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Republic of Korea National Paper
for
the United Nations Conference
on New and Renewable
Sources of Energy

Energy Resources in the Republic of Korea

Korea has very poor energy resources with the exception of anthracite coal. Therefore, imported energy, especially imported oil, accounts for most of the energy requirements.

The demand for energy is expected to increase rapidly with the accomplishment and maintenance of a high level of industrialization and economic well-being of the people.

For these reasons, the Government places great emphasis on ensuring sufficient overseas energy as well as developing new and renewable sources of energy to meet her growing energy demand.

Research and Development on New and Renewable Energy

The prospective resources of new and renewable energy in Korea are Solar, Wind, Biogas, Tidal power and Hydro power. The main purpose of developing new and renewable energy is to reduce dependence on imported oil and to increase utilization of the new and renewable energy sources in the rural areas.

The energy consumption pattern of the rural areas has undergone a tremendous change since the recent economic development in Korea. Firewood, the traditional energy source in the rural areas, has been replaced by coal and oil. In order to shift the use of oil and coal to other energy sources, studies on biomass from animal and human waste have already been started. The major purpose of the studies is to achieve optimal and economical production of biogas.

The Government is actively promoting solar energy R & D on space heating and photovoltaic conversion. In the field of house heating, the use of solar energy is now in the stage of demonstration and early commercialization.

In order to supply electricity to the remote islands and separated villages which lack an adequate supply of conventional forms of energy, including electricity because of high transmission costs, the Government continues the basic data collection and research on wind generation through related research institutes.

About 1,200,000 Kw capacity hydropower plants, including three mini hydropower plants have been already constructed and they play a considerable role in electricity supply.

The Government has started a feasibility study on the construction of a 400,000 Kw capacity tidal power plant at Garolim Bay, and its construction is expected to be finished by 1988.

The Major Problems Korea Faces in the Development and Utilization of New and Renewable Energy

a) Current economic unfeasibility

There is a relatively small financial investment in R & D on new and renewable energy sources because of unfamiliarity with the alternative energy sources and uncertainty of the return from investment by end-users.

b) Lack of engineering capability

There is a scarcity of high technological personnel and testing facilities in this country. For example, the design capability of a solar energy using system is particularly important for the purpose of mass construction of solar houses. But the lack of such engineering capability is the major hindrance to promoting the development and utilization of solar energy.

c) Infrastructure problem

As technical infrastructure has not been established, it cannot be expected to distribute new and renewable energy on the popular level in its present state. In other words, the lack of supply capability of parts and maintenance is a major problem in promoting the utilization of new and renewable energy.

d) Lack of information

It is very important for Korea to get in touch with the advanced foreign R & D information on new and renewable energy, because the R & D on this field is in its early stage. Because of the lack of international information, there has been duplicate investment in this field.

Suggestions and Recommendations

In order to expedite the development of new and renewable energy at the international level, it is suggested that there should be

a) increased international cooperation and coordination in research, development and demonstration in new and renewable energy (e.g. Joint venture and licensing arrangement between developed countries and developing ones)

b) strengthened Information Exchange Systems in new and renewable energy. (e.g. Establishment of an Information Data Bank on new and renewable sources of energy)

c) a commitment to increased financial flow and technical assistance from capital surplus and developed countries.

d) a commitment to expanded education and training in new and renewable energy.

T A B L E

Sources	Forms of supply most readily available	Constancy of Supply	Status of Development
Solar	Low temperature heat (100°C)	Poor	Demonstration and popularization Stage in house heating
Hydro	Electrical	Excellent	Well proven technology both at home and abroad
Wind	Electrical	Poor. Seasonal and annual variations	Site survey and Research phase
Biogas	Fuel Convertible to heat by combustion	Good	Research phase
Tidal	Electrical	Good Daily and monthly variations but predictible	Feasibility study
Wave	Electrical	Poor. seasonal and annual variations.	Site survey and Research phase
Fuel wood and char coal	Fuel convertible to heat by combustion	Excellent	Traditionally used in rural area.