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PROGRESS MADE IN THE IMPLEMENTATION
OF THE WORK PROGRAMME

PROMOTION OF CO-OPERATION AND CO-ORDINATION
OF ACTIVITIES PERTAINING TO WATER AND SEA
RESOURCES PROJECTS IN THE ECWA REGION

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Introduction

A programme element, entitled "Promotion of Co-operation and Co-ordination of Activities Pertaining to Water and Sea Resources Projects in the ECWA Region", was initiated as component of the Water Resources Development and Management Programme included in the ECWA Programme of Work and Priorities for 1982-1983 (E/ECWA/118).

There was considerable activity in the area of water and sea resources during the last decade at all levels: national, regional, subregional, interregional and inter-agency. The ECWA region is one of those geographical areas of the world where such activities were particularly efficient and wide in scope; furthermore, they are rapidly increasing. Hence at this stage it was necessary to prepare a study on the promotion, co-operation and co-ordination of activities to meet the targets as effectively as possible.

This report is based on a study previously issued under document symbol E/ECWA/NR/84/6

During the preparation of the study, visits were undertaken to most of the ECWA member states in order to gather information and to hold consultations with the national authorities concerned.

Chapter I

REVIEW OF THE RESOLUTIONS AND RECOMMENDATIONS ADOPTED BY THE INTERNATIONAL AND REGIONAL CONFERENCES DEALING WITH THE CO-OPERATION AND CO-ORDINATION OF ACTIVITIES PERTAINING TO WATER AND SEA RESOURCES PROJECTS

Beginning in 1974, a series international and regional meetings and conferences dealing, partly or completely, with water resources activities took place in various regions of the world. A great many recommendations and resolutions concerning co-operation and co-ordination of activities on international, national, regional, subregional, inter-agency levels were issued as outputs of these forums. A selection of the most important relevant conferences which a number of ECWA member States attended is reviewed below, chronologically. Also reviewed are their outputs which is the subject-matter of this report.

A. The International Conference for the Preparation of the First Phase (IHP-I, 1975-1980) of the International Hydrological Programmes, Paris, September 1974.

The Conference was organized by the United Nations Educational, Scientific and Cultural Organization (UNESCO) jointly with the World Meteorological Organization (WMO).

IHP, as a long-term intergovernmental programme, focuses on the scientific and educational aspects of hydrology and water resources management, and utilizes an interdisciplinary and intersectoral approach to this subject. It is planned in medium-term successive phases, the first of which was launched in 1975.

The following activities were foreseen in the outline plan of the first phase of IHP:

- (a) The execution of a number of international scientific projects;
- (b) The development of education and training in the field of hydrology and water sciences;
- (c) Supporting activities such as diffusion of information, technical assistance and regional co-operation.

B. The Conference of Ministers of Arab States Responsible for the Application of Science and Technology to Development (CASTARAB), Rabat, August 1976

The Conference was organized by UNESCO in co-operation with the Arab Educational, Cultural and Scientific Organization (ALECSO) and ECWA.

CASTARAB is one of a series of "CAST" regional conferences organized by UNESCO in co-operation with relevant regional bodies, within the framework of its activities leading to the promotion of the application of science and technology to socio-economic development, within a framework of regional co-operation and co-ordination. The following topics relating to water and sea resources were covered in CASTARAB:

- (1) UNESCO international hydrological programme (IHP);
- (2) water resources management;
- (3) Training and education;
- (4) Scientific research;
- (5) Projects and studies;
- (6) Ecology relating to the management of arid and semi-arid lands;
- (7) Utilization of remote sensing techniques;
- (8) Marine sciences and sea resources;

In addition to various recommendations on the above subject, the Conference decided that (CASTARAB) should be a periodic conference and made recommendations towards appointing a permanent committee and establishing funds to meet the costs of future activities.

C. The ECWA Regional Preparatory Meeting for the United Nations Water Conference, December 1976, Baghdad

The output of the Meeting is the "ECWA Regional Report for the United Nations Water Conference". That report is composed of four sections: the first concerns resources and needs and is an assessment of the water problem; the second is on the promise of technology potential and limitations, and the third is on policy options. These three sections give an overall general pertinent picture of the actual water situation in the ECWA region, in terms of natural water resources and related activities such as data collection investigation, supply, policy, management, legislation and institutions. The fourth section, contains a number of action proposals on the above subjects, which were to be submitted to the United Nations Water Conference for approval. At the regional level, the most important proposal put forward concerned the establishment of a Water Resources Council for Western Asia. At the international level action proposals on the following subjects can be mentioned:

- (1) Use of advanced techniques;
- (2) Findings and experience in applied research;
- (3) Member States sharing water resources;
- (4) Co-operation in the establishment and/or expansion of a regional and international hydrometeorological network;
- (5) Exploration of the possibility of weather modification;
- (6) Establishment of an International Commission on Water Resources under the United Nations Economic and Social Council.

D. The United Nations Water Conference, Mar del Plata, Argentina, March 1977

The Conference decided that recommendations and resolutions formulated in the committee meetings and the plenary sessions would be known as the "Mar del Plata Action Plan". This action plan covers recommendations and resolutions on the following topics:

- (1) Assessment of water resources;
- (2) Water uses and efficiency;
- (3) Environment, health and pollution control;
- (4) water policy, planning and management;
- (5) Natural hazards;
- (6) Public information, education, training and research;
- (7) Regional co-operation;
- (8) International co-operation.

The Conference urged strongly that the plan be effectively implemented in good faith by all States. In particular, it designated the decade 1981-1990 "The International Water Supply and Sanitation Decade".

The Conference adopted and reinforced the recommendations drawn up in the ECWA Regional Preparatory Meeting, and so they were included in the Mar del Plata Action Plan. The Conference is well documented and the proceedings are summarized in the publication "Report of the United Nations Water Conference, Mar

del Plata, 14-25 March 1977 (E/CONF.70/29) United Nations, New York, 1977".

E. The United Nations Conference on Desertification,
Nairobi, August-September, 1977

The conference prepared and adopted a worldwide Plan of Action to Combat Desertification (PACD). Recommendation 4 relates to considerations to be given to arrangements to combat desertification in the planning, management and development of water resources. Recommendation 27 regards the promotion of actions for combating desertification in irrigated lands. In addition, six transnational projects were reviewed and recommended by the Conference. Below are two of these projects which concern the ECWA region:

- (1) Management of the major regional aquifers in North-East Africa and the Arabian Peninsula
- (2) Monitoring of desertification processes and affected natural resources in South-West Asia.

F. The ECWA Second Regional Water Meeting, Riyadh, January 1979

The meeting was convened as a follow-up of the resolutions and recommendations of the United Nations Water Conference and of the Mar del Plata Action Plan set up by the Conference. The following topics were included in the discussion:

- (1) Action taken by the member countries in the light of the United Nations Water Conference and the First ECWA Regional Water Meeting (Baghdad 1976);
- (2) Establishment of a Regional Water Resources Council (RWRC);
- (3) Manpower situation and requirements in the water sector;
- (4) Community water supply and sanitation situation;
- (5) Agricultural water use;
- (6) Strengthening technical co-operation among developing countries;
- (7) Projection of water demands for ECWA countries by the year 2000;
- (8) Assessment of water resources;

G. The International Experts Consultation on Irrigation and Agriculture Development, Baghdad, February 1979.

The Consultation was held in co-operation between ECWA, the Food and Agriculture Organization (FAO) of the United Nations, and the Federation of Arab Scientific Research Councils. The Consultation was co-sponsored by the Ministry of Higher Education and Scientific Research of Iraq.

The Consultation recommended that because of the shortage of new lands and water resources in most countries of the ECWA region, high costs of developing irrigated lands, and rapidly increasing demand for food and feed, very high priority needed to be given the productivity of irrigated lands in the region by considering the following factors:

- (1) Continued emphasis on infrastructural investments for irrigation and agricultural development;
- (2) Needs to develop appropriate social structures and institutions;
- (3) More precise assessment of surface and groundwater resources;
- (4) Encouragement of local manufacture of irrigation and drainage equipment;
- (5) Practical irrigation and drainage training;
- (6) Improvements in irrigation and drainage applications;
- (7) Establishment of a regional centre for research and training;
- (8) Socio-economic and cultural factors in evaluating project feasibility;
- (9) Retaining arable lands outside of urban planning areas.

In conclusion, the recommendations of this Consultation supplemented those formulated in the field of irrigation and agricultural development by the United Nations Water Conference.

H. The United Nations Conference on Science and Technology for Development, Vienna, August 1979

The Conference formulated a Programme of Action on Science and Technology for Development, which deals with water resources development as regard to scientific and technological actions in this sector. The major aspects of the Programme include:

(1) Strengthening the science and technology capacities of developing countries;

(2) Restructuring the existing pattern of international scientific and technological relations;

(3) Strengthening the role of the United Nations system in the field of science and technology and the provision of increased financial resources.

The Conference also adopted a resolution for the implementation of the Programme. Special emphasis is given in the Programme to developing countries, as well as co-operation and co-ordination at all levels in the scientific and technological areas in activities pertaining to water and sea resources projects in the ECWA region.

I. The First International Meeting of International River Organizations, Dakar, May 1981

The Meeting was organized by the United Nations Department of Technical Co-operation for Development as a follow up to one of the resolutions of the Mar del Plata Action Plan. The meeting dealt mainly with shared surface water bodies, covering the following main topics:

- (1) Institutional and legal arrangements;
- (2) Progress in co-operative arrangements;
- (3) Economic and other considerations.

In conclusion, the Meeting, as a first approach to promote co-operation in the field of shared water resources management, pointed towards the need for further meetings to improve the knowledge and co-ordination of activities in this respect.

J. The International Conference of Hydrology and the Scientific Bases for the Rational Management of Water Resources, August 1981, Paris

The Conference was jointly convened and organized by UNESCO and WMO. The aim of Conference was to evaluate the progress made within the framework of the respective programmes in the field of hydrology and water resources, and to draw up recommendations on the orientation of the future programmes of the two organizations in this field. The Conference adopted recommendations on the following subjects;

- (1) International and regional co-operation;
- (2) IHP-III Plan and other UNESCO water-related activities;

(3) WMO water-related activities;

(4) International research and training centre on erosion and sedimentation in China.

The Outline Plan of the Third Phase of the International Hydrological Programme (IHP-III-III, 1984-1989) adopted by the Conference emphasizes a scientific programme for the consolidation, dissemination and advancement of scientific knowledge with an education, training and public information programme in the field of water resources.

A major regional project on the rational utilization and conservation of water resources of rural areas of the Arab States with emphasis on traditional water works was also adopted by the Conference for implementation. More information on this project is included in the next chapter.

K. Conferences sponsored by Arab League water-concerned agencies

The Arab League water-concerned agencies, the Arab Centre for the Study of Arid Zones and Dry Lands (ASCAD), and the Arab League Educational, Cultural and Scientific Organization (ALESCO), sponsored a number of conferences devoted to hydrology and water resources in the Arab States.

L. Conferences sponsored by ACSAD

1. The First Seminar on Water Resources, Damascus, November 1978

The themes studied during the seminar were as follows: hydrogeological mapping in the Arab countries; water legislations in the Arab countries; regional hydrogeology; and hydrogeological investigations.

2. Seminar on Water Legislation in the Arab Countries, Damascus, March 1981

Various aspects of water legislation were studied with a view to improving water legislation in the Arab countries.

3. The Second Arab Seminar on Water Resources, Rabat, September 1981

The subjects reviewed during the Seminar were as follows: the hydrogeological situations and conditions governing groundwater occurrence in the Arab countries; the rational management of water resources; and practical measures to limit soil erosion due to adverse water action.

4. Seminar on Surface Water Hydrology in the Arab Countries, Damascus, September 1982

The following subjects were discussed in the Seminar; hydrological networks; technological co-operation at bilateral, regional and international levels; planning and management of water resources; training and shared water resources basin management.

M. Conferences sponsored by ALESCO

1. The First Meeting of the Arab Committee for the International Hydrological Programme, Tunis, November 1979

The meeting reviewed the following themes: promotion of contribution to IHP through the IHP national committees; restructuring and combining water institutions; education and training in the field of water resources; technical co-operation and exchange of specialists among the Arab countries in the field of water resources; co-operation in the field of shared water resources basins; experimental and representative hydrological basins; water resources assessment; and use of semi-saline waters in agriculture.

2. The Arab Seminar on the Use of Semi-Saline Water in Agriculture, Tunis, May 1981

The seminar was convened jointly by ALESCO and the Ministry of Agriculture of the Republic of Tunisia. A number of specific papers were presented by qualified specialists and were discussed and recommendations were made.

3. The Second Meeting of the Arab Committee for the IHP, March 1983, Tunis

In this meeting the following themes were studied: follow up on the activities discussed and planned in the International Conference held in Paris in August 1981; participation of the Arab countries in the non-governmental organizations specialized in the water fields; importance of groundwater resources in the Arab countries; and the promotion of the role of the IHP Arab Committee.

Chapter II

REVIEW OF THE PROGRESS MADE IN THE IMPLEMENTATION OF MAJOR REGIONAL AND SUBREGIONAL WATER AND SEA-RELATED ACTIVITIES IN THE ECWA REGION DURING THE LAST DECADE

During the last decade, significant water-related activities have been undertaken in the ECWA region at regional and subregional levels. Concerned international and regional agencies made a pertinent contribution in this respect. The major components of these activities are reviewed hereafter.

A. Intergovernmental activities

1. The Yarmouk River Management Project

Based on the agreement signed by Jordan and Syria in 1953, a joint project has been prepared for irrigation and hydroelectric power generation by utilizing the shared waters of the Yarmouk River. The project documents are now awaiting the approval of the Joint Steering Committee.

2. Shared groundwater resources management by Saudi Arabia and Democratic Yemen

It is understood that both States are considering the joint development of the groundwater of the cretaceous sandstone and the Um er-Radnuma aquifers lying under the border of the two countries. This possibility was defined in the studies undertaken under "The Shared water Resources in the Gulf and Arabian Peninsula Arab States Project".

3. Shared surface water resources management by the Yemen and Democratic Yemen.

The above-mentioned project identified the surface water of the Tuban, Bama and Beihan basins as shared resources between these two countries. Co-ordination of the management of these basins, including the shared water resources, is under study through a joint committee established for that purpose.

B. Regional activities

1. The United Nations Economic Commission for Western Asia (ECWA)

In addition to the three meetings mentioned in Chapter I, ECWA co-sponsored with FAO and ACSAD "The Expert Meeting on Management, Conservation and Development of Agricultural Resources in the ECWA Region" in Damascus in May 1981. The meeting included two workshops, and in addition to the issues on agricultural resource conservation and management in arid and

semi-arid areas were also discussed and the resolutions of the previous forms were supported.

(a) Programme and plans of action

In its regular biennial Programme of work ECWA promulgates a "Water Resources Development and Management Subprogramme". The Programme Elements of the 1982-1983 work programme being undertaken are the following:

- (1) Promotion of efficient water resources management and administration;
- (2) Dissemination and exchange of information on non-conventional water-related activities at the regional and subregional levels;
- (3) Development of guidelines for determining economic use of water;
- (4) Promotion of co-operation and co-ordination of activities pertaining to water and sea resources projects in the ECWA region;

The 1984-1985 work programme includes the following programme elements:

- (1) Promotion of manpower training and education programmes in the water sector within the region
- (2) Survey of recent activities in the field of water resources development in the ECWA region.

(b) Basic technical reports, background documents and publications

A considerable number of reports, documents and publications have been issued by ECWA covering the following topics: water resources assessment; water development; technical co-operation in water affairs; water supply and sanitation; water demands; water for agriculture; desalination; manpower requirement in the water sector; collection, compiling and analysis of water resources data, etc.

2. The Arab League Educational, Cultural and Scientific Organization (ALECSO)

In addition to the two meetings mentioned in Chapter 2, ALECSO convened jointly with UNESCO "Meeting of the Arab Experts for the Work Plan of the Major Regional Projects" in Tunis in June 1982. In this meeting the major regional project with

emphasis on traditional water works was reviewed and a work-plan was approved.

(a) Programmes and plans of action

The ALECSO had the following major activities in this respect.

(1) The programme of the marine environment of the Red Sea and Gulf of Aden (PERSGA). This programme is based on an earlier resolution adopted by the First Arab Conference of the Sea Resources and Marine Sciences held in Cairo in 1968. Between 1974-1982 ALECSO has convened five regional meetings to outline the programme, to prepare a plan of action and to adopt all the necessary institutional and financial measures to ensure the implementation of the programme. The programme covers environmental assessment and protection of the Red Sea and Gulf of Aden.

(2) The establishment of the Arab Committee for the International Hydrological Programme (ACHIP). The Committee was established in a preparatory meeting held in Amman in May 1978, attended by ALECSO, ACSAD, ECWA, FAO and UNESCO. The meeting established the composition, function and plan of action of the Committee and decided that it should be lead by ALECSO.

(b) Projects

ALECSO is studying the elaboration of a regional project, similar to the "Project for the Establishment of a Green Belt in the Desertic Region of North Africa", which is already under execution in co-operation with UNEP. The new project is to be situated in the desertic area of Badiat Ach-Cham share by Iraq, Jordan, Kuwait, Saudi Arabia and Syria. UNEP and ACSAD are expected to co-operate with ALECSO for the design and implementation of the Project. For that purpose, ALECSO convened a meeting in Damascus from 8 to 10 June 1982 to formulate a preliminary study of the feasibility and plan of action of the project. The Project is expected to use existing semi-saline waters in the area.

(c) Basic technical reports, background documents and publications

A number of reports and publications have been produced by ALECSO on the following subjects: groundwater resources in the Arab countries; use of semi-saline waters; water legislation; shore protection, etc.

In addition, ALECSO issues a semi-annual review, "The Arab Journal of Science", where water sector activities are also

included. ALECSO has also been active towards achieving the production of the Arabic version of the Glossary of Hydrology.

3. The Arab Centre for the Study of Arid Zones and Dry Lands (ACSAD)

In addition to the four seminars mentioned in Chapter I, ACSAD organized jointly with UNESCO the "Regional Training Course on Technology of Water Resources for Technicians", in Damascus between 4-22 December 1982. The course programme included topics on topography, maps, climatology, hydrology, hydrochemistry, and geophysics as well as practical laboratory and field-work.

(a) Programmes and plans of action

ACSAD programme and plans of action cover a wide variety of regional activities, including hydrological information; development of water data networks; utilization of remote sensing techniques; assessment of water resources; water legislation; utilization of computer in water studies; study of isotopic hydrology in arid and semi-arid areas.

(b) Projects

ACSAD is engaged in the undertaking of various projects which can be outlined as follows:

(1) Arab Water Resources Map: This is a long term project and its implementation is based on the achievements of Arab member States. The Map is to be composed of 16 square sheets.

(2) Arab Water Resources Data Bank: The project is well underway and the programme of actions have been prepared.

(3) The Pilot Project of the Ed-Daw Basin in Central Syria: ACSAD adopted the Project and its implementation started in 1972. The objective is to study the hydrology of this closed arid basin.

(4) The Pilot Project of the Al-Hamad Basin (Badiat Ach-Cham): The project covers the hydrologic study of this arid and flat area shared by Iraq, Jordan, Saudi Arabia and Syria, and the possibilities of its socio-economic development.

(c) Basic technical reports, background documents and publications

ACSAD has produced a number of reports and publications covering the following subjects: water resources; water legislation; education and training in hydrology; surface hydrology;

scientific research in water resources; and basin projects reports. ACSAD also published the proceedings of seminars mentioned earlier and issued various technical reports on implementation of their work programmes.

4. The Federation of the Arab Scientific Research Councils (FASRC)

The establishment of the Federation was proclaimed within CASTARAB in 1976. Its headquarters is located in Baghdad. The objectives of the Federation were established as follows: promotion through co-operation and co-ordination among Arab research institutions focusing on scientific research in development plans and promotion of Arab joint research projects. To reach those objectives, the Federation's framework is based on the following: the holding of scientific meetings, seminars and training courses; exchange of scientist, scientific information and research results among Arab countries; establishing a Pan-Arab Scientific Documentation Centre; establishing an Arab Fund to support the Federation's activities; and co-operating with the concerned regional and international agencies.

The Federation has already formulated a plan of action in which the water resources sector, with emphasis on the problems of salinity, desertification, climate and aridity, is highlighted.

5. Establishment of regional specialized centres dealing with water resources

In regional and international meetings it was decided to establish a number of regional centers, some of which eventually came into being.

(a) The regional remote sensing centre

The Federation of the Arab Scientific Research Council presented an important study on a proposed Regional Centre for Remote Sensing to the Seminar on Environmental Monitoring for the Arab world, held in Amman in October 1980. The study has been supported unanimously. The designation of the centre's host country is under consultation by the Federation.

It should be mentioned here that the Syrian Arab Republic is constructing a remote sensing centre which is designed to operate at national and regional levels, with special emphasis on meetings, seminars, training courses, accomodation, reception and other large-scale facilities. The Centre is expected to be ready by the end of 1985.

(b) The regional hydro-isotopic centre

A regional hydro-isotopic related centre already exists in Cairo, namely the Middle Eastern Regional Radioisotope Centre for the Arab Countries established in 1963. In the framework of the Centre, the hydro-isotopic sector is particularly important. Seminars, workshops and regular regional training courses are organized. The Centre works in close co-operation with the International Atomic Energy Agency (IAEA).

Owing to the increasing activities in the Arabworld dealing with the hydro-isotopic techniques, especially concerning the major deep aquifers which occur widely in the arid areas, the ECWA countries considered establishing a second regional centre in Jordan to serve the region.

(c) The Regional Arid Lands Irrigation Centre

According to previous resolutions, the Nubariya Arid Lands Irrigation Centre in Egypt is to be developed to become a regional centre. The main objective of the centre is to study the impact of irrigation on the ecology of arid and semi-arid lands, which is actually of major importance in the land reclamation projects of the region. To realize such a goal is now a question of time and circumstances, though some preparatory actions have already been taken in this respect.

C. Subregional activities

A substantial step has been achieved in this direction within the framework of the Gulf Co-operation Council established on 25 May 1981, by Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. The Secretariat General of the Council is established in Riyadh. Water-related activities are formulated in the sessions of the Conference of the Ministers of Agriculture of the member States. So far the following major projects have been put into action:

(a) Survey and evaluation of the available data on Shared-water resources in the Gulf and Arabian Peninsula Arab States* Project (Phase I) was identified by the Conference in 1977. The project was carried out by FAO during 1977-1979, and the results indicated that detailed investigations were needed to ensure rational management and sharing of the water resources of the area, leading to the formulation of Phase II of the project.

(b) Phase II of the major project of Shared Water Resources Management in the Gulf and Arabian Peninsula Arab States: This phase of the project was decided upon by the Conference of Agriculture Ministers in their session in Riyadh in December 1980 as a follow up of the recommendations of Phase I. ACSAD was requested to undertake the work of compiling and unifying the records of each member States in the following areas: meteorology, hydrological and hydrochemical data; observation data on springs and wells; well logs and equipment; and pumping data and water extraction. These activities were started in 1981 and are expected to finish by the end of 1985.

(c) The regional project of Investigation and Development of the Gulf Sea-Fish Resources: The Project aims to undertake an integrated and co-ordinated survey of the fishing areas of the Gulf to estimate the fishing potential and to co-operate in the exploitation of these sea resources. Implementation of the project is based essentially on concerned Arab States national activities, including those involving national vessels. The project is being implemented with the co-operation of UNEP within the framework of its regional oceanographic projects.

D. International activities

International activities in the water sector concerning the region were undertaken mainly by some United Nations agencies, such as FAO, UNESCO, and JNEP. FAO activities were projects related mainly to agricultural development. Their water-related activities are being mentioned in the report. In any case a survey of all water projects and other activities will be undertaken and reported by ECWA in 1985 covering the period of 1980-1985.

1. The United Nations Educational, Scientific and Cultural Organization (UNESCO)

In addition to the meetings seminars and training courses reported earlier, UNESCO organized a "Regional Meeting for Arab Countries on Water Resources" in Paris in November 1983. The meeting's purpose was to discuss and follow up the issues related to water resources assessment in the Arab countries; the hydrogeological map of the Arab countries; and the major regional project on traditional waterworks mentioned before.

UNESCO also earlier organized, jointly with UNEP, a seminar entitled "Arid Lands Irrigation. Its Problems and environment Effects" in Alexandria in February 1976.

(a) Programmes and plans of action

The programmes and plans of action of UNESCO on the major activities are:

(1) Water resources assessment in the Arab countries: In order to set up a framework for this activity it is planned to produce two documents on the present status of water resources assessment, and the institutional set-up in the Arab countries.

(2) Hydrogeological map of the Arab countries: A review of the existing national and regional hydrogeological mapping projects in the Arab countries was deemed necessary to establish a base for the implementation of this activity.

(3) Network of informatic centres in the Arab states region: A consultancy mission has been undertaken to assess feasibility of this activity.

(b) Projects

The major project that UNESCO was involved in is described hereunder:

(1) The major Regional Project on the Rational Utilization and Conservation of Water Resources of Rural Areas of the Arab States, with emphasis on traditional waterworks.

The achievements already realized in implementation of this project include a draft work-plan, revised and approved; an inventory of existing traditional water systems in the Arab countries, undertaken by ACSAD; the drawing up of a regional inventory and the selection of pilot projects, and the preparation of a joint regional report.

(c) Basic technical reports, background documents and publications

UNESCO has produced a number of documents on the activities pertaining to the region in the subjects of CASTARAB 1; activities in the science and technology in the Arab states; projects of regional co-operation in the fields of water resources and management; projects on research and training in management of semi and semi-arid land ecology; regional co-operation projects on marine environment and coastal area development.

2. The United Nations Environment Programme (UNEP)

(a) workshops and seminars

(1) International Seminar on Ecological guidelines for the Use of Natural Resources in the Middle East and South West Asia, 1975.

The Seminar was co-sponsored by UNEP, the International Union for Conservation of Nature and Natural Resources (IUCN) and UNESCO; it was held in Persepolis, Iran from 24 to 30 May 1975.

(2) Seminar on Environmental Monitoring for the Arab World, 1980.

The Seminar held in Amman from 26 to 29 October 1980 was co-sponsored by UNEP, the Royal Scientific Society of Jordan and the Federation of Arab Scientific Research Councils.

(b) Programmes and plans of action

(1) The Protection of the Mediterranean Sea's Action Plan (MAP): The Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region, held in Barcelona in February 1976, adopted a plan of action on issues related to the protection of the Mediterranean Sea.

(2) The Blue Plan: The objective of this plan is to collect and present information to Mediterranean Coastal States for optimal socio-economic development and enhancement of the environment for the present and future generations. Project proposals were reviewed in the 1977 meeting of these States, and the preliminary results were later reviewed in the 1978 and 1980 meetings.

(3) The Gulf marine Environment and Coastal Areas Protection and Development, Kuwait Action Plan (KAP). Based on the CASTARAB recommendation in 1976, UNEP convened a Conference on this issue with the Gulf Council member States and Iraq. The United Nations Economic and Social Council (ECOSOC), the United Nations Industrial Development Organization (UNIDO), World Health Organization (WHO), ECWA, UNDP, FAO and UNESCO also attended the Conference. The KAP, as adopted by the Conference, includes plans of action on co-operation on the protection of the marine environment from pollution and co-operation in combating pollution by oil and other harmful substances in case of emergency. All aspects of work, including intensive training and research programmes and public awareness campaigns are covered by the KAP on these issues. Since the Conference, the Regional Organization for the Protection of the Marine Environment (ROPME) was established in Kuwait in January 1981, some monitoring sites were selected, a Marine Emergency Mutual Aid Centre was established in Bahrain in 1982, and a training workshop was conducted in Kuwait in 1983. In addition, ROPME

together with UNEP through periodic interagency meetings, has launched four projects towards implementation of the KAP.

The Second Interagency Meeting of the Kuwait Action Plan, attended by all the KAP member States, was held in Kuwait in June 1983. The Meeting reviewed the status of implementation of the four projects, identified problems encountered in implementing the projects and considered solutions. It also revised the work-plans and timetables of the projects.

(c) Projects

The following projects were recommended by the United Nations Conference on Desertification:

(1) The Transnational Project for the Management of the Major Regional Aquifers in North-East Africa and the Arabian Peninsula. UNCTAD is also involved in this project which became operational in 1981.

(2) The Transnational Project for Monitoring of Desertification Processes and Affected Natural Resources in South-West Asia. The project is not active yet.

(d) Basic technical documents and publications

UNEP has a number of such documents and publications on the proceedings of the seminars and conferences covering the action plans, and on various aspects of environmental development and protection. All the action plans were well documented.

3. Various other international activities

(a) International Commission on Irrigation and Drainage (ICID) Afro-regional conferences on Irrigation and drainage.

The First Conference was held in Tashkent in 1976.

The Second Conference was held in Rabat in 1978.

The Third Conference was held in New Delhi in 1980.

The Fourth Conference was held in Lagos in 1982.

These conferences covered the main topics in irrigation and drainage such as reclamation by irrigation and drainage; reconstruction and modernization of the irrigation systems; unfavourable effects of irrigation, i.e. rise in groundwater table, waterlogging, salinization, sedimentation, erosion, etc; experiences in river basin development in different countries; efficient water management in irrigation projects; control of seepage in irrigation channels; and manpower for the execution of irrigation and drainage projects.

(b) The Commission of the European Communities (CEC)

A seminar was convened jointly by the CEC and the Royal Scientific Society of Jordan in Amman in October 1978, which was also attended by some ECWA member States. The seminar reviewed solar energy applications and included water pumping and desalination and high priority.

Chapter III

REVIEW OF THE PROGRESS MADE IN THE IMPLEMENTATION OF THE RESOLUTIONS AND RECOMMENDATIONS ADOPTED BY THE INTERNATIONAL AND REGIONAL CONFERENCES DEALING WITH THE CO-OPERATION AND CO-ORDINATION OF ACTIVITIES PERTAINING TO WATER AND SEA RESOURCES PROJECTS IN THE ECWA REGION

Significant progress has already been achieved in the ECWA Region in the implementation of the resolutions and recommendations adopted by the international and regional conferences in Chapter I, at all levels: international, national, regional and subregional. For all the relevant conferences a synthesis of the resolutions and recommendations related to each field of activity and the progress realized at these levels are presented in the following paragraphs:

A. Implementation at the national level

1. Water policy

Water policy formulation is a long-term target for all the member States of the ECWA region. However, it seems that water policy concepts are to be reconsidered in general.

2. Water resources management institutions

Significant progress has already been made in most member States, however, co-ordination between various institutions involved, particularly in data and information collection, need to be strengthened.

3. Water resources assessment

Water resources assessment is actually a top priority pre-occupation of the whole region and considerable progress in this regard has already been made in most States. However, the UNESCO/WMO Project, which leads to a rational and homogenous practice in this respect requires greater attention for the benefit of the region.

4. Water legislation

ALECSO publication on this subject and an ECWA study on water management in the region also covering the water legislation has indicated the progress made and the remaining issues. In some of the states water legislation needs to be updated.

5. Water master plan

The necessity of national water plans is fully appreciated by the whole region. Although some states have already started projects for the elaboration of national master plans, others have not yet initiated such activities.

6. Education and training

Although very significant progress has already been made in most states, the curricula is either too old or the staff is too inexperienced in some countries. However, considerable spending for manpower development is being made by the concerned governments.

7. Scientific research in the water sector

The progress made in this area seems to be fragmented due to the inadequacy of research centres, the dispersed nature of activities and the inadequacy of staff. This area requires closer attention by the member States.

8. Water resources development: general trends

The whole ECWA region is accomplishing considerable progress in water resources development. In addition to development of conventional sources, desalination and wastewater reuse activities are also increasing. Further activities in these fields, and development of traditional water works, brackish waters, coastal zones and submarine springs are necessary to keep pace with the increasing demands for water.

9. Water resources development for irrigation

The water consumption rate for irrigation is relatively high in the ECWA region, and although significant progress has been achieved in increased efficiency rates, further efforts are required for the following reasons: firstly, to improve and establish efficient irrigation methods and networks; secondly, to reduce water demands by growing low-water-using crops and salt water-using crops and improving water-use efficiency; thirdly, to develop integrated surface and groundwater management; fourthly, to protect lands from water-related hazards; fifthly, to develop the local manufacture of materials and equipment; and, lastly, to develop efficient institutional frameworks.

10. Environmental impacts related to water resources development

It has been recommended that in water resources development projects, particularly in flood control and land reclamation,

care should be taken to avoid the possible deteriorating effects on the natural environment. However, implementation of such a recommendation leads to an increase in time and investments allocated to water resources development projects, which cannot be fully acceptable to decision makers, particularly in developing countries. However, it is necessary to consider environmental impacts at the beginning to take the necessary measures to avoid any adverse future impacts on the environment.

11. The International Hydrological Programme (IHP)

Although a number of ECWA member States have established national committees for IHP, the contribution of working groups and rapporteurs has been negligible for a number of reasons. In fact, this situation was brought to the attention of all the Arab States by ALECSO in the Second meeting of Arab Committee for the IHP in March 1983.

12. The International Drinking Water Supply and Sanitation Decade (IDWSSD), 1981-1990

A recent publication entitled "The International Drinking Water Supply and Sanitation Decade Activities in the ECWA Region", issued by ECWA in 1983 on the subject, shows that considerable progress has already been made in the ECWA region and for all sectors of national action. It also shows that IDWSSD is generally well considered and recognized by all member States. Top priority is given to drinking water supply in national planning for economic and social development. Although various constraints are faced in the implementation of the decade at the national level, it is imperative to stress that continuing attention be paid to this sector in the light of the recommendations presented in the ECWA report.

13. Marine sciences and sea resources

Almost all the member States of the ECWA region are much interested in marine sciences and sea resources activities, and most of them have already established marine stations and centres for education, training and research; the remaining States are either establishing such centres or planning to. Therefore, the ECWA region is actually in full development regarding marine sciences and sea resources.

However, issuance of special legislative texts for additional protection of marine medias against pollution is to be accelerated in many States. In addition, more co-operation and co-ordination is needed within the framework of UNEP, UNESCO, ALECSO, IOC and other related agencies.

14. International non-governmental organizations

The following non-governmental organizations represent the top scientific international forums with regard to water and marine sciences. These organizations devote very significant efforts to the promotion of various aspects of their scientific tasks, through conferences, workshops, working groups, publications and periodicals. State membership in these organizations is of great advantage, and many ECWA region States are members. Membership should be considered by all the others. These organizations are as follows:

- (1) The International Union of Geodesy and Geophysics (IUGG);
- (2) The International Association of Hydrogeologists (IAH);
- (3) The International Association of Hydraulic Research (IAAR);
- (4) The International Water Resources Association (IWRA);
- (5) The International Commission on Irrigation and Drainage (ICID);
- (6) The International Commission on Large Dams (ICOLD);
- (7) The International Union of Conservation of Nature and Natural Resources (IUCN).

3. Implementation at the regional level

Comments and statements already formulated in Chapter II concerning regional activities are integrated in this section.

1. Follow-up of CASTARAB activities

Various activities undertaken in the Arab world at national and regional levels emerged as result of the first CASTARAB meeting although the CASTARAB fund is not yet established. In the seventh session of the CASTARAB Continuing Committee held in Rabat in November 1982, it was decided to pursue this subject more closely.

ALECSO, together with RUSTAS of UNESCO is preparing the second CASTARAB meeting to be held in the near future.

2. Regional centres for education, training and scientific research

According to the available information no significant progress has been made so far in the ECWA region with regard to regional centres for education, training and scientific research, mentioned in Chapter II. This is probably due to recent actual global trends.

3. Regional water resources development programmes, projects and actions

(1) Setting up of scientific and technological water resources information system: Although there are intentions to set up a number of such systems and continuing efforts are directed toward achieving this, no concrete results have yet been reached.

(2) Formulation of water resources assesment methodology: The implementation of the recommendations on water assessment methodology is apparently going ahead. ECWA, ACSAD and UNESCO/WMO have already been involved in activities in this field. However, to undertake comprehensive action in this respect, it is absolutely necessary that all regional and sub-regional activities in this field should be co-ordinated either by UNESCO or by another organization.

(3) Establishment of the Arab World Hydrogeological Map: It is understood that ACSAD, UNESCO and IAH have been co-operating on developing an appropriate legend for a large-scale map taking into account the arid countries in the Arab region.

(4) Appointment of a team of experts within the ECWA framework: It is understood that most of the authorities visited by the consultant in undertaking this study would welcome the setting up of a team of experts to provide technical assistance to member States. However, funding of such an activity is not clear. Nevertheless, ECWA welcomes requests from the member States for short-term assistance, within the framework of their work programmes which can be met by the two regular staff members who are already on board.

(5) Promotion of co-ordination of shared water resources projects. This type of activity is not enough in the region. However, ECWA could provide the necessary co-ordination if requested by the concerned States.

(6) The Major Regional Project on the Rational Utilization and conservation of Water Resources of Rural Areas of the Arab States with emphasis on traditional waterworks. As mentioned in Chapter II, Phase One of this project has already been completed and the Phase Two is well underway.

(7) Closed Basins Survey Project: No progress has yet been made in the implementation of the project.

(8) Pilot projects on Karstic representative basins: Except for occasional approach work no progress has been made in the selection and implementation of the said pilot projects.

4. Establishment of Regional Water Resources Council for Western Asia Region (RWRC)

The ad hoc Intergovernmental Committee, established by the ECWA Second Regional Water Meeting in Riyadh (December 1978-January 1979), held its first meeting in Riyadh on 2 January 1979, and its second meeting in Damascus from 17 to 18 September 1979. In the Damascus meeting, the Committee concluded that similarities in the activities of existing regional and subregional organizations dealing with water resources sector sometimes reached the point of duplication, and so the proposed responsibilities of RWRC should be amended and limited to the tasks of co-ordinating and complementing the activities of these existing organizations.

Recommendations of the Committee were submitted to the ECWA seventh session, held in Baghdad from 19 to 23 April 1980. The delegations to the session discussed document E/ECWA/96 prepared by the ECWA secretariat, which contains three alternative proposals concerning the mandate and terms of reference of RWRC. Most of the delegations supported the establishment of RWRC, but with limited functions. Finally, the session adopted resolution 83(VII), which states that RWRC should be established, and that its competence should be restricted exclusively to the co-ordination of efforts of the regional and subregional organizations and bodies active in the field of water resources in the region.

In November 1980, ECWA forwarded a note verbale and an explanatory note to the member States regarding the resolution on the establishment of the Regional Water Resources Council, asking for the governments' interest in participating in the Council, as well as its financial implications. So far no adequate response has been received by ECWA hence the subject is still under consideration.

5. The International Hydrological Programme (IHP)

Activities on IHP have already been mentioned in Chapter II. ALECSU, together with the IHP Arab National Committee, is taking measures to deploy more efforts in the IHP-III towards meeting Arab global needs. The IHP Arab Committee has been stressing the publication of the Arabic version of the UNESCO/WMO International Glossary of Hydrology. In the meantime ALECSU is

selecting the appropriate IHP publications to be translated into Arabic.

6. The International Drinking Water Supply and Sanitation Decade (IDWSSD)

As reported in the 1983 ECWA publication on the IDWSSD activities in the region, tremendous achievements were realized in the region and further activities are continuing.

7. Marine sciences and sea resources

Responding to a CASTARAB resolution, ALECSO already established a marine sciences section within its headquarters institution in Tunis. Co-operation among existing national centres is expected to be underway within the frameworks of the existing regional conventions.

8. Regional workshops, seminars and training courses

It could be stated, through information given in Chapter II, that the number of regional workshops, seminars and training courses organized in the region during the last decade is somewhat limited. Moreover, adequate co-ordination among the existing regional institutions could enhance the achievements of such activities.

C. Implementation at the subregional level

1. Subregional water resources development projects

(1) Creation of joint commissions and organizations to co-ordinate efforts in mapping and developing deep artesian aquifers in North Africa and the Arabian Peninsula. To cite a case in point Egypt and Sudan established a Sudano-Egyptian commission and signed an agreement with UNEP for a project, which became operational in 1981, to evaluate the potential of the regional Nubian sandstone deep aquifer. Implementation of the Major Project of Shared Water Resources Management in the Gulf and Arabian Peninsula Arab States is continuing, where the deep artesian aquifers in the Arabian Peninsula are understood to be the major hydraulic components of the project. The Secretariat of Conference of Ministers of Agriculture and a Joint Technical Committee are responsible for implementation of this project.

(2) Support of the Joint Subregional Pilot Project of the Al-hamag Basin: Full support of all concerned sides at the national, international and subregional levels was devoted to the Project during the execution between 1979-1983.

(3) Setting up of a regional project for the oceanographic studies of the Gulf region. The project is involved in the Kuwait Action Plan as summarized in Chapter II.

2. Shared water resources

(1) Establishment of permanent or ad-hoc organizations, or joint-committees, for the management of shared water resources. To date no arrangements have been made for co-ordination of activities on shared water resources. If requested by the concerned member States ECWA could have a role in promotion of co-ordination.

(2) Inclusion of groundwater part of shared water resources linked intimately to quantity and quality of surface water. As mentioned in Chapter II, in the last section, a very important issue has been realized in the ECWA region, regarding the recognition of shared groundwater resources in the Arabian Peninsula, as an integrated part of shared water resources. Extension of such an issue to the whole region would have advantages.

D. Implementation at the international level

Comments and statements formulated in Chapter II concerning international activities are applicable to this section.

1. The International Hydrological Programme, Phase One IHP-I (1975-1980) and Phase Two IHP-II (1981-1983)

(a) Phase One IHP-I, 1975-1980

During the period 1975-1980, IHP gave greater emphasis to the international ships between human activities, water resources and the physical environment. The following activities have been achieved within the framework of IHP-I:

(1) Scientific projects: Out of 57 subprojects included in the Programme, 54 had been completed by the end of IHP-I; 11 were to be continued during IHP-II. Among the completed studies having not only scientific value, but also a clear practical impact, may be cited those on the following subjects:

Hydrological parameters for water projects;

Hydrological aspects of droughts;

Changes in the hydrological regime due to various human activities;

Hydrological problems related to energy development;

Dispersion of pollutants in aquatic media;

- Socio-economic aspects of urban hydrology;
- Aquifer contamination and protection;
- Land subsidence due to groundwater abstractions.

Thirty-five scientific publications have been issued in the various water related series of UNESCO. Twenty-three international symposia and workshops in the field of hydrology and water resources have either been convened by UNESCO or organized with its support. Proceedings of these forums have been published within the programme of scientific projects.

Most of the above-mentioned scientific publications are of basic interest to the ECWA region. Consequently, it would be desirable to select a number of these publications to be translated into the Arabic language.

(2) Education and training projects: During the period 1975-1980, IHP gave greater emphasis to education and training activities. Nearly 1,500 specialists were trained in UNESCO-sponsored or organized courses; this number includes some from the ECWA region. Accordingly, 25 courses were organized in 25 various localities.

A UNESCO-organized training course on water management, with emphasis on major regional aquifers in North-East Africa, was held in Egypt in 1979 for three weeks. Trainees from Egypt, Iraq, Saudi Arabia and the Sudan attended the course. A number of basic publications dealing with training and education were issued.

(3) Assistance to member States in the field of water resources: Significant assistance has been rendered by UNESCO to member States, within the framework of its regular programme and through external funds, either funds-in-trust or from UNDP. This assistance covers studies, consultant missions, fellowships and financial support.

(4) Regional co-operation: UNESCO has made an effective contribution to the IHP Arab Committee. It co-sponsored, jointly with ALECSO, the Preparatory Meeting for the Establishment of the Committee in Amman in 1978; it supported the two regular meetings of the Committee in Tunis in 1979 and 1983 convened by ALECSO (see Chapter I, items L.5 and L.7).

In conclusion, regional co-operation devoted to the various world geographical divisions, within the framework of IHP-I, has been successfully carried out.

(5) Co-operation with other international organizations: Close co-operation was maintained with organizations of the United Nations system and other governmental and non-governmental organizations, as well as with the other scientific programmes of UNESCO, such as the Man and the Biosphere Programme, the International Geological Correlation Programme and the Programmes in Oceanography.

(b) Phase Two IHP-II, 1981-1983

The Work-Plan of IHP-II comprises four main categories:

- Scientific Projects: 37 projects;
- Educational Projects: 5 projects;
- Public Information: 1 Projects;
- Strengthening of national infrastructures and development of an information system in the field of water resources: 2 projects.

All these 45 projects have become operational. Between the beginning of IHP-II and the end of June 1983, 12 publications in the two series "Studies and Reports in Hydrology" and "Technical papers in Hydrology" will have been published (9 of which result from Phase I and 3 from Phase II), and 13 "Technical Documents in Hydrology", all resulting from Phase II. Some publications will be published only during the first year of the third phase, IHP-III. These publications represent the outputs of various working groups, workshops, rapporteurs, symposium etc...

During IHP-II, regional co-operation continued to be a basic component of the IHP activities. An essential role of the development of this co-operation was played by the UNESCO Regional Office for Science and Technology, which involves RUS-TAS.

Accordingly, most regional activities in the member States were carried out in co-operation with ALECSO and/or ACSAD and ECWA. Considering the volume of work undertaken, it is certain that during IHP-II regional co-operation within the Arab world is considerably advanced in comparison with the previous phases.

Finally, it is to be mentioned here that IHP-II, as a short-term phase of IHP, represents an intermediate transitional phase preceding the medium-term IHP-III, which will start in 1984.

2. The International Drinking Water Supply and Sanitation Decade (IOWSSD), 1981-1990

Following the previous statements already formulated in this chapter at national and regional levels, the international status of the decade concerning the above-mentioned recommendations could be summarized as follows:

As a member of the Inter-Agency Co-operative Action for the Decade and the provider of the secretariat for its Steering Committee, WHO devoted additional resources to the decade, in terms of staff, time and funds. The Co-operating Agencies such as UNDP, the World Bank, UNICEF, FAO, ILO and UNESCO, within the framework of their vocations and policies, also devoted significant support to the Decade. To meet the Decade targets, the Inter-Agency Co-operative Action is doing as much as possible to initiate effective and realistic prospects. International and regional conferences, seminars, workshops, training courses, research, publications at all levels, etc., are underway to meet the needs and commitments of the Decade. In addition, important international funding is already being made available.

For the time being, it would be difficult to estimate to what extent previous international achievements succeeded in meeting the targets of the Decade, particularly the adopted recommendations. Such evaluation is under study by the concerned agencies. However, concrete issues already indicate a great deal of success in this respect, and it is obvious that the Decade is meeting its targets in the ECWA region.

3. Scientific research, education and training

All the available information indicates that no significant progress has been achieved in the implementation of this recommendation.

4. Water resources development projects and actions

WMO is continuing to expand international and regional hydrometeorological networks, within the framework of its programme of action.

UNESCO and WMO are jointly implementing the International Water Resources Methodology Project on a regional basis and within the framework of IHP/OHP.

Regarding the Arab Regional Data Bank, it was mentioned earlier that the current heterogeneous and disseminated actions for this purpose imply a reconsideration of the question through an inter-agency working group to co-ordinate the efforts of the concerned international and regional bodies within a joint action.

5. The Major Regional project on the Rational Utilization and Conservation of Water Resources of Rural Areas of Arab States, with Emphasis on Traditional Waterworks

Information has been provided earlier on this Project, of which Phase Two (1984-1985) is already launched.

6. Shared water resources

The United Nations Department of Technical Co-operation for Development held the First Meeting of International River Organization in Dakar, Senegal, from 5 to 14 May 1981. The Meeting established a basis to formulate realistic regional projects based on the management of water resources, and it concluded that further meetings were needed to improve co-ordination of activities in that respect.

7. International Commission on Water Resources

This recommendation, which was conceived as an alternative to the establishment of a special United Nations organization for water, is not yet implemented.

8. Financing arrangements for international co-operation in the water sector

"- The Secretary-General is to study the most effective mechanism to increase the flow of financial resources."

Following up the resolution adopted by the United Nations Water Conference 1977, the Secretary General issued a circular letter inviting all member States, international and regional funds, and concerned international and regional agencies to formulate suggestions to implement the resolution. Outputs of that inquiry were analysed and arrangements are being carried out.

9. Marine sciences and sea resources

(1) UNESCO, IOC, UNEP and ALECSO will carry out permanent exchanges of opinions to assist member States in organizing and developing activities in the fields of marine sciences and sea resources.

(2) UNEP will provide assistance and technical consultations to the Arab States in the fields of marine sciences and sea resources.

(3) The Gulf Oceanographic Studies Project is pending.

Achievements already realized for the Mediterranean, the Red Sea and Gulf of Aden and the Gulf region and summarized in Chapters II and III above, highlight the successful implementation

of the said recommendations. Continuation of the regional activities are needed in view of the importance of these resources.

10. Activities of the international non-governmental water-related organizations

- More emphasis is to be put on the involvement of the international non-governmental organizations in regional activities.

As mentioned earlier in this chapter to implement such a recommendation, the national contribution to the activities of these organizations is a basic process.

Chapter IV

SUMMARY OF ACTIVITIES, COMMENTS AND RECOMMENDATIONS FOR POSSIBLE REGIONAL AND SUBREGIONAL PROSPECTS TO PROMOTE CO-OPERATION AND CO-ORDINATION OF ACTIVITIES PERTAINING TO WATER AND SEA RESOURCES PROJECTS IN THE ECWA REGION AND CONCLUSIONS

In this last chapter of the report the material presented in the earlier chapters are summarized and presented together with relevant comments and recommendations where applicable. The first section of the chapter is mainly related to the subjects covered in Chapter II, and section 3 presents the comments and recommendations on the material elaborated on in Chapter III. Conclusions of the study are presented at the end.

A. Comments and recommendations on the progress made in the implementation of major regional and subregional water and sea-related activities

International, regional, subregional and intergovernmental activities reviewed in Chapter II of this report are covered below.

1. International activities

(1) The number of Arab regional or subregional seminars, workshops and training courses organized by the United Nations bodies is restricted in comparison with the other regions of developing countries. The number and coverage of such gatherings should be increased provided that necessary funding can be secured by the member States.

(2) Implementation of some transnational projects appear to be delayed, possibly due to financing difficulties. It is recommended that action be taken soonest on these projects owing to the particular importance of these projects to the ECWA region.

(3) The ICID Afro-Asian Regional Conferences on Irrigation and Drainage are of particular interest for the whole ECWA region. The member States welcomed the holding of such non-governmental forums, owing to the up-to-date topics and the high-level scientific papers involved in their scope of work. Therefore, it is expected that this type of meeting will be held on a periodic basis within the region.

2. Regional activities

Considerable water-related activities have been realized during the last decade, within the framework of regional insti-

tutions, namely ECWA, ALECSU, ACSAD, and FASRC. These organizations succeeded in accomplishing in relatively short term very significant achievements in the various fields of the water sector bringing together all the member States to co-operate for a concerted and speedy evolution in this respect. However, a number of observations and recommendations could be offered on the following topics:

(1) The establishment of the above-mentioned institutions has been fully justified. However, duplication of seminars, workshops, training courses, studies etc. should be avoided by more frequent consultations between these institutions.

(2) Some of the programmes, plans of action and projects are either too ambitious or premature, and some of the projects have been taking a long time to complete.

(3) The establishment of specialized regional centres already planned does not seem to go ahead as scheduled in spite of the modest number of prescribed centres. Actually, to establish such centres is universally recognized as a top priority action. Therefore, the member countries are urged to review this matter for conclusive action.

3. Subregional activities

The institution of permanent "Conference of the Ministers of Agriculture for the Gulf and Arabic Peninsula Arab States" would be considered as a historical event and a good example with regard to the water and sea sectors in the ECWA Region. Such subregional institutions, involving States with homogeneous natural, economic and social conditions, are of major importance for better co-operation and co-ordination of activities within the whole region. The management of shared water resources, in particular, could be practiced through such institutions, in a reliable atmosphere and with a better understanding for the benefit of the concerned member States. Therefore it is recommended that establishment of subregional bodies on various issues presented in this report should be seriously considered by the member States.

4. Intergovernmental activities

A very important issue has been realized in the ECWA region in the last decade: the recognition of shared groundwater resources by the concerned States. However, progress on this subject has not been significant during the last decade although a number of decisions were taken in many meetings and conferences. It is recommended that the concerned governments should consider prospects for development of shared groundwater resources.

B. Comments and recommendations on the progress made in the implementation of resolutions and recommendations adopted by the international and regional conferences

In addition to the comments and recommendations presented in the previous section on the implementation of major regional and subregional activities, following are the comments and recommendations on the progress made in the implementation of resolutions and recommendations adopted by the international and subregional conferences in the ECWA region, covered in Chapter III of this report.

1. Implementation at the international level

The last decade has been highlighted as an essential worldwide phase for the progress of the water and sea sectors in terms of co-operation and co-ordination of activities. The main features have been the launching of the International Hydrological Programme and the International Drinking Water Supply and Sanitation Decade, as well as the holding of the United Nations Water Conference. Tremendous achievements have been carried out for the benefit of the whole international community, particularly in the ECWA region, within the framework of international and regional organizations, and within the resolutions and recommendations adopted by their forums.

2. Implementation at the national level

All of the member States of the ECWA region have realized a rapid increase during the last decade in the implementation of the resolutions and recommendations adopted by international and regional forums, as stated in Chapter II. However, some actions still need to be reconsidered or strengthened to achieve optimal progress. The following comments and recommendations might give an overall picture of the complementary actions needed in most ECWA member States for the next stage.

(1) Water Policy should be well defined to be better understood certainly the formulation of a realistic water policy is a long-term process. Which should be considered as an ultimate target guiding all activities dealing with water resources. A regional seminar, or workshop, on water policy could yield significant returns.

(2) Water resources management institutions: Only about half of the ECWA member States have established supreme water councils to co-ordinate the activities among the existing water resources institutions. It appears, however, that some of these councils need a higher authority to issue more imperative and effective decisions.

(3) Water resources assessment should be carried out by all the member States on the basis of regional or subregional methodologies being developed by the United Nations agencies.

(4) Water legislation needs to be reviewed and developed in most member States, in the light of recent international and regional guidance materials.

(5) National water master-plans should be completed or carried out by all the member States soonest due to the urgency of the development of water resources. Countries undertaking national water master-plans, such as Egypt, Jordan and Saudi Arabia, are taking comprehensive steps in this respect within respective projects. It would be to the advantage of the other countries to hold a seminar or a workshop to benefit from the experiences of those who have been working on these master-plans.

(6) Education, training and scientific research: It is understood that serious problems are being experienced by most member States in this regard. ECWA is undertaking a study on the subject during 1984-1985, the results of which would be revealing. Measures can be taken accordingly.

(7) Water resources development: Development of non-conventional sources, as well as the rational development of conventional resources, have to be made according to medium and long-term plans.

(8) The International Hydrological Programme (IHP): It is reported that most of the existing national committees in the ECWA region seem to be in an uncertain position with regard to an effective contribution to IHP at the international and regional levels, although they have the willingness to do so. It is assumed that such uncertainty is related to a great extent to institutional concerns, as well as to the need of a better understanding of the procedures of IHP. If requested by the member States ECWA can be involved in co-ordination of the activities of the national committees.

(9) International Drinking Water Supply and Sanitation Decade (IDWSSD): Member States are strongly recommended to continue their activities on the IDWSSD. It may be advisable to hold a regional meeting to review the progress achieved in the first half of the decade, and outline the planned and required future actions.

(10) Marine sciences and sea resources: More co-operation between the member States and more co-ordination within the frameworks of UNEP, UNESCO, IOC, and ALECSO are required. If requested ECWA can also take part in these activities.

(11) International non-governmental organizations: It is recommended that if possible all ECWA member States become members in relevant international non-governmental organizations and participate in their activities to benefit from the global experiences in the respective fields.

3. Implementation at the regional level

(1) Following up of CASTARAB activities

The general opinion is that CASTARAB II should materialize in the near future to review the implementation of resolutions and recommendations adopted by CASTARAB-I as well as to promote comprehensive measures for the next steps of action of the participating countries. ECWA could participate in such an activity if invited.

(2) Regional centres for education, training and scientific research

No significant progress has been made in this respect. It is recommended to strengthen some of the existing specific national centres to enlarge their occupancy for the benefit of trainees and researchers from the region on a cost-sharing basis by the participating countries. It should be mentioned here that such an arrangement is in application in various other regions of the world.

(3) Regional water resources development programmes, projects and actions

It has been previously concluded that most of the adopted regional water resources programmes, projects and action are either only partly implemented or not yet implemented. The outstanding projects and activities which require closer attention or reformulation of decisions are as follows:

- Scientific and Technological Water Resources Information System
- The Arab World Hydrogeological Map
- Closed Basins Survey
- Pilot projects on Karstic Coastal Representative basins.

(4) The Regional Water Resources Council for the ECWA Region

In view of the lack of enthusiasm council in recent years the whole issue needs to be reviewed and a final decision to be taken.

(5) The International Hydrological Programme (IHP)

Among the achievements of the IHP, inclusion of the Arabic version in the UNESCO/WMO International Glossary of Hydrology would be of major interest for ECWA region and the Arab world. It will be useful for any rapid translation made of selected IHP publications.

(6) The International Drinking Water Supply and Sanitation Decade (IDWSSD)

Earlier comments and recommendations apply.

(7) Marine science and sea resources

Earlier comments apply.

(8) Regional workshops, seminars and training courses

Closer co-ordination between the regional organizations (i.e. ACSAD, ALECSO, ECWA, FASRC and ROSTAS) would help in furthering the success of such activities. Therefore, increasing the number of such gatherings should be seriously considered by the member States and the necessary findings should be made available to the co-ordinating agencies.

4. Implementation at the subregional level

The considerable progress made in the Arabian peninsula is to be highlighted as a specific trend of co-operation and co-ordination. In addition, special emphasis is to be given to the following:

- Maintenance and co-ordination of efforts in due course;
- Co-ordination of national activities involved;
- Better co-ordination within the framework of the relevant international and regional organizations.

More regional and intergovernmental co-operation in the field of water and sea resources may be undertaken in the northern part of the ECWA region when the political situation warrants such activities.

Chapter V

V. CONCLUSIONS OF THE STUDY

In reviewing the progress made in the ECWA region during the last decade in the implementation of regional activities, as well as the recommendations and resolutions adopted by international and regional forums dealing with the co-operation of activities pertaining to water and sea resources projects, and also, in considering the outcome of consultations undertaken with the international, national and regional authorities concerned, the most important conclusion reached was that the demand for promotion of co-operation and co-ordination for the ECWA region at all levels was of utmost priority.

Indeed, this issue leads to the following main conclusions:

- National activities in the field of water development are advancing and growing rapidly. However, more internal institutional co-ordination, more emphasis on basic activities such as water policy, master plan of action, water legislation, etc., and better understanding of international mechanisms, are required.

- Subregional activities are inadequate in some parts of the ECWA region. Furthermore, it appears that more co-ordination with related international and regional programmes regarding current activities in the Gulf region would be to the advantage of the member States.

- Regional activities have gaps, owing to difficulties experienced in co-ordination on an inter-regional level, and to the inadequate number of regional events such as meetings, seminars and training courses due to insufficient funds.

- With regard to international activities, more emphasis on the ECWA region is required.

According to the consultant, some of the national authorities contacted in the region outlined the advantages of and expressed a preference for exchange and dissemination of information and experiences through regional meetings but funding of such activities must be arranged by the member States.

International financing of national projects depends closely on national initiatives within the framework of the international, governmental and nongovernmental funding agencies. Access to international funds is available for comprehensive and feasible projects, particularly those well co-ordinated with international and regional programmes and plans of action. For

this purpose, regional events should be re-emphasized for a better understanding of international mechanisms.

Furthermore, it is noted here again that comprehensive national activity is a basic process for the promotion of co-operation and co-ordination of activities pertaining to water and sea resources projects at all levels.

It should also be emphasised here that in order to achieve the suggestions and recommendations listed in the preceding paragraphs adequate resources must be secured by ECWA member countries.