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Future Energy Consumption of the Third World

by Markus Fritz (Pergamon)

In recent years nuclear plant manufacturers everywhere have come to look upon the Third World as the promised land. The manufacturers have watched in mounting dismay as their own industrial countries, once seemingly such fertile ground for nuclear orders, have become commercial deserts, with scarcely an order to be seen as far as the horizon. But the manufacturers have struggled gamely on, their faith buoyed up by the belief that just beyond the horizon, in the Third World, the nuclear orders would soon be sprouting in profusion.

This faith has been reinforced by study after study, from the International Atomic Energy Agency, the Workshop on Alternative Energy Strategies, the tenth World Energy Conference and - most recently - the International Institute for Applied Systems Analysis, all of which proclaimed that only with a major increment of nuclear electricity could the energy requirements of the Third World be met. However, the faith of the manufacturers and the official forecasters, devout though it is, cannot but be shaken by a new study, *Future Energy Consumption of the Third World*. It leads to a conclusion that seems well-nigh inescapable: the vision of the Third World as the nuclear promised land is a mirage.

The study was carried out by Markus Fritz, of the Max Planck Institute for Physics, in Munich. First published in German in July 1980, it has now appeared in a crisp and fluent English translation. It is an endeavor to bring the higher flights of extrapolative fancy into touch with the reality of the Third World energy scene on the ground. To do so, Fritz contacted the relevant energy organizations of 156 Third World countries, in Africa, Asia and Latin America, either directly or with the assistance of the Federal German embassies in those countries. The nominal aim was to investigate the potential market for nuclear energy - the true potential, rather than the hypothetical wishful thinking which has characterized most official studies of the topic. In the course of his analysis Fritz also provides a crackling critique of basic energy thinking, in industrial countries as well as the Third World - everything from language and concepts to analytic techniques to planning and execution of energy programs.

In Fritz's words: "The results of this study can be classified into two main areas: 1) a critique of previous global models designed to forecast future Third World energy demand, and presentation of the *actual* preconditions for forecasts of this type; 2) an attempt to illustrate those prognoses and trends concerning supply and demand of commercial primary energy in general and electricity (with special reference to nuclear power) individually, as the result of an analysis of 156 developing countries, so as to be able to draw a realistic picture about expected future development if not globally at least for individual countries."

The introduction to the study defines units and terms, noting that "consumption," however widespread its use, is physically incorrect when applied to energy. The translator offers "energy transformation"; "energy conversion" would be better still. The point is neither pedantic nor trivial; this usage infects and distorts our entire perception of the energy issue. The simple recognition that what concerns us is not "energy supply" and "energy consumption," but rather the controlled conversion of energy, would reorient our whole approach. Be that as it may, the original German title of the study refers not to consumption but to *Versorgung*; that is, provision. The relation between provision and consumption of energy in the Third World is a key theme of the study. After recording his reservations, however, Fritz adopts the common usage.

The next part of the book is an "analysis of energy supply and demand in the Third World," but its structure and content differ markedly from most previous analyses with pretensions to comprehensiveness. Fritz begins by identifying the bases of energy policy, as manifested in industrial countries and in the Third World, and draws important distinctions. In industrial countries the relevant criteria are price, availability and environmental and social acceptability. In the Third World, however, energy policy "represents simply one integral part of wider development policy - and is certainly not the most important aspect, as is often supposed," says Fritz. "Availability [of energy] is only one precondition [for development] amongst many other factors," including technical know-how suitable for the socio-cultural requirements of developing countries, skilled and technical workers, and capital.

Fritz then discusses the meaning of energy demand and how it is anticipated. He notes the concept of "suppressed demand" - demand which might materialize except that there is no supply with which to meet it. Again and again he notes that in the Third World the growth in actual energy demand as manifest is likely to be constrained by the lack of suitable supply for many years to come. Fritz examines the projections produced by the Workshop on Alternative Energy Strategies, the World Energy Conference and the International Institute for Applied Systems Analysis, their underlying assumptions and their presumed relationships - especially that between economic growth and primary commercial energy demand. In a very few pages he effectively demolishes the foundations of all of these sprawling official studies. His own investigations show that the actual data base is so scanty, and even within this scantiness so scattered, that generalizations like those of the Workshop on Alternative Energy Strategies, the World Energy Conference and the International Institute for Applied Systems Analysis are heroic to the point of fatuity.

Fritz then considers the real determinants of energy consumption, and alternative methods for projecting its future development. He concludes that only by probing the actual political situation in each country is it possible to anticipate future energy consumption - and then not very far ahead. Not the least important reason is that such political situations have a habit of changing abruptly, with concomitant changes in the energy scene. Fritz also discusses the potential supply of energy in the Third World - commercial fuels, hydroelectricity, geothermal energy, non-commercial energy and non-conventional energy. In each case he gives explicit attention not only to the physical factors but also to the political and social factors.

The remainder of the book - more than half its length - is given over to a detailed discussion of the data. (Raw information is gathered in appendices.) Only seven developing countries proved to have elaborated a comprehensive energy policy; a further 17 have the elements of such a policy.

According to Fritz, those countries with electricity grids large enough to count as candidates for nuclear power are giving priority to indigenous sources, especially hydroelectricity and coal. "The use of nuclear energy requires a highly developed technical and organizational infrastructure which does not exist in most developing countries, and cannot be established on cost grounds." However, he expressly disclaims any prescriptive intention. "The issue as to which Third World countries ought or ought not to use nuclear energy in the light of the criteria dealt with above not only requires an intimate knowledge of all the developing countries, but is also a matter of national sovereignty."

Quoting Gandhi, Fritz dedicates the book to "the last, the least, the lowest and the lost." Would that official energy policies everywhere were also thus dedicated.

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