relevant).

(2) To be carried out in 1952.

(3) Apart from the assembling of relevant documentation and servicing of meetings, etc., the internal staff would be occupied directly only in the final stages of the work.

(4) The study for each selected country would first be carried out by a national expert, and a rapporteur would afterwards co-ordinate the results.

(5) Data not yet available.

(6) The study will provide a general assessment of the best practice to be followed by countries where a rural electrification programme, embracing every aspect of the subject from production and distribution to tariffs, use of equipment and training, is of major importance.

(7) The Food and Agriculture Organization of the United Nations was represented at the first meeting of the Group of Experts set up for this study and the Secretariat is keeping in touch with the Technical Assistance Administration of the United Nations.

(8) Only the first report to the Electric Power Committee of the Group of Experts set up to prepare a programme has so far been issued (Document E/ECE/EP/115).

D. Comparison between costs of construction of water power plant in different countries

(1) An analytical study which may take into account the different cost items in relation to different types of site and the economic limits to water power development in different countries.

(2) A study in this field was issued in 1950 and a group of experts is to meet shortly to decide on the nature of any future work to be undertaken.

(3) The work will probably be carried out by internal staff only. No further details are available.

(4) As (3) above.

(5) As (3) above.

/(6) Such a

(6) Such a study would bring out reasons for the great differences in hydro construction costs which exist between different European countries and would also be of assistance in the survey of economic resources (see item B above). It would also be helpful in the economic analysis of energy transfers.

(7) No other details available at present.

(8) Document W/EP.1/4 - Comparative Costs of Construction of Hydro Power Plants. Document EP/Working Paper/No. 2 - Comparative Construction Costs of Hydro Power Plants.

E. Study of the economics of daily pumped storage

(1) An analytical study of the method of energy production by daily pumped storage plant - that is, hydro storage plant which uses surplus off-peak energy to pump water to a higher level in order to generate additional energy at hours of peak demand.

(2) Studies have been issued in 1950 and a special group of experts set up to consider future work has now recommended that a general study should be completed. High priority in ad hoc group of projects.

(3) The study will be based in part on replies to questionnaires and will be carried out by internal staff only. Details are not yet available.

(4) No outside experts are envisaged.

(5) Details not available.

(6) Widely different views exist as to the usefulness of this type of plant. The study should help to define the place of pumped storage as a factor in European construction programmes.

(7) Interested professional organizations are represented at meetings of the Electric Power Committee.

(8) Documents W/EP.2/1 and W/EP.2/5 (Reports by the Secretariat)

" W/EP.2/6 and W/EP.2/10 (Studies by the Deutsche Verbundgesellschaft E.V., Heidelberg)

" W/EP.2/7 (Note by the United States delegation)

" W/EP.2/8 (Note by the Luxembourg delegation)

" W/EP.2/9 (Report by the Société pour la Coordination de la Production et du Transport de l'Energie Electrique de Bruxelles).

" E/ECE/EP/114 - Report by the Group of Experts for the Study of Daily Pumping, as adopted by the Committee on Electric Power on 1 October 1951.

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SPECIALIZED AGENCIES

THE FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

The Food and Agriculture Organization as the international organization charged with nutrition, agricultural production and distribution, including forestry and fisheries, and the welfare of rural populations so that these combined activities may lead to an expanding world economy, is of course profoundly concerned with problems of water control and utilization.

Since water is as basic a consideration as soil in relation to all the problems of agriculture and forest production and entirely determines the possibility of fish production from inland waters, the concern of the Organization with water is obvious. But the interest of the Food and Agriculture Organization is not limited to the importance of water in relation to crops, livestock, forest and fisheries. All or almost all problems in the field of water control and utilization must start with consideration of conditions in the watersheds. Favourable conditions in the watersheds depend upon satisfactory management of inland waters, forests, and grazing lands, upon the way in which crops are cultivated and upon classification of the lands for each of these purposes. It is through satisfactory methods of controlling these various factors that watersheds can provide optimum conditions for the supply of water for farms downstream, for urban consumption, for industry and for all other uses.

In the activities of the production divisions of the Food and Agriculture Organization, water problems pervade its every activity in one way or another, even though the label "water" is not attached. Advice when given on crop or animal production always includes the water or moisture factor and for the inland fisheries water is the sole medium which makes production possible. Polluted streams may destroy fish and prevent their reproduction. Foresters give consideration to the benefits of forests in protection of soils, prevention of floods, regulation of stream flow to the accumulation of water under ground for agricultural, industrial, municipal, and navigation use.

Land and water problems are inseparable and the Food and Agriculture Organization's activities in agriculture concerning them are organized into the

/Land and

Land and Water Use Branch of the Agriculture Division with a staff of nine officers. The Food and Agriculture Organization's Forestry Division has organized programmes in forestry and water and always emphasizes the relationships between forests and water. The Fisheries Division of the Food and Agriculture Organization gives particular attention to utilization of water for fish, including multiple use, and the Economics Division is concerned with over-all economic aspects of land and water development projects. Co-ordination of the Food and Agriculture Organization's activities in the field of land and water is achieved by ad hoc committees as problems arise. A case in point is the Food and Agriculture Organization's Inter-Division Working Party which assisted the UNSCCUR in formulating a programme on the renewable resource aspects of that conference. In this instance, the Chairman of the Working Party was the Chief of the Land and Water Use Branch of the Agriculture Division. Frequent consultation between members of different Divisions has also been effective in co-ordination of activities.

Rain, snow, and dew fall upon the just and the unjust or in more technical language upon efficiently controlled areas and those where unsound methods of forestry, grazing and crop production result in erosion and quick run off, followed at times by floods and later by the failure of springs. Hence, what foresters, ranchers, and farmers do affects not only themselves but all classes of society. The practices of these three groups and their co-ordination determines the supply of water for themselves and for others.

Water, therefore, is a problem receiving the attention of all the production divisions of the Food and Agriculture Organization. It, along with land, is basic to any biological production activity. Since most of the Food and Agriculture Organization's activities in the field of water do not readily permit a tabulation by "projects" the most feasible classification of the Food and Agriculture Organization's activities appears to be under the following topics:

1. Development of national and international programmes and policies for land and water utilization and conservation.

2. Meetings and councils for the exchange of experience.

/3. Training

3. Training centres and courses for better water utilization.
4. Direct advisory assistance to Member Governments.
5. Collection and publication of basic data and information.

Development of national and international programmes and policies for land and water utilization and conservation

The following steps have been taken in international meetings and in the organization of working parties to facilitate the co-ordination of various aspects of water development programmes.

The growing interest in land and water problems, the need for national policies and for greater co-ordination of activities of the numerous agencies concerned with land and water within countries, and the resolving of conflicts in use of land and water within countries, led to a recommendation on the subject by the Fifth Annual Conference of the Food and Agriculture Organization as follows:

"The Conference believes that most countries have potentialities for further productive development of their land and water resources. Basic to further development is the formulation of national and, where the need arises, inter-governmental land and water programmes which will promote the correct use and care of resources and reconcile those conflicting interests that so often stand in the way of conservation and full utilization. It is urgently necessary that all Member Governments provide for themselves the legal powers and administrative machinery required for the formulation and operation of such programmes. The Conference therefore recommends -

- That each Member Government examine its legal powers and administrative machinery and seek to obtain further powers and, if necessary, create additional facilities, and
- That FAO (a) on request provide assistance to Member Governments or groups of governments to carry out this work, and (b) promote intergovernmental consideration of problems in this field affecting more than one country."

With reference to this Resolution, the Food and Agriculture Organization's Council requested Member Governments to report on their activities, organizations

/and basic

and basic legislation in the field of land and water development as part of the material to be submitted in the annual Article XI Reports for 1950. These reports have been summarized by the Food and Agriculture Organization for presentation to the seventh Food and Agriculture Organization's Annual Conference in 1951.

Stemming from the resolution also, a European Land and Water Utilization meeting was called by the Food and Agriculture Organization at Amsterdam in July 1950. The meeting recommended the establishment of a permanent European Working Party on Land and Water Utilization and Conservation. The Director-General has requested European Member countries to indicate whether or not they wish to participate in the working party and twelve countries have indicated the desire to be represented.

The Fourth Inter-American Conference on Agriculture, held in Montevideo, December 1950 recommended that the Food and Agriculture Organization should invite each Latin American country to appoint land and water use correspondents to correspond with each other on this subject, and with the Executive Committee on resources, composed of representatives of the Food and Agriculture Organization, the Pan American Union and Inter-American Institute of Agricultural Sciences at Turrialba, and that each government consider favourably the creation of a national land and water commission.

Following the Inter-American Conference on Conservation of Resources held in Denver late in 1948, there was established an Executive Committee on Resources composed of one representative each from the Food and Agriculture Organization the Pan American Union and the Inter-American Institute of Agricultural Sciences. This committee formally came into being in November of 1949, and its projected programme of activities emphasizes the co-ordination and development of programmes in land and water conservation. There have been five meetings of the committee to date. The Deputy Director-General of the Food and Agriculture Organization is Chairman of the Committee.

Agricultural development in arid zones is, of course, a part of the Food and Agriculture Organization's regular activities. The discovery and efficient use of water supplies in arid regions is a primary concern of the Food and Agriculture Organization and all requests of Member Governments for assistance in such development are met by the Food and Agriculture Organization. Several

/Food and

Food and Agriculture Organization experts are working on water supplies for agriculture in Iran and Syria and it is anticipated that other countries will request assistance as a result of a forthcoming visit of an Food and Agriculture Organization officer in other Near East countries. The Sub-Commission on Mediterranean problems of the European Forestry Commission, at its last session in Algiers in 1950, gave particular attention to the problem of water utilization in arid countries. It studied the possibilities afforded by modern methods of economical soil storage of water and moisture, not only for facilitating afforestation, but also for relieving the forest from the pressure of grazing and shifting cultivation by the establishment of improved pastures or orchards and the reclamation of agricultural lands.

Since the Food and Agriculture Organization's activities in the field of water extend to all regions and to all its production activities, the Food and Agriculture Organization is represented at the meetings of the Advisory Council on Arid Zones of UNESCO.

The Food and Agriculture Organization's Regional Forestry Commissions consider the problems of water conservation and flood control as an integral part of their programmes. This is the case particularly in Europe where, in most countries, torrent control and soil conservation in high mountains is traditionally the direct responsibility of forest services. At its last session, in October 1951, the European Forestry and Forest Products Commission recommended:

(a) that, in view of the strong interest of foresters in matters of soil conservation, Member Governments should take steps to assure that forestry experts are fully represented in the European Working Group on Land and Water Utilization and Conservation (referred to above);

(b) that the Director General of the Food and Agriculture Organization should consult with the governments concerned with a view to convening in 1952 a special meeting of technical experts on torrent control, at which the subject of protection from avalanches should also receive full attention.

The Mysore Forestry Conference which, in 1949, instituted the Regional Forestry and Forest Products Commission for Asia and the Pacific, has also

/included

included the protective role for forests among the terms of reference of the Commission.

Finally, the Food and Agriculture Organization's 1951 General Conference will have to examine the possibility of recommending formally to all Member Governments the implementation of minima "Principles of Forest Policy". In the document which has been prepared for this purpose, and which has been approved already by the three Food and Agriculture Organization Forestry Commissions, the necessity is stressed of giving full priority to the wise use of these forests which play an important role in soil and water conservation.

Meetings for exchange of experience and information

A Regional Meeting on Land Utilization in Tropical Areas

A Regional Meeting on Land Utilization in Tropical Areas of Asia and the Far East was held in Ceylon on 17-29 September 1951, with fifteen countries represented, and thirty-eight delegates, eleven advisers from Ceylon, and two observers in attendance. Soil erosion and conservation problems as related to control of water were an important consideration at the meeting.

An international meeting on improved irrigation and drainage practices

Development of improved irrigation and drainage systems and practices on farm lands in relation to characteristics and requirements of terrain, soils, crops and climate, will be the subject of a Food and Agriculture Organization international meeting in 1952 for an interchange of latest knowledge and experience on irrigation and drainage to implement the resolution of the Fifth Annual Conference on the subject.

A Latin American meeting on land and water utilization and conservation

A Latin American meeting on land and water utilization and conservation programmes and policies is proposed for 1952 or 1953. A Food and Agriculture Organization land and water officer will visit Latin American countries and consult personally with the land and water use experts for the purpose of obtaining knowledge of existing land and water programmes and needs for improved programmes in each country and to consult with these experts on an appropriate agenda for the meeting.

/Indo

Indo-Pacific Fisheries Council

The aim of this Food and Agriculture Organization sponsored Council is the development and the proper utilization of the living aquatic resources of the Indo-Pacific areas through the encouragement and co-ordination of research and the application of improved methods. Fifteen countries are members of the Council, which pays equal attention to marine and inland fisheries. The Council accepted in 1951 the following important recommendation:

"Recognizing the importance of fish cultural practices in fresh and brackish waters throughout this region and the fact that in all countries steps are being taken to improve and extend these practices,

Recommends to Member Governments that they initiate and/or intensify investigational programmes, which should include the following items:

1. Survey of cultivable waters.
2. Determination of the quality and quantity of fish food organisms in the different types of waters with reference to their physicochemical conditions and the variations thereof;
3. Study of the feeding, breeding and growth of cultivable species;
4. Study of fish associations and the determination of the optimum densitites of compatible combinations of different age groups for stocking operations;
5. Consideration of fish seed resources, their transport and distribution."

Latin American Fisheries Council

This Food and Agriculture Organization sponsored Fisheries Council is in its formative stage. When established its immediate aim will be the proper utilization of the regional aquatic resources, inland as well as marine. As in IPFC, all professional work is done by the delegates and experts of the member countries. The Food and Agriculture Organization is giving guidance in technical matters and provides for secretarial assistance.

/Training

Training centres and courses for better water utilization

The Food and Agriculture Organization organizes training centres and training courses for better water utilization in various regions of the world. Three training centres one each in the Far East, Latin America and in the Middle East, have included courses on project development. Two training centres on efficient use of water in agriculture may be held in 1952. Training courses in the proper management of inland waters and the culture of fish in fresh and brackish water fish ponds and on rice fields are also organized. Sponsored by the Indo-Pacific Fisheries Council, a seminar on brackish water fisheries was held in Djakarta in May-June 1951. A similar course will be given in April-May 1952. A Food and Agriculture Organization staff officer will act as lecturer.

Direct advisory assistance to Member Governments

A Food and Agriculture Organization staff irrigation and drainage officer spent three months in Pakistan in 1950 advising on the development of water resources, particularly on water-logging problems, and laying the basis for a substantial programme under the expanded technical assistance programme. He also visited in Saudi Arabia for a brief period and outlined experts required under the expanded technical assistance programme.

The existing projects related to water under the expanded technical assistance programme may be divided into those under existing signed agreements and those anticipated during the remainder of 1951 and 1952.

The number of experts corresponding to man-years make a total of 85 in 32 different countries (Table 1). Salaries of these experts usually range from US$7,200 to $8,400. Travel expenses for experts is approximately $1,200. Equipment for the activities amounts to about 30 per cent of the salary and travel expenses of the experts.

Food and Agriculture Organization Headquarters has four officers dealing with water problems in relation to land use. Four other land use officers are dealing with soil and land problems associated with water use. A biologist is specialized in the management of inland waters and the rearing and breeding of fresh and brackish water fishes.

/Collection

Collection and publication of basic data and information

The following publications and working papers with a direct relation to water problems have been prepared for the use of Governments.

Publications

1. Soil Conservation - An International Study (English, French and Spanish).
2. Water Laws of the United States of America (In English).
3. Control of Salty Lands (In English and French) (Salty lands are primarily a problem of water control).
4. Efficient Use of Fertilizers (In English, French and Spanish). This publication is included in this list because too much or too little water limits the use of plant nutrients by crops.
5. Report of the FAO Fisheries Mission for Thailand.

Food and Agriculture Organization Annual Conference Papers

1. National Programmes for Land and Water Utilization and Conservation.
2. Summary of Article XI Reports by FAO member countries on legal and administrative aspects of activities in land and water development.
3. Note on Formation or Improvement of National Organizations, Laws and International Agreements for the Development of Land and Water Resources.

Working Papers

1. Essential Considerations in Irrigation Development.
2. Limitations of Geophysical Methods.

In Preparation

1. Methods of Soil Mapping and Classificaton (particularly important in connexion with irrigation, drainage and control of salinity).
2. A World-wide Survey of the Incidence of Soil Erosion is in progress, in co-operation with the Conservation Foundation. The map of erosion for North America has been completed and data

/are ready

are ready for making the manuscript map. It is anticipated that this world-wide survey will be completed continent by continent.

3. Appraisal, classification and mapping of land and water resources for agricultural production in individual countries, particularly those in which the Division has large programmes in its expanded technical assistance programme. Existing information is being collected and analyzed at headquarters and member countries will be encouraged to collect any additional information that may be required. Agriculture regional maps and data on land and water resources will be published country by country.

4. A World Map of International River Basins.

5. Compilation of Water Laws of Italy and Near East FAO Member Countries.

6. Essential Considerations for Development of Underground Water Resources.

Papers Contributed

1. Two papers presented at the plenary session of the United Nations' Scientific Conference on Conservation and Utilization of Resources as follows:

(1) Soil and Forest Conservation and Protection of Water by A.B. Lewis and J.D.B. Harrison of FAO.

(2) Application of Simple Conservation and Land Use Practices in China by J. Lossing Buck.

(3) The Soil and Water Conservation, Key to Flood Control by M.A. Huberman (presented to the Regional Technical Conference on Flood Control).

/TABLE I.

TABLE I.

NUMBER OF EXPERTS AND COUNTRIES UNDER SIGNED OR ANTICIPATED AGREEMENTS PERTAINING TO WATER - 1951/1952

Activity	Experts under signed agreements		Experts anticipated under new agreements - 1951/52	
	Number of experts	Number of countries	Number of experts	Number of countries
I. Appraisal of water resources	2	2	9	9
II. Soil conservation	7	7	10	6
III. Irrigation & drainage	13	5	17	11
IV. Inland fisheries	2	2	2	7
V. Watershed protection - forests	4	4	5	4
VI. Reafforestation	7	6	7	5
TOTAL	35		50	

Total countries: 23 under signed agreements 15 October 1951
32 under signed and anticipated agreements

The countries included are as follows and starred countries are those under current signed agreements:

Afghanistan*
Brazil*
Chile
Colombia*
El Salvador*
Ethiopia*
France (Libya Fezzan)*
Greece*
Guatemala*
Haiti*
Honduras*
India
Iran*
Iraq*
Israel*
Italy (Sardinia)
Jamaica
Mexico*
Nepal*
Pakistan*
Paraguay
Peru*
Portugal
Saudi Arabia*
Syria*
Italy (Somaliland)
Libya* (U.K.)
Thailand
Turkey*
Uruguay*
Venezuela*
Yugoslavia*

/INTERNATIONAL

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

I. General character and activities of the organization

Descriptions of the International Bank for Reconstruction and Development and complete facts on its current operations are given in the Yearbook of the United Nations, in standard encyclopedias and their yearly supplements, in the Annual Reports of the Bank, and in pamphlets on the Bank obtainable upon request by writing to the Bank headquarters at 1818 H Street, N.W., Washington 25, D.C.

The Bank is an international investment agency operating under Articles of Agreement, a charter signed by its fifty-one member governments. The principal activity of the Bank is the lending of money to help to pay the foreign-exchange costs of reconstruction and development in member countries. Since it began lending in May 1947, the Bank has made sixty-three loans amounting to over $1,300 million in twenty-eight countries. In the last few years the main emphasis of the Bank's lending has been on economic development. It has loaned more than $800 million for this purpose. Primarily the money has helped to pay the foreign-exchange costs of basic facilities for raising the productivity and standard of living in the less developed countries. The basic facilities include: electric power; transportation - railroads, roads, ports; communications; irrigation and flood control; land clearance; and grain storage. The Bank's loans have also financed the purchase of agricultural equipment, and machinery for factories and mines. The money which the Bank lends comes from two sources. The original source was the capital paid in by its member governments. Most of the readily available funds from this source have been used. In addition the Bank has borrowed the equivalent of about $450 million in the private financial markets through issues of its own bonds. The Bank receives no grants or appropriations from any government. Its expenses are paid out of operating revenues.

Although the Bank's principal contribution to world development is the lending of money for development projects and programmes, it also aids its member countries by providing technical assistance of various kinds. Some of this technical assistance is related directly to the appraisal or the execution of projects financed by the Bank. Other types of technical assistance furnished by the Bank, however, are not related to any specific loan project. For instance, the Bank has sponsored general survey missions to eight countries and more specialized missions to many others. In its six years of existence the Bank has sent out over 300 missions of various kinds to its member countries, and most of them have given technical assistance of some kind.

/II. Information

II. Information on individual projects in the field of water control and utilization

The table attached lists the loans made by the Bank in the field of water control and utilization. It also shows the purposes for which these loans were made, the countries to which they were made, the dollar amounts of individual loans and totals by category.

In the general field of economic development - as distinct from post-war reconstruction - the Bank has lent approximately $800 million. Of this amount close to $225 million has been lent for the development of water resources. This means that loans for water resource development account for approximately twenty-eight per cent of the Bank's lending for development purposes.

This amount was not determined as the result of a programme decision made by the Bank. In this sense the Bank has no programme. It does not determine in advance the sums of money it will spend for a given period for specific purposes and in designated areas. It examines the needs of its member countries and then decides, in consultation with them, what projects should receive first attention. Decisions regarding the most important needs of a country and the order of priority in which various projects should be undertaken are made in relation to their probable contribution to a country's balanced development. In making such decisions, the Bank and the country concerned must take into consideration all of the country's resources. And water of course, is only one of many resources to be considered.

In a sense it is impossible to make an accurate, quantitative analysis of the amount of money which the Bank has lent for water resource development. The development of a country is integral. It is highly artificial to consider the development of one resource apart from the development of others. For instance, the dollar totals shown on the chart attached do not include any of the thermal electric plants financed by the Bank. Yet countries depending chiefly on hydro-electric power almost invariably require thermal plants to supplement the hydro at times of peak load or in dry seasons. Consequently, thermal power is closely related to efficient use of water power. It is true also that some countries are better supplied with coal than with water power resources. In these countries thermal power is often helpful in improving the utilization of water by providing power for pumping water into irrigation systems. In many countries the development of river navigation cannot be considered apart from the provision of other means of transportation; and loans for other forms of transportation are thus related closely to the better utilization of waterways.

/It should

It should be pointed out also that loans made in support of broad development programmes cannot always be analyzed so as to show quantitatively the components of these loans devoted to water resource development. This is true of the Bank's loans amounting to seventy million dollars to Belgium and to the Belgian Congo for the development of the Congo. It is also true of the loan of ten million dollars to Italy in support of Italy's ten-year programme for the development of agriculture. The Italian programme includes projects for reclamation and irrigation of coastal areas and river valleys and the construction of aqueducts. The Bank's loan, however, which is in support of the full programme, cannot be broken down to show the extent to which it supports specific water resource projects. Likewise, the ten-year development programme for the Congo includes many projects for improving water transportation on the Congo and its tributaries. The Bank's loan will contribute to the carrying out of these projects, but was not granted specifically for this purpose.

More detailed information on any of the loans listed in Table I below may be obtained by writing to the International Bank for Reconstruction and Development, 1818 H Street, N.W., Washington 25, D.C.

IBRD LOANS COMMITTED WHOLLY OR IN PART FOR DEVELOPMENT OF WATER RESOURCES AS OF 31 MARCH 1952 (U.S. million dollars)

COUNTRY	PROGRAMME OR PROJECT	DATE OF LOAN AGREEMENT	TOTAL LOAN	TOTAL FOR WATER DEVELOPMENT	HYDRO POWER	IRRIGATION AND FLOOD CONTROL	CONTROL, METERING AND GEN
Australia	Equipment and materials for development	22 Aug. 1950	100.0	1/		1/	
Belgium and Belgian Congo	Equipment and materials for 10-yr. development plan	13 Sept. 1951	70.0	2/	2/		
Canada							
Montreal Tramways Co.	Electric power development and telephone equipment	27 Jan. 1949	75.0	57.0	57.0		
Quebec Hydro Electric Commission (1st instalment)	Electric power development	18 Jan. 1951	15.0	15.0	15.0		
Quebec Hydro Electric Commission (2nd instalment)	Electric power development	26 May 1950	15.0	15.0	15.0		
San Francisco Hydro Elec. Co.	Electric power development	25 March 1948	13.5	13.5	13.2	.3	
Chile							
Empresa Nacional	Exploration and use for irrigation of underground water resources	10 Oct. 1951	1.3	1.3		1.3	
Colombia							
Caldas	Electric power development	2 Nov. 1950	3.5	3.5	3.5		
Cauca Valley Electric Co.	Electric power development	28 Dec. 1950	2.6	2.6	2.6		
Lerida	Electric power development	13 Nov. 1951	2.4	2.4	2.4		
El Salvador	Electric power development	14 Dec. 1949	12.5	12.5	12.5		
Finland	Electric power development and equipment for woodworking ind. and limestone powder production	1 Aug. 1949	12.5	1.8	1.8		
France	Equipment and materials for reconstruction and development	9 May 1947	250.0	1.3	1.3		
Iceland	Electric power development	20 June 1951	2.4	2.4	2.4		
India	Electric power development (largely thermal)	18 April 1950	18.5	3/		3/	
Iraq	Construction of a flood control project	15 June 1950	12.8	12.8		12.8	
Italy							
Cassa per il Mezzogiorno of Southern Italy	Equipment and material for 10-yr. development plan	10 Oct. 1951	10.0	4/			
Mexico							
Chapultepec and Tenochtitlan	Electric power development	6 Jan. 1949	24.1)	12.0	12.0		
Chapultepec and Tenochtitlan	Electric power development	6 Jan. 1949	10.0)				
Mexicana	Electric power development	28 April 1950	26.0	10.3	10.3		
Tlalpan-Nexaca and Tenochtitlan	Electric power development	11 Jan. 1952	29.7	20.5	20.5		
Netherlands	Equipment and materials for reconstruction and development	6 Aug. 1947	191.0)	3.0			3.0
	(Supp. loan agreement)	25 May 1948	4.0)				
Pakistan	Irrigation	27 Oct. 1950	18.0	18.0		18.0	
	River dredging	27 Oct. 1950	4.4	4.4			4.4
Turkey							
U.S.A.	Electric power and development and telephone equipment	25 Aug. 1950	33.0	9.0	9.0		
Yugoslavia	Equipment for productive projects in electric power, coal mining, fishery, etc.	11 Oct. 1951	28.0	3.1	3.1		
	Totals			221.4	181.6	32.4	7.4

1/ Due to the nature of the loan we are not able to specify amount.

2/ Approx. 75% of total exp. of development plan will go to river transport, electricity, water supply.

3/ Part of multi-purpose river basin development.

4/ Foreign exchange aspect on multiple development programme in Southern Italy, including irrigation, drainage and aqueducts.

UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANIZATION

I. General character and activities of the organization

1. Origin and purposes: See "Report to the United Nations, 1950-1951", (UNESCO Publication No. 976), pp. 97-104.
2. Membership: Ibid p. 105.
3. Organizational structure: ibid p. 183.
4. Principal activities: ibid pp. 50-94, 108-59 and 163-82.
5. Geographical area of activity: ibid p. 105.
6. Budget and methods of financing: ibid pp. 45-48 and 160-2.
7. Relationships with other organizations: ibid pp. 30-45, 184-91 and 200-6.

II. Information on individual projects in the field of water control and utilization

The following activities of UNESCO are related to water control and utilization:

(a) Arid zone programme;
(b) Science co-operation offices;
(c) Subventions to international non-governmental scientific organizations;
(d) Technical assistance;
(e) Exchange of persons;
(f) Education;
(g) Teaching and dissemination of science;
(h) Mass communication.

A. Arid zone programme

History

The Director-General of UNESCO, in a report on the question of United Nations Research Laboratories and Observatories dated 20 February 1947, suggested that comprehensive international laboratories for the arid zone should be established as part of a United Nations system of international laboratories (United Nations Publication No. 1949 IV.1, page 44). The International Union of Theoretical and Applied Mechanics, in a letter from its President on 17 October 1947, stated that it would welcome the

/establishment

establishment of an "Arid Zone Research Laboratory for Fluid and Soil Mechanics" (UN Publication No. 1949 IV.1, page 137). The General Conference of UNESCO at its third session in December 1948 adopted a resolution proposed by the Indian delegation which instructed the Director-General of UNESCO to investigate these proposals (UNESCO Publication 252, Resolutions 3.71, 3.72).

In December 1949 a committee of experts was convened in Paris to make detailed proposals for a UNESCO arid zone programme (document UNESCO/NS/IIAZ/10). The Committee was of the opinion that the time was not ripe to create an international institute of the arid zone, and recommended instead the setting up of an arid zone research council. The recommendations of this committee were sent to Member States for comment, and in accordance with these recommendations and comments an Interim International Arid Zone Research Council was convened in Paris in November 1950. The seven members of this Council were selected by the Director-General from nominations received from the Governments of Egypt, France, India, Israel, Mexico, the United Kingdom and the United States of America. The present UNESCO arid zone programme was drawn up by this Interim Council (document UNESCO/NS/83), and was put into operation immediately following its meeting.

A standing Advisory Committee on Arid Zone Research, composed of seven members from the same seven countries, was set up by the Director-General and held its first session at Algiers in April 1951 (document UNESCO/NS/85). The second session of the Advisory Committee was held in Paris in September 1951. The United Nations, its interested specialized agencies, and interested international scientific unions were represented both at the meeting of the Interim Council in November 1950 and the first and second sessions of the Advisory Committee in 1951, and they will be invited to send representatives to all future sessions of the Advisory Committee. At the third session, which will be held in Turkey in April 1952, members from Australia and Peru will be added to the Committee.

Nature of the arid zone programme

The arid zone programme is devoted to the encouragement of research on the various problems of arid and semi-arid regions, and is carried out under the guidance of the Advisory Committee on Arid Zone Research.

/During 1951

During 1951 particular emphasis is being given to hydrology. In 1950 UNESCO commissioned eight hydrologists to review the research carried out in selected arid and semi-arid regions of the world on hydrology, and especially on problems of underground water and fluid mechanics. These eight reports will be completed in 1951 and disseminated in 1952. They will also serve as background information for a symposium on the hydrology of the arid zone, with special reference to underground water, which will be held in April 1952 in Turkey.

UNESCO, the Centre National de la Recherche Scientifique (France), and the Service de la Colonisation et de l'Hydraulique (Algeria) jointly arranged a four-day study trip in the Sahara in April 1951 in conjunction with the first session of the Advisory Committee on Arid Zone Research and a symposium on effects of wind, evaporation phenomena and surface hydrology in arid regions. Twenty scientists and engineers visited desert research stations and hydraulic installations in Algeria during this study trip.

The National Research Council of Israel has asked UNESCO to co-operate in the planning of a symposium on desert research to be held at Jerusalem in May 1952.

A geographer was commissioned in 1950 to prepare a set of homoclimatic maps, based on the principal climatic features which determine aridity. These maps were completed in July 1951. Plans for their dissemination were considered by the second session of the Advisory Committee in September 1951.

The Member States of UNESCO have been asked to designate experts for UNESCO panels of honorary consultants on arid zone hydrology and hydrogeology, and on arid zone climatology.

A survey of institutions carrying out research on arid zone problems, and a more detailed survey of institutions, scientists and engineers working on arid zone hydrology, is being undertaken by means of questionnaires. Directories of arid zone research institutions and their principal research staffs based on these surveys will be published.

A list of research projects falling within a co-ordinated programme of fundamental arid zone research is being compiled with a view to giving financial and other assistance to approved institutions in carrying out these projects.

/Time Schedule

Time schedule and priority

The arid zone programme is a continuing activity of UNESCO of highest priority.

Internal staff

1950	1951	1952	Title
1	1	1 (part time)	Division head
	1	1	Programme specialist
	1	1 (part time)	" "
	1	1	Assistant
		1 (part time)	Secretary
1	1	2	"

Outside experts

1950: The Interim International Arid Zone Research Council had seven members, one each from Egypt, France, India, Israel, Mexico, United Kingdom and United States. Eight hydrologists, from Algeria, Australia, Egypt, India, Mexico, South Africa, Turkey and United States, prepared reports reviewing hydrological research carried out in their respective regions.

One geographer from United States prepared a set of maps showing the distribution of arid and semi-arid homoclimates.

1951: The Advisory Committee on Arid Zone Research has seven members, one each from Egypt, France, India, Israel, Mexico, United Kingdom and United States.

1952: The Advisory Committee on Arid Zone Research will have nine members; the Committee being enlarged by the addition of a member from Australia and a member from Peru.

Twenty-eight experts in hydrology and related sciences will participate in a symposium in Ankara sponsored jointly by UNESCO and the Government of Turkey. The Director-General of UNESCO has invited fourteen experts from the following countries: Algeria, Australia, Egypt, France (two), India, Israel, Mexico, Morocco, South Africa, the United Kingdom, and the United States (three). The Turkish Government has invited fourteen experts from Egypt, Iran, Iraq, Israel, Lebanon, Pakistan, Saudi Arabia, Syria, and Turkey (six).

/Eight to ten

Eight to ten experts will prepare reports reviewing research done on energy problems in arid and semi-arid regions. They will consider in particular the use of wind and solar energy, but water power will be dealt with in connexion with those regions in which it is available.

Cost (approximate)

	1950	1951	1952
Staff	$10,500	$22,700	$27,000
Fees	4,400	2,000	4,000
Travel of Committee members	5,000	10,000	11,000
Travel of experts to scientific symposium			10,000
Contractual printing		6,000	
Other contractual items		600	
Contracts with non-governmental organizations			8,000
Totals	$19,900	$41,300	$60,000

Expected benefits

Assistance to scientific research for the solution of problems of the arid zone through:

(a) dissemination of scientific knowledge,

(b) dissemination of information on research institutions and workers, and on research in progress,

(c) limited financial aid to specific research and development projects,

(d) provisions of advisory services upon request.

Co-ordination with other organizations

The following organizations have sent representatives to the sessions of the Advisory Committee on Arid Zone Research: United Nations, Office of the United Nations Commissioner for Libya, Food and Agriculture Organization, United Nations Relief and Works Agency for Palestine Refugees, World Health Organization, World Meteorological Organization, Council for Co-ordination of International Congresses of Medical Sciences, International Association for Hydraulic Research, International Commission on Irrigation and Drainage, International Council of Scientific Unions, International Geogrgraphical Union, International Society of Soil Mechanics and Foundation Engineering, International Union of Architects, International Union of Biological Sciences,

/International Union

International Union of Geodesy and Geophysics, International Union of Pure and Applied Physics, International Union of Theoretical and Applied Mechanics, International Union for the Protection of Nature, World Power Conference.

Between sessions of the Advisory Committee on Arid Zone Research, contact is maintained with these organizations by correspondence and by personal contacts when possible.

Publications

Eight review reports on hydrological research in various aid and semi-arid regions of the world will be published in a single volume in 1952, with separate editions in English, French and Spanish.

Proceedings of the UNESCO-Turkey symposium on arid zone hydrology with special reference to underground water will be published in 1952.

Reports on arid zone water problems are reproduced from time to time for limited distribution.

B. Science co-operation offices

The UNESCO Science Co-operation Offices in Manila, Djakarta, Delhi, Cairo (with a branch at Istanbul) and Montevideo assist scientists and engineers to obtain information from other parts of the world; for example, the Cairo office obtained information for Egyptian scientists on geophysical apparatus and drilling equipment for locating underground water.

C. Subventions to international non-governmental scientific organizations

The international non-governmental scientific organizations - which are federated in three councils, namely the International Council of Scientific Unions, the Council for the Co-ordination of International Congresses of Medical Sciences, and the Union of International Engineering Associations - receive or are eligible to receive subventions from UNESCO. Of these organizations the following are concerned with various aspects of water control and utilization:

International Commission on Irrigation and Drainage;

International Commission on Large Dams;

International Geographical Union;

International Union of Geodesy and Geophysics;

International Union for the Protection of Nature;

/International Union

International Union of Theoretical and Applied Mechanics;

Permanent International Association of Navigation Congresses;

World Power Conference.

Details are given below of some activities carried out with the aid of these subventions which apply to the question of water control and utilization.

In 1947-48 subventions totalling $2,540 were given to the International Association of Hydrology of the International Union of Geodesy and Geophysics to enable it to reprint the proceedings of its 1930 General Assembly and to print the scientific papers presented at its 1948 General Assembly.

The World Power Conference was assisted to the extent of $2,300 in 1948-49 in publishing its fourth and fifth Statistical Yearbooks and in 1950 it received a subvention of $1,000 to assist the travel of delegates to the Fourth World Power Conference.

The International Commission on Large Dams was enabled to publish its multi-lingual Technical Dictionary of Dams, giving terms in French, British English, American English and German, with the aid of a subvention of $2,000 during 1949-50.

The Permanent International Association of Navigation Congresses received a subvention of $2,300 in 1950 to assist the publication of the two volumes of its six language Illustrated Technical Dictionary which deal with civil engineering materials and equipment.

The International Geographical Union is carrying out a world land-use survey with the aid of a subvention from UNESCO. The Committee on the Arid Zone of the Union has compiled a register of specialists in arid zone matters and is studying definitions for the classifications of the arid and semi-arid regions of the world.

In 1951, $2,000 from the subvention to the International Union of Geodesy and Geophysics was devoted to a symposium on the hydrology of floods, water deficiency areas and arid zones, and influences affecting the extent and character of world snow and ice fields, which was held in connexion with the General Assembly of the Union.

D. Technical Assistance

The expanded technical assistance programme of the United Nations and its specialized agencies assists the economic development of under-developed areas by sending experts and the necessary associated equipment to Member

/States

States in response to their requests. The assignment of the technical assistance funds of UNESCO to different subjects depends on the requests for assistance received from Member States. Projects connected with water control and utilization of a total cost of approximately $300,000 have been approved, experts have been despatched or are being recruited and equipment is being purchased. The projects are:

(a) Ecuador. One expert to assist in preparing a general plan for the exploitation of the country's water power resources and to assist in initiating the plan.

(b) India. One specialist in hydraulics for the Indian Institute of Technology, Kharagpur. One navigation research adviser for the Central Waterpower, Irrigation and Navigation Research Station, Poona.

(c) Pakistan. One geophysicist to conduct surveys, including hydrological surveys. Two experts in the physics of the atmosphere including cloud formation and rain making.

(d) Turkey. One adviser on hydrogeology to organize a national Institute of Hydrolgeology, supported by a professor of hydrogeology, an expert in geophysics and an expert in mineralogy.

(e) Israel. One adviser, with equipment, to study the possibility of using wind power to supply electricity to isolated settlements for pumping water, etc.

E. Exchange of persons

The UNESCO-financed fellowships offered under the exchange of persons programme of UNESCO are designed to assist mature persons having recognized standing in their own professions to study abroad for a period of six months. Beneficiary Member States of UNESCO each year are offered a choice of subjects of high priority in the UNESCO programme for which they may request a fellowship for their citizens.

In 1950 UNESCO awarded two fellowships to Israel and one to Mexico for a specific fundamental scientific problem related to arid or semi-arid areas, within the fields of hydrology and fluid and soil mechanics, including irrigation and soil erosion. In 1951 similar fellowships were offered to other beneficiary Member States; and Lebanon has requested a fellowship in this field.

/The beneficiary

The beneficiary Member States of UNESCO in 1950 and 1951 were also offered fellowships in fundamental education (with conservation and wise utilization of resources as one of the possible fields of study), and in nature protection and conservation. Tanganyika was awarded one fellowship in the latter field under the 1950 programme, and Cuba has requested one under the 1951 programme.

F. Education

In 1949 UNESCO published a 115-page enquiry prepared for the United Nations Scientific Conference on the Conservation and Utilization of Resources on "Education for the conservation and more efficient use of natural resources".

In May 1951 a Fundamental Education Regional Centre for Latin America was opened at Patzcuaro in a semi-arid region of Mexico. The Centre has fifty-two students from various countries of Latin America who are learning new methods of teaching the fundamentals of daily life through applying these methods in teaching the inhabitants of the Patzcuaro district. One of the problems of the district that is being tackled by the Centre is that of deforestation, with its accompanying soil erosion and aridity, due to the wasteful cutting down of trees. The propaganda methods that the Patzcuaro Centre develops to combat deforestation will be useful in solving the problem in other regions.

A fundamental education mission to the Middle East commenced operations in January 1951. The leader of the mission and two other experts were supplied by UNESCO, the World Health Organization sent one expert, Egypt four, Iraq two, Lebanon two, and Syria one. The mission advised two fundamental education schemes in the Tanta and Menouf districts in Egypt. These schemes are particularly concerned with educating the people to meet the health and agricultural problems of irrigated arid areas. They have now been brought into the Fundamental Education Associated Projects System of UNESCO, and receive guidance from both UNESCO and the World Health Organization. From Egypt the mission went to the Dujailah Land Settlement Project in Iraq, where it tested educational materials which had been developed at the Tanta and Menouf projects.

G. Teaching and dissemination of science

UNESCO is publishing a series of Inventories of Apparatus and Materials for Teaching Science, with separate editions in English, French and Spanish.

Of volume III on Technical Colleges, part 3 on Agricultural Science is being published in 1951, while part 5 on Mechanical Engineering and part 6 on Civil Engineering will be published in 1952.

A series of pamphlets has been prepared as background material for public discussions throughout the world on the theme "Energy in the Service of Man", to be held in 1951 and 1952.

H. Mass Communication

At the beginning of 1950 Mr. Ritchie Calder toured North Africa and the Middle East under the auspices of the News Chronicle (London) and of UNESCO as part of its mass communication programme. The findings of this tour were publicized in a series of articles in the News Chronicle (London), The New Statesman (London), Picture Post (London) and in over fourty newspapers in thirty-two countries; the United Kingdom National Commission for UNESCO disseminated discussion material to 15,000 British schools. A book on the tour, Men against the Desert by Mr. Calder, was published in 1951 by Allen and Unwin, London. Picture Post has produced three film strips for popular lectures based on this tour.

As news items of popular appeal concerning arid zone research and development become available they are disseminated through the normal UNESCO channels, i.e. the Courier, UNESCO Features, UNESCO World Review, Impact; as well as by press releases, discs, films and filmstrips.

WORLD HEALTH ORGANIZATION

Origin and purposes

The Constitution of the World Health Organization was drawn up at the International Health Conference, called by the Economic and Social Council of the United Nations, which took place in New York from 19 June to 22 July 1946, and came into effect on 7 April 1948 when it had been ratified by twenty-six Members of the United Nations. WHO became a specialized agency of the United Nations on 1 September 1948.

The Constitution states the purpose of the Organization to be, "the attainment by all peoples of the highest possible level of 'health'", the latter being defined as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".

In working towards this aim, WHO's functions are: to co-ordinate international health work; to stimulate and promote work to eradicate epidemic, endemic and other diseases; to promote the prevention of accidental injuries; to promote the improvement of nutrition, housing, sanitation, recreation, economic or working conditions, and other aspects of environmental hygiene; to promote maternal and child health and welfare; to promote research in the field of health; to promote improved standards of teaching and training; to foster activities in the field of mental health; to study and report on administrative and social techniques in the health field; to establish and revise international nomenclatures of diseases, causes of death, and public health practices; to standardize diagnostic procedure, and to develop, establish, and promote international standards with respect to food, biological, pharmaceutical and similar products.

Membership

As of 10 October 1951, seventy-eight countries and one non-self-governing territory were members of WHO. Of the seventy-eight, however, ten were inactive.

WHO functions through the World Health Assembly, the Executive Board, the Secretariat, and Expert Committees. The Assembly is composed of delegates representing all members, is the policy-making body, and meets at least once annually. Each member has one vote in the Assembly. The Executive Board consists of eighteen technically qualified persons designated by eighteen Members elected by the Assembly. It meets at least twice annually, and implements decisions and

policies of the Assembly. It may also take emergency measures to deal with health problems requiring immediate action.

The Expert Committees are composed of specialists drawn from outside the staff of the Organization. As at the end of 1950 there were Expert Committees on antibiotics, bilharziasis, biological standardization, cholera, environmental sanitation, habit-forming drugs, health statistics, insecticides, international epidemiology and quarantine, malaria, mental health, nursing, plague, prematurity professional and technical education of medical and auxiliary personnel, rabies, school health services, tuberculosis, unification of pharmacopoeias, and venereal infections and treponematoses.

Joint Committees with other international organizations comprised Joint FAO/WHO Committee on Nutrition, Joint ILO/WHO Committee on Hygiene of Seafarers, Joint ILO/WHO Committee on Occupational Health, Joint OIHP-1/WHO Study Group on African Rickettsioses, Joint FAO/WHO Expert Panel on Brucellosis, and Joint FAO/WHO Expert Group on Zoonoses.

WHO's field work is divided into six regions, each directed by a regional Committee composed of representatives of WHO Member States in the area. The six regions and their offices are as follows: the Americas, Washington, D.C.; Southeast Asia, New Delhi; the Eastern Mediterranean, Alexandria; Western Pacific, Manila; Europe, Geneva; and Africa, Geneva (temporarily).

Principal activities

The scope of WHO's work includes, in addition to major projects relating to malaria, tuberculosis, venereal diseases, maternal and child health, nutrition, and environmental sanitation, special programmes on public health administration, epidemic diseases, mental health, professional and technical training, and other public health subjects. It is also continuing work begun by earlier organizations on biological standardization, unification of pharmacopoeias, addiction-producing drugs, health statistics, international sanitary regulations, and the collection and dissemination of technical information, including epidemiological statistics.

Relationships with other organizations

WHO is in relationship with the United Nations as a specialized agency thereof. The Constitution provides for effective relations and co-operation

1/ Office International d'Hygiene Publique.

/of WHO

of WHO with such other inter-governmental organizations as may be desirable, and for the making of suitable arrangements for consultation and co-operation between WHO and non-governmental international organizations and, with the consent of the government concerned, national organizations. WHO works closely with several other specialized agencies of the United Nations particularly with FAO (on malaria control and nutrition), with UNICEF (on health policy), with UNESCO (on training of personnel) and with ILO (on occupational hygiene). At the end of 1950, WHO was in official relationship with twenty-two non-governmental organizations.

How water activities are related to WHO's major functions and purposes

WHO does not at the present time have any specific project related particularly to water control and utilization other than water used for human consumption. However, WHO is anxious to co-operate in any projects of flood control, impounding of water, irrigation projects utilizing either surface or underground water, drainage projects and water supply projects, since all these types of projects have very considerable public health significance, even though their primary purpose may be quite other than public health.

Irrigation projects and projects involving impounding of water, unless properly developed, may be important factors in the spreading of communicable diseases such as malaria, bilharzia, filariasis, and encephalitis, both of man and animals. If attention is given to the matter in the planning stages, very frequently a secondary benefit from water control projects is the development of such projects for use as sources of water suitable for drinking and culinary purposes. If water control projects are to be used in this way it is essential that they be developed in a manner to reduce to a minimum the possibility of contamination with pathogenic (intestinal) organisms. For instance, even though an underground water supply might be developed primarily for irrigation purposes, it is frequently possible, with very little additional expenditure, to make the water from such projects available for drinking purposes to the surrounding population. If this is done the development of the wells must be accomplished in a sanitary manner and the construction must be such as to prevent the entrance of contamination into the water-bearing strata.

Although the works and operations employed in flood control do not normally have a very direct bearing upon the public health, there are many indirect effects and implications of importance.

/During the

During the construction of large-scale projects many health problems exist. Usually large numbers of labourers are brought together from widely separated sources, and often live and work under insanitary conditions that are conducive to the spread of diseases not only within the construction camp, but also to the surrounding areas. Some diseases, such as malaria, may be implanted in this way into communities in which they were formerly unknown, and later be spread by conditions created by the project itself.

Perhaps the problems of major importance which are encountered in flood control works are those related to the breeding of mosquitoes and other insect vectors of disease. In the construction and operation of river control structures, especially in the case of water storage, detention and diversion works, there are often produced artificial conditions much more favourable to the breeding of these vectors than existed under natural conditions. Attention to such conditions should be given in the design as well as in the operational phases of these works.

At the Technical Conference on Flood Control convened by ECAFE in New Delhi in January 1951, the representatives of WHO drew the attention of the Conference to the relation between flood control and health, and suggested that WHO, ECAFE and FAO should co-operate closely in flood control projects.

At the Fourth World Health Assembly of WHO in May 1951, a resolution was adopted in view of the United Nations resolution on arid land and the United Nations resolution on international co-operation in water control and utilization. This resolution recommended to Member Governments that "plans for the control or utilization of water and the development of arid land should be so framed as to include measures to prevent the introduction or aggravation of disease", and requested the Director-General "to provide technical assistance to governments on request in planning projects relating to the control or utilization of water and the development of arid land", and "to co-operate with the United Nations and other specialized agencies concerned with such projects."

Information on individual projects related to the utilization or control of water resources

As was stated above, WHO has no individual projects on water control and utilization as such. However, among WHO's major projects, there are three which are closely related to the question of water control and utilization. These are WHO's large-scale programme in malaria, its programme in the control of bilharziasis, and its work in respect of environmental sanitation.

/In the malaria

end

In the malaria programme, which was begun in 1949, continued in 1950 and 1951 and expected to extend another three or four years, WHO has been laying the foundation for a global attack on this disease by providing governments with advisers and consultants, dispatching demonstration teams, promoting the establishment of training institutions, granting fellowships, and advancing research and exchange of information through Expert Committees.

WHO's programme on bilharziasis falls mainly within the Organization's work under the Expanded Technical Assistance Programme, arising in relation to the development of new areas by large irrigation schemes. The Joint CCTA/WHO Study-Group on Bilharziasis in Africa, which met in Cairo in October 1949, drew attention to the grave danger of the incidence and spreading of this disease in the introduction of irrigation schemes and emphasized the need for preventive measures. WHO's programme provides for consultants, to give competent advice to countries lying in regions in which the disease is endemic, in the preliminary stages of new irrigation schemes, envisages the need of demonstration teams once plans are developed, and assistance to be given to centres for training of medical and related personnel.

With respect to environmental sanitation, it is WHO's aim to raise the level of public conscience and of popular knowledge of the causation, transmission and control of disease, to stimulate and assist governments to improve sanitary organization, to promote the training of sanitation personnel, and to promote the exchange of information on sanitation. The control of water supplies, to ensure that they are sufficiently pure, falls under this subject as one of its particular aspects.

WHO's programme in this field has been guided by the recommendations made at the first session of the Expert Committee on Environmental Sanitation and has been affected by many other of its activities which are closely related, such as those for combating malaria. Sanitation experts assigned to malaria and other disease demonstration teams have been freely called upon by governments to assist in environmental sanitation work.

In WHO's programme for 1951, provision is made for "the development of international standards in sanitary facilities at ports and agreements on the control of pollution of waterways", for the continuance of the collection and publication of data on problems, needs and existing facilities in relation to environmental sanitation, for the interchange of information on new methods through conferences and seminars, for the assignment of advisers and consultants

/to each

to each of the six regions, for the awarding of fellowships for the training of sanitation personnel, with candidates selected from each of the regions, and for the continuation of research, study and the making of recommendations by the Expert Committee.

Classification of activities by type

The activities pertinent to the question of water control and utilization which have just been described may also be classified according to the various headings employed in this report to describe methods of operation.

Much of the work in the malaria programme comes under the classification of specific technical guidance to governments. In the malaria programme for 1951, for example, it is proposed to provide advisers and consultants as follows: Europe - one consultant for two months; Africa - one regional adviser on malaria; Eastern Mediterranean Region - a regional adviser on malaria to be attached to the regional office; Western Pacific - one regional adviser on malaria, and two consultants for a period of two months to give advice to governments requesting assistance; and the Americas - one regional adviser on malaria. Additional consultants will be available to the various regions under the expanded technical assistance programme mass campaign against malaria.

In the bilharziasis programme, likewise, the types of activity may be classified as the giving of technical guidance, demonstration projects, and educational activities. As an example, the following passage may be quoted from the provisions for the 1951 programme under the expanded technical assistance programme (Official Records of the WHO, No. 23, page 133):

"Regions in which bilharziasis is endemic, such as the Eastern Mediterranean, Africa, certain parts of the Western Pacific, and the Americas will require advice on prevention of the introduction of bilharziasis into new areas, and prevention of the spread of this disease. Provision is made for consultants so that, through competent advice to countries in the preliminary stages of new irrigation schemes, surveys may be made and precautionary measures taken. Once the plans are established, demonstration teams will be needed; these will also advise on the improvement of environmental sanitation and will be correlated with malaria control and other services. Such teams will consist of a public health officer familiar with the problems, a sanitary engineer, a malacologist, and a medical officer. The public health officer will also advise on

/general

general public-health services, the sanitary engineers will advise on environmental sanitation. The whole bilharziasis project must be seen as a part of a general public-health service. Assistance to centres for training of medical and related personnel is provided for..."

Research and the exploration of important problems through meetings of experts is another important type of activity of WHO. Studies, surveys and recommendations for measures have been made by the Expert Committee on Environmental Sanitation, the Expert Committee on Malaria, the Expert Committee on Insecticides, the Joint OIHP/WHO Study Group on Bilharziasis in Africa, and others. The last-mentioned Group, for example, included in its report a study of the relationship between irrigation schemes and the spread of bilharziasis.

Another type of activity falls under the classification of educational activities, the dissemination and exchange of information through seminars, conferences, training institutes, fellowships and publications. In 1950, for example, twelve fellowships were awarded in environmental sanitation. "Because much of the success of a sanitation programme obviously depends on trained personnel, WHO has, where possible, attempted to assist Member States in providing such training." Also in 1950, WHO in co-operation with the Government of the Netherlands and the International Health Division of the Rockefeller Foundation, sponsored a seminar for European sanitary engineers. This seminar, attended by representatives from fifteen countries, was planned to provide an exchange of knowledge on the following subjects: water purification, sewage and industrial waste treatment, control of stream pollution, the engineering phases of industrial health, training and education of sanitary engineers, the use of sanitary engineers in health administrations and general sanitation. In accordance with the recommendations of the Expert Committee on Environmental Sanitation that a high priority be given to the training of sanitation personnel, provision has been made in the 1951 programme for fellowships for the training of public-health engineers and sanitarians, candidates to be selected from each of the regions.

WHO's publications constitute an important means of advancing the work of the Organization. The publications are comprised of the following: the Bulletin of the World Health Organization (quarterly), which is the principal scientific organ of WHO; the Monograph Series, which contain reprints and, in some cases, complete translations of important studies originally published in the Bulletin;

/the Technical

the Technical Report Series which contain the reports issued by expert committees, joint committees with other specialized agencies and other study and advisory groups - approximately forty of these have been published to date; the International Digest of Health Legislation, published quarterly; etc.

WORLD METEOROLOGICAL ORGANIZATION

I. General character and activities of the Organization

1. Origin and purposes

The World Meteorological Organization is a specialized agency of the United Nations. It is the successor of the International Meteorological Organization (IMO), an organization which had been in existence for over seventy years and which held periodic meetings of Directors of Meteorological Services. The object of these meetings was to consider common problems and recommend standards in meteorological observations, codes, practices and procedures.

The Convention of the WMO was drawn up and adopted by the Twelfth Conference of Directors of the IMO, held in Washington, D.C., from 22 September to 11 October 1947. The IMO continued to function and the United Nations recognized it as being the interim preparatory organ for WMO until the formal establishment of WMO, on 4 April 1951, in Paris.

The purposes of WMO, as stated in Article 2 of the Convention are:

(a) To facilitate world-wide co-operation in the establishment of networks of stations for the making of meteorological observations or other geophysical observations related to meteorology and to promote the establishment and maintenance of meteorological centres charged with the provision of meteorological services;

(b) To promote the establishment and maintenance of systems for the rapid exchange of weather information;

(c) To promote standardization of meteorological observations and to ensure the uniform publication of observations and statistics;

(d) To further the application of meteorology to aviation, shipping, agriculture, and other human activities; and

(e) To encourage research and training in meteorology and to assist in co-ordinating the international aspects of such research and training.

2. Membership

The Convention was signed by the representatives of thirty-two States, and came into force thirty days after the deposit with the Government of the United States of the thirtieth instrument of ratification of or accession to the Convention, which was on 23 March 1950. Membership is open to any State,

/irrespective

irrespective of whether it is a Member of the United Nations, or territory maintaining its own Meteorological Service. At present membership is comprised by seventy-five States and territories, of which a list is attached.

3. Organizational structure

The Organization consists of: (a) The World Meteorological Congress, in which all Members may be represented. This meets once every four years, is the policy making body, and adopts technical regulations covering meteorological practices and procedures; (b) The Executive Committee, which is composed of the President and Vice-Presidents of WMO, the Presidents of the six Regional Associations of WMO, and of six Directors of the Meteorological Services of Members. This meets at least once annually, supervises the fulfilment of Congress resolutions, makes studies and recommendations and provides Members with technical information, counsel, and assistance in the field of meteorology; (c) The Regional Associations, which are composed of representatives of each of six regions covering the world, and which meet as often as necessary. They promote execution of the Congress and Executive Committee resolutions in their respective regions, discuss matters of general meteorological interest, co-ordinate the organizational activities in their respective regions, and make recommendations to Congress and the Executive Committee. The six regions are Africa, Asia, South America, North and Central America, South-West Pacific, and Europe; (d) The following Technical Commissions, which meet as often as necessary: Commission for Aerology, Commission for Aeronautical Meteorology, Commission for Agricultural Meteorology, Commission for Bibliography and Publications, Commission for Climatology, Commission for Instruments and Methods of Observation, Commission for Maritime Meteorology, and Commission for Synoptic Meteorology; (e) The Secretariat, located in Geneva, Switzerland.

4. Principal activities (including immediate general programme of work)

At the first session of the Congress of WMO, in Paris, 19 March to 28 April 1951, apart from resolutions concerning organization, administration and finance, provision was made for the following activities:

(a) Technical assistance. The Organization expressed its desire to participate in the United Nations expanded technical assistance programme. Also, technical assistance would be provided by the Secretariat to Members and other States, on request, within certain limits.

/(b) Collective

(b) Collective services. The Organization would participate in any meteorological aspects of international collective enterprises, and would support technical work for the standardization of instruments internationally used in meteorological networks. It would also explore, jointly with UNESCO, the possibility of establishing an international meteorological institute.

(c) Technical regulations. It was decided to co-ordinate and publish technical regulations to replace the old and incomplete resolutions of the IMO, which were adopted over a period of more than seventy years, and which stated recommended practices for the guidance of members. A draft plan for these was worked out in detail, the chapters to be as follows:

I. Stations of meteorological observations;
II. Meteorological observations (surface, upper air, and special);
III. Meteorological codes;
IV. Meteorological telecommunications;
V. Synoptic and forecasting services;
VI. Climatological and statistical services;
VII. Applications of meteorology in special fields.

(d) Networks. Measures would be taken to ensure adequacy in the world network of meteorological stations.

(e) Information. Provision was made for publishing periodic bulletins, and for press and radio information on international activities in the sphere of meteorology.

(f) Publications. Publishing condensed statistics of basic meteorological data would be considered.

(g) Technical activities. Six resolutions concerned:

(1) Investigations on vertical and oblique visibility;
(2) Comparison of barometers;
(3) Indication of topographical situation of meteorological stations;
(4) Definition of altitude of a meteorological station;
(5) Struggle against hail;
(6) Universal synoptic code.

/5. Geographic.

5. Geographic area of activity

The whole world. Thousands of stations on land and sea observe, measure and register at least twice daily, in accordance with methods and procedures standardized by the Organization, the amounts of water evaporated from the earth's surface, the humidity of the atmospheric air, and the amounts of water precipitated in liquid or solid form from the atmosphere on the earth's surface. These observations are, in principle, synchronous all over the world, and are therefore capable of being compared. The tremendous amount of material is further elaborated and studied from the statistical and climatological point of view.

Note: It is the availability of such material, gathered over decades of years which would justify the Organization's participation in major projects of water control and utilization on an international scale.

6. Budget and methods of financing

Funds are provided through contributions from the Members according to the scale of assessments determined by Congress. The Financial Regulations adopted by the First Congress set the financial period as four years and provided for the establishment by Congress of the maximum expenditures for the period. A financial or fiscal year, January through December, was established and provision made for an annual budget to be submitted by the Secretary-General to the Executive Committee. The maximum expenditure during the first financial period (4 April 1951 to 31 December 1955) was decided to be:

Meetings	$ 160,500
Technical programme	211,000
Secretariat	901,500
Total	$1,273,000

A Working Capital Fund not to exceed 10 per cent of the approved maximum expenditure for the same financial period was authorized, to be obtained through contributions and advances by members, to bridge the financial gap between assessment and receipt of Members' regular contributions.

7. Relationships with other organizations

The Agreement between the WMO and the United Nations, bringing the Organization into relationship with the latter as a specialized agency thereof, was approved at the First Congress in April 1951, and by the United Nations at

/the sixth session

the sixth session of the General Assembly in December 1951. Likewise, provision was made for collaborative and consultative relations with the International Civil Aviation Organization, the International Telecommunication Union and the proposed Inter-Governmental Maritime Consultative Organization, all of whom have broad mutual interests with WMO in telecommunication matters. ICAO was invited also to consult with WMO regarding methods of effective co-operation in the joint interests of world meteorology and international civil aviation.

Other resolutions concerned participation, which WMO would seek, in the United Nations expanded programme of technical assistance, and the giving of technical assistance to Libya to ensure continuity of meteorological services there during the period of transition to self-government. A number of requests for technical assistance have been received and the WMO is now actively recruiting experts and developing assistance programmes in meteorology. Concerning the United Nations arid zone programme, a resolution was passed to the effect that WMO would keep itself informed concerning it and would provide advice on meteorological aspects as required. The WMO is providing representation at the Ankara meeting of the Committee on Arid Zone Research, and is assisting in the arid zone work through its Commission for Agricultural Meteorology.

8. How activities in the field of water control and utilization are related to WMO's major functions and purposes

One of the most essential activities of the WMO and of its members individually is the measurement and appraisal, according to standardized procedures, of the water evaporated from the earth's surface and of the water precipitated upon it from the atmosphere, in the form of rain, snow, hail, dew, etc., as well as the statistical elaboration and study of the results of these measurements. The laws underlying the corresponding processes in the atmosphere and, in general, the atmospheric branch of the hydrologic cycle is of direct interest to WMO and the meteorological services of its members. In a certain measure, some aspects of the earth branch of this cycle, such as soil erosion, flood control, etc. are also of interest, especially to those members of WMO who have combined their meteorological and hydrological services in a hydrometeorological service. Meteorological and climatological data and services are closely linked with numerous fields directly or indirectly related to the question of water control and utilization, fields such as agriculture, maritime navigation, public works, hydraulics, public hygiene, health resorts, etc.

II. Individual activities related to the field of water control and utilization

The WMO has no individual projects in the field of water control and utilization, but it has expressed its desire to assist in and contribute to the plans and implementation of international projects of this kind.

1. Collection and publication of basic data

Apart from the essential activity of the measurement, appraisal and statistical elaboration and study of water evaporated and precipitated upon the earth's surface, as described above, provision was made by the First Congress for consideration of the possibility of publishing condensed statistics of basic meteorological data either in tabular or chart form. Also, the question of publication of world climatological statistics of the surface and upper air was referred for study to the Climatological Commission, "considering that the publication, in a standard form, of world-wide climatological data for the surface and upper air would contribute substantially for the achievement" of the purpose of the WMO of promoting standardization of practices and uniform publication of meteorological data.

2. Research

The Executive Committee is to undertake a study of the question of establishment of an international meteorological institute with a view to encouraging research and training in meteorology and to assist in co-ordinating the international aspects of such research and training.

3. Educational activities and the dissemination and exchange of information

Besides the above proposal for the establishment of an Institute, consideration was given to the use of the funds transferred from IMO towards the establishment of fellowships or aid to students and the completion of publications.

It was also decided to publish periodically a World Meteorological Bulletin by means of which would be disseminated information on the activities of the WMO and other developments of interest to meteorologists.

The publication, in co-ordinated form, of the IMO technical resolutions will provide an authoritative text regarding practices and procedures in meteorological observations and service.

Also, provision for exchange of documentation among WMO, ICAO, ITU, IMCO and other organizations on relevant subjects was made.

4. Technical

4. Technical guidance to governments or national organizations

Technical advice, on request, to members and other States, within certain limits, is available with the WMO Secretariat. An instance of such assistance will be that given to Libya.

5. Consultative facilities for the development of international standards

It is WMO's policy to support such technical work as it considers necessary for the standardization of instruments internationally used in meteorological networks. The proposed publication of the IMO technical regulations will contribute greatly towards universal standardization of meteorological practices and procedures.

OTHER ORGANIZATIONS

INTER-AMERICAN ASSOCIATION OF SANITARY ENGINEERING

I - 1.[1] Origin and purposes

As a result of the resolutions adopted in the regional Congresses which took place in Rio de Janeiro in June 1946 and in Caracas in September of the same year, the delegates from the American Republics, meeting at Santiago, Chile, in April 1948, organized the Inter-American Association of Sanitary Engineering among those persons and groups who share a common interest in the improvement of sanitary conditions in the American countries.

The purpose of the Association is to obtain, through common agreement, the solution of sanitation problems and to establish uniform standards for the continuous protection of people's health in this hemisphere. These objectives will be accomplished through: development of sanitary engineering, interchange of ideas and scientific information relating to the developments of sanitary engineering, establishment of common standards and uniform terminology in sanitation technology, promotion of a more rapid advancement in the sanitation of the various countries as a necessary basis for their economic and social development, and establishment of good will and better understanding among those individuals and groups engaged in hygiene and sanitation work, toward which end the Association will collaborate closely with the Pan-American Sanitary Bureau.

I - 2. About 1500 members.

I - 3. An incorporated voluntary association with a quarterly Journal supported by dues and advertisements, with assistance and sponsorship by the Pan American Sanitary Bureau.

I - 4. Convention tentatively planned for Buenos Aires in May 1952.

I - 5. Area: Western Hemisphere.

I - 6. See I - 3. Yearly costs about $25,000.

I - 7. Informal understanding with Pan-American Sanitary Bureau to disseminate its aims in environmental sanitation in return for assistance noted under I - 3.

Water activities related to Association's functions as one of the fields of activities common to sanitary engineers.

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[1] The numbers refer to the relevant paragraphs of the circular request for information of the United Nations.

II - No individual projects

Annex "A" 2/

No detailed data applicable.

Annex "B" 2/

(i) Papers and abstracts published on water use from time to time.

(ii) Members may submit papers for publication.

(iii) No demonstration projects.

(iv) "Educational" activities through exchange of information, conferences and publication.

(v) National Sections may (and do, at times) advise in planning for water control and use.

(vi) National Sections sometimes tied in with engineering societies to advise governmental agencies.

(vii) This activity theoretically within the scope of National Sections but not much activity to date toward international standards, agreements or domestic legislation.

The Association was founded in 1946 and began to publish its Journal in July 1947. It is still in the "early growth" stages, and could become an important factor in the broad field of water control and utilization if its membership should become particularly interested in this topic amongst the various fields which occupy the sanitary engineer.

2/ Of the United Nations circular request for information.

INTERNATIONAL ASSOCIATION FOR HYDRAULIC RESEARCH

I. General character and activities of the organization

1. Origin and purposes

The International Association for Hydraulic Research was organized in 1935 to stimulate research and to facilitate the exchange on an international basis of knowledge and work done in the general field of hydraulic research.

2. Membership

The membership of the organization consists of:

A. Individual. Individual membership can be obtained by anyone if he is a:

(1) Professor in hydraulics or in a cognate branch of tuition at a technical university, at a university, or a similar college.

(2) Director or employer with a leading situation at a hydraulic laboratory.

(3) Member of a leading scientific or technical association.

B. Corporative. The corporative membership is open for:

(1) Institutions for hydraulic works or cognate ranges at a technical university, at a university, or at an equivalent college.

(2) Hydraulic laboratories.

(3) National committees or analogous committees of the World Power Conference, of the Congrès des Grands Barrages, and of the Permanent International Association of Navigation Congresses.

(4) Institutions which project, execute and supervise hydraulic works.

C. Research institutes. Organizations engaged in sponsoring research in hydraulics and fluid mechanics.

3. Organizational structure

Activities of the IAHR are administered by a permanent committee. This committee is composed of the President, two

/Vice-Presidents

Vice-Presidents, the past President, the Secretary and five members.

4. Principal activities

International meetings, providing opportunity for personal contact and exchange of ideas between hydraulic specialists, are held regularly at stated intervals. The IAHR held a meeting in Stockholm, Sweden, in 1948, another in Grenoble, France, in 1949, one in Bombay, India, in 1951, and arrangements are now under way for a 1953 meeting at Minneapolis, Minnesota, United States of America.

Another major activity calls for an annual publication of a report of research in progress or recently completed in various hydraulic laboratories other than those in the United States. This report is similar to the publication of the National Bureau of Standards, Hydraulic Research in the United States. In the case of volume 6 of the 1950 report, there are contributions from forty-nine research institutions representing data from twenty-three countries outside the United States and Canada. It is planned to publish volume 7 about the middle of 1952.

5. Geographic area of activity

The area of activity is world wide if consideration is given to the location of individual members and contributing research institutions. The annual report or bulletin has been published the past years under the supervision of the secretary, Raam 61, Delft, Netherlands. Further information regarding the location of contributing laboratories and research institutions can be found in Hydraulic Research 1950, volume 6, August 1951

6. Budget and Methods of Financing

Operating costs of IAHR activities are provided by annual dues for membership. These are as follows:

A. Individual - $5.00 per year

B. Corporative - $25.00 per year

C. Research institute - $60.00 per year

Plenary meetings including publication of papers, are financed in part by local committees arranging the meetings.

7. Relationships with other organizations

The articles of the association provide that the meetings of IAHR preferably be held in connexion with the World Power conferences, the meetings of the Congress on Large Dams, or the meetings of the Permanent International Association of Navigation Congresses. The IAHR in January 1950 became a member of the UNESCO - sponsored Union of International Engineering Organizations, and the IAHR President, Lorenz G. Straub, was elected a Vice-President of UIEO. The IAHR is also participating in the UNESCO arid zone programme, and sent Mr. A. Nizery, of France, to a session in Paris in November, 1950, as an observer; Mr. Pierre Danel, of France, is the IAHR representative on the Engineering Documentation and Dictionaries Committee of UNESCO.

II. Information on individual projects in the field of water control and utilization

1. Nature of the project

There are no formal projects as such. Activities of the organization and of individual members are quite fully described by (ii) Research (c) under Annex B.[1/]

2. Time schedule

A. Annual for the IAHR Bulletin.

B. One international meeting every one or two years.

3., 4., and 5.[1/] (These do not apply.)

6. Expected benefits of the project

A. The solution and exploration of important problems through meetings of experts including presentation of original papers.

B. Development of international technical standards.

C. Technical guidance of far-reaching significance.

7. International meetings

International meetings are arranged to correspond in time and locality with meetings of other international organizations. These are listed under I 7.

1/ of the United Nations circular request for information.

/8. Publications

8. Publications

A. Preprints of original papers presented at meetings are available to attending members.

B. An annual bulletin, Hydraulic Research.

INTERNATIONAL ASSOCIATION OF HYDROLOGY OF THE INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS 1/

I. General character and activities of the organization:

(a) Origin and purpose: The association was established in 1922 as a constituent member of the International Union of Geodesy and Geophysics. The aim of the association is to promote studies of subterranean and surface hydrology. The association initiates and insures the co-ordination of research and observations especially in those fields of hydrology in which international collaboration is essential. It organizes discussions and comparison of the results of research and insures their publication.

(b) Membership: All the countries which join the IUGG are also members of the association. The present members are: Argentina, Australia, Austria, Belgium, Canada, Chile, Colombia, Czechoslovakia, Denmark, Egypt, Finland, France, Germany, Greece, India, Indochina, Ireland, Israel, Italy, Japan, Mexico, Morocco, Netherlands, New Zealand, Norway, Peru, Philippines. Poland, Portugal, Romania, Spain, Sweden, Switzerland, Thailand, Tunisia, Union of South Africa, UK, USA and Yugoslavia.

(c) Organizational structure: (1) The association comprises three Commissions: Surface Water, Snow and Glaciers: (2) Subterranean Water; and (3) Temporary Committee on soil erosion.

(d) Principal activities: The association meets every three years. Questions of current interest relating to the field of each commission are proposed at each meeting for discussion at the subsequent meeting. At the time of their discussion reports and studies on the selected questions are presented by members. Recommendations are made, and, after their approval by the IUGG, are transmitted to members through the national committee. In effect the national committees are constituted to continue at the national level the work of the association.

In addition, the Association organizes symposia on questions of particular current interest. During the period 1948-51 the following subjects were discussed:

1/ This statement has been translated from the French.

(1) Hydrology of floods.

(2) The conditions which influence the extension of snow and glaciers.

(3) The arid zones.

The following examples may be cited of international co-ordination achieved by the Association:

In 1951 a snow and glacier classification was adopted; also the Association formed a committee for the study of the following questions:

(1) Measurement of precipitation;

(2) Standardization of hydrological characteristics of streams and the establishment of stream surveys.

(3) The movement of water between the surface and the under-ground water table.

(4) General study of the instruments used in hydrology.

In addition in co-operation with members the Association has compiled and is publishing a bibliography of hydrology.

(e) Geographic area of activity: the activities of the Association cover all the member countries but results of studies in non-member countries may also be presented. Scientists from non-member countries may be invited to participate in the work of the Association.

(f) Budget and methods of financing: The funds are supplied by the IUGG and the Association receives a subsidy from UNESCO.

(g) Relationships with other organizations: the Association is a constituent member of IUGG and maintains close relations with the other members of the Union.

INTERNATIONAL BOUNDARY AND WATER COMMISSION (UNITED STATES AND MEXICO)

Part I. General Character and Activities

1. Origin and purposes

The International Boundary and Water Commission, United States and Mexico (prior to 8 November 1945, the International Boundary Commission, United States and Mexico), was created pursuant to the Convention of 1 March 1889, to examine and decide all differences or questions arising on the portions of the boundary between the United States of America and the United Mexican States, formed by the Rio Grande for 1,210 miles (1,950 kilometres) and the Colorado River for 20 miles (32 kilometres) and growing out of alterations or changes in the beds of the rivers or of works constructed in the rivers, or of any other cause affecting the fluvial boundary line. The Commission's original jurisdiction was extended by the Convention of 20 March 1905, for the elimination of "bancos" in the Rio Grande and the Colorado River from the effects of Article II of the Convention of 12 November 1884; by the Convention of 1 February 1933, for the rectification of the Rio Grande in the El Paso - Juárez Valley; and by the Water Treaty of 3 February 1944, relating to the equitable distribution and utilization of the waters of the Colorado and Tijuana Rivers and of the Rio Grande between Fort Quitman, Texas, and the Gulf of Mexico.

2. Membership

3. Organizational structure

The Commission, which has in all respects the status of an international body, consists of a United States Section, functioning under the policy supervision of the Department of State, and a Mexican Section, functioning under the policy supervision of the Ministry of Foreign Relations.

Since the Commission's work is almost entirely in the field of engineering, each Section is essentially an engineering organization and is required by the Water Treaty to be headed by an Engineer-Commissioner. Each Section collaborates fully with the interested agencies of its own Government in the planning and development of joint projects and to the maximum extent feasible utilizes the services of such agencies in the construction, operation and maintenance of such projects.

/The Commission

The Commission functions as a joint body in all matters of formal action, in accordance with the several pertinent treaties and special agreements governing its work. Each Section usually carries on, directly or through other agencies of its Government, investigations, studies and surveys, and performs construction, operation and maintenance work within the territory of its own country. However, such activities in all joint undertakings are under the general supervision of the Commission.

The headquarters of the Commission is at El Paso, Texas - Ciudad Juárez, Chihuahua, Mexico, adjoining border cities in which the two Sections of the Commission maintain their respective headquarters offices. In addition, each Section maintains offices at other points along the boundary where field activities are centred.

4. Principal activities

The Commission's most important activities are in the field of water control and utilization and are described in Part II of this report. The Commission's activities also include studies, investigations, planning and construction of works for the solution of sanitation problems arising on the boundary; the elimination of "bancos" under the Convention of 1905; and determinations as to the permissibility of works proposed for construction in the boundary streams, under treaty provisions prohibiting the construction of works which tend to deflect the current and produce artificial changes in the boundary line.

5. Geographical area of activity

The Commission's activities are limited to engineering and other problems of an international nature arising on or along the boundary between the two countries and requiring joint action by the two Governments.

6. Budget and financing

Each Government bears the expenses incurred in the maintenance of its Section of the Commission. Costs of construction, including preliminary plans and surveys, and of operation and maintenance of joint projects are divided between the two Governments in accordance with the pertinent provisions of applicable treaties or special agreements:

Costs of construction, operation and maintenance of each of the international storage dams on the Rio Grande are pro-rated in proportion to the conservation storage capacity alloted to each country.

/Costs of

Costs of construction, operation and maintenance of hydro-electric plants at the international storage dams on the Rio Grande are divided equally between the two Governments and the energy generated is divided in like manner.

Costs of construction, operation and maintenance of diversion dams and of flood control works other than the international storage dams, are divided on the basis of the benefits which the respective countries receive therefrom, as determined in each case by the Commission with the approval of the two Governments.

7. Relationships with other organizations

Neither the Commission nor its component Sections have direct relationships with other international organizations. However, as stated above, each Section collaborates fully with interested agencies of its respective country.

Part II. Individual projects in the field of water control and utilization

A. Rio Grande

The Commission's most important work on the Rio Grande is in the application of the pertinent provisions of the Water Treaty of 8 November 1945, specifying the bases for the equitable distribution between the two countries of the waters of the Rio Grande between Fort Quitman and the Gulf of Mexico and providing for the necessary international works for storage and regulation, diversion and utilization of those waters. The water treaty provides for the construction of three major international storage dams in specified reaches of the river. Of these, the lower-most, known as the Falcón Dam and Power Plant, is now under construction. By conserving for beneficial use the several million acre-feet of water wasting annually into the Gulf of Mexico, the project will provide an assured water supply for large area of existing highly developed lands in both countries, will bring an estimated 684,360 additional acres under irrigation, will enable the generation of several hundred millions of kilowatt hours of energy, provide important benefits through flood control, stabilization of the international boundary, recreational development, and establishment of wildlife sanctuaries.

Other projects on the Rio Grande include the Lower Rio Grande Flood Control Project and the Rio Grande Rectification Project. The construction of the former was begun pursuant to an agreement in 1932 and is largely completed except for a diversion structure which is expected to be undertaken in 1952. This project already provides substantial benefits in reducing flood damages to the highly cultivated areas on both sides of the Lower Rio Grande Valley. The Rio Grande Rectification Project, for the rectification of the Rio Grande between El Paso, Texas - Ciudad Juarez, Chihuahua, and Quitman Canyon, was substantially completed during the period 1934-1938. It accomplished the shortening of this stretch of the river from 152.2 miles to 85.6 miles, thereby eliminating a serious flood hazard to the cities of El Paso and Ciudad Juarez, providing incidental irrigation, drainage and flood prevention benefits to about 178,000 acres of valley lands in the two countries, and stabilizing the international boundary. Operation and maintenance of the project is carried on by the two

Sections of the Commission, each within the territory of its own country.

Other work of the Commission on the Rio Grande includes supervisory administration of the Convention of 1906 governing the distribution between the two countries of waters of the river in the international reach above Fort Quitman; a broad continuing programme of hydrologic activities on the international portions of the river, including the maintenance of stream gauging stations of which at present there are thirty-eight, and water accounting; water sampling to determine sanitary aspects of the Rio Grande flow; and the collection of extensive data on rainfall and evaporation throughout the Rio Grande basin and its publication in the Water Bulletins.

B. Colorado River

With reference to the Colorado River, the Commission is charged with the application of the Water Treaty provisions relating to the equitable division of its waters between the two countries. The Treaty also provides for certain works to be constructed jointly or independently for the delivery of waters to Mexico and diversion by Mexico, for flood control and prevention of seepage damages. Operation and maintenance of the Morelos Diversion dam, the main Mexican diversion structure on the Colorado River, completed in 1950, will shortly be taken over by the Commission. Certain protective works necessitated by the construction of the Morelos Dam are being built by the United States at the expense of Mexico pursuant to provisions of the Water Treaty and agreements concluded by the Commission with the approval of the two Governments. The Water Treaty provides for the use of other facilities for deliveries of Colorado River water to Mexico, including Davis Dam, Imperial Dam, and the Imperial Dam-Pilot Knob Section of the All-American Canal, all constructed, operated and maintained by the United States. Studies and investigations are in progress also with a view to making recommendations, plans and estimates for additional flood control projects on the Lower Colorado River. In addition, the Commission performs various hydrologic studies and establishes the necessary gauging stations and silt-sampling stations in connexion with the operations of the structures on the river.

C. Tijuana River

A programme of topographic, geologic and hydrologic studies and investigations is being carried on by the two Sections of the Commission, in

collaboration with the interested agencies of both Governments to develop the necessary data for the preparation of recommendations, plans and estimates required by the Water Treaty with respect to the Tijuana River in order to improve existing uses and to insure any feasible further development.

D. Santa Cruz River

The two Sections of the Commission are also carrying on studies of possible conservation and equitable division between the two countries of waters of the international portion of the Santa Cruz River.

INTERNATIONAL COMMISSION ON IRRIGATION AND DRAINAGE

I. General character and activities of the organization

1. Origin and purpose

Originally sponsored by the Government of India, the International Commission on Irrigation and Drainage was set up at the first meeting of the International Executive Council held in June 1950 when representatives from different countries met together and adopted a provisional constitution for the Commission. This constitution was revised and finalized at the second meeting of the International Executive Council held in January 1951.

The purpose of the Commission is to stimulate and promote the development and application of the science and technique of irrigation and drainage in the engineering, economic and social aspects. The objects include all matters relating to planning, financing and economics of irrigation and drainage undertakings for the reclamation of land as well as the design, construction and operation of appurtenant engineering works including canals and other artificial channels for various purposes of irrigation and drainage.

2. Membership

Any country is eligible to participate in the activities of the Commission and can become a "Participating Country" on signifying its acceptance of the Constitution and after its application for membership is accepted by the Council. The Commission may, however, frame rules to permit individuals of non-participating countries to derive benefits from the activities of the Commission.

The following are the names of the member countries at present:

Algeria, Brazil, Ceylon, Chile, Egypt, France, India, Indonesia, Iraq, Israel, Italy, Japan, Netherlands, Switzerland, Syria, Thailand, United Kingdom and Yugoslavia.

3. Organizational structure

The Commission is constituted of National Committees of "Participating Countries" and where no National Committee exists, the Government or some institution effectively representing interests within the scope of the objects of the Commission may appoint a representative.

/The management

The management of the affairs of the Commission is vested in the International Executive Council which acts as the instrument for carrying into effect the policies initiated by the respective National Committees and Representatives. The International Executive Council consists of office bearers (One President, three Vice-Presidents and one Secretary-General), duly appointed representatives from each National Committee and individual representatives from those participating countries where no National Committee exists.

The Central Office of the Commission, under the Secretary-General, encourages and carries out such studies, tests and experimental work as may be approved by the Council, arranges for interchange of documentary and other information relating to development of the technique and practice of irrigation and drainage, keeps records, reports and documents of the Commission, prepares the agenda of all meetings of the Commission etc.

4. Principal activities

The International Executive Council arranges from time to time congresses for the presentation of papers or reports and for the general discussion of matters within the scope of the activities of the Commission as set forth above.

The First Congress on Irrigation and Drainage was held in India (New Delhi) in January 1951. The date and venue for the Second Congress will be decided by the International Executive Council to be held in Chicago in September 1952.

The Commission has been set up recently and proposes to bring out the following publications during the years 1951 and 1952:

1951

(1) Annual Bulletin containing latest information relating to development of technique and practice of irrigation and drainage in different countries.

(2) Transactions of the First Congress.

1952

(1) Annual Bulletin for the year 1952.

(2) Initiating action regarding the holding of the Second Congress, presentation of papers to it as may be decided by the International Executive Council at its September 1952 meeting.

The Commission is building up a library on irrigation, drainage and allied sciences as the source from which technical enquiries from member countries could be answered.

5. Geographic area of activity

The activities of the Commission are not confined to any geographic area. In general member countries can derive more benefit from its activities than others.

6. Budget and method of financing

Each member country contributes for the maintenance of the Central Office of the Commission. The office has been set up only recently but it is estimated that the annual expenditure will be about Rs 40,000.

7. Relationship with other organizations

The Commission is one of the foundation members of the Union of International Engineering Organization of the UNESCO. The Commission also sends its observers to the Advisory Council on Arid Zone Research of the UNESCO and has extended its co-operation to the UNESCO for bringing out interlingual technical dictionaires.

II. Information on individual projects in the field of water control and utilization

The Commission is not directly in charge of any water control and utilization project. The types of activities under the heads classified in Annex B are given below:

(i) Collection and publication of basic data - technical, economic and social.

In accordance with a resolution adopted at the First Congress on Irrigation and Drainage, the Central Office of the Commission has prepared a comprehensive questionnaire for collecting all information relating to development of technique and practice of irrigation and drainage engineering including their economic and social aspects. The questionnaire is to be issued shortly and after replies have been received from member countries, the Central Office will issue one or more authentic treatises on different subjects under irrigation and drainage. These treatises will help in dissemination of knowledge.

(ii) The objects of the Commission include studies, tests and experimental work but as the Commission has been set up only recently, no such activities have been initiated so far.

(iii) Demonstration project

/(iv) Educational

(iv) Educational activities and the dissemination and exchange of information, through conferences, seminars, training institution, fellowships and publications.

The activities of the Commission in this connexion, as already mentioned, include holding of congresses from time to time, publication of transactions of the Congresses, issuing of Annual Bulletin, issuing publications on specific subjects and interchange of documentary information between its several National Committees.

(v) Planning, execution, or operation of projects for water control and use.

(vi) Specific technical guidance to governments or national organizations in organizing activities such as (i) - (v) above on a national or local basis.

No such work has been undertaken so far. The Commission is, however, in a position to give such advice.

(vii) Consultative facilities for the development of:

(a) international technical standards

(b) other international agreements

(c) domestic legislation

As already stated, the Central Office of the Commission is co-operating with the UNESCO in bringing out interlingual technical dictionaries.

INTERNATIONAL COMMISSION ON LARGE DAMS OF THE WORLD POWER CONFERENCE

I. General character and activities of the organization

1. Origin and purposes

The Commission was founded at Paris on 6 July 1928, during a Congress of the International Union of Producers and Distributors of Electric Energy at which France, Italy, Romania, Switzerland, the United Kingdom and the United States were represented. The purposes as stated in the Constitution are "... to encourage improvements in the design, construction, maintenance and operation of large dams by bringing together information thereon and by studying questions relating thereto".

2. Membership

The Commission is an international organization constituted of National Committees from all parts of the world (actually thirty member countries). These Committees are governmental or associations of qualified specialist engineers, or societies grouping officials and engineers.

3. Organizational structure

The Commission is managed by: one Chairman, three Vice-Chairmen, one Secretary-General, one Treasurer elected by the Commission for three years.

The Commission has provided for the maintenance of a general office in the City of Paris to despatch all current business under the immediate direction of the Chairman of the Commission - or a Vice-Chairman elected for that specific purpose - and of the General Secretary.

4. Principal activities

Article VIII of the Constitution states:

> "The Commission shall arrange from time to time for public meetings for the presentation of papers or reports and for the general discussion of matters within the scope of the activities of the Commission."

The Fourth Congress on Large Dams was held in January 1951, at New Delhi, India. The questions on the agenda were:

Methods for determining the maximum flood discharge that may be expected at a dam and for which it should be designed. Selection of type, capacity and general arrangement of temporary or permanent outlets and spillways.

/Design and

Design and construction of earth dams and rock-fill dams with their core walls and diaphragms.

Sedimentation in reservoirs and related problems.

Concrete for large dams.

The Commission has published a technical and illustrated dictionary of dams in French, English (American and British versions) and German. This dictionary was sponsored by UNESCO.

Bulletin No. 8 was issued in June 1951; it contains different articles regarding the organization of the Commission and, particularly, some communications, sent by National Committees, referring to questions discussed during the Third Congress on Large Dams (Stockholm 1948).

6. Budget and methods of financing

The various National Committees have to pay to the order of the Treasurer of the Commission annual subscriptions, the amounts of which will be the sum of the four following elements: a fixed element; population of the country; number of large dams; and yearly hydroelectric generation.

7. Relationships with other organizations

In principle the Commission is a subdivision of the World Power Conference, but actually the Commission is independent and absolutely autonomous with respect to finance, technics and administration.

II. Information on individual projects in the field of water control and utilization

Pursuant to the first edition of the Dictionary of Dams, the Commission is in the process of undertaking the second edition which will contain, in addition to the French, English and German languages of the first edition, Italian and Spanish versions.

The Commission has already issued a few non-periodical bull... will publish, in the course of 1952, Bulletin No. 9, including communicatio... referr to the discussions on the reports presented at the Fourth Congress on Large Dar New Delhi, 1951.

The next International Congress on Large Dams will be held in 1954.

INTERNATIONAL GEOGRAPHICAL UNION

I. General character and activities of the organization

1. The IGU was founded in Brussels in 1922 (a) to promote the study of geographical problems, (b) to initiate and co-ordinate researches requiring international co-operation, (c) to provide for meetings of the International Geographical Congress and (d) to appoint commissions for the study of special matters during the interval between Congresses.

2. National Committees created on the initiative of the National Academy of Science, or corresponding organization, in thirty-five countries, form the membership of the IGU.

3. The Executive Committee of the Union consists of a President, not more than seven Vice-Presidents and a Secretary-Treasurer, elected by the General Assembly, which is held at intervals of three or four years.

4. The research activities of the Union are undertaken mainly by means of twelve Commissions and two Committees. The Commissions are:

1. Population
2. Industrial Ports
3. Bibliography of Ancient Maps
4. Geographical Utilization of Aerial Photography
5. International Map of the World
6. Agrarian Geography
7. Medical Geography
8. Inventory of World Land Use
9. Regional Planning
10. Periglacial Morphology
11. Soil Erosion
12. Terraces and Erosion Surfaces

The Committees are:

1. Arid Zone Research and
2. Directory of World Geographers.

The Committee on the Arid Zone and the Commissions on Soil Erosion and World Land Use are our specialized agencies related to water resources.

5. The IGU activities comprise the entire world.

/6. The Union

6. The Union activities are financed by grants-in-aid from UNESCO and membership dues; the total annual budget is now of the order of $15,000 to $20,000.

7. The IGU is affiliated to the International Council of Scientific Unions (ICSU) and sends representatives to conferences of other organizations within the ICSU whenever possible. The IGU also co-operates with UNESCO and other specialized agencies of the United Nations and makes its publications available to them.

II. Information on individual projects in the field of water control and utilization

1. The Commission on Soil Erosion is at present working on:

(a) the compilation of an annotated bibliography on the distribution of soil erosion in the world;

(b) the compilation of a series of comparable maps on:

(i) the world extent of soil erosion of different types;

(ii) correlation of erosion with different systems of cultivation, or other cultural features;

(iii) physical environment of the eroded areas;

(iv) other pertinent data which can be expressed cartographically, such as the extent of soil conservation organization, distribution of remedial measures, etc.

The Commission on World Land Use is surveying the land use of the world with the object of publishing a series of maps designed to show the varying types of land use, together with explanatory memoirs.

Both Commissions are preparing reports to be published in time for the IGU Congress in Washington, D.C. in August 1952.

The Arid Zone Committee recently submitted to UNESCO a number of homoclimatic maps of the world prepared for UNESCO on behalf of the IGU by Dr. Peveril Meigs, United States of America, chairman of the Committee. These maps contain much valuable information relating to rainfall, humidity and evaporation in the desert lands of the earth.

2. The General Assembly of the Union, scheduled for August 1952, will decide whether the results of the work of these Commissions and the Arid Zone Committee warrant further support and continuation of their work. The World Land Use Commission and the Arid Zone Committee enjoy high priorities, the first having received substantial grants-in-aid from UNESCO.

/3. Both Commissions

3. Both Commissions were formed at the Lisbon Congress in 1949, and both have a membership of five (including the chairman); each member is chosen on the basis of his specialist knowledge. The Arid Zone Committee, which is an interim Committee, was formed after the Lisbon Congress for the purpose of supplying UNESCO's Advisory Committee on Arid Zone Research with information on the geographical aspects of the arid zone problem. It is made up of a chairman, Dr. Peveril Meigs, and the President and Secretary-Treasurer of the Union. The Committee will probably be given the status of a Commission at the forthcoming Congress in 1952, and additional experts in the field of desert geography will be elected to serve on it.

4. None.

5. So far approximately $5,000 have been expended on the work of the above-mentioned Committee and Commissions; the publication of their reports (now being written) will probably cost another $1,000 or $1,500. However, it should be noted that the work now being done is mostly of an exploratory nature: full implementation of the programmes and projects now under consideration might well cost $100,000.

6. It is believed that the underdeveloped areas of the world would benefit notably from the work of our World Land Use Commission and the Arid Zone Committee; while the findings of the Soil Erosion Commission should serve to reveal the exact geographical distribution and physical nature of eroded lands - a necessary prerequisite of any co-ordinated, world-wide rehabilitation programme.

7. The Arid Zone Committee is working in direct co-operation with UNESCO's Advisory Committee on the Arid Zone. The work of the two Commissions, however, is not co-ordinated with the activities of any other organization.

8. Reports on the inter-Congress activities of these Commissions and the Arid Zone Committee are now being prepared for publication in advance of the Washington Congress to be held in August 1952. Also, the Union publishes annually the "Bibliographie Geographique Internationale" which includes many references to water problems.

INTERNATIONAL JOINT COMMISSION

Purpose of agency

The purpose, as clearly stated in the Treaty, is that "the two countries are equally desirous of preventing disputes regarding the use of boundary waters and to settle all questions pending between the United States and the Dominion of Canada".

Membership

Each country is represented by three Commissioners, appointed by the Prime Minister of Canada and the President of the United States. There is no stated time for length of service but the Commissioners serve at the pleasure of those appointing them. In addition to the Commissioners there is a Secretary for each side and an adequate office staff.

Activities

References

References sent to the Commission are made by both countries jointly and call for investigation, report and recommendations.

Applications

Applications are sent to the Commission by either country or individuals or organizations within that country and ask only for the Commission's approval of the proposed project.

The projects listed under both References and Applications include many and varied types of work - construction and operation of works affecting international boundary water levels, water pollution, air pollution, flooding of lands, reclamation power projects, apportionment of water between the two countries and many other problems. During all the existence of the Commission all these problems have been settled with good will and understanding on both sides.

Area of Activity

The area of the Commission's activity includes more than 3,000 miles of international waterways between Canada and the United States and more than 4,300 miles when the entire border is considered. Along this thousands of miles of border there have been many incidents which could easily have led to war

/between the

between the two countries but in every instance the Commission sat around a conference table, all parties were given an ample opportunity to express their views and every question was settled to the entire satisfaction of both countries.

Budget and methods of financing

Each section of the Commission prepares its own budget. The United States section is presented under the State Department budget for International Commissions. When the money is appropriated it is dispersed through the State Department and used as the Commission sees fit. Considering the scope of the Commission's work it operates on a very small yearly budget.

References and Applications before the Commission

The Commission has before it at this time a number of References and Applications. These include:

A Reference requesting a survey and study of all the waters of the Columbia River Basin and a determination as to whether they can be used to greater advantage.

A Reference on air pollution in the vicinity of Detroit and Windsor on both sides of the international boundary in the area of the Detroit River.

Two References - one to investigate the waters which are of common interest in the vicinity of the international boundary of the Milk River drainage basin on the west up to and including the drainage basis of the Red River of the North, the other the waters in the vicinity of the international boundary from the Continental Divide on the West up to and as far as the St. Mary River drainage basin on the east.

A Reference to determine what remedial works are necessary to enhance the beauty of the Falls in the Niagara River by distributing the waters so as to produce an unbroken crest line in the Falls.

A Reference to determine and recommend what projects for the conservation and regulation of the waters of the St. John River system above Grand Falls, New Brunswick would be necessary and in the public interest.

An Application by the United States Government for the construction and operation of a dam and reservoir on the Kootenai River near Libby, Montana to be known as "The Libby Dam". This dam and reservoir when constructed would provide millions of acre feet of water which could be used for power and irrigation and also flood control.

/An Application

An Application to provide an additional source of water for the citizens of Minot, North Dakota and to ascertain whether this water can be diverted from the Souris (Mouse) River.

An Application from the Consolidated Mining and Smelting Co. of Trail, B.C. asking permission to construct a dam at Waneta, B.C. so that they may have a continuous supply of water to meet the demands of their plants for power purposes at Trail and Kimberley, B.C., both plants being largely active in war production.

The Commission also has before it a large number of References and Applications which they hope to complete shortly.

After more than four years of intensive work a survey of the pollution of the waters of the Detroit and Niagara Rivers has been completed and a report of the entire project will soon be ready and available for distribution.

Relationships with other organizations

The Commission has available to it at all times the technical services of many men from the various branches of the two Governments. Among the agencies which have been working with the Commission are: the United States Public Health Service; the United States Corps of Army Engineers; the United States Geological Survey; Fish and Wildlife Service and the Bureau of Reclamation.

Publications

The International Joint Commission does not publish any regular reports or bulletins but does publish from time to time reports on the various References and Applications on which work has been completed. These reports and publications are available for public distribution. The following is a list of some of the more important ones:

Hearings of the International Joint Commission in re Remedies for the Pollution of Boundary Waters Between the United States and Canada, Washington, Government Printing Office, 1917.

Supplemental Argument in the Matter of the Measurement and Apportionment of the Waters of the St. Mary and Milk Rivers and Their Tributaries, Washington, Government Printing Office, 1917

Final Report on the International Joint Commission on the Pollution of Boundary Waters Reference, Washington-Ottawa, 1918 and 1950

In the Matter of the Application of the St. Lawrence River Power Company, Interim Order, Opinions and Hearings, Ottawa, King's Printer, 1919

/Hearings

Hearings and Arguments in the Matter of the Application of the New York and Ontario Power Co. for Approval of the Obstruction of the Waters of the St. Lawrence River at Waddington, N.Y., Washington, Government Printing Office, 1919

Preliminary Report to International Joint Commission Relating to Official Reference re Levels of Rainy Lake and Other Upper Waters - Tables - Ottawa, King's Printer, 1929

Preliminary Report to International Joint Commission Relating to Official Reference re Levels of Rainy Lake and Other Upper Waters - Text - Ottawa, King's Printer, 1930

Preliminary Report to International Joint Commission Relating to Official Reference re Levels of Rainy Lake and Other Upper Waters - Plates - Ottawa, King's Printer, 1930

The Kootenay Valley, A Report on Certain Cases Involving Reclamation and the Development of Water Power in the Valley of the Kootenay River, Under the Terms of Article IV of the Treaty of January 11, 1909, Heard Before the International Joint Commission, Ottawa and Washington, 1935

Interim Report of the International Joint Commission on the Champlain Waterway, Washington, Ottawa, 1937

Report on the Souris River Investigation, Ottawa-Washington, 1940

INTERNATIONAL WATER SUPPLY ASSOCIATION

(for fuller information on the origin, purposes, membership, and activities of this organization see the Proceedings of its First General Assembly and Congress held in Amsterdam in 1949.)

1. Origin and purposes

The Association was proposed in 1945 and established in 1947.

The Association was created:

To establish an international body concerned with the public supply of water through pipes for domestic, agricultural and industrial purposes.

To secure concerted action in improving the knowledge of public water supplies, technical, legal and administrative.

To secure a maximum exchange of information on research, methods of supply of water, statistics and all other matters of common interest.

To encourage intercourse and better understanding between men engaged in the public supply of water.

2. Membership

There are four classes of membership. At present fourteen countries are corporate members of the association: these are Algeria, Austria, Belgium, Denmark, France, Ireland, Luxembourg, the Netherlands, Nigeria, Norway, Sweden, Switzerland, Tunisia and the United Kingdom.

3. Organization

The supreme controlling body is the General Assembly which must meet at least once every four years.

The Executive Board manages the affairs of the Association.

There is no full time paid staff.

4. Principal activities

Up to the moment the principal activities of the Association have been the organization of congresses and the preparation of scientific papers for those congresses. The first Congress was held in Amsterdam in 1949. The Second Congress is to be held in Paris in June 1952 and the subjects to be dealt with are listed below.

/I. Standards

I. Standards for drinking water examination.

II. Artificial replenishment of underground water.

III. Treatment of water before filtration.

IV. Water softening.

V. Survey of supply and delivery systems.

VI. Pipe line corrosion.

VII. Effect of algae on water supply.

VIII. Formulae for pipe line calculations.

IX. Study of flow distribution in pipe networks.

X. Protection of surface water against pollution (legal and technical)

In addition the Programme Committee appointed three technical commissions to continue the study of three of the subjects which were discussed at the Amsterdam Congress. These were: A. Technical Nomenclature; B. Legislative Measures for the Development of Rural Water Supplies; and C. Rapid Filters.

Reports from these technical commissions will be submitted to the Congress but it is not intended that they shall be discussed.

Technical Commission A has prepared English-French Glossary of Waterworks Technical terms.

5. Geographical area of activity

At present the major area of activity is Europe, but it is the intention that the Association should cover the world.

6. Budget

The Association depends on subscriptions from its members and the amount of money available is small.

The financial responsibility for the Congress in Amsterdam was undertaken by the Netherlands Waterworks Association and the financial responsibility for the Congress to be held in Paris in June next year is likewise to be undertaken by the French Waterworks Association.

7. Relationship with other countries

At the moment the Association has no official relationship with other organizations.

The Association has applied to enter into non-governmental relationship with the World Health Organization.

PACIFIC SCIENCE ASSOCIATION

I. General character and activities of the Association

1. Origin and purposes

The Pacific Science Association was inaugurated by the First Pan-Pacific Scientific Conference in Honolulu, Hawaii, in 1920. At the Third Pan-Pacific Science Congress in Tokyo, on 11 November 1926, the Association was formally organized and a constitution adopted. In the constitution the purpose is defined as:

(a) To initiate and promote co-operation in the study of scientific problems relating to the Pacific region, more particularly those affecting the prosperity and well-being of Pacific peoples;

(b) To strengthen the bonds of peace among Pacific peoples by promoting a feeling of brotherhood among the scientists of all the Pacific countries.

2. Membership

Those countries, dominions, colonies, territories, or dependencies lying within or bordering the Pacific Ocean, and those countries having dominions, colonies, territories, or dependencies in the Pacific region and interested in the above objects, shall be eligible for admission to the Association.

Territories that have participated in the Congresses of the Pacific Science Association are given on the attached list.

3. Organizational structure:

In each member country, the Association is represented by a principal scientific institution, such as the National Research Council or Royal Society.

The Congresses of the Association are financed and organized by the host country, through its Representative Institution. The Organizing Committee of the Congress, appointed by the Representative Institution, reports to the Association at the plenary sessions of the Congress.

The executive of the Association is the Pacific Science Council which by constitution is comprised of not less than ten or more than fifteen members. The Pacific Science Council reports to the Association at the plenary sessions of Congress. The Council has a permanent Secretariat, located at Bernice P. Bishop Museum, Honolulu 17, Hawaii, U.S.A.

/The Standing

The Standing Committees of the Association are created and dissolved by action of the Pacific Science Council and make their report to the Association at the plenary sessions of Congress. Seventeen Committees are now operating.

4. Principal activities

(a) Collection and publication of basic data - The Association sponsors congresses every two to five years. The final decision as to the congress programme is the responsibility of the host country but in general the programmes include the biological sciences, agricultural sciences, social sciences, and such physical sciences as have distinctively Pacific problems, e.g., meteorology, oceanography. The papers presented to the congress, and the recommendations arising from papers and discussions, are published (in the English language) by the host country. Relevant resolutions are attached (Annex 3).

The Secretariat of the Pacific Science Council co-ordinates the work of the Standing Committees of the Association, acts as a clearing house on Pacific science matters, brings continuity between Congresses, undertakes and explores means of co-operation with other international bodies, assists in implementing Congress resolutions, and maintains Association archives. As a part of these activities the Secretariat issues a mimeographed "Information Bulletin" nine times yearly, with items from the fields of interest of the Association, including some on meteorology, soil and water conservation, etc. The Secretariat has also issued bibliographies of the Papers in the Proceedings of the Congresses of the Association, according to subject, e.g., agriculture, meteorology.

(b) Research - The Pacific Science Association has at present seventeen standing committees. It should be noted that there are committees in the fields of soil and land classification, forest resources, crop improvement, meteorology, and conservation. The Committees are set up to study problems of particular interest to Pacific science in their fields.

(c) Dissemination and exchange of information - For the work of the Pacific Science Congresses see (a) above.

For the work of the Pacific Science Council Secretariat see (a) above. Further, the Secretariat in 1950 initiated the formation of a Conservation Council for Hawaii, a body designed to co-ordinate the activities of

/conservation

conservation agencies in the territory. The Council has subdivisions on land conservation and water conservation. The Secretariat in 1951 assisted the Hawaiian Academy of Science in the organization of a sysposium on scientific research in the Pacific, which included sections on soils, conservation, meteorology, etc.

(d) Consultative facilities - The Standing Committees of the Association, drawing their members from leading workers in Pacific countries, are in a good position to give advice in their particular fields, and some calls have been made on their services.

5. Geographic area of activity

The Pacific basin and rim.

6. Budget and methods of financing

For the financing of congresses and printing of congress proceedings the host country and its Representative Institution are entirely responsible.

The budget for the permanent Secretariat has been set at $11,500 for each of the years 1950 and 1951. Sources of income are: UNESCO (through the Organizing Committee for the Seventh Pacific Science Congress), Rockefeller Foundation, McInerny Foundation, Coolidge Foundation, Government of France (through Academy of Sciences, Institute of France). The budget includes: Salaries, $9,000; Supplies and communications, $1,000; Travel, $1,500.

7. Relationships with other organizations

The Pacific Science Association has established relationships with other organizations, national and international, through participation in international congresses, collection of requested information, joint activities and consultations through its Standing Committees and the Secretariat, offers of assistance within its scope to scientists from outside the area, adoption and implementation of Congress resolutions. Organizations include UNESCO, FAO, WHO, South Pacific Commission, Pacific Science Board of United States National Research Council, International Union of Geodesy and Geophysics, International Union for Protection of Nature, Caribbean Commission, International Civil Aviation Organization, International Meteorological Organization.

TERRITORIES WHICH HAVE PARTICIPATED IN CONGRESSES OF THE PACIFIC SCIENCE ASSOCIATION

American Samoa
Argentina
Australia
Canada
Chile
China
Colombia
Ecuador
El Salvador
Fiji and Western Pacific High Commission Territories
France
French Establishments in Oceania
Guam
Guatemala
Hawaii
Hongkong
Indo-China (Viet Nam)
Indonesia
Japan
Macao
Malaya
Mexico
Netherlands
New Caledonia and dependencies
New Guinea
New Zealand
Papua
Peru
Philippines
Singapore
Thailand
Trust Territory of the Pacific Islands (U.S.)
Union of Soviet Socialist Republics
United Kingdom of Great Britain and Northern Ireland
United States of America
Western Samoa

WORLD POWER CONFERENCE

I. General character and activities of the organization

1. Origin and purposes

Founded in the United Kingdom in 1924 upon the initiative of the late D.N. Dunlop to form a link between the different branches of power and fuel technology, between the experts of the different countries throughout the world, and between engineers and fuel technologists on the one hand and on the other hand administrators, scientists and economists.

2. Membership

National Committees of the permanent organization in the following countries: Algeria, Argentina, Australia, Austria, Belgium, Brazil, Canada, Chile, Czechoslovakia, Denmark, Egypt, Finland, France, German Federal Republic, Greece, Hungary, Iceland, India, Indonesia, Israel, Italy, Japan, Luxembourg, Netherlands, Norway, Poland, Portugal, South Africa, Sweden, Switzerland, Turkey, United Kingdom, United States of America, Union of Soviet Socialist Republics, Uruguay and Yugoslavia. Pending the formation of National Committees, there are accredited "Representatives" in Ceylon, New Zealand and Pakistan. Membership of Conferences is open to all qualified persons who must, however, submit their enrolment forms through their respective National Committees. Exceptionally, persons resident in countries which are not members of the permanent organization may submit their forms direct to the National Committee of the host country.

3. Organizational structure

(i) The National Committees are normally composed of representatives of government departments, nationalized corporations, professional societies and manufacturers' associations, concerned with the getting and preparation of fuels and the generation and utilization of electricity.

(ii) The Governing body is the International Executive Council, which consists of appointed representatives from each National Committee and of the "Representatives" of countries not yet possessing National Committees (see paragraph I.2). Each National Committee has one vote. The "Representatives" only vote on financial questions affecting their respective countries. The International Executive Council normally meets once a year, but occasionally has met twice in a year.

/Since World War II

Since World War II, meetings have been held at London (1945), Paris (1946), The Hague (1947), Stockholm (1948), Brussels (1949), London (1950), New Delhi (January 1951) and Paris (July 1951). The next meeting will be held at Chicago in September 1952.

(iii) The Central Office: "The location of the Central Office of the World Power Conference shall be determined by the International Executive Council; until otherwise determined, the Central Office of the World Power Conference shall be situated in London."[1]

(iv) Officers: "The President of the World Power Conference shall be the person selected for that office by the National Committee of the country in which a plenary Conference is held." The Presidency is an advisory post. "The International Executive Council shall, during the year in which a plenary Conference is held, appoint a Chairman who shall continue in office until the next plenary Conference when he may be confirmed in office or a new Chairman may be appointed." The Chairman of the International Executive Council is the Executive chief of the World Power Conference, and is in charge of the Central Office. He appoints the Secretary of the International Executive Council, who is responsible for the day-to-day administration of the Central Office. There are also three Vice-Chairmen of the International Executive Council, provision being made for due geographical distribution. At present, the Chairman is from the United Kingdom, and the Vice-Chairmen from France, India and Brazil.

4. Principal activities (including general programme of work for 1950-1951-1952)

(i) The holding of plenary and sectional conferences. Plenary Conferences have been held as follows:

London,	1924
Berlin,	1930
Washington, D.C.,	1936
London,	1950

1/ All quotations, unless otherwise indicated, are from the Constitution of the World Power Conference.

/Sectional

Sectional Conferences have been held as follows:

Basle,	1926
London (Fuel Conference),	1928
Barcelona,	1929
Tokyo,	1929
Stockholm,	1933
London (Chemical Engineering Congress),	1936
Vienna,	1938
The Hague (Fuel Economy Conference),	1947
New Delhi	1951

The next conference will be a sectional conference to be held at Rio de Janeiro in the period end July - early August 1954. The topics to be discussed will centre around the energy problems of tropical and sub-tropical countries. The technical programme includes "International hydro-electric developments: Technical and economic general procedures in hydro-electric developments interesting to two or more countries". Plenary Conferences are normally held at intervals of six years; thus, it is expected that the next plenary Conference will take place in 1956. Reference may be made to the following published documents:

Technical programme of the Fourth World Power Conference, London, 1950

List of papers presented at the Fourth World Power Conference

Bulletin No. 2 about the Sectional Meeting held at New Delhi in January 1951

List of papers presented at the Sectional Meeting held at New Delhi

Programme of the Sectional Meeting of the World Power Conference to be held in Rio de Janeiro, 25 July - 8 August 1954

(ii) The preparation on a uniform basis and the publication of data on fuel and power resources and annual statistics on the production, consumption etc. of all forms of energy. "Power Resources of the World: Potential and Developed" was planned as a progress report, and published by the Central Office in 1929. After nearly ten years' work, including the publication of a "pilot" Statistical Yearbook in 1935 for private

circulation, the first Statistical Yearbook of the World Power Conference was placed on sale in 1936. The following is the list of Yearbooks published:

No.	Date Published	
1.	1936	Data on resources and annual statistics for 1933 and 1934
2.	1937	Data on resources and annual statistics for 1934 and 1935
3.	1938	Data on resources and annual statistics for 1935 and 1936
4.	1948	Data on resources and annual statistics for 1936 to 1946
5.	1950	Annual statistics for 1946 to 1948

Statistical Yearbook of the World Power Conference No. 6 will be published in the Summer of 1952. It will contain annual statistics for 1948-50 and some additional or revised statistics on resources. It has been decided that a full set of data on resources shall be published in 1956. The statistical activities of the World Power Conference and of the United Nations are being closely co-ordinated. In addition to correspondence, a meeting took place on 7 September 1951 at United Nations Headquarters between Messrs. Schimmel and Barnea of the Economic Development Section and Messrs. Loftus and Guyol of the Statistical Office of the United Nations, and Sir Harold Hartley, President of the World Power Conference.

(iii) A substantial collection of documents was lent to the Secretariat of the Economic Commission for Europe (ECE) and was utilized in the preparation of document E/ECE/136 - E/ECE/EP/98/Rev.1, "Legal Aspects of Hydro-electric Development of Rivers and Lakes of Common Interest".

(iv) The World Power Conference has to some extent regarded itself as representative of the "users" of standardization within its field. Th Thus, following a resolution adopted at a Sectional Meeting of the World Power Conference held at Basle, Switzerland in 1926, the International Executive Council requested the International

/Electrotechnical

Electrotechnical Commission to adopt standard terms for the rating of rivers and this was done. The World Power Conference promoted extensive study with a view to arriving at a uniform method of determining the constant in Chézy's formula of velocity of water in conduits. The World Power Conference in 1936 published "A Survey of the Present Organisation of Standardisation - National and International".

(v) Reference has already been made to the Conferences held in London in July 1950 and in New Delhi in January 1951; to the publication of Statistical Yearbook No. 5 in 1950 and to the planned publication of Statistical Yearbook No. 6 in 1952; to the holding of meetings of the International Executive Council at London in 1950, New Delhi in January 1951, Paris in July 1951, and to the planned holding of a meeting at Chicago in September 1952. It is not yet known where the Council will convene in 1953.

5. Geographic area of activity

World-wide. See I.2.

6. Budget and methods of financing

In accordance with the Constitution of the World Power Conference, contributions to the "Central Office Maintenance Fund" are on a voluntary basis. Tables of contributions are drawn up from time to time by Finance Committees (appointed ad hoc) of the International Executive Council. The most recent such Committee reported at the Council Meeting held at Paris in July 1951, the report being accepted unanimously. Salient features are:

(i) Total income required, £3,250.

(ii) Contributions vary between £400 and £20.

(iii) Contributions are assessed on a purely empirical basis. Special activities of the Central Office are separately financed: e.g. the Statistical Yearbook.

The main financial burden of organizing a Plenary or Sectional Conference falls upon the National Committee of the host country. However, following a recommendation adopted by the International Executive Council in 1934, the National Committees are usually called upon to contribute towards the cost of printing the papers they present. For the Fourth World Power Conference, held

in London in July 1950, such contributions amounted to £2,096. Other income was derived from guarantees and donations (£19,163) and individual membership fees (£8,196).

All the National Committees of the World Power Conference as a permanent organization have their independent budgets.

7. Relationship with other organizations

(a) The International Commission on Large Dams was founded in 1929, following the adoption of a resolution by the Basle Sectional Meeting in 1928, and on the initiative of the French Government, as an autonomous affiliate of the World Power Conference. Both Congresses and executive meetings are normally held concurrently with plenary or sectional meetings and Council meetings, respectively, of the World Power Conference. Further particulars are not given, as it is understood that the Commission will submit its own statement.

(b) The World Power Conference had consultative status with the Economic and Social Council of the United Nations - category B from 28 March 1947 until 10 July 1950 and subsequently was on the Secretary-General's Register. Believing that an error in classification has been made the World Power Conference is about to apply for retransfer to category B.

The World Power Conference took a substantial part in drawing up the programme of the United Nations Scientific Conference on the Conservation and Utilization of Resources, and at the invitation of the Secretary-General nominated the Chairman of one of the plenary sessions, arranged for the preparation of papers, and sent a delegation.

The World Power Conference is represented by an observer on the Power Committee of the Economic Commission for Europe (ECE), and has furnished many documents for the use of ECE, including a bibliography and publications relating to the use of boundary waters for power schemes. The World Power Conference is also in touch with the Economic Commission for Asia and the Far East (ECAFE) with which it has exchanged literature. The World Power Conference was represented at the Technical Conference on Flood Control held in New Delhi in January 1951. The World Power Conference (Central Office and Brazilian National Committee) are in contact with the Economic Commission for Latin America (ECLA) in connexion with the Sectional Meeting of the World Power Conference to be held in Brazil in 1954.

/(c) The World

(c) The World Power Conference has consultative arrangements with UNESCO, which has granted contracts for the publication of the Statistical Yearbook of the World Power Conference. The World Power Conference has assisted UNESCO in connexion with the latter's discussion theme for 1951 - "Energy in the Service of Man" - by providing bibliographies and in other ways.

(d) The World Power Conference is a founder-member of the Union of International Engineering Organizations.

(e) It was at the suggestion of the World Power Conference (Council Resolution of 1927) that the Union Internationale des Producteurs et Distributeurs d'Energie Electrique (UNIPED) began the publication of International statistics on the production and consumption of electricity. The statistics, collected by UNIPED - in some cases, with the assistance of the National Committees of the World Power Conference - are reproduced by permission in the Statistical Yearbook of the World Power Conference.

(f) Relations are maintained with a large number of other non-governmental organizations in the engineering field, notably with:

(i) Conférence Internationale des Grands Réseaux Electriques (CIGRE)
(ii) International Association for Hydraulic Research (IAHR)
(iii) International Commission on Irrigation and Canals
(iv) International Gas Union
(v) World Petroleum Congress
(vi) International Electrotechnical Commission (IEC)
(vii) International Organization for Standardization (ISO).
