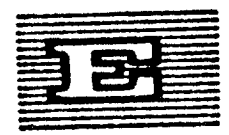




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Item 9(b) of the provisional agenda

THE COMMISSION'S WORK IN THE AREA OF NEW
AND RENEWABLE SOURCES OF ENERGY

Note by the Executive Secretary

84-0256

1. The United Nations Conference on New and Renewable Sources of Energy held at Nairobi in August 1981 adopted a comprehensive programme of action, termed the Nairobi Programme of Action (NPA). Based on the comprehensive preparatory activity that had preceded the Conference, it provides a framework for national action as well as for intercountry co-operation to promote transition to energy systems less dependent on hydrocarbons. The Programme pinpoints, quite specifically, the particular place that the various new and renewable sources of energy (NRSE) will have in the energy systems of the future. It also spells out the directions of efforts to be made to realize fully the potential of these sources.

2. The main outcome of the Conference has been the emphasis on vigorous and effective implementation of the measures set out in the Programme. The follow-up phase is visualized as a part of the continuum initiated with the preparations for the Conference undertaken at the national, regional and global levels.

I. AT THE NATIONAL LEVEL

3. It has been recognized that action for the development of new and renewable sources of energy (NRSE) will primarily have to be taken within the countries; the contribution of international co-operation will be of a supportive nature. The action to be taken at the national level, as set out in Section B of the Programme, will consist of a wide range of measures, broadly including the following:

(a) Assessment of new and renewable sources of energy, including surveying and mapping programmes, to provide the necessary information and data base for planning and decision-making with respect to overall energy development;

(b) Preparation of a policy framework for defining the role of NRSE and determining priorities;

(c) Establishment or strengthening of appropriate national institutional arrangements;

(d) Adequate research and development programmes to support the scientific and technical capacity to develop, choose and adapt technologies, to include testing and demonstration facilities and research focal points in NRSE;

(e) Programmes to encourage the efforts of national, public and private entities in interested countries, as appropriate, to expand the development and utilization of NRSE;

(f) Availability of qualified personnel, to include specialized education and training programmes equally accessible to men and women.

(g) Development or strengthening of industrial capacity to manufacture, adapt, repair and maintain energy-related equipment.

4. The nature of the measures to be taken under each of the above items is indicated in the NPA; but the priority ranking between them and the modalities of their implementation are, of course, to be determined by the national authorities in the specific circumstances of each country. A major concern of ECWA's eleventh session should be to reflect on the mechanisms needed for earnest consideration of these measures, allocation of the requisite resources, establishment/strengthening of the relevant institutional arrangements and their co-ordination. The session may make recommendations aimed at ensuring that the momentum created by the Conference is fully maintained and that the implementation effort at the national level is substantial and effective.

5. A considerable part of the national effort will, no doubt, be devoted to the commercialization of mature technologies related to NRSE. However, it has to be recognized that many technologies are still at the stage of research and development, trial on pilot scale etc. Moreover, even mature technologies require considerable adaptive effort to suit the local conditions of ECWA countries. The session may, therefore, note the emphasis placed in the NPA on strengthening the research and development and the adaptive capabilities of the developing countries, and on the development of adequate financial and manpower resources for that purpose. In its recommendations to the member Governments the session may wish to refer to the recommendations adopted by the Regional Preparatory Expert Group Meeting for the Nairobi Conference, which was organized by the secretariat of the Commission at Beirut from 12 to 16 January 1981.

6. The success of programmes for commercialization of mature technologies will, to a great extent, depend on reasonable pricing policies, provision of incentives to consumers and manufacturers of equipment, institution of adequate indigenous production facilities and provision of maintenance services. The programmes to be initiated at the national level should devote due attention to these specific aspects.

II. AT THE REGIONAL LEVEL

7. A significant feature of the NPA is its recognition of the major role that the subregional and the regional bodies can play in support of the national initiatives. The NPA has, therefore, recommended the strengthening of the regional commissions in their capacity to undertake programmes relevant to NRSE. The regional programmes should generally focus on the following:

(a) Support of resource evaluation, research, development and demonstration, training, energy planning and identification of regional or subregional projects for the development of NRSE;

(b) Establishment of specialized institutions and/or the strengthening of existing ones in the countries of each region, which would co-operate in order to achieve a more effective implementation of their respective regional programmes;

(c) Strengthening and/or establishment of regional information networks which could connect with the international information network and focus at the regional level on technologies and application and on the centralization and diffusion of information on equipment, its use and its limits;

(d) Organization of joint research and development activities related to promising technologies;

(e) Organization of regional demonstration and pilot projects and installations designed both to test application and to disseminate information on technologies related to NRSE;

(f) Development of pre-investment activities designed to provide a basis for the accelerated implementation of technologies for NRSE;

(g) Strengthening and support of regional efforts directed at the transfer and diffusion of technologies;

(h) Undertaking of joint industrial activities for the production of energy-related capital goods;

(i) Organization of technical meetings, seminars, conferences, study tours and so on, with a view to facilitating and developing exchanges of information and experience on the utilization of NRSE.

III. ACTIVITIES UNDERTAKEN BY ECWA TOWARDS THE IMPLEMENTATION OF THE NAIROBI PROGRAMME OF ACTION

8. The secretariat, since the establishment of its programme in new and renewable sources of energy, has actively pursued the provisions of the Nairobi Programme of Action. In particular, it has embarked on a series of studies and reports which were included in the medium-term plan for the period 1984-1985 and the annual programmes of work and priorities. The status of the secretariat's studies is contained in the annex, item 8. The paragraphs below describe the various actions of the secretariat in detail.

9. Within the context of the NPA the secretariat identified four new and renewable sources of energy for in-depth investigation and evaluation, as being the most promising yet undeveloped in the Arab World. These are solar, wind, biomass and geothermal energy. A fifth source is hydropower; it has, however, not been included because it has already been the subject of extensive development and investigation in the Arab World.

10. As such, four experts were commissioned in the areas of solar energy (in co-operation with the Organization of Arab Petroleum Exporting Countries), wind, biomass and geothermal energy, respectively, to prepare studies covering resource availability, the state of the art, economic, environmental and social aspects, ongoing programmes, utilization and prospects, and recommendations pertaining to the Arab world.

11. The wealth of information and analyses in the above mentioned reports deserved widespread dissemination. Accordingly, ECWA compiled these reports and published them in 1981 under the title New and Renewable Energy in the Arab World. So far, 2000 copies of this publication have been distributed to end-users consisting primarily of research institutions, libraries, specialized public and private organizations, government energy policy-makers, universities and other interested organizations both in the region and outside the region.

12. The secretariat staff assigned to ECWA's preparation for new and renewable sources of energy undertook various missions to all ECWA member countries to help national authorities to identify focal points, assess their renewable energy endowments and help prepare national papers to be presented at the regional and global conferences.

13. In the context of the preparation, the ECWA secretariat convened a Regional Preparatory Expert Group Meeting from 12 to 16 January 1981, at Beirut. The Meeting was attended by representatives of nine member countries, namely Egypt, Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia, Syrian Arab Republic, United Arab Emirates and Democratic Yemen. The representatives of the

United Nations Conference on New and Renewable Sources of Energy, UNCTAD, UNDP, UNEP, FOA, UNESCO as well as ODAPEC, OPEC and various other intergovernmental and private sectors also attended the Meeting. The report of the meeting (E/ECWA/NR/WG.1/2/Rev.1) which reflected the four reports prepared by ECWA, in addition to other contributions, including a draft regional report, was the main contribution of ECWA to the Nairobi Conference.

14. The secretariat was represented at interagency meeting held at Geneva in October 1980, the synthesis group meeting, the third session of the Preparatory Committee and another session of the interagency meeting, all held at New York in February and March 1981, and the fourth session of the Preparatory Committee held at New York in June 1981.

15. The secretariat prepared and submitted the following documents to the Conference secretariat for reproduction and submission to the Conference at Nairobi:

(a) Methodological guide for resource evaluation and assessment of new and renewable sources of energy in the ECWA region;

(b) Comprehensive report on the activities of the regional commissions, addendum, submitted by ECWA (A/CONF.100/7/Add.6, 14 August 1981). The document contained current activities of ECWA in these fields and proposed future activities;

(c) Report of regional preparatory meetings, addendum, submitted by ECWA (A/CONF.100/8/Add.3, 6 April 1981) which contains the entire report of the ECWA Preparatory Expert Group Meeting held in January 1981;

(d) A suggested future ECWA programme of work in new and renewable fields, prepared at the request of the Conference secretariat. It was understood that the conference secretariat would combine that paper with papers submitted by other regional commissions, to form a joint paper for submission to the Conference at Nairobi;

(e) In addition the ECWA staff assigned to the Conference arranged many informal meetings for ECWA representatives to various preparatory meetings to help unify an ECWA position toward the Conference and assure the inclusion of recommendations adopted by ECWA's Expert Group Meeting.

16. The services of a regional advisor on new and renewable energy were made available from 4 October 1980 to 31 August 1981. He visited Qatar, United Arab Emirates, Yemen and Democratic Yemen to help in preparations for the Nairobi Conference and rendered services in evaluating the solar and wind poten-

tials of the countries involved, in addition to the possibilities of establishing a demonstration project on biogas in the two Yemens.

17. The Conference secretariat undertook two high-level missions for visiting countries in the ECWA region. Both missions were accompanied by the ECWA regional co-ordinator. The first mission was headed by the Secretary-General of the Conference, who visited Iraq, Egypt and Kuwait. The second mission was headed by the Deputy Oil Minister of Iraq, who visited a number of countries in the ECWA region for consultations at the highest levels with regard to possible regional initiatives and support for the implementation of the recommendations of the Conference.

18. ECWA, in resolution 94(VIII) of 6 May 1981, took note of the ECWA regional report to the Conference (E/ECWA/116); and adopted the recommendations contained in that report. It further requested the Executive Secretary to ensure that appropriate additional resources were allocated to the secretariat of the Commission for the proper implementation at the regional level of any programme of action stemming from the Conference as well as any other functions in the field of new and renewable sources of energy which might be entrusted to it in the aftermath of the Conference.

19. The Conference took place at Nairobi, from 10 to 21 August 1981. It was attended by about 5,000 participants from approximately 140 countries. Its objective had been defined in General Assembly resolution 33/148 of 20 December 1978 which called, in particular, for the elaboration of "measures for concerted action designed to promote the development and utilization of new and renewable sources of energy, with a view to contributing to meeting future overall energy requirements, especially those of the developing countries, in particular in the context of efforts aimed at accelerating the development of developing countries". Subsequently, the General Assembly decided that the Conference should consider the adoption of the programme of action containing, inter alia, concrete operational measures, for subregional, regional and international co-operation in the field of new and renewable sources of energy.

20. Many national papers, reports of eight technical panels, reports of ad hoc groups of experts on selected policy issues (including, one on rural energy), the reports of a synthesis group and reports of relevant organs, organizations and regional commissions of the United Nations system had been prepared for consideration by the Conference.

21. Eight high-ranking ECWA representatives presented their papers of new and renewable sources of energy. Two reports of the activities of ECWA in the field of new and renewable sources of energy were distributed to the Conference participants, and

the Executive Secretary of ECWA addressed the Plenary Session of the Conference. In his statement, Dr. Al-Attar pointed out that ECWA countries are situated within the sunbelt and enjoy more than 3000 hours of sunlight a year, a fact that encourages use of solar energy. There are also the possibilities of utilizing wind and geothermal energy. The Executive Secretary went on to say that the rural areas in some ECWA countries depend upon biomass sources for fuel.

22. The secretariat reported to the ninth session held at Baghdad (8-12 May 1982) on the follow-up action at the regional level on the Nairobi Conference (E/ECWA/143, 27 January 1982) and suggested organizing a regional meeting of experts during 1983, under the title "Post Nairobi Conference" to discuss, inter alia:

(a) ECWA's regional report for new and renewable sources of energy;

(b) Follow-up on the Nairobi Programme of Action in the light of recommendations adopted at the Regional Expert Group Meeting on New and Renewable Sources of Energy (Beirut, 12-16 January 1981);

(c) The establishment of national and regional focal points on the use of new and renewable sources of energy.

23. The secretariat presented a comprehensive report on the regional dimension of new and renewable energy to the Second Arab Energy Conference held in Doha, Qatar, 6-11 March 1982. The report focused on the Arab concept of new and renewable sources of energy and the criteria for defining the possibilities of using alternative energies in the Arab countries. In this perspective, a strategy was proposed for fostering the conditions required for the efficient development of the potential of new and renewable sources of energy in the Arab World. The Second Arab Energy Conference suggested priorities for projects in an attempt to reach a consensus among the Arab countries on which of the regional programmes should be promoted for Arab regional co-operation. The programmes identified as being of a priority nature have been grouped according to their importance for promoting an Arab regional strategy for the development of new and renewable sources of energy. The Second Arab Energy Conference adopted many resolutions pertaining to the development of new and renewable sources of energy in the Arab countries.

24. The secretariat participated in the Interim Committee of New and Renewable Sources of Energy, held at Rome, from 7 to 18 June 1982 and it submitted ECWA's proposals for action-oriented programmes to carry out the Nairobi Programme of Action

(E/ECWA/NRST/L/82, 31 May 1982). The priorities suggested represent an attempt to reach a consensus among many ECWA countries on which of the regional programmes should be promoted. In setting this order of priorities, the following criteria have been taken into account:

(a) Priorities indicated by experts during the Regional Preparatory Expert Group Meeting, including the recommendations on national, regional and global levels regarding the utilization of new and renewable sources of energy in the ECWA region;

(b) Estimates of the potential of the different applications of solar, wind, biomass and geothermal energy in the Arab World as a whole and in the ECWA countries in particular (E/ECWA/NR/WG.1/3,4,5 and 6);

(c) Appraisals of the role of new and renewable sources of energy, including relevant policies and institutions in the national papers of ECWA countries submitted to the Nairobi Conference.

25. The secretariat also prepared a detailed study entitled "Regional programme for new and renewable sources of energy, with special reference to rural applications" (E/ECWA/NR/83/1, 15 February 1983). This study, which has been distributed to ECWA member Governments, universities, scientific communities and other concerned institutions, covers the theoretical, economic, engineering and technical aspects of solar, wind, organic, hydropower and geothermal energy. The main task involved the preparation of a regional plan of action comprising a project description outlining the scope and objectives of the most suitable sources of new and renewable energies for the ECWA region, the relevant follow-up action, work plan, time-table, the relevant technologies, a glossary and a bibliography.

26. Accordingly, five subprogrammes have been identified as top priorities for regional co-operation, namely solar energy, integrated rural energy, hydro and wind energy, and geothermal, tar sand and oil-shale.

27. The underlying theme for the priority scale of the regional programme is that concerted action by the ECWA countries has to go a long way to optimizing the resources available to them. The ECWA region, containing countries of world with the highest per capita income and also the lowest per capita income, with varying degrees of industrial development, does possess facilities and expertise in the field of energy in general, and new and renewable sources of energy in particular. These can be shared in the spirit of mutual regional co-operation. ECWA has an important regional role to play in encouraging such co-operation by providing a forum for regional interaction, by assisting in sharing and dissemination of information, by pro-

viding its member countries with analyses of policy options and by catalysing activities in support of national efforts.

28. These programmes lay adequate emphasis of energy data collection and resource assessment as prerequisites for energy planning. The resource assessment and planning will support national efforts to determine the potential for the development of new and renewable energy sources and to set priorities and to set goals for the rational use of energy as one of the main ways of increasing the availability of useful energy. Activities envisaged include studies by consultants on establishing a data base and handbooks, meetings to discuss and agree on data formats and methodologies particularly for assessment of non-conventional energy and training in data collection and analysis.

29. In accordance with the importance attached to rural energy planning, suggestions have been made for activities which emphasize the adoption of an integrated approach to rural energy planning and management. Studies of energy consumption patterns in rural areas, especially of the least developed countries of the ECWA region, demand-supply projections, and socio-economic and implementation aspects are also envisaged.

30. The implementation of regional programmes requires the establishment of terms of reference for consultations, meetings, exchange of personnel and hardware and the creation of proper conditions for sustaining the growth of regional co-operation. In this respect, the establishment of an inter-Arab renewable energy technology transfer advisory body to assist interested ECWA countries, at their request, in negotiating with foreign manufacturing firms for the local manufacture of well-established mature renewable energy system components is recommended.

31. A significant aspect of technology development pertaining to new and renewable sources of energy in the ECWA region is the performance of equipment and devices under field conditions and the user acceptance. This type of performance evaluation is facilitated through testing and demonstration projects. Such projects provide valuable information on technical and socio-economic parameters on the basis of which necessary modifications can be made. Accordingly, heavy stress is laid on testing and demonstration activities.

32. ECWA forwarded the above-mentioned regional report to its member States as early as March 1983 seeking their comments on the regional components of the programme of action. In July 1983, ECWA again reminded its member States to respond to the main findings and the regional dimension of the programmes of new and renewable sources of energy. With the exception of Egypt and Iraq, other ECWA member States did not respond. How-

ever, regional organizations, such as OAPEC and the Islamic Foundation for Science, Technology and Development did respond. Encouraging observations on the report were also received from UNESCO, UNIDO, UNCTAD, UNDP and other institutions.

33. The secretariat remains committed to the promotion and development of the most promising new and renewable sources of energy in the ECWA region. Toward this end, it has recently contributed the following papers:

(a) "Emerging solar technologies: implications for Arab countries." This paper was submitted to the Second Conference of the Iraqi Solar Energy Research Centre. In addition, the regional programme was circulated to the participants of the Conference, in which some 300 scientists took part, mostly in the field of renewable sources of energy. The Conference itself was organized by Iraqi, German and Swedish ministries of scientific research;

(b) "ECWA's regional role in promoting solar energy." This presentation was made to the First Arab International Solar Energy Conference, held at Kuwait, 2-8 December 1983. The representative of ECWA to the Conference elaborated further on various ECWA/AFME projects on solar energy, passive architecture and well data-collection;

(c) "Rational use of energy in the agricultural and rural areas of the Arab countries." This paper which was submitted to the OAPEC Energy Conservation Symposium held at Tunis, 12-14 December 1983, focuses on rural poverty/energy relationships and addresses itself to two fundamental issues: (i) that agricultural production is the most crucial sector, in which the majority of the Arab rural population earn their livelihood, and hence, the maintenance of energy supplies is vital to the eradication of poverty in rural areas and to the achievement of food security; (ii) that energy usage is basic to the agro-rural sector, and therefore much can be learned from this sector about how to harness and exploit renewable energy.

34. At the thirty-sixth session of the General Assembly, resolution 36/193 was adopted by which bodies of the United Nations system were requested to participate fully to support the implementation of the Nairobi Programme of Action. Accordingly, the ECWA secretariat appointed a technical advisor as of February 1984 to render services to ECWA member countries in their implementation of projects pertaining to new and renewable sources of energy.

35. Within the context of the Nairobi Programme of Action, the secretariat is supporting, in co-operation with the Agence Française pour la Maîtrise de L'Énergie (AFME) the following opera-

tional projects regarding the use of new and renewable sources of energy:

(a) Demonstration and training centre of simple solar appliances for remote communities. The output of the project is the demonstration and training programme of simple solar techniques for remote areas in the two Yemens. It will be undertaken jointly by the Human Settlements Division of ECWA, the Royal Scientific Society of Jordan and AFME.

(b) Alternative architectural designs for community centres in rural areas, particularly for the passive solar approach and computer simulation of thermal patterns. The purpose of the project is to formulate adequate architectural designs which combine a site-specific and a climate-specific optimization as demonstration projects for the construction of community centres (schools, dispensaries...) in rural areas. It is expected that rural inhabitants will use some of these techniques, as compatible with modern building technologies, in their future constructions. The main areas of application will be in the two Yemens, the north-west mountainous areas in the Syrian Arab Republic, the marshes in central Iraq and the Jordan valley. This project will be undertaken with the participation of the Human Settlements Division of ECWA, AFME, and in co-operation with the Kuwait Institute for Scientific Research, the Building Research Centre (Iraq) and similar research groups in France that have already developed computer modelling for small-scale buildings and micro-computerized design tools.

(c) Computer listing of well data: This project aims at improving the information system on wells as a means for long-term resource management by computerizing the well data available in the member countries, with special reference to Jordan, Iraq and the two Yemens. This analysis will be a decisive step for preparing a feasibility study on solar pumps and hand pumps on a countryside basis. The project will be undertaken jointly by the Natural Resources Science and Technology Division of ECWA, the Royal Scientific Society in Jordan and AFME.

(d) Non-baked brick technology: This project has the objective of promoting a new improved technology for brick production without baking whereby the energy required for 1 ton of bricks is only 200 therms as opposed to 800 for baked bricks. Moreover, the bricks can be extruded thus allowing for rapid construction and good insulation properties with the proper use of passive solar energy. The project will be undertaken jointly by the Industry Division and Human Settlements Division of ECWA and the University of Rennes.

36. The secretariat's role in pursuing the future implementation of the Nairobi Programme of Action emanated from General

Assembly resolution 38/169 of 19 December 1983 on the immediate implementation of the Nairobi Programme of Action, which in part II, pertaining to action-oriented plans and programmes, requests the relevant organs, organizations and bodies of the United Nations system to support and assist, to a large extent, the efforts of developing countries for technical and economic co-operation among themselves in the field of new and renewable sources of energy. Part III paragraph 3 "Calls upon all countries, particularly the developed countries and other countries in a position to do so, to provide additional and adequate financial resources to the relevant organs, organizations and bodies of the United Nations system". Paragraph four "Calls for the preparation and convening of consultative meetings at the national, subregional, regional, interregional and global levels, on a non-discriminatory basis..."

37. Analysis of the annex indicates that the secretariat's emphasis has been on the preparation of studies and reports. Follow-up to such studies and reports in terms of promotion, consultation and project development has, because of resource constraints, not received the adequate attention the secretariat would have wished. The secretariat considers also that member States should be more closely associated with the implementation of the Nairobi Programme of Action which would give renewed momentum to the secretariat's activities. Hence, in order to increase the effectiveness of ECWA's new and renewable sources of energy programme, the secretariat recommends:

(a) The establishment of a mechanism i.e. an ad hoc subsidiary body to review and adopt measures to be undertaken under each priority area identified in the Nairobi Programme of Action, with particular applicability to the ECWA region as a whole and to each country;

(b) The national and regional focal points for natural resources science and technology should meet to consider national and regional implementation of various projects with particular reference to regional co-ordination and allocation of the requisite resources;

(c) ECWA should assume a regional role as a clearing-house for acquisition and dissemination of information on new and renewable sources of energy;

(d) The co-operation between ECWA, DAPEC and other energy-specialized organizations in the area of new and renewable energy should be strengthened.

Annex

STATUS OF STUDIES ON NEW AND RENEWABLE
SOURCES OF ENERGY

Study/report	Date completed	Ad hoc advice	Promotion & consultation at regional/national level	Project and policy development
<p>1. Solar energy in the Arab World</p> <p>2. Wind energy in the Arab World</p> <p>3. Biomass energy in the Arab World</p> <p>4. Geothermal energy in the Arab World</p>	<p>November 1980</p>	<p>Submitted to the Regional Preparatory Expert Group Meeting on New and Renewable Sources of Energy, Beirut, Jan. 1981</p>	<p>The four reports were published in one report entitled: <u>New and Renewable Energy in the Arab World</u>, 2000 copies were distributed to Governments and end-users.</p>	<p>Input into formulating the Nairobi Programme of Action.</p>
<p>5. ECWA regional report to the Nairobi Conference</p>	<p>April 1981</p>	<p>ECWA contribution to Nairobi Conference</p>	<p>2 high-level missions to all ECWA countries to promote regional initiatives.</p>	<p>Recommendations of the report were adopted by member States at ECWA's eight session, resolution. 94(VIII)</p> <p>Submitted to Nairobi Conference for the purpose of identifying project areas in new and renewable energies.</p>
<p>6. Blueprint for projects on new and renewable energy in the ECWA region.</p>	<p>June 1981</p>	<p>Second Arab Energy Conference, Doha 1982.</p>	<p>Recommendations adopted at Second Arab Energy Conference.</p>	<p>Currently under promotion</p>
<p>7. Report on the regional dimension of new and renewable energy in the ECWA region.</p> <p>8. ECWA proposals of action-oriented programmes for carrying out the Nairobi Programme of Action</p>	<p>March 1982</p> <p>June 1982</p>	<p>Interim Committee on New and Renewable Sources of Energy Rome 7-18 June 82</p>		

Annex

STATUS OF STUDIES ON NEW AND RENEWABLE
SOURCES OF ENERGY (Cont'd)

Study/report	Date completed	<u>Ad hoc</u> advice	Promotion & consultation at regional/national level	Project and policy development
9. Regional programme for new and renewable sources of energy with special reference to rural applications	February 1983		Distributed to all member States and to regional and international institutions	Identification of priority projects for execution in co-operation with AFME.
10. Emerging solar technologies; Implications for Arab countries	May 1983	Second Conference of the Iraqi Solar Energy Research Centre, Baghdad		
11. ECWA's regional role in promoting solar energy	December 1983	First Arab International Solar Energy Conference Kuwait, Dec. 83 OAPEC Energy Conservation Symposium	Promotion of ECWA/AFME co-operation among member States.	Recommendations pertaining to rural energy were adopted by the Symposium
12. Rational use of energy in agriculture and rural sector of the Arab countries	December 1983			