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INTRODUCTION

1. Although Bangladesh is a fertile deltaic region, its very high population density (over 625 people per sq km), predominantly rural economy, and extremely inadequate infrastructural facilities, make its energy problem one of the severest in the world. About 90 per cent of the population live in the villages and about 55 per cent of the GDP is derived from agriculture. Less than 25 per cent of the population is literate and one quarter to one third of the labour force is unemployed or underemployed. The per capita income in 1980 was about $US 100, the per capita commercial energy consumption (including non-fuel use) was about 46 kg of coal equivalent and per capita electricity consumption was about 18 kWh.

2. In Bangladesh, though most of the people live in rural areas and are dependent on agriculture, very little commercial energy is consumed by them. About two thirds of the total energy needs of the country (excluding direct solar energy) is met by traditional fuels, like cow dung, fire wood, crop residues and vegetable wastes, and only one third is supplied by commercial fuels, like oil, gas and coal. Even with this low level of commercial energy use (consumption of petroleum products is about 1.6 million tons a year), the fact that the import of petroleum, constituting only 18 per cent of total energy needs, claimed about two thirds of the total export earnings in 1980/81 highlights the need for quick development of new and renewable sources of energy. In fact, Bangladesh, being seriously concerned about its energy security plans, has little option but to promote the development and utilization of new and renewable sources of energy to meet future increased energy requirements for accelerated economic development of the country.

COMMERCIAL ENERGY RESOURCES

3. Bangladesh has a sizeable gas reserve (11.33 TCF) compared to her present use (45,000 MMCF per year), but small in international scale. It needs careful examination before large-scale use or export. Coal reserves of Bangladesh have been estimated at 500 million-700 million tons. The estimate might go up if further systematic investigations are carried out, but it is still unexploited because of difficulties in mining. Although the country is criss-crossed by innumerable rivers and streams and about one third of the country is flooded every year, the potential of hydroelectricity is very limited because of flat terrain. At present only 80 MW of installed capacity exists, but this will be raised to 130 MW soon.

NEW AND RENEWABLE RESOURCES

4. Bangladesh has about 133 million tons of peat reserve spread over wide areas which remain under flood water during half of the year. The resources may contribute locally to meet increasing energy requirements. Since the country is flat, additional large-scale hydropower potential is very limited in the short run.

However, it is believed that some of the larger rivers may be harnessed to generate low head hydroelectricity. But this would require very large investments. On the other hand there may be some potential for mini-hydro generation, for which a feasibility study will be undertaken shortly.

5. The most promising areas of renewable energy in Bangladesh are biomass and solar energy, which are, in one sense, derived from the same source. The country's tropical location and seasonal rain provide an excellent environment to harness the energy from the sun, either directly through solar-thermal and photo-electric devices, or through biomass culture. Biomass is currently providing about 60-70 per cent of the total energy needs of the country in the form of traditional fuels. Increased production of those resources and high efficiency of use could dramatically improve the rural energy situation.

6. Wind energy is another area where the country appears to have some potential. There has not been any study so far of tidal and geothermal resources.

CURRENT RESEARCH AND DEVELOPMENT ACTIVITIES

7. Several research and development projects are now going on in universities, government laboratories and institutes. The emphasis of the current projects is mainly on biogas and solar thermal application. The institutes involved in biogas research and application are the Engineering University, BCSIR, Agriculture University and Pollution Control Board. Solar energy research is being carried out in the BCSIR, Engineering University, Dacca University and BIRRI. Research on wind rotors has been initiated by the Engineering University, Dacca University and Agriculture University. Besides, the establishment of three other institutions - namely, the Energy Institute under the Ministry of STR, the Petroleum Institute under the Ministry of Petroleum and Mineral Resources, and the Appropriate Technology Institute under the Ministry of Agriculture - is proposed, for pursuing research and development activities in the energy sector.

DEVELOPMENT OF NEW AND RENEWABLE SOURCES OF ENERGY

8. Hydrocarbon resources are finite, depletable and becoming scarce. Future demand for energy will increase not only in the industrialized countries but also - more dramatically - in developing countries. If the global demand for energy is to be met satisfactorily, it will require a shift away from the current excessive reliance on hydrocarbons towards a more diversified mix of energy sources.

9. The development of new and renewable sources of energy opens up the prospects of increasing indigenous energy resources and thereby contributing to greater self-sufficiency. As an immediate priority in the development of new and renewable sources of energy, special attention should be given to the increasing difficulty of people in rural areas in many developing countries to obtain fuels required for

their daily needs. Besides, increasing pressures on the supply of fuel wood have led to large-scale deforestation leading to soil erosion with consequent disastrous effects on agricultural productivity and a critical dislocation of the ecological balance.

ASSISTANCE NEEDED

10. Bangladesh has basically a rural economy and is largely dependent on traditional, renewable sources of energy. But those are decreasing in absolute terms because of high population growth. Bangladesh will, therefore, benefit much by exploiting the technology of harnessing new and renewable sources of energy, particularly solar, biomass and wind. The problems of new and renewable energy development and extension in different countries have many common aspects. A very substantial saving of time, manpower and money can be achieved through international co-operation in both research and development efforts and real transfer of technology.

11. Specific proposals which Bangladesh would like the Conference to consider are:

(a) Creation of a specialized international organization to help developing countries;

(i) In the assessment and development of indigenous energy resources;

(ii) In research and development and the extension of new and renewable energy, including building up proper institutions for that purpose;

(iii) In the transfer of technology and practices in renewable energy fields;

(iv) In training of personnel for improving skills in the research, development, manufacture and extension of new and renewable energy technologies;

(b) Creation of a special fund for helping developing countries;

(i) In research, development, transfer of technology, training of manpower and manufacture of new and renewable energy fields;

(ii) To organize demonstration projects desinged to test applications and to disseminate information on technologies related to new and renewable sources of energy;

(c) Formation of a design and information bank for helping developing countries with the design of both new and proven technologies in the field of renewable energy sources;

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(d) Organization of seminars and conferences to stimulate research into and development of new and renewable energy fields;

(e) Publication of a regional and global energy survey, with particular emphasis on new and renewable sources of energy, covering both supply and consumption figures.
