UNITED NATIONS

A

United Nations Conference on New and Renewable Sources of Energy

Nairobi, Kenya
10-21 August 1981

Distr.
GENERAL

A/CONF.100/NR/17 (SUMMARY)
19 March 1981
ENGLISH
ORIGINAL: SPANISH

SUMMARY OF THE NATIONAL REPORT SUBMITTED BY PERU*

* 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.

1. The Republic of Peru has a territory of about 1,285,000 km^2. The country is divided into three geographical regions. The arid region of the Pacific Coast includes 12 per cent of the country and the most important towns. The mountin region extends over the high parts of the Andean Cordillera, covering 27 per cent of the country; because of its topographical and hydrological characteristics, it is the source of the country's considerable hydroelectric energy potential. The Amazon region extends over the eastern part of the country, covering 61 per cent of the total area, and is a zone of very dense vegetation, heavy rainfall and low population.

2. The present population of Peru is approximately 17.8 million, and the growth rate in the 1970s was 2.8 per cent. Sixty-seven per cent of the total population live in the urban area and 33 per cent in the rural area. Thirty-eight per cent live in urban centres with a population of over 5,000.

3. In 1979 the values of total and per capita GDP were $13,476,000,000 and $788 respectively. Agriculture represents 13 per cent, mining 10 per cent, the manufacturing and building industry 29 per cent, the service industry 47 per cent, and fishing 1 per cent of GDP. Forty per cent of the economically active population is employed in agriculture.

4. The present commercial energy potential of Peru is 5.1 million TOE, of which 2.1 per cent is oil, 0.3 per cent natural gas, 15.2 per cent coal and 82.4 per cent hydroelectric energy. On the other hand, consumption of commercial energy amounts to 8.5 million TOE, broken down as follows: 72.9 per cent oil, 14.1 per cent natural gas, 3.5 per cent coal and 9.5 per cent hydroelectric energy. A comparision of the two sets of figures shows that the energy potential is not adequately utilized and that the consumption pattern does not reflect a rational use of resources.

5. At present, total (commercial and non-commercial) energy consumption amounts to 12.2 million TOE, with an average annual rate of increase of 3.4 per cent over the last 15 years. Per capita consumption is 718 KOE. The breakdown of this consumption and the corresponding average annual rates of increase over the past 15 years are: oil and oil products, 50.6 per cent (5.0 per cent); natural gas, 9.9 per cent (5.8 per cent); hydroelectric energy, 6.3 per cent (6.3 per cent); coal, 2.8 per cent (5.2 per cent); wood and charcoal, 24.7 per cent (0.5 per cent); and vegetable wastes, 5.7 per cent (0.3 per cent).

6. The breakdown of total energy consumption by economic sector is: residential, commercial and public, 40 per cent; transport, 19 per cent; industrial, 17 per cent; electric power stations, 11 per cent; farms and agro-industry, 4.7 per cent; and others, 8.3 per cent.

7. Present oil-refining capacity amounts to 178,200 barrels per day. Total installed capacity in electric power plants is 3,166 MW, of which 1,922 MW (61 per cent) is hydroelectric and 1,244 MW (39 per cent) is thermal. In 1979, electrical energy production amounted to 9.4 TWh, of which 70.5 per cent and 29.5 per cent respectively were hydraulic and thermal in origin.

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8. It has been estimated that by the year 2000, over-all demand for primary energy might increase to 26.7 million TOE, broken down as follows: oil, 52.5 per cent; natural gas, 2.5 per cent; hydroelectric energy, 12.7 per cent; coal, 11.9 per cent; wood and vegetable wastes, 16.9 per cent; and other new and renewable sources of energy, 4.2 per cent.

9. From an approximate assessment of the role which new and renewable sources of energy will play in supplying energy for Peru, it can be estimated that in the year 2000 such sources will meet 4.2 per cent of total consumption requirements, making possible a saving equivalent to 8.3 million barrels of oil per year.

10. The development strategy for new and renewable sources of energy, based on the existence of a large and currently under-utilized energy potential, is aimed at optimum utilization of that potential to meet national energy requirements, making it possible to continue the important process of substituting other sources for hydrocarbons. Peru has prepared a programme of action which includes the following:

(a) Systematic evaluation of the potential of new and renewable sources of energy;

(b) Identification of geographical areas according to availability of new and renewable sources of energy;

(c) Estimation of the demand to be met by new and renewable sources of energy in the short, medium and long term;

(d) Identification and estimation of technologies which will make it feasible to meet demand with new and renewable sources of energy;

(e) Investigation of the social, economic and environmental impact which will be produced by new and renewable sources of energy;

(f) Preparation of technological profiles, construction of prototypes and experimental evaluation;

(g) Support-system design (dissemination, training, technical assistance and financing);

(h) Encouragement and promotion of the production and marketing of equipment for the utilization of new and renewable sources of energy.

11. As a developing country, Peru needs international co-operation in order to develop its energy infrastructure and, in particular, to develop and utilize its new and renewable sources of energy. Areas in which international co-operation and assistance are required in that regard are the following:

(a) Evaluation of the technical and economic potential in priority areas of new and renewable sources of energy: (i) small hydroelectric plants; (ii) biomass; (iii) geothermal energy; and (iv) solar and wind energy;

(b) Estimation of the energy demand which can be met by new and renewable sources of energy;

(c) Formulation of an energy planning model;

(d) Energy balances at the level of useful energy;

(e) Further research into potential savings in energy and formulation of an energy-saving and rationalization programme;

(f) Design and development of prototypes for the use of new and renewable sources of energy: (i) turbines and accessories for small hydroelectric plants in the 5 to 1,000 kW range; (ii) low-power windmills and wind-driven generators; (iii) household and communal biogas digesters; (iv) gasifying equipment; (v) geothermal plants; (vi) solar collectors; (vii) electric power plants using wood and/or plant wastes; (viii) photovoltaic cells.
