

# UNITED NATIONS





# United Nations Conference on New and Renewable Sources of Energy UN LIBRARY

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### PREPARATIONS AT THE REGIONAL LEVEL

<u>Comprehensive reports on the activities of the</u> <u>regional commissions</u>

Addendum

Report submitted by the Economic Commission for Western Asia\*

\* Report has been reproduced as received.

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#### I. INTRODUCTION

At its second session, the Preparatory Committee for the United Nations Conference on New and Renewable Sources of Energy adopted, among others, a decision concerning preparatory work for the Conference and containing several requests and recommendations addressed to organs, organizations and bodies of the United Nations system.  $\underline{l}/$ 

Paragraph (d) of decision 7 (II) dealt with the technical assistance to be provided by the United Nations system.

Paragraph (e) of decision 7 (II) recommended that:

"all the relevant organs, organizations and bodies of the United Nations system should submit comprehensive reports on their activities in the field of new and renewable sources of energy, including the provision of technical assistance to developing countries, in accordance with Assembly resolution 33/148, in time for the third session of the preparatory committee".

Paragraph (f) of decision 7 (II) recommended that:

"the regional commissions should strengthen their participation in the preparatory process for the Conference, and, <u>inter alia</u>, assist and encourage in organizing national, regional and international seminars for detailed discussions, and that they should, under the over-all co-ordination of the Director-General for Development and International Economic Co-operation submit regional papers and a comprehensive report on their preparation for the Conference in time for the third session of the committee".

The UNERG, on the authority of the General Assembly, provided ECWA with three posts to assist in the regional preparations: a Regional Advisor (L-5) post filled as of the first of November 1980; a Co-ordinator (P-4) post filled as of 30 May 1980; and a technical assistant (GS-5) post.

In the Western Asia Region, ECWA has been carrying out a number of programme activities in the area of new and renewable sources of energy. Furthermore, ECWA has endeavoured to contribute to the regional preparatory efforts for (UNERG).

#### II. MISSIONS TO ECWA COUNTRIES

In response to the request made by the Conference secretariat at the end of May 1980 to start a crash programme of visits to member States, ECWA staff assigned for the UNERG went on missions to Syria, Jordan, Kuwait, United Arab Emirates, Egypt, Yemen and Democratic Yemen.

The main objectives of these visits, as proposed by the Conference secretariat, were the following:

<sup>1/</sup> Official Records of the General Assembly, Thirty-fifth Session, Supplement Ho. 43 (A/35/43). Parts I and II.

- (1) to brief key officials on the preparations for UNERG at regional and global levels;
- (2) to assist and discuss the nomination of national focal points for the Conference;
- (3) to request comments on the desirability of member States to compile national papers; and
- (4) to identify requests for assistance to the Governments in their preparatory activities at the national level.

The ECWA secretariat had already notified the relevant authorities in each Arab State concerning the missions and had requested appointments with government officials. It was unfortunately impossible to arrange for a visit to Iraq because of the present state of the war in the Gulf. 1/ Many persons were met and different trips were undertaken by the Co-ordinator and the Regional Advisor. The date each country was visited, the names of the visiting team members, and the officials met are given in annex I.

The purpose of these missions was by no means limited to designation of focal points. 2/ but went beyond the above-mentioned objectives to:

(1) explore the interest of Governments visited in development and introduction of new and renewable sources of energy including the establishment of an interinstitutional preparatory working group;

(2) collect information and conduct discussions with government officials on the relative importance they attached to renewable sources of energy in national energy balances or options as well as on the alternative role of these sources of energy in meeting domestic needs;

(3) identify obstacles which prevent the successful development and introduction of new and renewable sources of energy in the region;

(4) to explore the ways and means of initiating a regional programme to assist Governments wishing to make specific proposals in the area of new and renewable sources of energy;

(5) assessment of the potentials for the most feasible forms of renewable sources of energy in the ECWA member States;

(6) identification of quantitative and qualitative needs of the ECWA region of actual usable potential favouring the use of renewable sources of energy;

2/ ECWA's member States focal point is given in annex II.

<sup>1/</sup> Saudi Arabia and Oman asked for the visit to be postponed until early 1981. Bahrain, Qatar and Lebanon are scheduled to be visited between 13-25 December 1980. Iraq will be visited in February 1981.

(7) collect information on scientific and technological work already carried out in the ECWA region in particular and the Arab States in general in order to facilitate any regional initiation for co-operation at the regional level.

In addition to these objectives, ECWA seeks to promote the exchange of experience among the region's countries and endeavours to promote co-operation among them.

III. FINDINGS OF THE MISSION

The general findings of the ECWA staff assigned to UNERG missions could be summarized as follows:

(1) The problems involved in the proper use of the new and renewable sources of energy in present-day society of the Arab and ECWA region are much more complicated then people are apt to think.

(2) An economic evaluation of the utilization of new and renewable sources of energy and particularly solar, wind, geothermal and biomass is not very meaningful at the present stage of investigations. Much more information is needed than the mere cost of production of a windmill, or solar flat-plate collectors, and the introduction of such new powers on a large scale requires many more years before realization. Nobody knows how oil and other commercial energy prices will behave in the near future.

(3) In all the countries visited, the study on new and renewable sources of energy had aroused great interest, all countries visited are endeavouring to find potential sources of new energies which could replace conventional energy sources. In this respect, many ECWA member countries have specific needs in connexion with rural development.

(4) In most countries visited, research and development activities concerning the utilizations and applications of renewable sources of energy have been undertaken.

(5) There is a general consensus in the ECWA region on the need to take immediate action to facilitate the transfer of information relating to new and renewable sources of energy. All of these countries are currently in need of essential information which would enable them to choose, with full knowledge of the facts, the new and renewable sources of energy technologies which would be instrumental in speeding up their development.

(6) In the ECWA region, all matters concerning energy policy are the responsibilities of either the Ministries of Oil, Economic, Development or Planning. Some of these ministries are advised by the National Steering Committee on Energy including new and renewable sources of energy, (such as Syria, Egypt, Kuwait and Iraq). At the time of the Mission some countries were advised to establish a national structure with a view to co-ordinating and promoting research and planning efforts at the national level in the field of renewable sources of energy. In

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most cases however, these national structures were at a relatively early stage operation though subsequent development might be rapid in the future.

(7) Most of the designated focal points for new and renewable sources of energy, carry out research on practical co-operative programmes, where various groups of society are involved, i.e. educational institutions and universities, research institutes, industry, construction companies, technical advisors, installers, housing development corporations of private and public sectors.

(8) All the Governments of the region and practically all the scientific institutions or focal points visited expressed the opinion that close regional, subregional, interregional and global co-operation at all levels is desirable and could become a fruitful and useful instrument of international co-operation. The feeling was often expressed that such co-operation could cover not only the scientific and technical aspects of new and renewable sources of energy but should also address itself to the general question of integrating renewable sources of energy in national energy balances and energy policy making.

(9) Some of ECWA member States suffer from the lack of fundamental knowledge concerning utilizations of new and renewable sources of energy, and as a result d that, weakness of both basic and applied research in this field as well as lack d training facilities.

(10) Lack of adequate financial allocation or manpower resources which could be allocated to the utilization of new and renewable sources of energy on a larger scale, combined with high prices of technology which make the transfer of the late from developed countries difficult. These short-comings are likely to lead to a gap in the utilization of new and renewable sources of energy in the ECWA region, in spite of the fact that because of favourable climatic conditions, the utilization of renewable energies should be much more profitable for most ECWA member countries and especially those with least financial problems.

(11) Solar energy was undoubtedly the most praised renewable source of energy It seemed to be the one that was most easily and readily applicable in the ECWA region. Most countries visited are undertaking research and development work on it applications and there is no severe shortage of scientists interested in solar energy utilization. As to the types of solar research being conducted in the ECMA region, the following table shows that solar heating, crop drying techniques, solar thermal electric generation, and to a lesser extent wind technology are some of the preferred areas of research. These are also the areas in which effective research and development may be conducted with a relatively small budget as compared to, say solar cell research. In Kuwait, for example, a solar research programme was initiated in 1976 with the Kuwait Institute for Scientific Research as a central organ for programme management. Its first project being implemented is a feasibility study as a solar research and development programme. However, some research work has already been initiated on solar cooling and heating of buildings, solar thermal electric conversion of 100 Kwe capacity, and agricultural applications of solar technology.

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(12) Egypt is the only country in the ECWA region to have actual experiments On biomass energy executed in the National Research Center - including the rural village demonstration projects which examine the feasibility of utilizing a variety of locally available biomass in a systematic way to meet the village needs.

	Solar heating	Crop drying	Water pumping	Solar electricityL thermal	Solar electricity photovoltaic	Wind energy	Biological energy	Geothermal energy
Egypt	x		x	x		x	x	
Iraq	х							
Kuwait	x			x	x			
Oman				x		x		
Qatar				x				
Saudi Arabia	x	х	x	х	x			

Summary of R and D activities in non-conventional sources of energy of some ECWA member States

Source: United Nations, "Research in non-conventional sources of energy: Report of the Secretary-General" (E/C-8/56), January 1978, annex (summary of responses sent by the Member States of the United Nations to the Secretary-General's note verbale concerning their current programmes on research and development in non-conventional sources of energy.

#### IV. TECHNICAL ASSISTANCE ACTIVITIES IN PREPARATION FOR THE CONFERENCE

The General Assembly had provided for technical assistance to developing countries, 1/ using, <u>inter alia</u>, to the greatest extent possible existing resources, at their request and in accordance with established procedures in the preparation for the Conference, including the preparation of national papers. 2/

- 1/ Resolution 34/190 of 18 December 1979.
- 2/ Draft resolution A/C.2/35/L.112 of 14 November 1980.

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ECWA staff assigned for the purpose and duration of the Conference preparation in co-operation with the staff of ECWA's Division of Natural Resources, Science and Technology and in co-operation with the resident representatives of the Unity Nations Development Programme, were assigned the task of:

- (i) stressing the role of the United Nations system as a whole in providing technical assistance in the preparation for the Conference, to all ECM member States;
- (ii) the precise nature and scope of such assistance have been adequately defined to the ECWA member States;
- (iii) requests falling totally within the legislative mandate of the UNERG, e.g. assistance for the preparation of national papers were received from: Yemen, Democratic Yemen, United Arab Emirates, Qatar, Bahrain 1/ and Egypt.

Although the deadline established for the submission of national papers and their brief summaries, by the Preparatory Committee at its second session 2/ was put at 31 December 1980, arrangements have been made at ECWA to enable the processing of these contributions received up to and including 15 May 1981 to be included in the final ECWA regional report and presented to the August 1981 Nairci Conference. Though ECWA staff assigned for the purpose of the Conference, will make every effort possible to process contributions received during and after this date, as at the time of the preparation of this comprehensive report, it can offer no guarantees. Accordingly, Governments of the ECWA region were requested to forward contributions as soon as possible to UNERG directly and inform ECWA of any needed technical assistance including the preparation of national papers at their earliest convenience.

#### V. ECWA CONSULTANCY REPORTS

In view of the present energy situation, new and renewable sources of energy are becoming increasingly important alternatives to conventional sources. As part of the preparatory work for the Conference, ECWA has identified four areas of new and renewable sources of energy for indepth investigation and evaluation in the Arab countries, as being the most important to the ECWA region, namely: biomass, geothermal, solar and wind energies.

These four comprehensive reports were prepared by highly qualified consultants who visited most of the Arab countries. 3/

1/ ECWA's Regional Advisor assigned for the ENERG Conference visited the United Arab Emirates for the period 2-5 December and will visit Yemen, Democratic Yemen, Qatar and Bahrain between 13-25 December 1980.

 $\underline{3}$ / For detailed information on the consultants and countries visited, see annex III.

<sup>2/</sup> Decision 4 (II) adopted on 1 August 1980.

The consultancy reports cover:

- (i) the research and development efforts;
- (ii) the ongoing programmes and future possibilities for increased use of new and renewable sources of energy;
- (iii) the social and economic aspect of such new energy, with special reference to small-scale process and appropriate technology, for both rural and urban development in the Arab world as a whole, and not only the ECWA region;
  - (iv) policy oriented suggestions and recommendations on the national, regional and international levels.

The first drafts of these reports were sent to the appropriate Technical Panels for their consideration. The final version of the reports will be distributed as a working document during ECWA Expert Group Meeting of 12-16 January 1981.

It should be mentioned here that the report on solar energy in Arab countries was prepared in co-operation with the Organization of Arab Petroleum Exporting Countries (OAPEC).

VI. ECWA PARTICIPATION IN PREPARATORY MEETINGS

ECWA representatives and staff assigned for the Conference had participated in the following UNERG preparatory activities:

- (i) First Meeting of the United Nations Secretariat Task Force on the Conference on New and Renewable Sources of Energy - New York, 9-11 July 1979;
- (ii) Interagency Meeting (UNERG) Geneva, 1-2 October 1979;
- (iii) First session of Preparatory Committee (UNERG) New York, 4-8 February 1980;
- (iv) First session of Technical Panel on Biomass New York, 4-8 February 1980;
- (v) Interagency Meeting (UNERG) New York, 11-13 February 1980;
- (vi) First session of Technical Panel on Fuelwood and Charcoal Rome, 21-25 January 1980;
- (vii) Second session of the Preparatory Committee (UNERG) Geneva, 21 July-1 August 1980;
- (viii) Interagency Meeting (UNERG) Geneva, 8-10 October 1980.

ECWA staff assigned to the Conference will also be participating in all the forthcoming preparatory meetings including the third and fourth sessions of the Preparatory Committees, the Interagency meetings as well as other related meeting

#### VII. ECWA REGIONAL REPORT

ECWA staff assigned for the UNERG is preparing a regional report, pursuant to decision 7 (II) of the Preparatory Committee at its second meeting in Geneva in July 1980, <u>1</u>/ as part of its participation in the preparatory process for the Conference. The regional report relates to new and renewable energy sources and specific national, subregional and regional experience in the application of new sources of energy in addition to a set of recommendations on national, regional and global levels. The report also investigates the economic viability, obstacles and limitations to the utilization and means to overcome the application of new and renewable sources of energy technology.

The main emphasis will be placed on small-scale and rural applications.

The report is based on synthesis of four ECWA consultancy reports on biomass, geothermal, solar and wind energies in the Arab countries. The report will also include a section covering other new and renewable sources of energy in the ECMA region in particular and the Arab world in general.

ECWA regional report - which is at its final stage of preparation - will be presented and discussed at ECWA's Regional Expert Group Meeting which will be heli in Beirut from 12-16 January 1981.

The final conclusion and recommendations, taking into consideration suggestions made at the above meeting and the contribution of ECWA member States as given in their national papers, in addition to the synthesis of the four technical reports, will be incorporated in a final ECWA regional report to be presented as an ECWA working document to the Nairobi Conference.

#### VIII. ECWA'S REGIONAL EXPERT GROUP MEETING

In the context of the regional preparation for the United Nations Conference on New and Renewable Sources of Energy, ECWA is organizing a Regional Expert Group Meeting on 12-16 January 1981 at ECWA headquarters. Experts on biomass, solar, wind and geothermal energy will be invited from ECWA member States to take part in discussing the regional report and set of recommendations prepared by ECWA in addition to the presentation of their national papers.

This meeting will be the main activity of the regional preparations. The purpose of the meeting is to provide for a broad exchange of national experience relating to new and renewable sources of energy in ECWA member States. The object

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<sup>1/</sup> Official Records of the General Assembly, Thirty-fifth Session, Supplement No. 43 (A/35/43), part II.

of the meeting will be to seek a conveyance of the positions of the Governments of the region for the Conference towards a possible common ECWA and Arab position in the Nairobi Conference.

The Secretary-General of UNERG will be attending the meeting as well as many representatives of Arab regional scientific and economic organizations, many United Nations organizations as well as representatives of other organizations.

The provisional agenda for the meeting includes:

- (i) discussion of the position of ECWA member States as reflected in their respective national document;
- (ii) technical reports and state of the art of technologies related to biomass, geothermal, solar and wind energy in the Arab countries;
- (iii) ECWA regional report related to new energy sources and specific national, subregional, regional and global policy recommendations.

IX. ECWA REGIONAL PANEL OF KEY MEDIA AND PUBLIC INFORMATION

To provide information to the general public and policy makers on the possibilities and the potential of new and renewable sources of energy, a programme on public information will be implemented between 12-13 January 1981 in which active participation is expected from professionals of all of the main mass media in the ECWA region. 1/ The preparation and holding of the conference should provide valuable opportunities for creating public awareness on new and renewable sources of energy. The meeting will be organized jointly by ECWA and the United Nations Information Services, where pre-conference publicity and news coverage on local and regional levels will be provided.

1/ See annex IV for the complete list of the participants.

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### ANNEX I

# List of institutions and names of officials visited by missions to the Arab countries

Country and date	Officials met	Institutions or Offices represented
Syria		
23-24 June 1980	Mr. M. El-Nouri Dr. H. Samaan	Deputy, Minister of Electricity Economic Advisor, Ministry of Petroleum and Minerals
Jordan		
24–25 June 1980	Dr. F. A. Daghestani Dr. I. Badran	Deputy Director-General, Royal Scientific Society Director of Energy Department, Ministry of Industry and Commerce
Kuwait		
30 June-4 July 1980	Dr. M. El-Gabali ) Dr. Y. Sawane ) Dr. F. Wakim )	University of Kuwait - College of Engineering and Petroleum
	Mrs. S. Al-Dosary ) Mr. A. Al-Awadi ) Mr. A. Al-Gemaz ) Mr. H. Bashst ) Dr. J. Al-Kumar )	Ministry of Oil
	Dr. A. Debs ) Dr. S. Mustapha )	Kuwait Institute for Scientific Research
<u>U.A.E</u> .		
4-7 July 1980	H.E. Mr. Ghobash Mr. A. A. Mansour Mrs. A. Al-Madfaa Mr. S. Madani	Minister ) Under Secretary )Ministry External Co-ordination) of Department )Planning External Co-ordination) Department )
	Mr. N. Hammadi Mr. H. Nadim	Ministry of Foreign Affairs Ministry of Electricity and Water
	Mr. N. Al-Sharhan ) Dr. S. Hafez ) Mr. A. Dahnouj )	Ministry of Petroleum and Mineral Resources /

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Exypt   7-10 September 1980 Dr. Fatma EL-Gohary ) Dr. Adel Abdul Daiem ) National Research Centre, Environmental Sciences Divisin   Dr. Anhar Ibrahim Fejazi "Unistry of Flectricity: "Qatarah Hydro and Renvable Energy Authority" Division of Solar Energy   Dr. Wajih Tadrous National Research Centre - Solar Energy Division   Dr. Abdul Pattah Sultan Dr. Mohammad El-Shazily (NRC) - Wind (NRC) - Wind   11-13 September 1980 Mr. Lotf Al-Thour   Mr. Ali Abdul Rahman Al-Bahar Minister of Development and Chairman of Central Planning Organization (C.P.O.)   Mr. Ahmad Al-Auesy Mr. Ahmad Al-Auesy Mr. Abdullah Al-Khourbi Director of Projects (C.P.O.) Minister of Communications Director General for telecommunication projects   Mr. Ahmad Barakat Minister of Schar Entraman of General Establishment - Civil Aviation and Meteorological Authority   Mr. Ahmad Barakat Director General of Meteorological Authority   Mr. Ahmad Barakat Director General of Geological Survey Division Director General of Geological Survey Division Director General of Geological Survey Division Director General of Ceological Survey Division Director General of Ceological Survey Division Director General of Planning and Statistics, Ministry of Agriculture	Country and date	Officials met	Institutions or Offices represented
Dr. Adel Abdul Daiem )Environmental Sciences DivisicDr. Anhar Ibrahim FejaziMinistry of Flectricity: "Qattarah Hydro and Renewable Energy Authority" Division of Solar EnergyDr. Vajih TadrousNational Research Centre - Solar Energy Division Dr. Abdul Fattah Sultan Dr. Mohammad El-Shazily11-13 September 1980Mr. Lotf Al-ThourMr. Ali Abdul Rahman Al-Bahar Mr. Said KasimMinister of Development and Chairman of C.P.O. Deputy Director for Technical Arfairs (C.P.O.)Mr. Ahmad Al-Auesy Mr. Abdullah Al-KhourbiDirector General of Meteorological Bepartment - Civil Aviation and Meteorological Bepartment - Civil Aviation and Meteorological Survey Division Director General of Gelogical Survey Division Mir. Omar Jaber Mr. Mokbel Ahmad Mokbel	Egypt		
"Qattarah Hydro and Renevable Energy Authority" Division of Solar EnergyDr. Wajih TadrousNational Research Centre - Solar Energy Division Dr. Abdul Fattah Sultan Dr. Mohammad El-ShazilyNational Research Centre - Solar Energy Division (NRC) - Wind (NRC) - Wind (NRC) - Wind (NRC) - Wind (NRC) - Other Manage Chairman of Central Planning Organization (C.P.O.)11-13 September 1980Mr. Lotf Al-ThourMinister of Development and Chairman of Central Planning Organization (C.P.O.)11-13 September 1980Mr. Lotf Al-ThourMinister of Development and Chairman of C.P.O.)Mr. Ali Abdul Rahman Al-Bahar Mr. Anwar Al-Harazi Mr. Said KasimDeputy Chairman of C.P.O.Mr. Anwar Al-Harazi Mr. Abdullah Al-Khourbi Mr. Abdullah Al-KhourbiDirector of Projects (C.P.O.) Minister of Communications Director General of Meteorological Department - Civil Aviation and Meteorological Authority Minister of State - Chairmen of General of Geological Survey Division Director General of Geological Survey Division Mineral Resources (YEMENCO)Dr. Ismail Mosa Mr. Omar Jaber Mr. Nokbel Ahmad MokbelDirector General of Planning and Statistics, Ministry of	7-10 September 1980	•	
Dr. Abdul Fattah Sultan Dr. Mohammad El-ShazilySolar Energy Division (NRC) - Wind (NRC) - Geothermal11-13 September 1980Mr. Lotf Al-ThourMinister of Development and Chairman of Central Planning Organization (C.P.O.)11-13 September 1980Mr. Ali Abdul Rahman Al-Bahar Mr. Anwar Al-Harazi Mr. Said KasimDirector of Development and Chairman of C.P.O. Director for Technical Affairs (C.P.O.)Mr. Ahmad Al-Auesy Mr. Abdullah Al-KhourbiDirector General for telecommunications Director General of Meteorological Department - Civil Aviation and Meteorological AuthorityMr. Ahmad BarakatMinister of State - Chairman of General Establishment for Oil Affairs and Mineral Resources (YEMENCO)Dr. Ismail MoosaDirector General of Geological Survey Division Director General of Meteorological Survey Division Director General of Minister of State - Chairman of General Establishment for Oil Affairs and Mineral Resources (YEMENCO)Dr. Ismail MoosaDirector General of Geological Survey Division Director General of Meteorological Survey Division Director General of Geological Survey Division Director General of Geological Survey Division Director General of Director General of Director General of Geological Survey Division Director General of Planning and Statistics, Ministry of		Dr. Anhar Ibrahim Hejazi	"Qattarah Hydro and Renewable Energy Authority"
Dr. Abdul Fattah Sultan Dr. Mohammad El-Shazily (NRC) - Geothermal (NRC) - Geothermal (NRC) - Geothermal (NRC) - Geothermal (NRC) - Geothermal (NRC) - Geothermal (NRC) - Wind (NRC) - Geothermal (NRC) - Wind (NRC) - Geothermal Management and Chairman of Central Planning Organization (C.P.O.) Mr. Ahmad Al-Auesy Mr. Ahmad Al-Auesy Mr. Yehya Al-Hajj Mr. Yehya Al-Hajj Mr. Ahmad Barakat Mr. Ahmad Barakat Mr. Ahmad Barakat Mr. Ismail Moosa Dr. Ismail Moosa Mr. Omar Jaber Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel		Dr. Wajih Tadrous	
11-13 September 1980 Mr. Lotf Al-Thour Mr. Ali Abdul Rahman Al-Bahar Mr. Anwar Al-Harazi Mr. Anwar Al-Harazi Mr. Ahmad Al-Auesy Mr. Abdullah Al-Khourbi Mr. Yehya Al-Hajj Mr. Ahmad Barakat Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel			(NRC) - Wind
Chairman of Central Planning Organization (C.P.O.) Mr. Ali Abdul Rahman Mr. Anwar Al-Harazi Mr. Said Kasim Mr. Said Kasim Mr. Ahmad Al-Auesy Mr. Abdullah Al-Khourbi Mr. Yehya Al-Hajj Mr. Yehya Al-Hajj Mr. Ahmad Barakat Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel	Yemen		
Al-BaharMr. Anwar Al-HaraziDirector of Projects (C.P.O.)Mr. Said KasimDeputy Director for Technical Affairs (C.P.O.)Mr. Ahmad Al-AuesyMinister of CommunicationsMr. Abdullah Al-KhourbiDirector General for telecommunication projectsMr. Yehya Al-HajjDirector General of Meteorological Department - Civil Aviation and Meteorological AuthorityMr. Ahmad BarakatMinister of State - Chairman of General Establishment for Oil Affairs and Mineral Resources (YEMENCO)Dr. Ismail MoosaDirector General of Geological Survey Division (YEMENCO)Mr. Omar JaberDirector General of Projects (C.P.O.)Mr. Mokbel Ahmad MokbelDirector of Projects (C.P.O.)Mr. Mokbel Ahmad MokbelDirector of Projects (C.P.O.)	1113 September 1980	Mr. Lotf Al-Thour	Chairman of Central Planning
Mr. Said Kasim Mr. Said Kasim Mr. Ahmad Al-Auesy Mr. Abdullah Al-Khourbi Mr. Yehya Al-Hajj Mr. Yehya Al-Hajj Mr. Ahmad Barakat Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel Mr. Mathematical Montes Mr. Mathematical Montes Mr. Mokbel Ahmad Mokbel Mr. Mathematical Montes Mr. Mathematical Montes Mr. Mathematical Montes Mr. Mathematical Montes Mr. Mokbel Ahmad Mokbel Mr. Mathematical Montes Mr. Mathematical Mon			Deputy Chairman of C.P.O.
Mr. Said Kasim Mr. Said Kasim Mr. Ahmad Al-Auesy Mr. Abdullah Al-Khourbi Mr. Yehya Al-Hajj Mr. Yehya Al-Hajj Mr. Ahmad Barakat Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel Mr. Mathematical Montes Mr. Mathematical Montes Mr. Mokbel Ahmad Mokbel Mr. Mathematical Montes Mr. Mathematical Montes Mr. Mathematical Montes Mr. Mathematical Montes Mr. Mokbel Ahmad Mokbel Mr. Mathematical Montes Mr. Mathematical Mon			Director of Projects (C.P.O.)
Mr. Abdullah Al-Khourbi Mr. Yehya Al-Hajj Mr. Yehya Al-Hajj Mr. Ahmad Barakat Mr. Ahmad Barakat Dr. Ismail Moosa Dr. Ismail Moosa Mr. Omar Jaber Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel Mr. Abdullah Al-Khourbi Director General for telecommunication projects Director General of Meteorological Department - Civil Aviation and Meteorological Authority Minister of State - Chairman of General Establishment for Oil Affairs and Mineral Resources (YEMENCO) Director General of Geological Survey Division (YEMENCO) Deputy Director General of Geological Survey Division Director of the Private Bureau of YEMENCO Director General of Planning and Statistics, Ministry of			Deputy Director for Technical
Mr. Yehya Al-Hajj Mr. Yehya Al-Hajj Mr. Ahmad Barakat Mr. Ahmad Barakat Director General of Meteorological Department - Civil Aviation and Meteorological Authority Minister of State - Chairman of General Establishment for Oil Affairs and Mineral Resources (YEMENCO) Dr. Ismail Moosa Director General of Geological Survey Division (YEMENCO) Engineer Ali Shakin Mr. Omar Jaber Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel		Mr. Ahmad Al-Auesy	Minister of Communications
Mr. Yehya Al-Hajj Director General of Meteorological Department - Civil Aviation and Meteorological Authority Minister of State - Chairman of General Establishment for Oil Affairs and Mineral Resources (YEMENCO) Dr. Ismail Moosa Director General of Geological Survey Division (YEMENCO) Engineer Ali Shakin Mr. Omar Jaber Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel		Mr. Abdullah Al-Khourbi	
Mr. Ahmad Barakat Mr. Ahmad Barakat Minister of State - Chairman of General Establishment for Oil Affairs and Mineral Resources (YEMENCO) Dr. Ismail Moosa Engineer Ali Shakin Mr. Omar Jaber Mr. Mokbel Ahmad Mokbel Mr. Mokbel Ahmad Mokbel Minister of State - Chairman of General Establishment for Oil Affairs and Mineral Resources (YEMENCO) Director General of Geological Survey Division (YEMENCO) Deputy Director General of Geological Survey Division Director of the Private Bureau of YEMENCO Director General of Planning and Statistics, Ministry of		Mr. Yehya Al-Hajj	Director General of Meteorological Department - Civil Aviation and
Engineer Ali Shakin Mr. Omar Jaber Mr. Mokbel Ahmad Mokbel Survey Division (YEMENCO) Deputy Director General of Geological Survey Division Director of the Private Bureau of YEMENCO Director General of Planning and Statistics, Ministry of		Mr. Ahmad Barakat	of General Establishment for Oil Affairs and Mineral
Engineer Ali ShakinDeputy Director General of Geological Survey DivisionMr. Omar JaberDirector of the Private Bureau of YEMENCOMr. Mokbel Ahmad MokbelDirector General of Planning and Statistics, Ministry of		Dr. Ismail Moosa	
of YEMENCO Mr. Mokbel Ahmad Mokbel Director General of Planning and Statistics, Ministry of		Engineer Ali Shakin	Deputy Director General of
and Statistics, Ministry of		Mr. Omar Jaber	
		Mr. Mokbel Ahmad Mokbel	and Statistics, Ministry of

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Country and date	Officials met	Institutions or Offices represented		
	Mr. Ahmad Hassan Sabra	Chairman, Yemen General Electricity Corporation, (Yemenkahraba)		
	Dr. Mohammad Abdulwahab Al-Oraiqi	Deputy Chairman (Yemenkahraba)		
Democratic Yemen				
14-17 September 1980	Mr. Abdullah Said Abden	Deputy Minister of Planning for Sectoral Affairs		
	Mr. Fawzi Mujahid	Director of Industrial Division, Ministry of Planning		
	Mr. Abudker Ahmed Ayash	Ministry of Planning, water and energy division		
	Mr. Othman Abdul Jabbar	Deputy Minister of Industry		
	Mr. Salem Busabrah	Assistant Deputy Minister of Industry		
	Mr. Azzam Mohammad Mahboob	Director of Planning and Development- Public Corporation for Electric Power		
	Eng. Othman Numan Ahmed	Director: Department of Geology and Mineral Exploration: Petroleum and Minerals Board.		

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### ANNEX II

# ECWA member States focal points for UNERG

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Country	Designated focal point
Bahrain	Directorate of Industry, Ministry of Development and Industry
Egypt	Supreme Council for Energy
Iraq	Ministry of Oil National focal point on energy
Jordan	Royal Scientific Society
Saudi Arabia	Directorate of Economic Department Ministry of Petroleum and Mineral Resources
Syria	Ministry of Electricity
Kuwait	Kuwait Institute for Scientific Research
Kuwali	Ruwalt institute for belentlite Research
Lebanon	Council for Development and Reconstruction, Presidential Palace
	Council for Development and Reconstruction,
Lebanon	Council for Development and Reconstruction, Presidential Palace Ministry of Foreign Affairs,
Lebanon Qatar	Council for Development and Reconstruction, Presidential Palace Ministry of Foreign Affairs, Economic and Cultural Administration
Lebanon Qatar Oman	Council for Development and Reconstruction, Presidential Palace Ministry of Foreign Affairs, Economic and Cultural Administration Ministry of Foreign Affairs

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#### ANNEX III

## Consultant's visits to ECWA member countries

- (1) Dr. Mahmoud Saleh: Professor at the National Research Centre, Dokki, Cairo (Ph.D. in Energy from Moscow Energy Institute, 1963). Dr. Saleh who has conducted numerous research work in energy conversion including solar and wind, was given the task of preparing a report on: <u>Wind Energy in the Arab</u> <u>Countries</u>, as part of ECWA's preparation for UNERG. For this purpose, Dr. Saleh had visited the following Arab countries: Lebanon, Egypt, Kuwait, Saudi Arabia, Bahrain, Qatar, United Arab Emirates, Morocco, Algeria and Tunisia.
- (2) Dr. Leo Pyle: Senior Lecturer at the Department of Chemical Engineering, Imperial College of London University, and an internationally recognized expert in the field of biomass conversion, was given the task of preparing a report on: <u>Biomass Energy in the Arab World</u>. In preparing this report, Dr. Pyle has visited Egypt, Sudan, Yemen, Democratic Yemen, Lebanon, Algeria and Tunisia.
- (3) Dr. Jacque Varet: Head of Geothermal Department, Bureau de Recherches Geologiques et Minieres (BRGM) Orleans - France, was contracted to prepare a report on: <u>Geothermal Energy in the Arab World</u>. Dr. Varet has visited: Djibouti, Yemen, Algeria, Morocco, Tunisia, Egypt and Saudi Arabia.
- (4) Dr. Ali Kettani, Professor of Electrical Engineering, University of Petroleum and Minerals, Dhahran, Saudi Arabia, was commissioned by the Organization of the Arab Petroleum Exporting Countries (OAPEC) as Consultant for the preparation of: <u>Solar Energy in the Arab Countries</u>, under special terms of joint agreement between OAPEC and ECWA in the field of new renewable sources of energy.

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### ANNEX IV

# List of participants for the key media panel (12-13 January 1981)

Bahrain:	Gulf News Agency - Abdallah Al-Houmar
Egypt:	Middle East News Agency - Mustafa Najib
Iraq:	Iraqi News Agency
Jordan:	Jordan Times (Daily) - Rami Khouri Al-Akhbar Newspaper - Rakan Al-Majaly
Saudi Arabia:	D.G. Saudi Radio and TV Broadcasting - Fawzan Al-Fawzan
Syria:	Syrian News Agency - Saber Falhout
Kuwait:	Al-Qabas (Daily) - Raouf Shahouri
Lebanon:	National News Agency - Mohamad Mashnouk
Catar:	Gulf Times (Daily)
Cman:	D.G. Radio and TV Broadcasting
P.L.O.:	Palestine News Agency
U.A.E.:	Emirates News Agency - Ibrahim Al-Abed
Yemen.	D.G. Radio and TV Broadcasting

Democratic Yemen: Ministry of Information

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