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SUMMARY OF THE NATIONAL REPORT SUBMITTED BY
THE FEDERAL REPUBLIC OF GERMANY*

* The designations employed, the presentation of material and the views expressed in this paper are those of the submitting Government and do not necessarily reflect the practices and views of the Secretariat of the United Nations in any of these respects.

In the Federal Republic of Germany, new and renewable sources of energy have been explored and utilized by means of technological development for several years now. They are among the priorities of the Federal Government's energy programme, the other priorities of which are energy conservation, advanced coal technologies and the limited development of nuclear energy. Their purpose is to reduce the dependence on oil.

Owing to the Federal Republic's topography, geography and climate and because of its highly industrialized infrastructure and density of population, as well as the mostly centralized organization of energy supply, the new and renewable sources of energy have individually varying potentials concerning their future contribution to energy supplies. Although their useful potential is in the long term not to be neglected, it is nevertheless relatively small in comparison with that of other primary sources of energy.

The share of hydropower in the Federal Republic's total electricity generation has fallen to a mere 4 per cent now and can hardly be increased. According to optimistic estimates, the contribution of solar energy by the year 2000 will be between 5 and 6 per cent of over-all primary energy consumption at the most. There are mainly two types of utilization: direct utilization by low-temperature collectors and indirect utilization by means of heat pumps. In the Federal Republic, activities are far advanced in both areas.

The useful potential of wind energy in the Federal Republic is low. Several wind energy systems of varying power ranges are at present being tested. Systems of the lower-power range, in particular in connexion with storage facilities, can be used to ensure the decentralized supply of individual consumers, while medium-range systems can ensure the supply of a number of small users. Potential applications of large wind-energy converters (MW range) are at present under study.

In the field of biomass, in particular of biogas generation in sewage treatment facilities, the Federal Republic possesses extensive know-how. Here too, however, the potential contribution to general energy supplies is likely to be rather small.

In the field of geothermal energy, several locally limited warm-water aquifers are at present explored for their potential commercial utilization. According to present estimates, the contribution of geothermal energy to meeting the demand for primary energy in the year 2000 will probably be below 1 per cent. Despite this fact, complex technical know-how is available in the Federal Republic both in terms of exploration as well as in terms of "hot dry rock technology" and the generation of heat from hot dry deep rocks for heating purposes.

Likewise, the energy potential of the hydrocarbons contained in oil shale has hitherto been used to a very limited extent, although oil-shale deposits exist in various parts of the Federal Republic of Germany. The oil shale potential is also small, but twice as large as the potential for domestic mineral-oil resources, a fact which makes it quite interesting. Pilot plants for advanced low-temperature carbonization are either in the planning stage or already in operation. Also, research and development work on the solution of technical problems is under way.

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The situation is similar with regard to oil sands. Yet, despite the fact that there are no significant deposits, remarkable technical and technological know-how is available in the Federal Republic.

However, the utilization of the above-mentioned sources of energy is not the only reason why they are developed in the Federal Republic. For several years, projects in the third world have been supported jointly with many developing countries in the framework of scientific and technological, as well as technical and financial co-operation, under the title of "Technologies for the developing countries". The purpose of this co-operation is to reduce developing countries' dependence on mineral-oil imports, to secure the energy supply for both industry and the urban and rural population, thereby also helping indirectly to satisfy basic needs.

The Federal Republic of Germany has developed a wide range of measures for its co-operation with the developing countries with the aim of utilizing new and renewable sources of energy. In addition, the Federal Government encourages private industrial technology transfer by creating the required general conditions.

Since 1975, individual projects have been supported concerning the utilization of new and renewable sources of energy within the framework of technical co-operation. In the meantime, that co-operation has been extended to 25 developing countries. Since mid-1979, those activities have been combined and considerably intensified under a special programme on the utilization of renewable energy sources. It is financed out of a supraregional grants fund, meaning that it is possible to implement the individual projects in addition to the usual programmes of bilateral co-operation.

Under the programme, priority is being given on a medium-term support basis to the development, testing and dissemination of different demand-oriented technologies in Colombia, Kenya, Mali, the Niger, Peru, the Philippines, Senegal, the Sudan, the United Republic of Tanzania and the Upper Volta. The co-operation is to be further expanded to include other developing countries.

In the framework of financial co-operation, funds have been granted in the field of new and renewable sources of energy so far mainly for hydropower stations, including the associated infrastructural facilities. The share in the financial co-operation of the Federal Republic of Germany will increase to the extent to which they prove technically feasible and economically viable in the developing country concerned.

Within the framework of scientific and technological co-operation, the scientific and technical potential of the Federal Republic of Germany is utilized in research and development projects designed and executed on a co-operative basis. In this connexion, the focus is on the development of technologically mature solutions for the utilization of the individual new and renewable sources of energy in the co-operating developing country in question.

The wealth of experience gained and the extensive technical know-how acquired by the Federal Republic of Germany in the process of the utilization of new and renewable sources of energy at home, but also by means of international co-operation, form a useful and interesting basis for solving the problem of how those sources of energy can be increasingly explored, developed and eventually used meaningfully and effectively in the developing countries.
