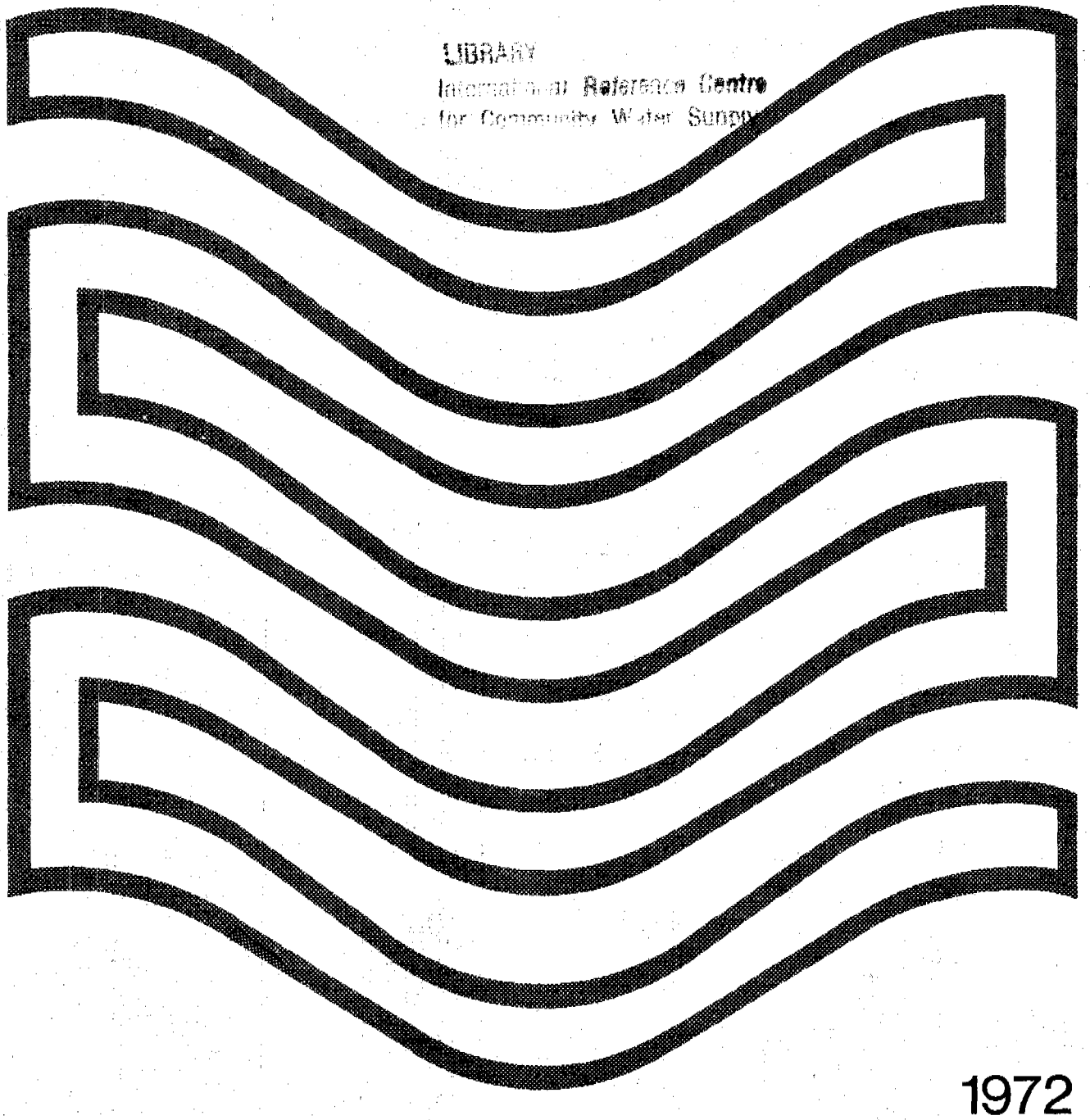
international reference centre for community water supply

parkweg 13, the hague, the netherlands

fourth annual report



1972

WORLD HEALTH ORGANIZATION

INTERNATIONAL REFERENCE CENTRE

FOR COMMUNITY WATER SUPPLY

THE HAGUE, THE NETHERLANDS, 13 PARKWEG
TEL. (070) 514441

FOURTH ANNUAL REPORT

1972

CONTENTS

STAFF

Directors

Ir. P. Santema	- Director
Mr. G.W. Putto	- Deputy Director

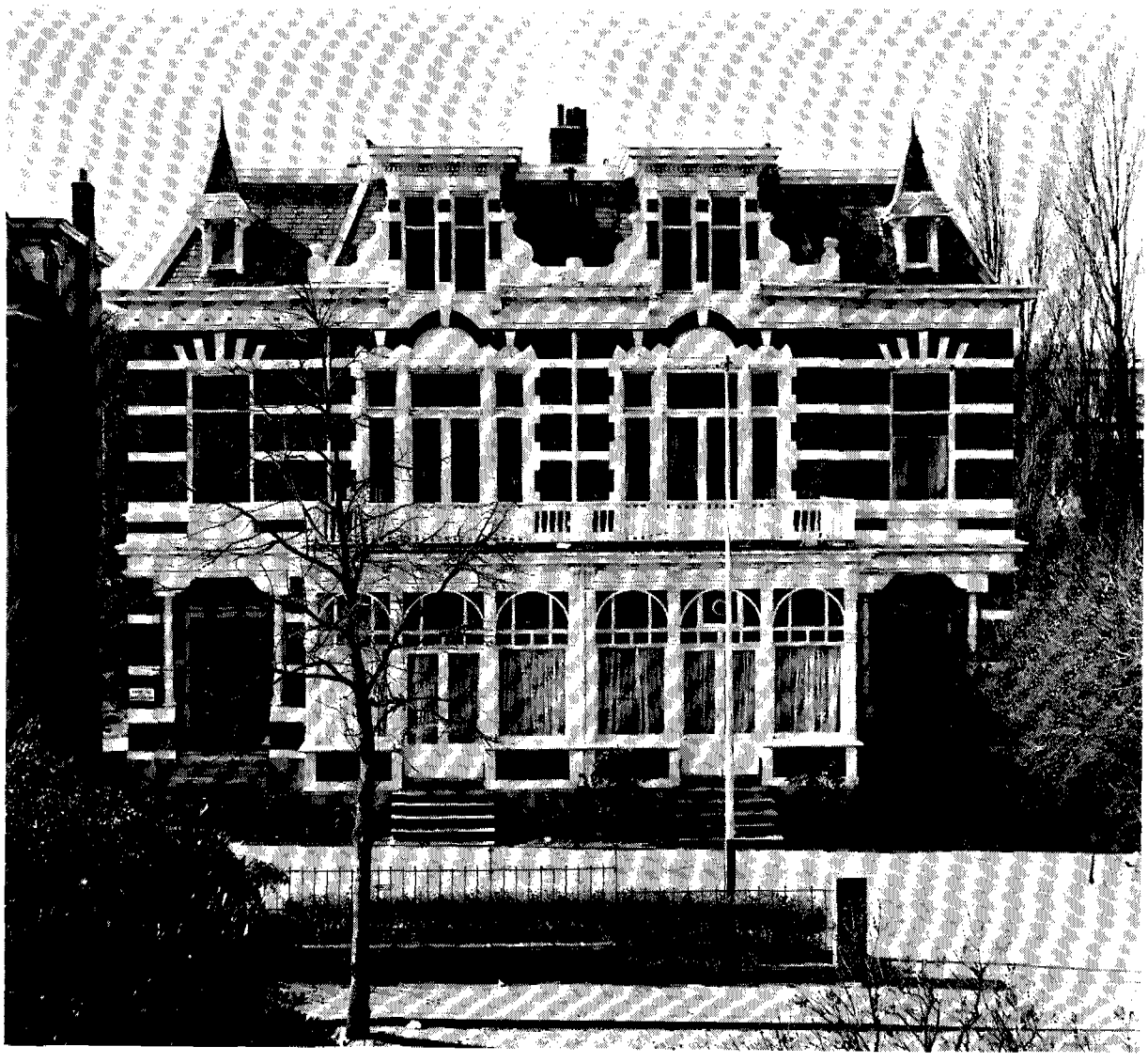
Full-time staff

Drs. J.M.G. van Damme	- Manager
Ir. A. Kepinski	- Project Engineer
Ir. T.K. Tjiook	- Project Engineer
Mrs. M.L. Broersma	- Secretary

Part-time staff

Ir. J. Hrubec	- Chemical Engineer
Ir. F.L. Schoufour	- Civil Engineer
Ir. B.C.J. Zoeteman	- Chemical Engineer

Support was further given by staff members of the Government Institute for Drinking Water Supply. The work carried out by Mr. J. Lieffering, Public Relations Officer of the Testing and Research Institute of the Netherlands Waterundertakings KIWA Ltd., is gratefully acknowledged.



The building where IRC is housed.

1. SCOPE AND OBJECTIVES OF IRC/CWS

In the developing countries of the world more than three-quarters of the total population do not have adequate and safe water supply. In urban centres of these countries more than 200 million inhabitants are not served by such a public utility. Needs are more serious in rural areas where most of the population live. More than 1000 million people resort to unreliable sources. The public health, economic, aesthetic and political implications of these deficiencies are great and undermine development. With the expected population increase by 1980 the situation is bound to deteriorate even further if drastic measures are not taken.

A tremendous acceleration of progress is needed in community water supply in developing countries in order to reach the revised targets of the Second United Nations Development Decade, 1971-1980, which aim at having 60% and 40% of urban dwellers served with water through house connections and public standpipes respectively, and at raising the proportion of rural dwellers with easy access to safe water to 25%.

Within the framework of the WHO programme one of IRC's general objectives is to consolidate efforts directed to the development of water supplies in developing countries in the context of these targets. Another objective is to establish a pool of technical and scientific information in community water supply for the benefit of both advanced and developing countries.

More specifically, IRC's objectives are:

1. The collection and dissemination of information on community water supply, including the transfer of knowledge to developing countries, and the preparation of codes of practice, training manuals, etc.
2. The inventory of research needs and institutional facilities and the promotion and conduct of research and development in all aspects of community water supply.
3. The training of scientific and technical workers and others by the planning and implementation of courses and by the exchange of research workers.

The IRC endeavours to fulfil these objectives as the nexus of a wold-wide network of Collaborating Institutions which are active in

water supply research and development. The activities are carried out in cooperation with WHO's Community Water Supply and Sanitation Unit and the Netherlands Government Institute for Drinking Water Supply, as well as other bodies in the Netherlands. Other institutions and agencies in different parts of the world also contribute to IRC's programme. IRC's terms of references, based on these objectives are given in Annex 1.

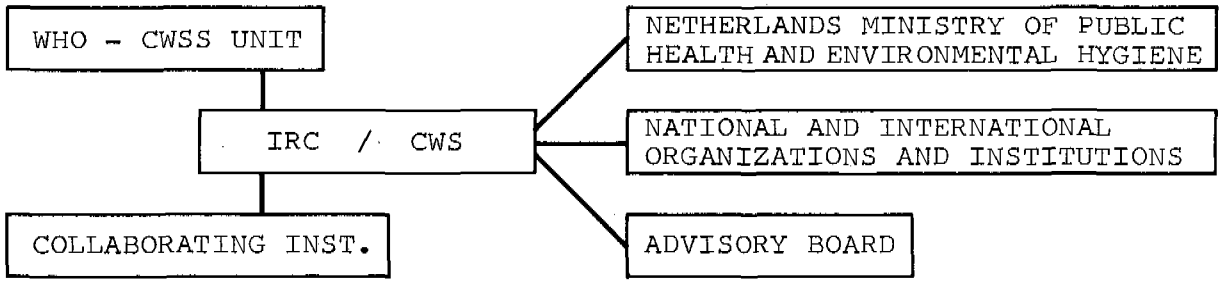
The Philippines.

In the countryside, necessity is the mother of invention and bamboo is made to serve many purposes. With the help of bamboo, water is brought from a source in the hills above the village down to near the houses. In other villages housewives fetch water in hollowed-out bamboo trunks which can hold as much as 5 gallons. The safest water comes from bamboo pumps that lift the water straight out of the ground. One pump can supply enough water for several houses.

WHO photo by Robert Miller

2. ORGANIZATION

The IRC contacts are outlined in the following diagram:



2.1 WHO Community Water Supply and Sanitation Unit

The IRC works closely together with the Community Water Supply and Sanitation Unit of the World Health Organization. This Unit provides IRC with scientific and technical information, and practical assistance.

Apart from contacts through a lively correspondence in 1972, two working visits were paid to the WHO CWSS Unit. It was felt that a better understanding of WHO's activities would increase the collaboration between WHO and IRC. In June Mr. J.M.G. van Damme, newly appointed Manager of IRC, visited WHO Headquarters in order to discuss new and current activities.

In July the then Director of the IRC, Mr. T. Verheul and the Manager Mr. van Damme visited Geneva on the occasion of a meeting of Directors and Managers of IRC/CWS and IRC/WD (Wastes Disposal) with the CWSS Unit, the Environmental Pollution (EP) Unit and the Director, Division of Environmental Health, WHO, in order to discuss terms of reference, methods of work and priorities, and coordination of activities between the two Reference Centres.

In 1972 an agreement was signed on behalf of WHO and the Ministry of Public Health and Environmental Hygiene of the Netherlands, concerning a meeting on the toxicity of uPVC pipes and coagulant aids, to be organized by IRC in 1973.

2.2 The Netherlands Ministry of Public Health and Environmental Hygiene

The Ministry of Public Health and Environmental Hygiene of the Netherlands provides IRC with financial, technical and practical support. IRC is housed in the buildings of the Government Institute for Drinking Water Supply and makes full use of its facilities. In 1972 the IRC moved into a separate building of the Institute, where it now occupies the ground level area, next to the Institute's library. The Director of the Government Institute acts at the same time as the Director of the Reference Centre. The technical and scientific knowledge of the Institute's staff members was frequently called upon, especially that of the scientists and engineers of the Chemistry and Biology Department; other departments also provided assistance upon request.

Total costs of the IRC for the year 1972 amounted to approximately US$70,000.--. An agreement between WHO and the Ministry of Public Health and Environmental Hygiene concerning provision of $10,000.- for support to the IRC for the year 1972 was signed in September. Support for 1973 is still subject to confirmation. The required total budget for 1973, on the basis of a staff of 10 persons, has been estimated at $300,000.

2.3 Advisory Board

The Advisory Board of IRC has a consultative function and consists of bodies and institutions to which IRC is connected directly or indirectly. The following are members of the Board:

(a) The World Health Organization
(b) The Directorate-General for Environmental Hygiene, Ministry of Public Health and Environmental Hygiene
(c) The Department for International Affairs, Ministry of Public Health and Environmental Hygiene of the Netherlands Government
(d) The Netherlands Waterworks Association
(e) The Testing and Research Institute of the Netherlands Water-undertakings, KIWA Ltd.
(f) The Technological University Delft, Chair of Civil Sanitary Engineering

(g) International Courses in Hydraulic and Sanitary Engineering
(h) The Research Institute for Public Health Engineering T.N.O.
(i) The National Institute for Public Health

Professor W.F.J.M. Krul serves as an adviser to this Board. Representatives of Collaborating Institutions outside the Netherlands are also invited to participate in the Advisory Board meetings in order to attune recommandations to immediate needs, especially in developing countries.

At the meeting of the Advisory Board in December 1971 it was agreed to hold meetings following instead of preceeding publication of annual reports; the next Advisory Board meeting will, therefore, take place after publication of the present annual report.

2.4 The Collaborating Institutions

The network of Collaborating Institutions consists of universities, research establishments and other bodies active in the water supply field. A Collaborating Institution - formally designated as such by the World Health Organization - can be defined as an institution that is already engaged in research and development in community water supply or intends to undertake such activities, and is prepared to collaborate in a world-wide programme.
In 1972 the following four institutions were designated as Collaborating Institutions:

- Institut d'Hygiène et d'Epidémiologie, Brussels, Belgium
- Faculty of Engineering and Architecture and School of Public Health, American University of Beirut, Lebanon.
- Departamento Académico de Saneamiento, Universidad Nacional de Engenieria, Lima, Peru
- Battelle Geneva Research Centre, Geneva, Switzerland

At the end of 1972, 31 institutions were collaborating with the Reference Centre, divided over the WHO Regions as follows:

Region	Developing countries	Industrialized countries	Total
AFRO	3	-	3
AMRO	3	4	7
EMRO	5	-	5
EURO	1	10	11
SEARO	4	-	4
WPRO	-	1	1
	16	15	31

A complete list of Collaborating Institutions is given in Annex 2.

In 1972 close collaboration was maintained with 9 Collaborating Institutions and they provided a large amount of information and considerable active support. Six institutions responded to specific requests for information only; collaboration with the remaining institutions was restricted to sporadic contacts.

Four institutions were visited in 1972. In June Mr. van Damme paid a visit to Italy to the Instituto di Ricercha sulle Acque, Consiglio Nazionale delle Ricerche, Rome and the Centro Studi e Ricerche d'Engegneria Sanitaria, University of Naples. An understanding was obtained of possibilities of collaboration in community water supply programmes and of facilities as the institutions. In September Mr. van Damme visited the following Collaborating Institutions in South America: Instituto de Engenharia Sanitaria, SURSAN/IES, Rio de Janeiro, Brazil and the Department of Sanitary Engineering, Faculty of Engineering, Central University of Venezuela, Caracas. The facilities were shown, interesting discussions on the role of institutions within the network were held and valuable information was obtained. Both Collaborating Institutions brought the visitor into contact with other institutions working on community water supply. Much work is being done in Latin America and it was learnt that collaborative efforts between IRC and institutions in this part of the world need to be enlarged. It was again felt that good functioning of the network can be achieved only through personal contacts.

The tasks and activities of the network and research and development projects to be carried out in the coming year will be discussed in a Meeting of Directors of Collaborating Institutions to be convened by the IRC in April 1973 on a contractual agreement with WHO. It is hoped that both through better operation of the IRC itself and critical consideration of the network in general accomplishment in 1973 can be increased.

2.5 National and international organizations and institutions

Apart from the abovementioned contacts, IRC is becoming widely known at more and more institutions and organizations all over the world. It is felt that only through the most extensive communication possible IRC can properly perform its tasks. In 1972 enlargement of contacts was aimed at by participation in conferences and congresses,

by visits to institutions in Latin America and by correspondence. Emphasis is laid on internationally operating bodies. The monthly publication of the Newsletter plays an important role in widening the interest in IRC's activities.

One of the results is that IRC is regularly receiving a large amount of information in publications, reports, papers and news bulletins, which it is making available to all concerned. Other results were a large number of requests for information concerning a great many subjects, requests for contributions to publications and cooperation in the publication of existing material, and several visitors. Great interest in IRC's activities was demonstrated especially on the part of mission organizations.

Contacts with the International Water Supply Association were strengthened and close cooperation was agreed upon with its Standing Committee on Problems of Water Supplies in Developing Countries. Possibilities of cooperation in the establishment of training programmes in developing countries were discussed with the Standing Committee on Education and Training of Waterworks Personnel. Assistance was requested by Professor Ian Burton of the University of East Anglia, in a study on rural water supply and sanitation in developing countries that he is directing with the support of the International Development Research Centre (Ottawa) and in conjunction with OECD.

In a Meeting of Directors of Institutions collaborating with the WHO International Reference Centre for Wastes Disposal, collaborative efforts were suggested between this network and that for Community Water Supply.

With the Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS) in Lima, Peru, it was agreed that through collaborative effort the extensive knowledge on community water supply development built up in Latin America over recent years will be adapted to the needs of other developing countries and made available to them.

Health improvement in Gabon.

A sanitary engineering student takes a water sample from the water basin of an arterian well.

UN photo

3. ACTIVITIES

3.1 Newsletter

The Newsletter remains a useful medium for the dissemination of information of general interest within the community water supply field, and for the exchange of news from IRC and the Collaborating Institutions as well as many other institutions and organizations.

News items were provided with the contact addresses, so as to enable readers to obtain further information if desired.

IRC news items were regularly referred to by at least 10 periodicals in Belgium, Brazil, the Federal Republic of Germany, France, Great Britain, India, Spain and the U.S.A. Some of them quoted parts or even the complete Newsletter.

A provisional agreement was made with the Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS), Lima, Peru, concerning translation of the Newsletter into Spanish and its dissemination in Latin America.

At present the Newsletter has a monthly circulation of approximately 2500 copies in English and 2200 copies in French.

A free subscription can be obtained through IRC.

3.3 Documentation system

A start was made with the development of a community water supply thesaurus for documentation purposes. Descriptor groups were assigned and 2500 candidate terms were chosen.

Contacts were established with documentation centres regarding their technical facilities and information was obtained on existing storage and retrieval systems.

During 1972 use was again made of the facilities of the Government Institute for Drinking Water Supply and of the documentation pool of the Association of Dutch Water Supply Undertakings in which the Government Institute participates.

3.3 Requests for information

Apart from general requests a great number of requests for information on specific topics were received. Information was supplied on the following subjects:

- Toxicity of silver
- Activated carbon from local materials
- Clams
- Toxicity of elements in drinking water
- Regeneration of activated carbon
- Effect of environmental sanitation on child mortality
- Reverse osmosis and geo-electric sounding
- Distribution of nitrates in drinking water and in areas with high nitrate level
- Design criteria for urban water supplies in The Netherlands
- Trace elements and cardiovascular diseases
- Iron and manganese removal
- Economics of water quality related to water supply
- Media and methods for bacteriological control
- Sedimentation / upflow filters

Altogether 1145 postal items were received and 550 letters were sent. The correspondence consumes considerable time and although this "mail box" service for those needing information is one of IRC's tasks, attempts will be made to reduce irrelevant paper work as much as possible in the future. It will be appreciated that in order to avoid duplication of work of other organizations, requests for information will in future be required to indicate the purpose, the sources already investigated and literature available.

3.4 Consultations

In connection with a design of a mobile water treatment unit, N.V. Klemfa, Breukelen, the Netherlands, requested advice on the treatment of tropical surface waters.

Through the Foreign Affairs Bureau of the Technological University of Eindhoven, the Netherlands, a request for advice was received from Mbouda, Cameroun, for the best, simplest and cheapest way to disinfect drinking water for 60 persons.

3.5 Studies and technical papers

3.5.1 Iodine as a disinfectant

On behalf of the World Health Organization a study on disinfection of water in wells and village tanks using iodine dosing devices was initiated in 1968 and terminated in 1972. The results of this study, including the field tests carried out on the devices in 1971 by the Central Public Health Engineering Research Institute, Nagpur, India, are reported in a technical paper "The suitability of iodine and iodine compounds as disinfectants for small water supplies", by B.C.J. Zoeteman.

3.5.2 Plastic pipes

The preparation of a technical paper on "Plastic pipe standardization" as a follow-up of the first technical paper on "Plastic pipe in drinking water distribution practice" (1971) is underway. In order to obtain data on the use of plastic pipe, a questionnaire was sent to selected organizations and institutions. This survey of national standards, existing guidelines and data on plastic pipe in drinking water distribution networks resulted in an extensive documentation, a digest of which will be published under the above mentioned title in the first quarter of 1973.

3.5.3 Water pollution index

In 1971 IRC initiated a study concerning the set-up of a "water pollution index", as a general criterion for the degree of pollution of a river, in order to arrive at a comparison of problems connected with river water as a source of drinking water in different parts of the world. A questionnaire was sent out, a review of which was given in a "Summary of the questionnaire on the relation river water - drinking water and on a water pollution index", by B.C.J. Zoeteman in August 1972. More information has become available since then, which will be reported in due course.

3.5.4 Water supply in developing countries

In a paper presented at the Ninth International Water Supply Congress in New York in September 1972 on "The water supply situation in developing countries", data were given on world population and augmentation expected, the number of people supplied with water in 1960,

in 1970 and the expected situation for 1980. In this connection suggestions were made for future activities by the IWSA Standing Committee on Problems of Water Supplies in Developing Countries.

3.5.5 Water purification on a small scale

The revision of a paper by R.N. Clark on "The Purification of water on a small scale", originally published in the WHO Bulletin in 1956, was completed. It will be published as an IRC paper in the beginning of 1973. Its aim is to give individuals in remote areas simple instructions on how to solve their drinking water problem.

3.5.6 Toxicity of coagulant aids

For a meeting on the toxicity of uPVC pipes and coagulant aids, to be organized by IRC in 1973, Messrs. H.J. Boorsma and J. Hrubec prepared a background paper on "The use of polyelectrolytes in water treatment".

3.5.7 Hypochlorinators

In compliance with a request from WHO/CWSS and UNICEF, laboratory and field trials were prepared on hypochlorinators from World Water Resources Inc., New York and from Ja-chlor Ltd., Jamaica. Two units were received from World Water Resources, for which Professor Mood of Yale University, Connecticut, is to draft a test protocol for comments by IRC. Units are to be field-tested in India, Thailand and South Africa, and several other institutions in developing countries were found willing to assist in the testing. Further discussions on the evaluation took place in New York and The Hague. KIWA Ltd. have agreed to cooperate in the laboratory work.

3.5.8 Filtration

This study was initiated with a review of water filtration research. The aim of the final paper is to give a survey of completed studies to describe results, to show research needs and to create a basis for coordinated efforts in this field.

3.5.9 Rural water supply

A start was made with data collection on design criteria, handpumps and low-cost technologies.

3.6 Bulletins

3.6.1 Community Water Supply Research 1972

A questionnaire was sent to a number of institutions involved in water supply research, not officially collaborating within the network, in order to collect and disseminate information on the recent research activities in the community water supply field. Information about their research projects was received from 29 institutions. All projects have been classified according to general categories of community water supply topics. This (second) inventory of research projects was issued as Bulletin No. 3 "Community Water Supply Research 1972".

3.6.2 Community Water Supply Research 1973

In order to update IRC's first Bulletin on "Community Water Supply Research" of Collaborating Institutions, collection of data on research projects carried out by those Institutions was resumed. The updated version will be issued in 1973.

3.6.3 The Story of CPHERI

"The Story of C-PHERI" was published as Bulletin No. 4. Prepared in cooperation with the Central Public Health Engineering Research Institute, Nagpur, India, it describes the history of the Institute. The intention of this publication is to draw attention to this successful research centre and to encourage governments to explore ways to set up similar institutes in other countries.

A complete list of IRC/CWS publications to date is given in Annex 3.

3.7 Training

The preparation of training manuals and the training of research workers and others are important functions of the IRC, which will be intensified subject to availability of funds and staff. Data are being collected concerning international training courses on water supply subjects. Information from several institutions is already available and will be published in due course.

The Centre again welcomed visitors for study and training. A list of visitors in 1972 is appended as Annex 4. Special mention may be

made of the 5-day visit arranged for the group of students from the Sanitary Engineering Centre, Rabat, jointly established in 1969 by the Government of Morocco and WHO at the Mohammadia School of Engineering.

3.8 Duty travel

In view of the importance of personal contacts, IRC staff undertook extensive duty travel during the year.
In February Mr. J.M.G. van Damme paid a visit to the "Wasserfachliche Aussprachetagung" in Dortmund, Federal Republic of Germany, in order to establish contacts with German water supply officials and to familiarize himself with German expertise.

In June Mr. van Damme attended the Technical Sessions of the SEP-Pollution 72 International Congress in Padova in order to become acquainted with sanitation problems in Italy. He also visited the Collaborating Institutions in Rome and Naples. In connection with this travel a visit was paid to WHO Headquarters, Geneva.

In July Mr. T. Verheul and Mr. van Damme attended a meeting of Directors and Managers of IRC/CWS and IRC/WD at WHO Headquarters.

In September, Mr. van Damme presented a paper on "The water supply situation in developing countries", in New York, at the session of the IWSA Standing Committee on Problems of Water Supplies in Developing Countries. He also attended meetings of the Standing Committee on Education and Training of Waterworks Personnel. The visit to the International Water Supply Congress has in a general way contributed to a better understanding of the problems to which the IRC activities should be directed and of the organizations and institutions with which contacts should be established. IRC may have to play an important role in the activities of the Standing Committee on Problems of Water Supplies in Developing Countries, and may have to carry out part of the secretarial work of this Committee. As a member of the Standing Committee on Education and Training of Waterworks Personnel IRC will be expected to provide for an input for programmes directed to developing countries.

Following participation in the IWSA meeting, visits were paid to the Collaborating Institutions in Caracas, Venezuela, and Rio de Janeiro,

Brazil. Organizations also visited were: the Pan American Sanitary Bureau PAHO, WHO Regional Office for the Americas, Washington; the Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS) Lima; the Ministerio Sanidad y Asistencia Social (SAS), Division Acueductos Rurales, Caracas; the Instituto Nacional Obras Sanitarias (INOS), Caracas, and the Companhia Estadual de Aguas da Guanabara (CEDAG), Rio de Janeiro. Decisions on collaborative efforts were made and many useful contacts established on all occasions. It was felt that close contact with CEPIS would be particularly valuable and that through the Collaborating Institution in Caracas contacts should be maintained with SAS and INOS. The visit to institutions dealing with community water supply in Latin America has resulted in an understanding of the large amount of information which is available in this part of the world. An important future task of the IRC can be to translate and summarize this information (which is only available in Spanish) to make it available for use in other parts of the world.

In November Mr. van Damme took part in the Meeting of Directors of Institutions collaborating with the WHO International Reference Centre for Wastes Disposal in Dübendorf, Switzerland. A paper was contributed on "Organizational aspects of WHO networks of institutions collaborating with International Reference Centres", and a number of research proposals were presented.

WHO/EURO Pollution - Morocco.
At the new International Sanitary Engineering Centre, Rabat, Morocco practical work is emphasized.

Guatemala.

Woman carrying a jug of water after buying it from an itinerant tank pulled by a tractor, and that brings water to the dry areas.

WHO photo by P. Larsen

4. FUTURE PLANS

The experiences of 1972 emphasized the need for careful planning of future programmes in order to ensure that the programme can be successfully implemented with the staff and other resources available. The shortage of staff in the past meant that priorities had to be assigned and that a number of projects had to be held in abeyance. This is not a simple task since all projects forwarded to the IRC have been subjected to careful scrutiny by WHO or the Collaborating Institutions - consequently all work that comes to the IRC had a high degree priority. Even fulfilling its basic responsibilities will be impossible until the IRC obtains increased support. The problems are being discussed with the Dutch Ministry of Public Health and Environmental Hygiene and it seems that the proper functioning of the IRC relative to its terms of reference will largely depend on the outcome of these discussions.

Within these limitations the programme of future work is designed to embrace as much as possible the broad functions of research and development, dissemination of information and training. Routine activities will be continued - activities which by their very nature must be done in a continuing way. A number of specific projects for which specific funding is allocated will be undertaken. The remainder of the programme will be implemented insofar as the constraints of limited resources will permit.

4.1 Continuing activities

Emphasis will be placed on the further development of the documentation storage and retrieval system in cooperation with other organizations working in this field. The IRC's role is believed to be unique in that the needs of developing countries are given prior consideration and there is a conscious attempt to include unpublished documents which are generally unavailable in technical libraries.

Similar emphasis will be placed on rural water supply studies. Many of these are intrinsically related to the documentation storage and retrieval system and consists (at least in part) of literature searches leading to the preparation of guidelines and manuals. Subjects areas for attention include: state of the art, low-cost technology, design criteria, use of locally available materials and

and adapting technology to developing country situations.

The IRC will continue to receive guests and visitors for field studies, orientation and short training programmes. Requests for information place an ever-increasing workload on the IRC's resources and it is intended to develop a consistent policy on how these requests should be handled.

4.2 Planned activities

Two important meetings are planned for early in 1973. In both of these the IRC will act as a contractor for WHO, carrying out all of the planning and making the detailed arrangements including the preparation of the reports.

A meeting of international experts on the "Toxicity of uPVC Pipes and Coagulant Aids" is to be held in February. Fifteen experts are expected to attend and the discussions, particularly those relating to the release of lead from plastic pipes, may serve as a contribution to the formulation of policy on the use of new materials in water treatment and water supply practice.

In April the IRC will convene a "Meeting of Directors of Institutions Collaborating with the IRC/CWS". A total of about 25 people are expected to attend and the meeting will be concerned with the identification and detailed planning of projects which can be undertaken and implemented by the IRC-CI system.

4.3 Expansion of programme

As mentioned earlier, an expansion of the programme of work is largely dependent on the human and other resources that are made available to the IRC. The meeting of Directors planned for April will identify new projects and will assign priorities, thus it is at this moment inappropriate to state with certainty exactly what will be included in an expanded programme. However, projects which have been started, continuing activities which need strengthening and projects which have been held in abeyance will be considered. These include:

Preparation of a Water Treatment Handbook. The intent of this handbook is to provide a complete, yet concise reference of practical

knowledge on water treatment and equipment, and to provide the know-how for planning, design, construction and operation of water treatment plants.

Compilation of a Guideline on Design Criteria for Urban Water Supply. Some data for this document have been collected by the WHO/CWSS Unit and by the IRC in collaboration with the CI's.

Development of Training Programmes: An evaluation of the specific needs is the first in this activity. Progress may then be made in the direction of preparing course outlines and lecture and laboratory manuals, as well as in arranging short training courses and seminars for instructors in developing countries.

Peru.

The problem of safe water is an important one. There is plenty of good water all over the Americas - the question is one of bringing it where it is needed. In this Andean village, all the inhabitants not only participated in buying the equipment necessary to bring spring water but they carried out the work themselves.

WHO photo by Paul Almary

ANNEX 1.

TERMS OF REFERENCE IRC/CWS

- to build up and maintain a reference library on problems of both urban and rural water supplies, to disseminate the available information through newsletters, a documentation storage and retrieval system and state-of-the-art publications, with an emphasis on the transfer of information to developing countries, and to establish a data bank on programmes and facilities in the water supply field;

- to integrate the expertise available in collaborating institutions, to assist these institutions in both national and wider scoped programmes and activities in community water supply, and to undertake cooperative liaison activities concerning the inventory of needs and resources of water supplies, coordination of research and use of institutional facilities;

- to promote, initiate, conduct and coordinate research and research projects in cooperation with WHO and collaborating institutions and other bodies and organizations and to organize and activily participate in meetings and conferences concerning research in water supply;

- to evaluate and test available information and technology and to develop guidelines and design criteria on the planning, design, construction, operation and management of urban and rural water supplies (in the first instance) with an emphasis on the use of locally available skills and materials applicable in developing countries, the development and evaluation of appropriate technologies and interim measures for rural water supply and emergency situations;

- to sustain the development of standards on the quality of drinking water and guidelines on the control of deleterious substances, and to promote, conduct and coordinate studies and meetings on effects and removal of these substances;

- to promote, organize and evaluate training courses and seminars concerning planning, design, construction, operation and management of water supplies for scientific and technical personnel working in the water supply field, to organize fellowships and exchanges, and to promote educational programmes, first of all in and to the benefit of developing countries.

List of Collaborating Institutions

as at 31 December 1972

1. Institut d'Hygiène et d'Epidémiologie
   14, Rue Juliette Wytoman
   1050 BRUXELLES
   Belgium

2. Instituto de Engenharia Sanitaria
   SURSAN/IES
   Rua Fonseca Teles 121-15° and.
   Caixa Postal 23011 - ZC 08
   RIO DE JANEIRO, GB
   Brazil

3. Institute of Hygiene and Epidemiology
   Srobarova 48
   PRAGUE 10
   Czechoslovakia

4. Institute of Hygiene
   University of Aarhus
   DK 8000, AARHUS C
   Denmark

5. Sanitary Engineering Department
   Faculty of Engineering
   University of Alexandria
   ALEXANDRIA
   Egypt

6. Office de la Recherche Scientifique
   et Technique Outre-Mer
   Section d'Hydrologie
   24, Rue Bayard
   PARIS - 8e
   France

7. Department of Civil Engineering
   Faculty of Engineering
   University of Science and Technology
   KUMASI
   Ghana

8. Victoria Jubilee Technical Institute
Matunga
BOMBAY - 19.
India

9. All - India Institute of Hygiene
and Public Health
110, Chittaranjan Avenue
CALCUTTA - 12.
India

10. Central Public Health Engineering
Research Institute
Nehru Marg
NAGPUR - 10.
India

11. Institute of Hydro - Sciences
and Water Resources Technology
University of Teheran
64, Ghadessi St. North Blvd. Elizabeth
TEHERAN.
Iran

12. Environmental Health Laboratory
Hebrew University - Hadassah Medical School
P.O.Box 1172
JERUSALEM.
Israel

13. Centro Studi e Ricerche
d'Ingegneria Sanitaria
University of Naples
Piazzale Tecchio
80125 NAPLES.
Italy

14. Instituto di Ricerca sulle Acgue
Consiglio Nazionale delle Ricerche
Via Reno 1
Irsa
ROME.
Italy

15. Department of Sanitary Engineering
Faculty of Engineering
University of Tokyo
TOKYO.
Japan

16. Department of Civil Engineering
Faculty of Engineering
University College, Nairobi
University of East Africa
P.O.Box 30197
NAIROBI.
Kenya

17. Faculty of Engineering and Architecture
and School of Public Health
American University of Beirut
BEIRUT.
Lebanon

18. Keuringsinstituut voor
Waterleidingartikelen KIWA N.V.
Sir Winston Churchillaan 273
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IRC PUBLICATIONS

- Technical Papers

Technical Paper no. 1 - Plastic Pipe in Drinking Water Distribution Practice, 1971.

Technical Paper no. 2 - The Suitability of iodine and iodine compounds as disinfectants for small water supplies, 1972, by B. C.J.Zoeteman.

- Bulletins

Bulletin no. 1 - Community Water Supply Research, 1972.
Bulletin no. 2 - Training Courses in Community Water Supply, 1971.
Bulletin no. 3 - Community Water Supply Research, 1972.
Bulletin no. 4 - The Story of C-PHERI, 1972.

- Interim Report

Summary of the questionnaire on the relation river water - drinking water and on a Water pollution index, 1972, by B.C.J. Zoeteman

- General

Information on Collaborating Institutes, 1970
Annual Report 1969 (out of stock)
Annual Report 1970 (out of stock)
Annual Report 1972 (out of stock)

- Further publications by IRC-Staff members

Damme, J.M.G. van, Geohydrological investigations with a view to groundwater catchment - a case history, Geologie en Mijnbouw, Vol. 51 (1).

Kepinski, A., Water and technology. The protection of water catchment areas, Land en Water, no. 4, 1972.

Kepinski, A., International organizations active in the field of community water supply and water resources, Land en Water - International, no. 14, 1972.

Verheul, T., The water supply situation in developing countries. Congress papers International Water Supply Association Congress New York, 1972.

A further official I.R.C. publication is the monthly Newsletter. A free of charge subscription can be ordered at the I.R.C.

An unofficial publication is a monthly unclassified list of publications received by the I.R.C. library. A limited number of copies are available upon request.

Papers of other bodies and institutions available at I.R.C.

A limited number of the following papers are at present available free of charge at I.R.C.:

Water Supply

WHO/CWS/RD/69.1 : "The Village Tank as a Source of Drinking Water".

WHO/CWS/72.3 : "A portable unit for the supply of drinking water in emergencies (Kenya)".

Water and Environmental Hygiene

WHO/CWS/RD/70.1 : "Biological" or "Slow Sand" filters.
WHO/CWS/RD/70.2 : "Health Hazards of Coagulant Aids".
WHO/CWS/RD/70.3 : "Schistosomiasis and Community Water Supplies".
WHO/EH/70.1 : "Cholera Control through Environmental Sanitation". (also in French)
WHO/CWS/71.1 : "The Control of Water-borne Epidemics through the improvement of Community Water Supply".
WHO/CWS/71.2 : "WHO Expert Committee on Health Criteria for Water Supply". (Also in French)

Central Public Health Engineering Research Institute, Nagpur, India: "Disinfection for small Community Water Supplies".

CPHERI, Nagpur, India "Defluoridation".

Water Supply Planning

CWS/70.5 : "National Rural Water Supply Programs".
CWS/70.6 : "Community Water Supply Research and Development Programme". (also in French)

Report procedings Dubrovnik

WHO/CWS/RD/71.4 : Record of Proceedings - International Conference on Research and Development in community water supply, Cavtat, Dubrovnik, Yugoslavia, October 7-14, 1970.

Turkey.

A public fountain in Gazi Osman Pasha Village. There is no distribution system into the houses, but the water is from the city water supply.

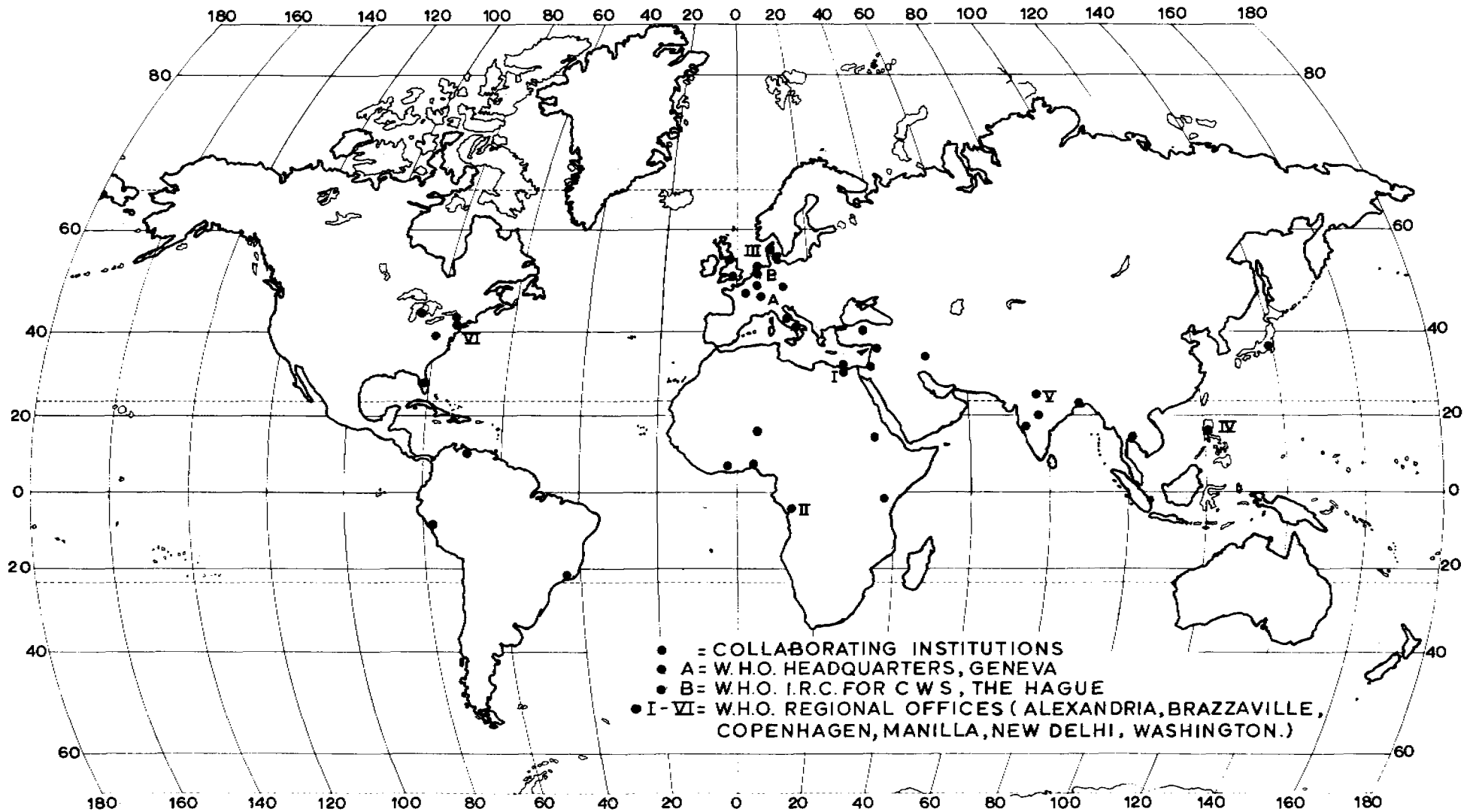
WHO photo by J. Breitenbach.

VISITORS

Country/Name	Organization	Subject	Days
Australia			
Mr.R.S. Dickson	Main Urban Supplies Division, State Rivers & Water Supply Commission, Victoria (Divisional Engineer)	IRC Newsletter items	1
Bolivia			
Mr. Alvarez-Guisbert	Geohydrological Project, La Paz	Geohydrological studies	1
Bulgaria			
Mr. S.K. Hranov	Dept. of Laboratory Research, Vodokanal Project, Sofia (Chief)	Artificial recharge	45
Federal Republic of Germany			
Dr. K.E.Schickhart	Deutsche Verein für Gas- und Wasserfachmännern	Information exchange	1
Hungary			
Mr. István Varró	University of Budapest (Lector, Consultant)	Cooperation in consulting.	6
India			
Dr. G.J. Mohanrao	CPHERI, Nagpur (Scientist in Charge)	Visits to Institutions, Collaboration within network	4
Mr. D. Pandey	UN Development Programme Project, Central Ground Water Board, New Delhi (Director)	Water resources management	1
Dr. G.K. Seth	CPHERI, Nagpur (Scientist)	Visits to Institutions, Cooperation with CPHERI	3
Israel			
Prof. H.I. Shuval	Env. Health Laboratory Hebrew University, Hadassah Medical School Jerusalem (Director)	Collaboration within network	2

Country/Name	Organization	Subject	Days
Japan			
Mr. T. Shirozu	Water Works Division, Minami Tama New Town Development Office, Tokyo Metropolitan Government, Tokyo (Chief Techn. Section)	Desalination	1
Kenya			
Mr. A.B. Cahusec	Kenya Delegation Stockholm Conference	Introduction to IRC	1
Mr. A.N. Ligale	idem		
Mr. O.C. Obel	idem		
Prof. S.H. Ominde	idem		
Morocco			
Prof. B. Ashkar	Centre de Génie Sanitaire, Rabat (Professor)	Field trip to the Netherlands	5
with students:			
Mr. A. Affia			
Mr. V. Balosa			
Mr. Z. Berrada Sounni			
Mr. L. Kabondo			
Mr. A. Maghraoui			
Mr. J.B. Mbo			
Mr. L. Muba Kabanza			
Mr. M. Ragragui			
Peru			
Mr. O.A. Sperandio	CEPIS, Lima (Director)	Cooperation CEPIS-IRC	4
United Kingdom			
Mr. H.W. Barker	Water Supply Industry Training Board, Tadley Court (Senior Training Officer).	Training programme developing countries	1
Mr. E. Idelovitch	University of East Anglia, Norwich (Project Engineer)	Rural water supply	2
U.S.A.			
Dr. W.E. Hanford	World Water Resources Inc., New York (President)	Evaluation chlorinators	½

Country/Name	Organization	Subject	Days
U.S.A. (cont'd)			
Mr. C.H. van Vierssen	Royal Netherlands Embassy, Washington D.C. (Scientific Attache)	Information exchange	½
Mr. R.F. Ward	Engineering University of Massachusetts, Amhurst (acting ass. Dean)	Low-cost technologies	1
Mr. C. Weiss Jr.	Economic Dept., International Bank for Reconstruction and Development, Washington D.C.	Capital saving techniques	1
Yugoslavia			
Mr. M.S. Gakovič	Institute of Water Resources Development, Sarajevo (Civil Engineer)	Planning water supplies	1 month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● = COLLABORATING INSTITUTIONS
● A = W.H.O. HEADQUARTERS, GENEVA
● B = W.H.O. I.R.C. FOR C W S, THE HAGUE
● I-VI = W.H.O. REGIONAL OFFICES (ALEXANDRIA, BRAZZAVILLE, COPENHAGEN, MANILLA, NEW DELHI, WASHINGTON.)