DEVELOPMENT OF NUCLEAR ENERGY IN THE THIRD WORLD --- NEED AND CONSTRAINTS

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INTRODUCTION

The world is passing through a deepening energy crisis caused by sharp rise in oil prices and fast depleting reserves of petroleum. This has created an economic instability and a feeling of energy insecurity in both industrialized and developing countries. All of them are anxious to secure adequate and assured energy supplies for their economic development.

The less developed countries need more energy inputs for accelerating their development programmes and some means will have to be found for ensuring availability of adequate reasonable cost energy to them. The industrialized countries developed their basic industrial infrastructure at a time when energy costs were very low -- oil was priced $1-2 per barrel and coal $2-3 per ton just 20 years ago. But now when the developing countries have started building their industrial infrastructure and they require enormous inputs of energy, the cost of energy has risen by an order of magnitude making it extremely expensive for them to embark upon large scale development programmes. As stated by Chancellor Schmidt of West Germany at the European Nuclear Conference last month, at Hamburg, the world will soon realise that energy is one of the most important factors for ensuring world stability. Very soon there would be a scramble for the limited energy resources and in the tough competition that would follow, developing countries would be put to a great disadvantage.

DISPARITY IN ENERGY CONSUMPTION

A review of the world commercial energy production and
consumption picture would indicate that there are serious imbalances in the utilization of energy in different parts of the world. The developing countries of the Third World which constitute more than two-thirds of the world population account for only 16% of the commercial energy consumption while 84% of the world energy is consumed by the advanced countries with less than 1/3rd of the world population. The United States alone with a population of only 6% of the world consumes 36% of world energy.

In global terms the world average per capita consumption of electricity and commercial energy in 1976 stood at 1600 kwh and 2TCE respectively. The Asian averages were less than one half. In many of the poorer populous developing countries particularly in South Asia these figures are as low as 150 kwh and 0.2 TCE respectively which are one tenth of the world average. The situation is even worse in some African countries. The corresponding figures in the U.S. and Europe are as high as 10,000 kwh and 10 TCE per capita. It is, therefore, obvious that there is a highly uneven consumption pattern between the industrialized and developing countries.

The OPEC nations are more fortunate among the Third World countries for possessing abundant oil and gas reserves. However, some times even their oil wealth is highly exaggerated. According to World Energy Conference estimates published in 1978 the combined recoverable oil and gas resources of OPEC amount to $292 \times 10^9$ TCE which is about 22% of the world resources. The developed countries on the other hand possess $931 \times 10^9$ TCE or in other words 67.5% of the world total while the non-OPEC LDCs are left with only $157 \times 10^9$ TCE corresponding to 11.5% of the world total resources. The poorer non-OPEC developing countries have only 60 tons/capita of fossil fuel reserves as compared to 800 tons/capita for the developed countries.

RESOURCES

The disparity in consumption patterns is further aggravated by the disparity in the availability of conventional energy resources which makes the future of LDCs very grim. If the industrialized countries do not drastically slow down the consumption of oil and other non-renewable energy resources, it will soon lead to a worsening of energy crisis due to depletion of available petroleum resources. The industrialized countries expect OPEC to produce increasing amounts of oil to sustain their expanding industries and consumption. They are reluctant to enforce strong conservation measures because they are politically unpopular and are not easy to enforce. As such substantial transfer of non-renewable energy resources is taking place from OPEC to the advanced countries. If this continues then the OPEC countries would have gravely diminished their reserves within the next 20 years. At that time the OPEC LDCs may still not have necessary technologies which could be employed for meeting their increased domestic energy needs. Recently Mexico which is yet another