

PROSPECTS FOR THE UNITED NATIONS CONFERENCE ON NEW AND RENEWABLE SOURCES OF ENERGY AND THE PERSPECTIVES OF THE AFRICAN THIRD WORLD NATIONS*

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I. INTRODUCTION

The important role played by energy in a country's economic development and well-being is universally recognized.¹ The development and use of energy resources is an integral part of the development process of any economy.² Energy availability, development, supply and use are therefore issues of crucial importance to any country, and the developing countries of Africa are no exception.

In response to increases in industrialization, per capita income, standard of living, and population energy consumption in African countries has been growing steadily for the past thirty years.³ Furthermore, there is reason to believe that these consumption levels will continue to rise. At the same time the price of energy, particularly petroleum, has increased significantly since 1974. This, coupled with high prices of imported manufactured goods and other commodities, has created a major balance of payments burden to oil-importing developing countries.⁴ This new

* This report originated from the symposium proceedings of the Seventeenth Annual Regional Meeting of the American Society of International Law held in Syracuse, New York, on February 16, 1980, at the Syracuse University College of Law. The symposium was entitled, "International Cooperation in the Promotion of Alternative Energy Sources for the Developing World: Problems of Technology Transfer and Finance."

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1. G.A. Res. 34/138, 34 U.N. GAOR, Supp., U.N. Doc. A (1979). International cooperation in the development of energy is listed as one of five items chosen for discussion.

2. UNECA, *Appraisal of Current Energy Situation and Future Prospects in Africa*, Second African Meeting on Energy, U.N. Doc. E/CN 14/NRSTD/E/2 (Ghana, 1976).

3. *World Energy Supplies*, U.N. Doc. ST/ESA/STAT/SER. J./17-22 (1969-78), [hereinafter cited as *World Energy Supplies*]. Energy consumption in Africa was 41.15 mtce in 1950 and 179 mtce in 1978.

4. Although Africa as a whole is a net exporter of energy, many developing countries of Africa are importers of energy, particularly petroleum. For example, in 1972, the energy deficient developing countries of Africa imported nearly 15 million tons of crude petroleum and 10 million tons of refined oil fuels. These rose to 32.88 and 13.91 million tons respectively, in 1978. *World Energy Supplies*, *supra* note 3.

energy situation has shown the need to appraise the availability of existing conventional as well as alternative energy resources, particularly new and renewable sources of energy.

There has been growing recognition of the potential role that new and renewable sources of energy can play in meeting the energy needs of the developing and developed countries. This potential is further underscored by the fact that fossil fuels, on which the world depends so heavily, are finite and will run out in the foreseeable future.⁵ This realization has been accompanied by the recognition that not enough is known about new and renewable sources of energy. In order for developing countries to make an appreciable contribution in the future, it is imperative that action for energy development be taken now. Now is the time to appraise the latest developments in new and renewable sources of energy on a global basis in relation to their applicability under varied conditions in different parts of the world. This action must attempt to identify problems to be bridged and to exchange experiences, ideas and information on technical, economic, administrative and policy problems between developed and developing countries and among developing countries, including those in Africa.

The need to appraise the potential of new and renewable sources of energy found expression in a resolution adopted by the United Nations Economic and Social Council (ECOSOC) which recommended that the United Nations General Assembly, at its thirty-third session, give favorable consideration to, and take definitive action on, a United Nations Conference on New and Renewable Sources of Energy. The resolution further recommended that the General Assembly define the objectives, scope, nature and timing of such a conference, as well as the required preparatory arrangements, including intergovernmental machinery.⁶ The General Assembly responded by adopting General Assembly

5. Note that petroleum and natural gas together accounted for 40-60% of the commercial energy consumed in 1978. There are conflicting estimates of the remaining reserves of petroleum and natural gas. Some estimate that petroleum and natural gas reserves will be depleted within 20 years. Others estimate that reserves of petroleum and natural gas will last as long as 80 years. Coal reserves are larger and will last longer. Some estimate that coal reserves will last 200 years or more.

6. United Nations Conference on New and Renewable Sources of Energy, E.S.C. Res. 1978/61, U.N. ESCOR, Supp. (No. 1) 60, U.N. Doc. E/1978/78 (1978).

resolution 33/148 which provided that a conference on new and renewable sources of energy be convened.⁷

II. A BRIEF HISTORICAL PERSPECTIVE

The United Nations interest and work on new and renewable sources of energy, under the auspices of the ECOSOC, have a history dating as far back as 1951.⁸ By 1956, action was more specific.⁹ The ECOSOC requested that the Secretary-General consult with appropriate agencies and prepare and submit to the ECOSOC a report on the prospects for the practical utilization of solar, wind, tidal, geothermal and oceanic thermal energy.

The resulting report¹⁰ was well received and revealed that further technical developments were required to bring new and renewable sources of energy to a position of wider application. Consequently, in July, 1957, the ECOSOC requested the Secretary-General to prepare a progress report on the developments in these fields together with recommendations regarding an agenda for an international conference on these sources of energy and their economic implications.¹¹ The idea of a major United Nations Conference was born. On August 3, 1960, the ECOSOC decided to convene a United Nations Conference on New Sources of Energy covering solar, wind, and geothermal energy to be held in Rome, from August 21 through August 31, 1961.¹²

The Rome Conference provided a unique opportunity for the exchange of information among scientists, engineers, economists, government officials and others interested in the development of new sources of energy. The conference also contributed considerably to the consolidation of relevant data that existed at that time. The exchange of knowledge had a notable effect on research

7. G.A. Res. 33/148, 33 U.N. GAOR (No. 1), operative paragraph 1, U.N. Doc. A/RES/33/148 (1979), [hereinafter cited as G.A. Res. 33/148].

8. E.S.C. Res. 345(B), 12 U.N. ESCOR, Supp. (No. 1-3) 6, U.N. Doc. E/1987 (1951), requesting that the Secretary-General continue monitoring the relationship of all forms of conventional sources and atomic and other new sources of energy to economic development, particularly within the developing countries.

9. *Study of New Sources of Energy Other Than the Atom*, E.S.C. Res. 598, 21 U.N. ESCOR, Supp. (No. 1-2A) 3, U.N. Doc. E/2889 (1956).

10. *New Sources of Energy and Economic Development: Solar Energy, Geothermic Energy, and Thermal Energy of the Seas*, U.N. Doc. E/2997, (ST/ECA/47) (1957).

11. E.S.C. Res. 653, 24 U.N. ESCOR, Supp. (No. 1-10) 3, operative paragraph 2, U.N. Doc. E/3048 (1957).

12. E.S.C. Res. 779, 30 U.N. ESCOR, Supp. (No. 1-12) 4, operative paragraph 2, U.N. Doc. E/3422 (1960).

and development of solar, wind and geothermal energy in the succeeding years and formed a solid foundation upon which succeeding studies, seminars and conferences have been based. There was considerable documentation at the conference.¹³ The present conference has been referred to as a sequel to the conference held in 1961. The United Nations has maintained an interest in new sources of energy,¹⁴ and that interest has culminated in the decision to hold a United Nations Conference on New and Renewable Sources of Energy.

III. THE CONFERENCE

On December 20, 1979, the United Nations General Assembly decided by resolution 33/148 to convene an international conference on new and renewable sources of energy in 1981.¹⁵ The resolution provided that the conference would have as its objective measures designed to promote the development and utilization of new and renewable sources of energy. Such development and utilization would be promoted with a view to contributing to meeting future overall energy requirements, especially those of the developing countries. The development of new and renewable resources was particularly stressed in the context of efforts aimed at accelerating the development of developing countries.¹⁶

The decision to convene the conference was a reflection on the part of the international body of the crucial role that energy plays in the overall development of a country. The decision is also a manifestation of the importance of developing new and

13. *United Nations Conference on New Sources of Energy*, 1-7 U.N. Doc. E/Cont. 35/78 (1964).

14. *See, e.g.*, E.S.C. Res. 885, 34 U.N. ESCOR, Supp. (No. 1) 2, U.N. Doc. E/3671 (1962) (inviting the Secretary-General to *inter alia* examine "methods for coordinating and facilitating research into new sources of energy and its application, particularly solar energy, wind power and geothermal energy"); E.S.C. Res. 1033, 37 U.N. ESCOR, Supp. (No. 1) 7, U.N. Doc. E/3970 (1964); E.S.C. Res. 1205, 42 U.N. ESCOR, Supp. (No. 1) 1, U.N. Doc. E/4393 (1967) (appreciating the special role that the Secretariat was playing in the development of new sources of energy, particularly for the benefit of developing countries); E.S.C. Res. 1954, U.N. ESCOR, Supp., U.N. Doc. E (1975) (requesting that the Secretary-General ensure that serious attention be given in subsequent years to not only gas and oil, but also to alternative sources of energy, both fossil and renewable sources, which could play an important role in the economic development of all countries, particularly developing countries).

15. The General Assembly later decided that the conference would be held in Nairobi, Kenya, in August, 1981. G.A. Res. 34/190, 34 U.N. GAOR, Supp., U.N. Doc. A (1979), [hereinafter cited as G.A. Res. 34/190].

16. G.A. Res. 33/148, *supra* note 7, at operative paragraph 2.

renewable sources of energy in order to meet the requirements for continued economic development, particularly in the developing countries.

The scope of the conference as defined by General Assembly resolution 33/148 is confined to the area of such new and renewable sources of energy as solar, geothermal, wind, wave, tidal, thermal gradient of the sea, biomass conversion, fuelwood, charcoal, peat, energy from draught animals, oil shale, tar sands and hydropower. Twelve of these are the subjects of eight panels of experts grouped as follows:¹⁷

1. technical panel on ocean energy, comprising tidal and wave energy and thermal gradients;
2. technical panel on wind energy;
3. technical panel on geothermal energy;
4. technical panel on oil shale and tar sands;
5. technical panel on fuelwood and charcoal;
6. technical panel on solar energy;
7. technical panel on biomass energy;
8. technical panel on hydropower.

In accordance with operative paragraph 9 of General Assembly resolution 33/148 experts for the eight panels were nominated by governments and appointed by the Secretary-General of the United Nations on the basis of equitable geographical distribution and knowledge of the subject.

Consultants are presently studying the usefulness of draught animals and peat in satisfying the world's energy needs.¹⁸ In addition, special studies will be undertaken in cooperation with the appropriate organizations and agencies of the United Nations system on a number of issues that are relevant to all of the panels and all of the energy sources. Such studies include financing, transfer of technology, information flows, rural energy, energy storage and industrial issues.¹⁹ The studies will draw upon previous

17. *Report of the Secretary-General*, 33 U.N. GAOR, Annex (No. 3), Agenda Items 12 and 100, U.N. Doc. A/C.5/33/109 (1979).

18. *United Nations Conference on New and Renewable Sources of Energy, Report of the Secretary-General*, 33 U.N. GAOR, Annex, U.N. Doc. A/34/585 (1979). [hereinafter cited as "Report"].

19. "Statement by the Secretary-General of the United Nations Conference on New and Renewable Sources of the Energy to the First Session of the Preparatory Committee," U.N. GAOR, U.N. Doc. A/Conf. 100/PC/3 (1980), [hereinafter cited as "Statement to Preparatory Committee"]. See also "Statement by the Secretary-General of the U.N. Conference on New and Renewable Sources of Energy to the Second Committee," U.N. GAOR, U.N. Doc. A/C.2/34/15 (1979), [hereinafter cited as "Statement to Second Committee"].

or ongoing work done elsewhere in the system. To carry out these studies properly it is expected that an expert group will be convened in each of these subjects.²⁰

The conference is expected to concentrate *inter alia* on the following:²¹

1. analysis of the state of technology related to new and renewable sources of energy;

2. identification of the potential, particularly in the developing countries, for utilization of new and renewable sources of energy;

3. assessment of the economic viability of the use of new and renewable sources of energy in the light of technologies available now and those being developed;

4. identification of measures of promoting, particularly in the developing countries, development of technologies required for exploration, development, exploitation and utilization of new and renewable sources of energy;

5. identification of the measures necessary for the transfer to developing countries of the technologies available;

6. promotion of adequate information flows regarding all aspects of new and renewable sources of energy, especially to developing countries, taking into account their special conditions and requirements;

7. questions of financing the activities necessary for promoting the identification, development, exploitation and utilization of new and renewable sources of energy.

IV. PREPARATORY PROCESS

The preparatory process for the conference is well underway.²² Seven of the eight technical panels have already met as scheduled,²³ and the eighth panel was scheduled for the week beginning February 18, 1980. Each panel is expected to prepare an interim report, including an initial assessment of the state of the art with regard to the particular source. Each report will focus upon what needs to be done in the intersession period to enable the panels to conclude their work in the second round of meetings.²⁴ The second round of meetings was expected to take

20. "Statement to Preparatory Committee," *supra* note 19.

21. G.A. Res. 33/148, *supra* note 7, at Agenda Item 12.

22. "Statement to Second Committee," *supra* note 19.

23. "Statement to Preparatory Committee," *supra* note 19.

24. Two meetings of the panels of experts are hoped for. As indicated in note 18, "it is expected that the respective panels, drawing upon the documentation of their first

place in the period between September, 1980 and February, 1981.

The study on peat is being undertaken by the Government of Finland on behalf of the United Nations. A consultant has begun the process of securing comparative information from different regions of the world in order to draw a representative picture of the present state of affairs and prospects of improving contributions from draught animals. A small working group of experts will review the study on peat and make appropriate suggestions and recommendations for the utilization of this resource while taking into account technical, economic and environmental implications of such utilization. Similarly, a working group of experts will review the report of the consultant on draught animal power.

After the panels have concluded their work at the second session, a working meeting of panel chairmen, together with energy specialists, economists, energy planners and scientists from around the world, will convene.²⁵ This will be a crucial meeting since it will constitute the synthesizing phase of the preparatory process. Results from each panel, ad hoc group of experts, working group, regional commission and possibly national experience will be weighed and placed in proper perspective regarding overall energy supply and demand. This synthesis process should lead to the evolution of concrete recommendations for consideration by the Preparatory Committee and by the Conference itself. It is also expected that a significant part of the documentation for the conference will be initiated during this phase. The meeting is tentatively scheduled for March or April of 1981.

A. *Role of Other Bodies of the UN System*

Organizations, organs and agencies in the United Nations system have an important role to play in order to ensure the success of the conference. This was recognized by the General Assembly when it invited them, as well as the regional commissions, to cooperate fully in the preparation of the conference.²⁶

meetings as well as on their own technical expertise, will then determine the additional information and preparatory inputs required for the completion of their work at the second meetings." "Report," *supra* note 18.

25. "Report," *supra* note 18; "Statement to Preparatory Committee," *supra* note 19, and "Statement to Second Committee," *supra* note 19.

26. G.A. Res. 33/148, *supra* note 7, at operative paragraph 8. These bodies include: ILO, FAO, UNESCO, WHO, UMO, UNEP, IFAD, UNDP, World Bank, UNIDO, ICAO, UNU, and HABITAT.

These organizations expressed from the very beginning their assurance of cooperation and support.²⁷ Very cordial and cooperative relations exist between the United Nations system and the Secretariat for such system-wide preparations.²⁸

The General Assembly also requested that these bodies prepare and submit a report for consideration at its thirty-fifth session, on the ways and means in which these bodies can more effectively assist member states, in particular developing countries, in the area of new and renewable sources of energy.²⁹ They were further requested to provide appropriate assistance, including relevant assistance to developing countries, in preparing for the conference.³⁰ At the third interagency meeting³¹ such ways and means of implementing these requests were discussed, and all of these agencies expressed willingness to respond favorably.

B. Preparation at the National and Regional Levels

The importance of preparation for the conference at the regional, sub-regional and national levels in addition to the global level, as described above, was emphasized by the ECOSOC.³² This was taken up by the General Assembly, at its thirty-fourth session, which recommended that states designate focal points which would coordinate preparations for the conference at the national level and provide links to the conference Secretariat in its preparatory activities.³³

In order to facilitate preparation at the regional level, funds have been made available to the regional commissions³⁴ for additional staff, consultants, preparation of panels of experts on subjects of particular interest to the region, and travel of regional

27. See "Statement to Second Committee," and "Statement to Preparatory Committee," *supra* note 19.

28. For example, the wind panel was organized jointly with WMO; solar and ocean thermal jointly with UNESCO; fuelwood and charcoal as well as study on draught animals jointly with FAO; hydro jointly with UNIDO. The list is by no means complete.

29. G.A. Res. 34/190, *supra* note 15, at operative paragraph 11. The request was also directed to the conference Secretariat which was established following the decision by the General Assembly at its thirty-third session to convene the conference in 1981.

30. G.A. Res. 34/190, *supra* note 15, at operative paragraph 12.

31. This confirmed the Secretariat for the conference together with interested agencies and organs of the UN systems as well as the regional commissions. The meeting took place in New York, February 11-13, 1980.

32. E.S.C. Res. 1979/66, U.N. ESCOR, Supp. (No. 1A) 14, U.N. Doc. E/1979/79 (1979).

33. G.A. Res. 34/190, *supra* note 15, at operative paragraph 9.

34. *E.g.*, the Economic Commission for Africa.

staff to attend panel meetings and interagency and preparatory committee meetings.³⁵

The nature of preparation at the national level was the subject of extensive discussions at the first session of the Preparatory Committee, after which it was decided that the Secretariat should prepare a draft outline of guidelines for the preparation of the national papers. The guidelines would be transmitted to the respective governments for comment and then submitted to the second session of the Preparatory Committee in July, 1980.

C. Preparatory Committee for the Conference

As is customary for conferences of this type, the General Assembly, by resolution 34/190, appointed the Preparatory Committee for the Conference.³⁶ It established the Committee on Natural Resources for this purpose. The General Assembly further decided that two sessions of the Preparatory Committee were to be held in 1980. The first session convened in New York during the period of February 4 through 8. This was largely an organizational session during which the officers of the panel, namely, Chairman, two Vice-Chairmen and one Rapporteur, were elected. The session decided to review the progress report of the Secretary-General of the Conference and to make decisions and recommendations on the required preparatory process and documentation for the second session scheduled for July, 1980. The second session will be an important one in that it will review the progress of the preparation for the conference, including reports by the technical panels. The second session will also decide on the agenda for the United Nations Conference on New and Renewable Sources of Energy, draft rules of procedure for the conference, and draw out its work program for 1981.

V. PERSPECTIVES OF THE AFRICAN NATIONS

A. General

Like many other countries, African countries attach a great deal of importance to the Conference on New and Renewable Sources of Energy as it will be the first global forum to explore the possibility of making full use of new and renewable sources of

35. Revised Budgets for Biennium 1978/79, 33 U.N. GAOR, Supp., U.N. Doc. A/33/7/Add. 31 (1978). 34 U.N. GAOR, Supp., U.N. Doc. A/34/7/Add. 25 (1980).

36. G.A. Res. 34/190, *supra* note 15, at operative paragraph 12.

energy.³⁷ Those countries are interested in well coordinated and timely preparations by the United Nations Conference Secretariat in order to ensure a successful outcome of the conference.³⁸ They attach a great deal of importance to the inputs of the above referred technical panels.

Many acknowledge the fact that before the contribution of new and renewable sources of energy can be adequately assessed, it is important to determine energy requirements and patterns of energy consumption for each country. Unfortunately, few of these countries have up-to-date information on energy consumption, particularly in the rural areas where the bulk of the population lives.³⁹ It is hoped that this exercise will also help identify this important gap and make concrete commendations for its resolution. The expert group on rural energy will, it is expected, provide such useful information.

The African nations are aware that many complex issues are involved in the development and utilization of new and renewable sources of energy. These issues should be given full and serious consideration at the international level with a view to encouraging international cooperation in this field. The need for international cooperation is shared by many other developing countries,⁴⁰ as well as many developed countries.⁴¹

African nations are also aware that new and renewable sources of energy must be considered in the context of broader appreciation of the total energy resources which are available and of the overall needs of the country in question. This, they acknowledge, is a challenging problem, requiring the positioning of new and renewable sources of energy into an overall national energy development strategy. Only a few of these countries have a viable energy plan or are in the process of developing one.

The developing nations of Africa are aware that conditions vary substantially from country to country in the continent, and

37. The 1961 Conference in Rome was confined to solar, wind, and geothermal energy resources.

38. This view is shared equally by all of the developing countries. This was, in fact, a statement by India to the Preparatory Committee on behalf of the Group of 77.

39. On the average, 70 percent of the population of African countries reside in rural areas.

40. Statement by India on behalf of the Group of 77 at the first session of the Preparatory Committee.

41. The United States, France, Japan, Australia and Finland participated in the first session of the Preparatory Committee.

that the potential for harnessing these resources varies widely. Moreover, they understand that a very diverse group of technologies in different stages of development are involved. They are, therefore, hopeful that a methodology for making a comparative assessment of these technologies and systems will be devised in order that decision makers can best arrive at realistic choices. They are also hopeful that the technologies identified are proven ones and are applicable under conditions prevalent in that part of the world.

Many issues connected with the preparation of the conference are yet to be resolved. There is, for example, the question of preparations at the national level. The importance of national preparation for the conference was expressed repeatedly at the Preparatory Committee.⁴² The format is still to be agreed upon as is a clear definition and purpose.⁴³

National papers would be very valuable during the synthesizing phase of the preparatory process, particularly from the point of view of the clarifying overall energy supply and demand issues. They would also serve as information exchange media in the global context as well as to provide additional elements in the data base.⁴⁴ Furthermore, national papers would provide clear statements of the various countries' viewpoints and recommendations concerning relevant issues. Above all, national papers would promote active preparation of the countries and enhance their readiness for the conference. The countries would be in a better position to identify and clarify the kinds of assistance they may require.

B. Financing

The problem of financing is a concern of many African nations. They are aware that the development of energy resources is capital-intensive, and that with the increasing demand for energy and the ever-rising price of energy, the demand for funds for energy resource development will increase significantly. This

42. In a statement to the first session of the Preparatory Committee, Kenya stated, "[t]he importance of regional preparations cannot be overemphasized." Kenya feels that national papers should be synthesized at the regional level in order to avoid flooding the main conference with documentation.

43. At the recommendation of the Preparatory Committee, the Secretariat has drafted and sent to member countries for comment guidelines for the preparation of national papers.

44. Statement by Egypt to the first session of the Preparatory Committee.

must be viewed against the background that many do not possess adequate financial resources to meet the requirements for energy development and will have to borrow from international markets and organizations. These nations will be borrowing, not only for energy resource development, but also for other, more pressing development requirements.

Financing is required to establish appropriate institutions, to stimulate research and development activity, and to invest in the development of proven technologies. A large portion will go into foreign exchange. For most of these countries the foreign exchange and the balance of payments positions are critical. A drain has been steady for many years as a result of the sharp rise in the price of oil and other imported manufactured goods. African countries seek information on sources, availability, venue and conditions of financing. The costs of technologies for utilizing new and renewable sources of energy in current use or under development are not competitive with those for utilizing conventional sources of energy. This may be an unwelcome factor that may impede widespread acceptance and investment in this field.

C. *Hydro Resources*

Many African nations welcome in particular the inclusion of hydro resources as one of the subjects for consideration by the conference. Africa has a vast hydraulic resource of which only a small portion has been exploited. The development of some hydro-energy resources of Africa has been impeded by the comparatively large size of the sites, the heavy initial capital investment required in the form of dams and generating facilities, and the size of local markets. This points to the need for cooperation in the development of hydro resources, for example, through joint efforts within a sub-region or by neighboring countries. Such joint development would ensure the pooling of resources so that the financial burden to each could be manageable. Furthermore, the group of countries would have a sufficiently large electricity demand to match the large supplies expected from the hydro sites developed out of the joint projects.⁴⁵

In addition to large waterfalls, there are a multitude of smaller sized falls in many African countries. The development of

45. *Appraisal of Current Energy Situation and Future Prospects in Africa*, U.N. Doc. E/CN.14/NRSTD/E/2 (1976); *Energy Resources in Africa*, U.N. Doc. E/CN.14/NRSTD/E/4 (1976).

small-scale hydroelectric systems that can be economically utilized, especially in rural areas, is of particular interest to these countries. They hope that special efforts will be directed to the potential of micro/mini-hydro projects and to the utilization of the most up-to-date technology.

D. Cooperation

The developing African countries, therefore, expect that issues pertaining to cooperation will receive due attention at the conference. It is also in their interest to seek closer cooperation with the industrialized countries in order to obtain the required technology and funds for the development of new and renewable sources of energy and for the development or purchase of proven technologies. They are aware that such cooperation must be mutually beneficial and take into account such issues as sovereignty over natural resources,⁴⁶ code of conduct by multinational cooperation, the charter of economic rights and duties of states,⁴⁷ and the principles of the new economic order.⁴⁸

The need for cooperation in training highly skilled technical and managerial manpower has been expressed often.⁴⁹ Such cooperation is to be expected and encouraged. Institutes for training require human, capital and financial resources which are generally beyond the capability of many developing countries in Africa. Cooperation in the establishment of such institutes would reduce the burden to manageable proportions. Strong interest has, therefore, been shown by the African countries, in establishing such institutes on a regional basis.⁵⁰ The question has been the subject of many discussions within the region. No satisfactory solution has been found. Several suggestions have been made but have been confined to specific types of energy.⁵¹ Sub-regional training institutes are in existence or have been proposed,⁵² but these are or would be limited to only one energy

46. G.A. Res. 1803, 17 U.N. GAOR, Supp. (No. 17) 14, U.N. Doc. A/5217 (1962).

47. G.A. Res. 3202, 6 U.N. GAOR, Supp. (No. 1) 5, U.N. Doc. A/9559 (1974).

48. G.A. Res. 3201, 6 U.N. GAOR, Supp. (No. 1) 3, U.N. Doc. A/9559 (1974).

49. Communications by experts from developing countries in Africa.

50. The UN Economic Commission for Africa (ECA) has, for example, drawn out a plan to set up training institutes for technicians in electricity. There is also a plan to set up one in solar energy.

51. *Id.*

52. For example, the Solar Research Center at Niamey was created as a result of the initiative of ECOSOC and the Council of Ministers. The Sahel Institute was created with technical assistance from UNESCO and other U.N. bodies.

source. There is at this time apparently no coordination in their activities. Experts from the region would, therefore, like to see the conference pay particular attention to coordination of the activities of existing and proposed institutes. This would substantially reduce or eliminate undesirable overlap in activities. Such coordination would also lead to the identification of weak points and gaps which require correcting or bridging. The conference, it is felt, should also make recommendations on the type of activities to be undertaken, sources of financing, and supply of skilled personnel that would initially man the institutes.

The lack of skilled manpower in managerial and technical categories has been recognized as one of the major bottlenecks in the development and management of energy resources in many African countries.⁵³ Positive action is required.

E. Social Issues

African nations are also interested in social issues relating to the widespread use of new and renewable sources of energy. It is generally known that some technologies, for example solar cookers, have been available for some time and have been unsuccessful. Why has this been so? African nations are interested in approaches that would match technical breakthroughs with social acceptability. Such approaches require close coordination of the efforts of researchers, developers, designers and planners with the intended users. They also require a more adept understanding of some of the underlying social motives of the intended users. Examples of technical developments which have successfully taken into account such dimension even if few in number, could be used as models. Third World countries are also interested in a more rigorous appraisal of the social costs and benefits of the introduction and widespread use of a range of technologies in order to arrive at the best possible options.

F. Technology Transfer

The views expressed by many Third World African countries on technology transfer seem to be guided by the following general considerations. First, African nations feel that transfers should

53. *Appraisal of the Current Energy Situation and Future Prospects in Africa*, U.N. Doc. E/CN.14/NRSTD/E/2; and Arungu-Olende, "Africa Takes a Look at its Energy Problems and Prospects," *NATURAL RESOURCES FORUM*, Vol. 1, No. 4, (1977).

take place under conditions of mutual interest and respect. It is not charity and should not be viewed as such. Rather, it is a mutual investment in prosperity. African countries thus resent the attitude that they must be grateful and, indeed, indentured to the policies and systems of the donors.

Second, the African countries insist that they must fully participate and have a sense of fulfillment in the decisions that bear on the utilization of the technologies which they acquire.⁵⁴ They subscribe to the view that nations and people prosper by doing things rather than having things done for them.⁵⁵ They are thus becoming increasingly adverse to tailor-made decisions made in foreign lands. The Third World has become more aware that its own particular problems may be unique and that experience and the existing store of knowledge may not necessarily be that upon which it draws its technological solutions. It is also a reflection of the African desire to evolve a development pattern rooted in its own tradition.

The decisive issue, then, is that of overcoming the technological dependence of ideas through the establishment and vigorous development of scientific and technological capability. This includes a capacity in the field of energy. Such a stand should not be construed as implying technological self-sufficiency. Rather, it implies the capability to assume autonomous decision-making in technological matters. In this way, it is part of a trend articulated in the call for a new international economic order and in the duties and rights of member states.⁵⁶ It is also very well reflected in the stand taken at the UNCTAD and UNIDO meetings.⁵⁷

G. Conservation

The scope of the conference is limited to new and renewable sources of energy⁵⁸ with the objective of "elaborating measures for concerted action designed to promote the development and utiliza-

54. This is a manifestation of *inter alia* acknowledgment and appreciation of the fact that control of technology is the cornerstone of present day industrial civilization. See, e.g., Furtuado, "Power Resources: The Five Controls," IFDA 7 (1979) where it is asserted that the control of technology is able to replace all other power resources.

55. Africans are also aware of how difficult and intracetable the problem is. From the time the matter was brought up in UNCTAD III, very little progress has been made.

56. See note 18 *supra* and note 19 *supra*.

57. Odhiambo, *An African Perspective for Faith, Science and the Future*, FAITH AND SCIENCE IN AN UNJUST WORLD (R. Shinn ed. 1980).

58. G.A. Res. 33/148, *supra* note 7, at operative paragraph 3.

tion"⁵⁹ of these sources of energy. Although it does not specifically cover energy conservation, a number of countries, developed and developing, have stressed the need to cover this important topic, especially when assessing energy requirements and the contributions that can be expected from new and renewable sources of energy in meeting these requirements. In Africa, energy conservation has not received the attention it deserves. Energy conservation need not be confined to commercial forms of energy. Non-commercial forms such as woodfuel and charcoal, which constitute the bulk of energy sources in developing Africa, also need special attention since uncontrolled non-commercial forms of energy can have serious environmental and economic consequences of all countries concerned.⁶⁰

H. *Information on the Conference*

Delegations from many countries, including those from Africa, have drawn attention to paragraph 14 of the General Assembly resolution 34/190 which "requests the Secretary-General to accelerate preparations for the Conference . . . through a program of public information activities designed to insure worldwide awareness of the importance of the Conference and its objectives."⁶¹ They believe that it is essential to publicize the scope and implications of the conference as widely as possible. Decision-makers would then be in a better position to weigh the potential contribution of these resources and to determine the kind of priority to accord them. The general population would also be better able to appreciate the decisions made and thus to facilitate their implementation. The first session of the Preparatory Committee⁶² has specifically called for action on this matter by the Conference Secretariat. Definite actions have already been initiated by the Secretariat and the relevant organs of the United Nations in response to the call by the General Assembly.

59. *Id.*

60. *The Role of Energy in the Development of Human Settlements in Africa*, U.N. Doc. E/CN.14/HUS/6 (1980); *Environmental Impact of Production and Use of Energy Resources, Part III, New and Renewable Sources of Energy*, U.N. Doc. (1980).

61. G.A. Res. 34/190, *supra* note 15.

62. G.A. Res. 34/190, *supra* note 15; G.A. Res. 33/148, *supra* note 7 (established the Preparatory Committee).

VI. CONCLUSION

The need to appraise the potential of new and renewable sources of energy in the context of the overall energy supply and demand perspective cannot be overemphasized. The United Nations decision to convene an international conference on new and renewable sources of energy has come at a most opportune time. The decision is an important step.

The preparatory process is underway and is proceeding as scheduled. There still exists a number of unresolved issues including the theme of the conference, the nature and the effectiveness of the preparatory process at the national level, the creation of adequate awareness on the part of decision-makers and the general public of the conference objectives, and the procedure to incorporate policies and strategies for the development of new and renewable sources of energy into overall national energy and development strategies. Other unresolved issues include the type of follow-up actions and the implications of the steps already initiated. Other issues, for example, the theme of the Conference and means of enhancing preparation at the national level, will be taken up at the second session of the Preparatory Committee. Still others will be tackled by the second session of the panel of experts. Finally, other issues may evolve during the conference and may, perhaps evolve beyond the conference itself. Such deliberations, both before and during the conference, should help clarify many important issues and set the stage for a genuinely cooperative effort in this crucial area.