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SUBSTANTIVE PREPARATIONS FOR THE CONFERENCE

Activities of the relevant organs, organizations
and bodies of the United Nations system in the
field of new and renewable sources of energy

Addendum

Report submitted by the
United Nations Educational, Scientific and Cultural Organization *

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UNESCO PROGRAMME IN THE AREA OF NEW AND RENEWABLE
SOURCES OF ENERGY

I. LEGISLATIVE MANDATE AND ENABLING RESOLUTIONS

In accordance with its name and constitution the main mission of Unesco is the advancement of education, science, culture and communications, particularly in the developing countries. Of the enabling resolutions at the 21st General Conference of Unesco in October 1980, the following two resolutions relate explicitly to its programme in the field of new and renewable sources of energy (NRSE) :

A. "2/01 General resolution on the programme for natural sciences and their application to development"

The General Conference.....2. Authorizes the Director-General to carry out activities contributing to the attainment of the following objectives :....

(c) 4.3. Development of scientific and technological research and training, and promotion of international and regional co-operation in the field of science and technology, with a view to increasing the endogenous capabilities for scientific and technological creation, making it possible, in particular, to work out appropriate technologies or to adapt existing technologies, ... by special support for the development of computer science and for research and information transfer on the rational use and development of conventional and non-conventional energy sources, especially for the benefit of rural and dispersed populations ;"

B. "2/07 International information system relating to new and renewable energy sources"

The General Conference, 1. Authorizes the Director-General to carry out activities which contribute towards the ultimate establishment of an international network of information systems and services on new and renewable energy sources according to the directions and modes of action proposed in 21C/91 and 21C/INF.10 and in accordance with the objectives of Unesco's action as set out in the Medium-Term Plan ; ...".

II. LONG-TERM OBJECTIVES AND MEDIUM-TERM PLAN

As part of its present programme Unesco has initiated a series of major regional projects which will attempt to mobilise resources from the Regular Programme and Extra-Budgetary Sources for critical areas of development in science and technology, including energy.

In the long run based on the above work, these projects will be used, inter alia, for implementing education and training and development of information systems, leading to the required build-up of national capabilities in the NRSE field.

Specifically, within the limits of the financial resources available, projects will be established to implement action in such areas as, establishment of courses for energy planners and for NRSE specialists, coordination of training standards and curricula for NRSE training, as well as for fellowships in this field.

In addition action will be focused on establishing an international network of information systems and services in NRSE. The action programme will emphasize promotion of large-scale pilot projects within national and regional infrastructures, the improvement of energy information flow to and from developing countries, and will provide for a phased and steady development towards the ultimate network, taking advantage of existing systems and services, and progressing towards the ultimate network.

Unesco has started work on a new medium term plan for the period 1984-1989, and is using as the basis for the energy programme preparation the recommendations for the December 3-7, 1979, Meeting of Experts to Advise on Future Unesco Programmes in the Field of Energy. This meeting was convened in pursuance of a resolution adopted at Unesco General Conference's 20th session. The conclusions of this meeting were that Unesco should consider as priority areas in its future programmes the overall assessment of the energy situation and the more efficient use of different energy sources, emphasizing renewable sources of energy and small-scale sources of energy for rural and remote areas; further that the major modalities for these activities in the field of energy should be education and training, promotion and stimulation of basic research, improvement of information exchange and dissemination, and an interdisciplinary approach with emphasis on the social and cultural dimensions.

III. PROGRAMME AND BUDGET ACTIVITIES

A. Concrete measures for the transfer of relevant technology to developing countries

Unesco sponsors a number of training programmes for specialists from developing countries, which promote new and renewable energy sources. These include post-graduate level courses at Perpignan, France; Niamey, Niger; Pisa, Italy; Bangkok, Thailand; Tokyo, Japan; and courses for technicians at Perpignan, France.

Recognizing that the supply of skilled manpower is one of the critical elements in the transfer of technology, and that relatively little is known about the training needs and potential

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in the field of new and renewable sources of energy, last year Unesco carried out a survey and analysis of programmes, facilities, and needs in the field of education and training related to new and renewable sources of energy. The study (1) was based on about 300 replies to a questionnaire and some 50 interviews and includes information on the way that new and renewable sources of energy are dealt with currently in university curricula ; special training courses and programmes which have been developed at all levels ; facilities and possibilities for training of technicians ; conclusions relative to manpower needs in the various areas of science, engineering and technology ; and suggestions for programmes which can help to meet these needs better.

Follow-up effort to the above study has been started relative to one of its main conclusions on the urgent need for training energy planners. With partial support from UNDP, Unesco is carrying out a six-month Prefeasibility Study of a Training Network in Energy Planning. Unesco's effort is focused on defining the situation in Europe, as well as on defining the support available and steps necessary for the establishment of a training network of this type in the various regions of the world. This study is coordinated with and part of a broader effort at the Institute of Energy Research, Stony Brook, N.Y., which is also carried out with UNDP support.

In addition, Unesco has organized or is planning a series of workshops, meetings and training courses on various aspects of new and renewable sources of energy which are designed to improve transfer of technology to and between developing countries. These include :

- Workshop on Solar Drying, Barbados, July 1980 ;
- Workshop on Solar Pumping, India, October 1980;
- Seminar/Workshop on Solar Applications in the Tropics, Singapore, October 1980 ;
- Symposium on Biofuels, Nigeria, August, 1980 ;
- 1981 Regional Training Workshop on Biomass for Extension Workers ;
- 1981 Training Workshop for Architects and Building Construction Supervisors on the Use of Solar Water Heaters in New Towns of North Africa ;
- 1981 Regional Workshop on Alternative Energy Sources for Rural and Dispersed Populations in Africa (minihydropower, solar and biomass).

(1) "Survey on Education and Training in NRSE", UNESCO SC/TER 395, dated 19 December, 1980.

To help focus its programme in the advancement of new and renewable sources of energy and to help assure the success of the United Nations Conference on New and Renewable Sources of Energy (UNCNRSE), Unesco is organizing a one-week International Workshop on Non-Technical Obstacles to the Use of New Energies in Developing Countries, which is to take place at the Rockefeller Foundation's Conference Center in Bellagio, Italy, from May 25-29, 1981. This conference will be held in cooperation with eight other organizations including the Commission of European Communities, the Commonwealth Council, United Nations University, and the International Development Research Center. It will emphasize socio-cultural, manpower, information, institutional and legal constraints. It is expected that this workshop will bring together a small group of the world's leading experts in NRSE and will serve as a forum for candid discussions based on previous UNCNRSE preparatory efforts. A summary report on this conference will be made available to UNCNRSE and subsequently a book will also be published on the detailed proceedings.

Among the most effective mechanisms for transferring technology is the establishment of regional linkages to promote exchange of information and personnel, cooperative research programmes, and technical cooperation among developing countries. Unesco has provided stimulus and support for the establishment of two such groups, the Asian Solar Energy Network, and the Solar Energy Society for Africa. Similarly in 1981, Unesco will sponsor during the International Solar Energy Society Conference in Brighton, U.K., a special session devoted to issues of importance to developing countries.

Within its Regular Programme, Unesco is also providing support for a number of demonstration projects at which models of new sources of energy are constructed and displayed. In most cases these demonstration projects are linked with other related activities.

In addition to its Regular Programme activities, Unesco implements a number of energy programmes financed from extra-budgetary sources such as UNDP and Funds-in-Trust, which are directly related to transfer of technology. UNDP projects on solar energy are currently being implemented in Mexico and Algeria, and there are energy components in a number of other projects. A prefeasibility study for the establishment of a regional solar energy centre at Bamako, in Mali, to serve the CEAO countries, has been completed. Unesco is expected to be associated with this project which is likely to become a major effort with potentially widespread impact and implications.

B. Exchange of research and information on the latest developments and experiences in the practical application of new and renewable sources of energy

In accordance with enabling resolution 2/07, in part quoted above in section I, Unesco activities will be undertaken, beginning in January 1981, for the development of an international network of information systems and services on new and renewable energy sources. This effort will follow the recommendations of the study (1) on this subject, which the Unesco Secretariat completed in 1980. It involved 37 consultants in an intensive review, including visits to over 256 organizations in 55 countries and contacts with major international and national agencies and programmes working in related fields. It examined user needs, present facilities for meeting these, and planned programmes to improve the present situation.

In establishing the Unesco programme in this field the General Conference considered the full report on the above study, the report of the Director-General on the results of the study (2), and the additional proposals made by the Director-General in the Programme and Budget document for 1981-1983 (3). In addition, the activities to be undertaken are a contribution to the implementation of the Plan of Action, adopted by the United Nations Conference on Science and Technology for Development (UNCSTD), Vienna 1979, and a part of the preparations for the UNCNRSE in 1981.

The Director-General was authorized to establish an International Liaison Committee for New and Renewable Energy Information to advise on the design of the network, to assist in co-ordinating the funding of activities, in promoting the development of the network and in evaluating its progress.

A unit was created within the Science Sector of the Secretariat, closely associated with the Division of the General Information Programme, to ensure the support of the International Liaison Committee for New and Renewable Energy Information and the overall co-ordination of the programme of action, including the initiation and promotion of pilot projects.

The programme actions fall under four broad headings :

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- (1) A Preliminary Study on an International Information System Relating to New and Renewable Energy Sources, UNESCO, 21 C/INF.10, dated 8 October 1980.
 - (2) Report of the Director-General on the Results of the Preliminary Study on an International Information System relating to New and Renewable Energy Sources, UNESCO, 21 C/91.
 - (3) UNESCO, 21 C/5, Approved Programme and Budget, January 1981.

1. Planning, guiding, co-ordinating and promoting the establishment of the network.
2. Establishment of sources of information on new and renewable energies.
3. Co-operation with Member States for establishing national and regional mechanisms within the framework of a world-wide network.
4. Conduct of pilot projects in the various regions of the world.

The programme aims are :

1. identifying, promoting and supporting lead centres in the new and renewable energy fields which could undertake the evaluation of information on particular aspects of new and renewable energies and consolidate such information in forms suitable for specific types of users ;
2. promoting pilot projects for the gradual linking of participating institutions at national and regional levels into sub-networks ;
3. establishing mechanisms to improve the availability of information of relevance to new and renewable energies, most particularly the non-conventional literature, including that generated in or for the United Nations system ;
4. collecting, compiling, evaluating and providing numerical data and statistical information relevant to research and development, technology, economic and social aspects ;
5. assisting the developing countries in building and strengthening national and regional information infrastructures in order to maximize their contribution to, and benefits from, the network ;
6. promoting inter-personal and inter-institutional communication in this area at the national, regional and international levels.

As part of the above programme, in December 1980, a joint project between Unesco and the Solar Energy Research Institute (SERI) of the US was initiated to compile an international directory of major research centres and information services and sources in NRSE. This compilation will be distributed in both printed form and on computer tapes for on-line searching in August 1981. Maintenance and updating of the computer file will be undertaken by SERI.

Unesco also publishes a series of books in different areas of technology, including energy technology. These include "Solar Electricity. An Economic Approach to Solar Energy", published in 1979 and now going into a second and revised edition, and three manuscripts on "Harnessing Ocean Energy", "New Energy Sources for Developing Countries", and "Energy Perspectives", which will be published in 1981. These are distributed through normal commercial channels.

C. Provision of appropriate technical assistance, as necessary to the designated national focal points in the preparations for the Conference

Unesco does not have the capacity to provide large scale direct assistance, but it has been able to provide some assistance to a number of Member States in areas related to the UNCNRSE Conference. These include consultant services, fellowships and study tours, and support for research and development, much of this coming under the Programme of Participation in the Activities of Member States and under the Special Account for Increased Aid to Developing Countries within which Unesco responds directly to requests from Member States for specific assistance.

Unesco staff members, particularly specialists attached to the Regional Offices, are able to provide technical assistance to Member States; and in a number of cases, specialists with background in one or more of the new and renewable sources of energy have been made available.

D. Provision of Financial Assistance for the Measures listed above

Financial assistance can be broken down into three main categories : Regular Programme allocated to specific activities, Regular Programme Allocated to Participation in the Activities of Member States, and Extra-Budgetary Resources.

Under the Regular Programme (themes 4.3/09 and 10.1 discussed in III above) approximately \$3 million are allocated in the present triennium. It is expected that an equivalent amount of extra-budgetary support will be made available to this program. Support for activities related to new and renewable sources of energy under other themes in the science programme is on the order of \$300,000 and under the Participation Programme an additional \$400,000 is expected to be available.

IV CONCLUSION

Unesco has been active in the field of NRSE for over 30 years during which period it has developed extensive programmes, contacts, and competence. In the future we would expect to continue to play an active role in these areas in cooperation with other bodies.

