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PROGRESS MADE IN THE IMPLEMENTATION OF THE WORK PROGRAMME

THE ROLE OF THE REGIONAL NETWORK IN DISSEMINATION OF INFORMATION IN THE AREAS OF NEW AND RENEWABLE SOURCES OF ENERGY

Note by the Secretariat

86-0283

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Background

In deciding to establish information networks on new and renewable sources of energy, the Economic and Social Commission for Western Asia (ESCWA) at its Ninth Session recognized the important role played by substantive information in promoting the development and utilization of New and Renewable Sources of Energy (NRSE). Among the key issues to be considered at the Intergovernmental Technical Committee on NRSE in its next meeting, are the ways and means of facilitating effective flows of information dealing with the subject, especially among ESCWA member countries.

Consequently, the ESCWA secretariat decided to convene a meeting for the participants in the NRSE information network prior to the Intergovernmental Meeting to address issues concerning information flows. Particular attention was paid to the New and Renewable Sources of Energy Information Network (NRSEIN) in which the ESCWA secretariat could effectively assist its member States in the areas of NRSE. This would be achieved by promoting, the exchange and dissemination of research results and information on the latest development and experiences in the practical application of these energy sources through the network mechanism.

An effective information-support system is vital for policy and administrative decisions, research and development, education and training, transfer and development of technology and for feedback into the operational activities of the development process in the field of NRSE.

The meeting of the participating institutions (NRSEIN) was convened at the ESCWA's headquarters from 2-3 September 1985 to examine the present situation, assess the current information use and supply capabilities and consider role and obligations of the ESCWA secretariat, obligations of the participants and suggested terms of reference for national focal points[1/].

Programme element 2.1 on the "Feasibility of a Regional Network Among Institutions Concerned with NRSE in the ESCWA Region" called for the submission of a report to the Commission on the role of the regional network in dissemination of NRSE information in the region.

The purpose of this report is to focus attention on the initiatives taken by the ESCWA secretariat for constituting a regional NRSEIN under the existing work-programme.

1/ Report of the Technical Meeting for participating institutions in the New and Renewable Sources of Energy Information Network (Baghdad, 2-3 September 1985). (E/ECWA/NR/85/WG.5/7/Rev.1).

Chapter I

INTRODUCTION

A. Role of information in the development of renewable sources of energy

For several years now the region's NRSE specialists have been interested in the impact of information with regard to all aspects of the developmental process. As a result, among the central issues discussed and negotiated by ESCWA Governments at recent international conferences are the ways and means for facilitating information accessiblity.

Many organizations both within and outside the United Nations system have recognized this requirement. A background study conducted by the United Nations dealt with the establishment of a network for the exchange of scientific and technological information[1/].

The study recommended the establishment of an information network, and suggested that a pilot network be established in one or more priority areas, such as energy. The immediate objective of the network was to link information seekers with their required sources of knowledge particularly those relating to transfer, adaptation and development of science and technology. Response capability to the practical technological information-needs of problem solvers was another objective of the proposed network.

At the national and regional levels, Arab Governments have also begun to provide for information delivery infrastructure by establishing research institutes, documentation centres and information networks charged with supplying information necessary for planning and implementing effective programmes in the national priority areas. The following organizations to name a few, reflect policy decisions which recognize the significant role played by information in facilitating desired change: for example, the Egyptian National Scientific and Technical Information Network (ENSTINET) of the Academy of Scientific Research and Technology (ASRT), the Iraqi Scientific Documentation Centre of the Foundation of Scientific Research, the Information System of Saudi Arabian National Centre for Science and Technology (SANCST) and similar other organizations in other countries of the region. These organizations have shown that information is an integral component of development.

1/ Studies on the establishment of an information network for the exchange of technological information were undertaken by the Secretary-General with the assistance of the Inter-Agency Task Force on Information Exchange and Transfer of Technology as requested by the General Assembly in resolution 3507(XXX), 31/183 and 32/178.

In addition, since the interests of those engaged in policy and planning for the development and use of NRSE are multidisciplinary, the body of knowledge from which scientists and individuals in key positions can draw information is necessarily large. However, despite the fact that large files of pre-selected and systematized information are maintained by many organizations, and sophisticated information processing and telecommunication technology, facilitating the rapid flow of information from its vast storage to its potential users, are available today, the requirements of those seeking information on NRSE are not yet satisfied in the region.

Some of the reasons for this are:

1. The diverse nature and type of NRSE information required. The former changes according to frequently shifting national goals and priorities;

2. The fact that most existing information systems and services modules are not maintained to accommodate the variety of new user requirements;

3. The high costs of customized systems development coupled with the scarcity of highly experienced systems designers who understand the complex requirements of a variety of NRSE information users; and

4. The scarcity of useful factual (non-bibliographic), numerical and statistical data collected and stored in anticipation of future requirements.

Most scientists/researchers also have difficulty in identifying the types of information suitable for their needs without complete knowledge of the available options. They frequently find that the required information is scattered and difficult to obtain, despite the fact that the body of knowledge containing the specific information is sufficiently large to meet their requirements.

The reason for this state of affairs lies in the fact that a communication gap exists between the users of information and the latter's producers. The technical expressions of statisticians and information scientists are not always comprehended by problem-oriented decision-makers and managers, while the complexity of NRSE and their terminologies are often only partly understood by those concerned with producing information.

To meet the demand for information, a more co-ordinated and systematic approach to its collection, exchange and dissemination in regard to new and renewable sources of energy, the ESCWA secretariat initiated the foundation for the phased development and co-ordination of a regional NRSE information network[2/].

2/ For further details see the following documents presented to the Technical Meeting for Participating Institutions in the New and Renewable Sources of Energy Information Network, Baghdad, 2-3 September 1985. "Review of the Present State of Research and Information on New and Renewable Sources of Energy in Selected ECWA Countries" (E/ECWA/NR/85/WG.5/4). "Information Network for New and Renewable Sources of Energy in the ECWA region" (E/ECWA/NR/85/WG.5/5) and Report of the Technical Meeting (E/ECWA/NR/85/WG.5/7/Rev.1).

B. Some misconceptions about NRSE information

There are some widespread misconceptions concerning NRSE information and its production and presentation. One of these is the belief that there can be a minimum set of data to serve all purposes at all times. This, however, would not permit a dynamic and flexible approach towards the planning of NRSE. The more active and innovative the renewable energy policy, the less predictable the information needs. A renewable energy information system should be able to translate broadly formulated requests for information into definable tasks, clearly presented within a relevant time-scale. On the other hand, there is value, at the international, national and regional levels, in the concept of a common minimum set of basic data for providing comparative information.

Another misconception results from the belief of the relative simplicity of knowing what NRSE information is required and its method of application. In most cases decision-makers are not aware of their information needs and much effort is needed to discover what should be known. Sometimes, data are seen as unimportant because they have not been used.

Reliability of NRSE information is a natural requirement, but even here misconceptions are common. Formal exactness in the mathematical sense is not always the most important quality from the point of view of the decision process. Validity of information is much more important, for example, basic definitions should be fully applicable. Differences in coverage and lack of reliable solar radiation data are examples of common limitations. Errors and weaknesses are not to be defended but, on the other hand, rather unreliable but relevant information can be most completely relevant and covers all questions that arise even for the solution of well-defined problems. Many critical comments and recommendations concerning data and related sources of energy information have been made. The Nairobi Plan of Action (PA), devised by the United Nations Conference on New and Renewable Sources of Energy in 1981, endorsed a recommendation on the establishment of effective systems of information on NRSE at the national level which should be closely linked with information systems and networks at the subregional, regional and international levels utilizing existing information systems at all these levels to the maximum extent possible[3/].

3/ Report of the United Nations Conference on New and Renewable sources of Energy, Nairobi, 10-21 August 1981 (A/CONF.100/11).

Chapter II

INFORMATION FOR PLANNING AND DEVELOPMENT OF RENEWABLE SOURCES OF ENERGY

A. Current NRSE information-exchange and dissemination activities

Research and development activities for NRSE have been carried out for many years now and much is already known about them, particularly in industrialized countries. Like many other multidisciplined subject areas, information concerning NRSE is disseminated and used mostly through conventional conduits such as seminars, workshops and conferences; indexing and abstracting services; libraries, documentation centres and information clearing-houses; and review journals and professional publications most of which are intended for experts in one or more area of specialization.

However, since the descriptive term "new and renewable sources of energy" is a new one, much of the information coming under this subject orientation remains inaccessible and difficult to trace through existing mechanisms.

As in the case of other substantive areas such as environment and human settlements, those who occupy the critical positions to effect rapid changes in the areas of public policy, advancement of knowledge and promotion of the development and use of NRSE are as follows:

1. Policy-makers, planners, legislators and government administrators;

2. Research and development professionals, students and educators;

3. Engineers, technicians and others concerned with applications;

4. Manufacturers and enterpreneurs; and

5. The general public.

The type of materials containing information most frequently utilized by users include: research reports; case studies; textbooks; statistical data; summary of projects and research in progress; design blueprints (products, pilot plants, demonstration and commercial facilities); equipment catalogues; directories of manufacturers and vendors; directories of specialists and experts; directories of training and research institutions; assessments of systems, products and their costs; patent files, licences and other know how agreements; professional and technical journals; and standards, government regulations and by-laws.

B. Information systems and services

When most of the existing national and regional information systems and services including libraries, documentation centres, information clearing-houses, as well as publishing enterprises were established, the

urgent information needs of those presently engaged in promoting the development and use of new and renewable sources of energy were little known.

Futhermore, by design these systems and services were not intended to meet the requirements for specific and timely information, particularly non-technical policy-oriented users. Nor are these services as useful to users in a new field or to non-technical users lacking the support of library and information infrastructures.

C. Seminars, conferences and other means of information dissemination and exchange activities

One of the most effective means of exchanging or disseminating new information is through seminars or conferences designed to invite those who are active specialists in a given field. However, in the absence of a comprehensive information clearing-house service on seminars and conferences dealing with various aspects of NRSE, potential users of information have difficulty knowing or deciding which seminar or conference is suitable for them to attend.

Various attempts by organizations such as OAPEC to announce forthcoming events relevant to NRSE are reaching a limited number of people who are presently on their distribution lists. Moreover, the proceedings of the meetings seldom reach those who can benefit from the information contained in them, as they are usually distributed only to participants.

The problem is compounded for those in the Arab region where seminars and conferences are held on the subject. Furthermore, not enough participants from these countries are invited to take advantage of the seminars and workshops where new ideas and up-to-date information are often disseminated. In many cases, only a select few who managed to be recognized by the organizers of regional/global meetings are repeatedly invited to these meetings.

Another frequent means of quickly communicating newly formulated ideas is through their originator's personal communication network which is usually established through meeting colleagues at universities, research institutes, conferences, seminars and workshops. Many researchers and practitioners in the Arab countries are often left out of "invisible colleagues" and similar personal communication networks and, therefore, are not receiving the latest technical or scientific information generated by their counterpart outside their region. Even when visits are made to a country by an overseas expert, frequently only a small number of those who are potentially interested will be aware of the visit.

D. Information collection and generation

Today, a large body of NRSE knowledge has already been collected and is to be made available by public and private organizations concerned with overseeing energy-related policies and programmes and supplying the basic

energy requirements of various countries. This information has largely been created as a part of various information-collection activities in scientific and technical fields not necessarily oriented exclusively towards NRSE.

Information on NRSE will continue to be scattered in almost all areas of science and technology especially as users and producers of information who are engaged in the development of NRSE do not have a common field of interest or expertise.

As for the information requirements of those who are engaged in development efforts, some measures have been taken lately to collect comparative information useful for planning, technology selection and evaluation of NRSE projects. However, no information has yet been collected for an operational system or service to meet their needs. Information on the methodologies associated with the assessment of energy systems and their costs is of particular importance.

E. Information as a method for regional co-operation

The information network, can channel the concerns of regional countries and their scientific research institutions by steering them towards specialized mechanisms which could implement the project. This led to conversations being initiated between the ESCWA secretariat and selected NRSE research institutions and documentation centres in mid-1985, with the aim of seeking the most expeditious means of arriving at an exchange of experiences and co-operation among ESCWA countries in planning NRSE matters, through information.

Henceforth the idea emerged of creating the Information Network for Planning, Development and Utilization of Renewable Sources of Energy, taking into account the following:

1. If the system is capable of collecting and making an inventory of the information produced in the region on planning NRSE; and

2. If the information collected was organized by means of an appropriate classification and a system of processing which would permit its use at a later date, the network would be in a position within a reasonable time, to provide the participants with up-to-date material which would help them to tackle common or particular problems associated with development and utilization of NRSE in the countries of the region, by providing them with information on ongoing and planned research and projects pertaining to NRSE.

The implementation of an information system on NRSE is a complex task which requires different data making it possible to design an information system which will efficiently meet the needs of planners, scientists and others involved in renewable sources of energy, and the subsequent definition of a series of successive actions which will carry the system towards the achievement of its goals. The fundamental objective consists in setting up a system of co-ordination and co-operation among scientific institutes and documentation centres involved in NRSE to promote and implement the exchange

of national experiences in NRSE development and utilization and establish forms of developing common actions to promote appropriate machinery for dissemination of information on NRSE. This co-ordinated action corresponds to the essence of the network systems proposed by the ESCWA secretariat to promote horizontal co-operation among countries.

Chapter III

MEASURES TO IMPROVE EXISTING CONDITIONS

A. Problems of information in the planning process

The incorporation of the information component as one of the basic elements in the system of co-operation and exchange of experience in NRSE represents an important step. It is essential to have adequate knowledge of the data produced on various sources of renewable energy and related topics so as to make it possible to carry out the activities of formulating, following-up, organizing and monitoring the NRSE planning process.

To illustrate this, some basic data are given below which are needed before the NRSE information system can be put into practice:

1. Knowledge of the NRSE situation in the region;

2. Knowledge of NRSE planning information needs;

3. Identification of NRSE institutions in the region;

4. Knowledge of institutions in the region which generate information on NRSE;

5. Appraisal of the information infrastructure existing in countries of the region;

6. Knowledge of information systems on the subject or relating to it, existing at the national and/or regional levels;

7. Diagnosis of the possibilities and deficiencies of the general situation in the region as regards its energy information infrastructure; appraisal of the possible integration of regional information units or co-operative information systems or networks for expanding its services capacity;

8. Diagnosis in each country of the possibilities and limitations of its national energy information infrastructure; and

9. Definition of national and regional information policies according to the diagnosis effected with data collected.

B. Identification of priority information

To define an ideal information system for NRSE planning and development, fundamental aspects should be considered: the data to be entered in the system and the products and services that it will offer to the users. In institutionalizing the technical and scientific information gathering efforts concerning alternative sources of energy, a mechanism should be provided which routinely identifies and monitors shifting priority from both technical, as well as policy points of view. This type of mechanism could only be

effectively instituted at the national level, probably within the lead government agency responsible for renewable energy policy and planning.

If the problem is to be tackled from a realistic point of view, gradual solutions should be adopted and objectives fixed which in the short-term will provide answers to some of the problems already indicated. For example: (a) control of the documentation produced during the planning process (national conventional and non-conventional energy plans, sectoral plans, programmes and projects inserted into the context of these plans, etc.); (b) control over the methodological documentation produced by institutes or centres which have carried out significant activities in the study, research, training, etc., of NRSE in the region.

C. Establishment of efficient linkages between users and suppliers of information

In terms of geographical scope, the information system can cover the following contexts: international, national and regional. It is considered that to begin with it should be of a regional nature in accordance with what has been said earlier as regards the need for exchanging NRSE experiences among regional countries. However, to achieve this objective, a national infrastructure of information for energy or planning must exist on which to base the NRSE information system. It is for this reason that particular consideration should be made to strengthen or create an adequate infrastructure in each of the ESCWA countries participating in the New and Renewable Sources of Energy Information Network (NRSEIN). In addition, and as a strategy the network should be linked in the near future with other regional and global renewable energy networks.

Applications of new telecommunication facilities must be encouraged so that no individual or organization in a key position is left without access to available information resources. Particularly useful are the newly emerging teleconference facilities which provide immediate access, through the use of a simple telecommunication device and video-screening equipment, to the scene where information is being generated. The use of inexpensive but effective new technology should be made available in all national and regional meetings so that the information being shared could be widely and immediately disseminated.

D. Training programme for information specialists

A large number of information specialists with the capacity to link the users with existing systems and services such as the International Information System for the Agricultural Sciences and Technology (AGRIS) and the International Nuclear Information system (INIS), and others, must be trained to assist "lay users". These specialists should be trained to maximize the usefulness of the existing information resources that are rapidly expanding as the growing interest in NRSE promotes the use as well as generation of information.

The availability of well-trained intermediaries who provide linkages between seekers of information with information itself must be accelerated in the ESCWA region, and in particular in the least-developed ones, through initiating or strengthening ongoing programmes for education and training of information-processing professionals at the national level[4/].

The training of personnel who will support the NRSEIN from each participating national institutions will be undertaken according to the following plan of action:

1. In the short- and medium-term: ESCWA and UNESCO, in co-operation with the Host Centre of NRSEIN, will prepare basic courses on information and documentation in an agreed geographical location for participants in the network, which will include in-service training in the area of NRSE information;

2. In the long-term: refresher courses will be held in information and documentation in some regional countries participating in the NRSEIN, according to a calendar of activities drawn up annually in response to requests from the regional countries.

4/ The component of training should be read within the context of the overall plan of action on NRSEIN as elaborated in Chapter V.

Chapter IV

ESTABLISHMENT OF MECHANISMS FOR INFORMATION EXCHANGE

When a programme for exchange of information on a diverse body of knowledge is proposed, the formation of an information network is usually suggested as the most efficient solution to the problem. As in the case for scientific and technological information, a network can provide linkages among users and systems and services, allowing for variances in their designs and contents. The establishment of formalized arrangements such as network provides linkages between information/scientific centres located among interested institutions/organizations or countries so that collection, dissemination and exchange of information are carried out regularly without interruption or unnecessary duplication.

A. New and Renewable Sources of Energy Information Network (NRSEIN)

In the specific project for the creation of NRSEIN, the strategy involved incorporating in its design the experts in the field. Their presence was therefore sought in technical discussions so that their points of view would be reflected in the recommendations and suggestions 5/. The presence of the experts from the region in the design stages of the NRSEIN project guaranteed that the general lines of the project were in keeping with the conditions and opportunities of the respective national NRSE information infrastructures, preventing any exaggerated solution in the form of activities which would convert the undertaking into a resounding failure.

In line with the concepts mentioned above, ESCWA has reserved for itself the preliminary activities of study, design, promotion, training and co-ordination of the NRSEIN project, seeking to delegate responsibilities - in the regular operation of the network - to the national infrastructures in so far as these are able to meet their own needs for information and for the exchange of NRSE information. This is why the degree of centralization in the initial stage and the expected definitive decentralization of the activities can only be determined in the light of the process of gradual absorption of responsibilities by each national participating centre. The suggested terms of reference for the NRSE national participating centres and the obligations of the participants are set forth in chapter V of the present report.

As an expression of the above strategy, the ESCWA secretariat adopted for this project the methodology of convening technical meetings for discussing the basic design of the NRSE information formats with regional experts and periodic meetings for consultation with the regional organizations involved for the exchange of ideas on technical details.

5/ Report of the the Technical Meeting (E/ESCWA/NR/85/WG.5/7/Rev.1).

B. Structure of the network

Among the parameters to be considered is the organization which will be given to the network. A network can provide means of efficient connecting systems and services of homogeneous designs and contents. If one unit is established in each country to be responsible for collection, dissemination and exchange of locally produced information on NRSE, it can serve as a switching point for exchanging information among its counterparts in the countries within and outside the region. Such an arrangement can provide the most comprehensive access with minimum duplication to information currently available through a single access point in each country or region.

The question of a centralized or decentralized network was discussed in a previous report 6/. However, whether an intermediate formula to be applied, such as, for example, the utilization of national focal points on NRSE, which feeds NRSE information to a central co-ordinating body, or a regional co-ordinating nucleus which refers all questions to the regional Host Centre, is left to the decision of the participating countries in the NRSEIN. The combinations of activities to be centralized or decentralized are innumerable. However, during the years 1985-1986 the NRSEIN firmly centralized at ESCWA is envisaged for exclusively pragmatic purposes, with the objective facilitating its operation and making for greater possibilities of success.

This would perhaps be the place to refer to the action philosophy of ESCWA which always tends towards decentralization with the purpose of creating, through the distribution of responsibilities, the national capacity for carrying out and serving NRSE information needs in the region. Centralizing NRSEIN, as has already been said, is to make the network more feasible and operational in its early years until a Host Centre is agreed upon by the participants and its terms of reference worked out in a formal agreement with the ESCWA secretariat.

Thus, while an informal information network which links various institutions/organizations on an ad hoc basis has the capacity to fill enormous information gaps, it cannot clearly define its capabilities or limitations. Therefore, if an assurance of comprehensive access of existing information is considered important, a formalized network with an efficient switching mechanism providing instant access to all network participants needs to be established on a regional basis.

Alternatively, several formalized mechanisms may also be considered as part of the overall network design for all types of NRSE. For example, specialized information analyses centres on one or more priority topics could be established in selected national centres of excellence to collect, analyse and repackage or translate information in a form useful to its prospective users. A centralized file of research-in-progress might also be established

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6/ UNECWA Report on the Establishment of a Permanent Network on New and Renewable Sources of Energy in the ECWA region and Its Programme of Action, 15 September 1985, (E/ECWA/NR/85/5).

with a leading institution (Regional Network Centre) to which information is contributed each time a new research project dealing with a given renewable energy source is initiated. According to the nature of priority information, types of mechanisms suitable for regional/global information exchange should then be selected and instituted.

C. Basic objectives of NRSEIN

In the short-term:

1. Collection of bibliographical materials on NRSE in the national context;

2. Selection of the national institutions to be entered in the network;

3. Sending of selected documents to the co-ordinating centres (National Centres) of the information system.

In the medium - and long-term:

1. Long-distance indexing 1/ of the bibliographical material for feeding the data base centralized in the Host Centre;

2. Collection and processing of the NRSE documentation in the participating centres itself and formation of collection on NRSE publications;

3. Delivery of direct services by the participating and co-operating centres to the national users.

As such, the basic objectives of NRSEIN is to improve energy information flow, into and out of the ESCWA region through:

1. Development of data-base on NRSE;

2. Exchange of information among participating institutions with the objective of disseminating and insuring optimal utilization of such information;

3. Strengthening national capabilities in informatics by organizing training courses, workshops, meetings, etc;

4. Identification of equipment needed to enable participating countries to handle and disseminate information on NRSE at the local, regional and interregional levels.

1/ "Long-distance indexing" is understood to be the analysis and registration of the bibliographical information, and other information pertaining to NRSE, in a standardized format in the national participating institutions of various ESCWA countries for subsequent dispatch to the Host Centre which will enter this information in the data base.

D. Technical support for NRSEIN

The starting point for a regional NRSEIN involves access to and control of the information produced by the different national institutions linked to scientific research and the planning process. This access to the information, however, is not easy nor is it produced automatically as might be thought. On the contrary, it is one of the aspects in the information system which shows signs of being a problem. Sometimes, it is difficult for the national institutions to acquire the documentation they are interested in, produced in their own countries. It is therefore very improbable that the co-ordinating centre (focal points) which is physically far away from the bodies producing NRSE information/documentation, can have direct access to it. This means that the regional network has to delegate this task to the national participating centres, which could be provided with suitable machinery for operation. This of course, includes the identification of the institutions generating information on the subject establishing necessary channels of communication for collecting this information and creating the machinery for obtaining it.

As previously mentioned, there is some dependence of the co-ordinating NRSE focal points on the participants of national centres in the network in terms of obtaining the traditional NRSE documentation. However, this dependence becomes even greater when it is a question of obtaining less conventional documentation on NRSE (documentation for limited distribution, reports, working documents, publications with small editions, etc.).

One of the possible solutions to this problem and to others of a more technical nature would be to achieve a reasonable distribution of responsibilities between the co-ordinating focal points and the national network centres. For this purpose it is necessary to arrive at some standardization of technical activities so that common criteria can be used which will allow the information collected to be entered in a similar data-base.

E. The network and its relation to other international information systems

There is consensus not only in the region but throughout the world regarding the necessary collaboration required between existing information systems if access is to be had to a volume of relevant and wide-ranging information.

The first information system already in operation to which the regional NRSEIN might be connected in the long-term as a sub-system is the Development Sciences Information System (DEVSIS) 8/ which operates in Canada through the International Development Research Centre (IDRC). Its broad thematic and geographical coverage and its conception as a world system, taking account of the experiences of other global systems, makes it possible to recommend following its intellectual and technical elements closely.

8/ For more information on DEVSIS, see annex III.

Therefore, in planning future NRSEIN system's own profiles, the elements which bring it into line with DEVSIS would have been considered in its design, including the Integrated Set of Information Systems (ISIS) for processing the data, the formats for presenting the data, etc 9/.

Such envisaged relationship with DEVSIS, given NRSEIN access to information for development on a global level, but also claims to cover the data from other disciplinary and inter-disciplinary fields such as education, environment, agriculture, health and transport, etc., all of which are concerns of NRSE planners, and on which information systems, such as the Industrial Information System (INDIS) 10/, operate. It has been envisaged in the long-term to make contact with all of these by means of the device for the mutual use of the information contained in the data-bases, so as gradually to carry out the proposals mentioned in earlier pages, of arriving at as close a control as possible, of all outputs pertaining to renewable sources of energy.

F. New and renewable sources of energy networks of other United Nations agencies

In constructing an information exchange network, it will prove most bneneficial to connect into ongoing information activities carried out by various United Nations agencies, such as the Special Co-ordinating Unit for NRSE; the United Nations Environmental Programme (UNEP) the International Referal System for Sources of Environmental Information (INFOTERRA). FAO The International Information System for the Agricultural Science and Technology (ACRIS) and the Current Agricultural Research Information System (CARIS); the United Nations Centre for Human Settlement (UNCHS) (Habitat); the United Nations Economic Commissions; World Health Organization (WHO). The United Nations Development Programme (UNDP), the United Nations Industrial Development Organization (UNIDO), etc.

UNESCO's global energy information programme is designed to build global network structures and to fulfil the following roles:

1. Relate to the availability of means and the development of user demands, which are especially critical at the community and country levels to ensure not only the optimal utilization of the networks products and services, but more importantly ensure the viability of the network linkages even after external and/or international support stops;

9/ The United Nations Educational Scientific and Cultural Organization (UNESCO), the United Nations Conference on Trade and Development (UNCTAD) and the Food and Agricultural Organization of the United Nations (FAO) are examples of some institutions using ISIS system.

10/ See annex 1.

2. Constitute a link between existing systems or those being planned and set-up, with a view to making the resources of these systems accessible to a wider community of users, gradually upgrading their functions and strengthening them when necessary. This involves United Nations system sponsored or operated energy information activities, as well as those sponsored by other organizations, and considering problems of interface among systems through development of compatible communication channels, uniform data collection and evaluation procedures, compatible file structures, software and hardware; and

3. Strengthen capabilities of selected participating institutions to gradually develop centres of excellence in specialized fields of NRSE which will be capable of undertaking more specialized information processing, analysis and consolidation services using information/data collected, processed and stored in the different data bases generated and managed by UNESCO and other organizations. Examples of these specialized information products and services are: handbooks, state-of-the-art reports, critical reviews, repackaged information suitable for a variety of users, etc. 11/.

The Economic Commission for Asia and the Pacific (ESCAP) has devoted considerable resources to develop institutions and implement programmes to accelerate the applications of NRSE. In China, a regional network for small hydro power has been established with the support of ESCAP. Similarly, a National Institute for Silicon Technology has been established in Pakistan and all stages of the manufacture of photovoltaic cells have been demonstrated. This activity is part of ESCAP's Regional Network on Biomass, Solar and Wind Energy 12/.

11/ For more information on operating Regional Pilot Projects (RPPs), see Energy Information Programme (July 1985).

12/ In the field of biomas, solar and wind energy, a network (BSW network) has been established with its secretariat at ESCAP. This network which is receiving financial support from Japan and Australia is to provide policy review, technology assessment, project development and co-ordination and other consultancy services (ESCAP/NR/FRNRSE/5 dated 23 July 1984).

Chapter V

NRSEIN ACTION PLAN

During the present decade changes of importance have been recorded in the Arab world. One of the most significant has perhaps been the identification of information as one of the basic elements in scientific planning, and along with this, is the generalized awareness of the need to have national, regional and international information infrastructures capable of expediting the flow of information from its generation to the most efficient form of its utilization.

In 1985, the ESCWA secretariat made offers to selected institutions in the region to finance the creation of NRSEIN which would co-operate in the work of the secretariat in research and analysis on renewable sources of energy information, and would also serve to attend to the needs of the Governments of the region and set-up machinery permiting the exchange of information and co-operation among the ESCWA countries.

In the third quarter of the same year, at the ESCWA headquarters in Baghdad, documentalists, system analysts, NRSE programme managers, and officials from participating institutions in the NRSEIN held a meeting in the course of which the theoretical and functional bases were established for the regional NRSEIN, with a view to solving the basic problems relating to information needs and inadequacies in the ESCWA region.

As such, the above assigns to ESCWA secretariat a role in the field of renewable sources of energy information which may be defined as that of promoting interaction between:

1. National institutions for research, development, study, co-ordination, etc., which are generators of NRSE information;

2. National information units which control, process and disseminate information;

3. National, regional and global NRSE information network; and

4. Information users, persons and institutions.

It should be noted here that NRSEIN should maintain a close link with UNESCO's global network of information and services on NRSE. It should adopt the position taken by the World Information System for Science and Technology (UNISIST) that the transfer of information can be established without such a radical change, since it is sufficient to take the necessary measures for the interconnection of the existing systems and induce them to adapt to multilateral norms and exchange agreements. This will improve their total efficiency and restrict the increasing costs of data processing for each of them.

Within the concept of documentation as a group of activities permitting the transfer of information, NRSEIN carries out specific documentation operations which form part of its internal activities, but which are projected to the region through four fundamental and basic functions:

1. Technical advisory services in NRSE documentation;

2. Training and in-service training;

3. Research studies; and

4. Dissemination.

These functions interact in the general course of activities on the basis of a flexible organizational structure and its specialized human resources.

The documentation operations correspond to two programmes. The first involves the analysis, condensation and indexing of NRSE documents generated by the participating institutions in the network with this processing using the ISIS system; the second consists of systematizing the analysis of NRSE information in a form which can be applied in the region and particularly in those institutions with an advanced information infrastructure.

A. Participating institutions in NRSEIN

The foundation for the phased development and co-ordination of a regional NRSEIN has been laid with the establishment of subregional network during 1985-1986 among the following participating institutions:

1. Academy of Scientific Research and Technology (ASRT). Egyptian National Scientific and Technical Information Network (ENSTINET) as national focal point on NRSE information;

2. Foundation of Scientific Research (FSR), Iraq. The Scientific Documentation Centre (SDC) as national focal point on NRSE information;

3. Royal Scientific Society (RSS), Jordan. The Solar Energy Research Centre, as the national focal point on NRSE information.

The Iraqi Scientific Documentation Centre has been approached by the ESCWA secretariat to co-operate in the development of a subregional network for the least developed countries of the region and towards eventually developing a common regional data-base on NRSE information generated in the region.

B. Obligations of the participatnts

Various ESCWA Governments, through their designated and authorized national organizations, institutions, acting as the focal point for the

regional NRSEIN, shall have the following obligations to fulfil the basic objectives enumerated before 13/.

1. To organize and process information/data collected by their respective centres, following prescribed format and standards prepared by ESCWA;

2. To prepare quarterly indexes from data-base in printed form for dissemination to participating countries, or to provide the tapes for countries which have facilities for processing the tapes;

3. In addition to the index, to disseminate important information received from participating countries in other forms that could best be utilized. Such information-repackaging activities, which might well include information available in other parts of the world should, however, be closely co-ordinated with similar or related services rendered by ESCWA, the Organization of Arab Petroleum Exporting Countries (OAPEC), the Arab League Educational, Cultural and Scientific Organization (ALECSO), UNESCO, etc.;

4. To procure, through appropriate arrangements, materials (information and data) available outside the region requested by participating countries; and

5. To organize training programmes, meetings and consultations, designed to train and provide greater interaction among information personnel and users at the national and regional level.

C. The role and obligations of the ESCWA secretariat

In this context the ESCWA mission is technical co-operation and information transfer. These aims influence and can be influenced by NRSE information systems. The main points to be considered are co-ordination, information dissemination, idea production and direct services. Such co-ordination should go much further than sharing of methodolgical procedures and should involve, where possible, the basic concepts and strategies of an information systems development. Strengthened links among national/regional information systems should avoid costly development of single purpose information systems by many individual countries. Accordingly, ESCWA, in accordance with its own regulations, rules and procedures, should have the following obligations:

1. To provide some technical and financial incentives to the participating institutions in the NRSE information network;

2. To seek financial and technical support from donor countries, United Nations bodies and other organizations;

13/ Chapter IV. C, PP, 20-21.

3. To provide advisory services to the participating institutions whenever required;

4. To facilitate linking the regional information network with similar networks in other regions and with NRSE information sources elsewhere;

5. To co-ordinate activities with those of other international organizations;

6. To provide secretarial support and other services for organizing training programmes, meetings, seminars, etc.,

7. Answering enquiries and requests for specific information; and

8. Holding meetings and other forms of interactive communication.

D. Suggested terms of reference for national focal points (NFP) on NRSE

The NFP, within the limits of their resources, shall be responsible for:

1. Identifying the institutions and corresponding individuals engaged in NRSE activities and generating information in those fields;

2. Identifying the users of NRSE information;

3. Training the individuals involved in filling out the formats prepared by ESCWA for input to the network centre;

4. Collecting the completed formats and validating them annually;

5. Sending the formats, together with a copy of all documents to the network centre;

6. Disseminating the index and other network products to all the participating institutions/individuals and indentified users of the information;

7. Maintaining a document collection, as provided in microfiche form by the network centre for the purpose of providing a document delivery service;

8. Referring local enquiries to the network centre for search of the regional data bases and other data bases that are likely to produce the needed information (if the response cannot be provided by the NFP); and

9. Referring network enquiries to appropriate institutions/individuals in the country and seeing to it that such enquiries are substantially and promptly answered, if the response cannot be provided by the NFP.

ANNEX I

Industrial Information System (INDIS)

A. Objectives

To assist the developing countries by facilitating industrial information to them; to serve industrial planners, directors and engineers in their needs for information on all aspects of industrial development, through an industrial information service; the dissemination of printed information material and access to the know-how contained in the documents produced by UNIDO, or obtained from various sources, taken from the automated summaries on industrial development; and to support the development of equipment and means for technological and industrial information and supplement the capacity of existing technological and industrial information services at the national, regional and international levels in order to serve the information needs of industry.

B. Sphere of activity and topic coverage

World-wide geographical context: period of coverage from 1960; languages: Spanish, French and English.

Programme of information: engineering and technology.

At the service of: the member States, centres of extension and information on industrial research, UNIDO staff, and staff on field technical assistance projects.

C. System of indexing and/or classification

INDIS thesauri.

D. Services provided

Question and answer service, periodical publications, automated consultants file, correspondents, address list; the supplementary services include searches on demand, on-line services between Vienna and Geneva where the summaries are stored, occasional training service in the use of the system.

ANNEX II

International System for the Exchange of Information on the Application of Science and Technology to Development (SPINES)

A. Objectives

The establishment of an automated system for the exchange of information among the member States for collecting, analysing, processing and distributing selected data and documents directly relating to science and technology policy, organization, transfer and valuation.

B. Sphere of activity and public coverage

1. World-wide geographical context;

2. Period of coverage of the pilot phase: as from 1977;

3. Languages: English, at a later stage Arabic, Spanish, French and Russian;

4. Provides information: dissemination of science and technology; economics, industry and commerce; engineering and technology; production and availability of information; research techniques; organization of scientific work; public administration; government; knowledge of science and know-how; scientific policy and planning; scientific and technological revolution; systemology and management studies.

C. Sources of information

Monographs, reviews, reports, patents, standards, thesis, minutes, audiovisual material, laws and standards, unpublished documents.

D. System of Indexing and/or classification

SPINES thesauri.

ANNEX III

Development Sciences Information System (DEVSIS)

1. The preliminary design of the Devsis system was prepared by a committee of experts nominated by six sponsoring organizations: the International Development Research Centre (IDRC) of Canada, the International Labour Office (ILO), the Organization for Economic Co-operation and Development (OECD), the United Nations Development of Economic and Social Affairs (UN/ESA), the United Nations Development Programme (UNDP), and the United Nations Educational, Scientific and Cultural Organization (UNESCO);

2. DEVSIS maintains that sharing information and transferring it efficiently among the developing countries are essential conditions for human progress and thus should be an integral part of a "New International Economic Order";

3. DEVSIS has been defined as a decentralized co-operative system which requires agreement among Governments and their direct participation or participation through institutions appointed by them. The central authority must therefore be in the hands of an intergovernmental body suitably provided with official channels of communication with all the governments. This need, reflected in the discussions held at all the stages of the study of DEVSIS, leads to the conclusion that the central authority should be based in a United Nations agency with general responsibility for economic and social development programmes;

4. The United Nations regional economic commissions and the regional development banks also have an important role to play. While they can take part in the System in their own right, the study group recommends that they provide the impulse for a regional policy which may have some impact on the general administration of DEVSIS;

5. The system has a specific aim and will only process information produced in support of the object of its mission, namely economic and social development;

6. Its users will be those involved in development: forgers of policies, planners, investors, project administrators, researchers, communications specialists involved in economic and social development programmes at the level of planning ministries and similar official bodies, international and regional institutions taking part in development programmes, development co-operation bodies and research institutions for the same purpose.

7. Main characteristics of the system:

   (a) Decentralized: The dual task of preparing information and meeting the needs of the users will be carried out through a world network of participating centres located in national institutions, or in regional and international bodies;

(b) Specifically oriented: DEVSIS will only accept information relevant for its purposes, i.e. produced to contribute to economic and social development;

(c) Global: All the countries of the world will be able to participate. DEVSIS will not have its own philosophy on development and will give the same reception to all information, whatever its origins, provided it has been produced for the purpose of development;

(d) Complete, but without repetitions: Studies made show that owing to economic restrictions, the institutions devoted to collecting and disseminating literature on development only analyse a small fraction of the studies which appear, with the aggravating factor that in many cases this work is duplicating. DEVSIS will eliminate these wasted efforts and will fill existing gaps;

8. A basic element in the system is that each country taking part accepts the responsibility of contributing with standardized registers of the relevant documents generated within its territory.