

No Energy Security, No Sustainable Development

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India, the second populous nation of the world, is not blessed with adequate material resources for steady improvement of the quality of life of the inhabitants, at least in energy sources. The number of Indians today stands at 1.16 billion, close to 17% of the world population. Over more than six decades after independence 38% of Indians are still below poverty line and other development indices are equally dismal. A part of the failure may be attributed to the lack of the precious fuels required to drive the machines of development. True the resources are meagre—the oil reserve of the country is only 0.4% of that of the world and the position of gas is also the same. The coal reserve, though not quite comfortable, is slightly assuring—it is about 90 billion tonnes or 8.8% of global reserve. The country consumes about 500 million tones(mte) of coal a year and at the end of the present Eleventh Plan the target is 730 mte but the achievement is estimated to be 680mte or 50mte short of the target. Oil, which is mostly used in transportation, has a high growth and the consumption in 2008-'09 was 145 mte of which only 33.5 mte came from the Indian wells. Gas production last year was around 33 billion cubic metre of which nearly 40% went for power generation. Lack of gas pipelines and the other modes of transport have kept the utilization low. In the energy sector there is a chronic shortage. But in spite of the odds there is a social compulsion to improve the quality of life of those who live in farflung rural areas.

On the electrical side the shortfall has reached a highly disturbing state. More than half of the households of the country do not have any access to electricity. Few years back, under the previous regime it had been announced with all seriousness that by 2012 electric power will reach every home but it is now accepted that the promise cannot be honoured. There is a chronic shortage in generation capacity and in all the previous Plans the set targets had not been reached. The performance of the sector in the last three decades had been truly disappointing—not only in capacity enhancement but also at the operational level. The units were running at low capacities, plant load factors were low. With considerable effort the situation has been somewhat improved. In spite of that there are still heavy shortfalls in the generation. In 2007-08 the shortage was 9.9% in energy and 16.6% in peak demand.

At present load shedding for hours in almost all the cities has become common and one has to keep arrangement for an alternative supply however inefficient or expensive this may be. There again is no assurance on the part of those who are at the helm of affairs that the shortfall is a temporary one. In fact there is a possibility that consumers may have to go through greater sufferings in the coming years. Unfortunately there is hardly any estimate of the financial losses resulting from the supply disruptions. Neither in generation planning and execution nor in load management is there any sign of competent management. But there should not be any shortage of highly qualified and experienced technical manpower in the country. It is not really known what ails the

Indian power sector. It is high time that a serious effort is taken by the government in removing the ills and gear it up in meeting the obligations. But is there any indication of such an exercise?

An economic growth demands a commensurate energy growth. The Energy-GDP Elasticity defines the quantum of energy growth for a specific economic growth. For India in case of electricity the elasticity value is more than unity. Even if it is taken as unity a reasonable 8% GDP growth will demand an annual growth of electricity generation of the same percentage. It is instructive to have an idea of the growth rate of generation in the last few years – 5.1% in 2005-'06, 7.3% in 2006-'07, 6.3% in 2007-'08 and 2.7% in 2008-'09. Hydroelectricity's share is declining- it was 46% in 1966, in 2008 it has come down to 23% resulting in a massive peak shortage which reached 16.6% that year. Except for import from Bhutan and later, if allowed, from Nepal the share does not have any sign of improvement as the hydro projects, specially on the Ganga, are not being given clearance which is justified for adequate down-stream flow. With the prevailing performance level and existing constraints it is difficult to surmise how the promises of rural electrification will be honoured.

The meagre fossil fuel reserves of the country cannot ensure any kind of energy security. The government has very cleverly, in saving the nuclear establishment from a shameful nonperformance record, started publicizing its programme of attaining energy security through nuclear power. The country's nuclear plants have been operating at half or even lower loads for want of fuel. (Last year nuclear generation declined by more than 12%.) *This precisely led to the signing of the US-India Nuclear Pact at the dictated terms so that the fuel can be had from other suppliers who can be made to agree through American pressure to lift their sanctions against India which was imposed after the Pokhran explosion.* India is in the process of importing a number of reactors from US, Russia and France to enhance the nuclear generation capacity which is currently only 4340MW or 2.9% of the total. Interestingly the installations in renewable energy, viz. wind, solar photovoltaic, biomass and mini- hydro, has exceeded 15,500MW, more than three times the nuclear capacity. The country is yet to master the capability to design and manufacture nuclear generators of 800MW range while the world over the common rating today is in excess of 1000MW. The technology, it appears, cannot be developed indigenously, it is to be imported. The Nuclear Fuel Complex of the Dept of Atomic Energy is not in a position to supply the fuels of the Indian reactors. The uranium is in short supply. The ore quality of the uranium mines in Jadugoda, Domisiat of Khasi Hills and Nalgonda of Andhra, the last two of exploratory type, is so inferior that the commercial viability of the extraction has become questionable. It is truly surprising how a country which does not have its own advanced technology, manufacturing capability and even the fabrication facility of fuel required for the small reactors in operation can aspire to attain energy security through the nuclear route. It is also to be mentioned that the expansion of nuclear energy world over has virtually stopped because of simple commercial reasons. The cost of a nuclear plant today is not only very high (nearly five times that of a coal-fired plant per MW) it is somewhat uncertain also due to the long slump in the industry and today no private investor is now risking its capital in nuclear. Its share in total global electricity generation is coming down – from 16% in 2005 to 15% in 2006 and to 14% in 2007. Even the government plan papers are indicating that the proposed shares of nuclear vis-a vis renewable sources in 2030 will be 6.6% to 27.6%. If this is the kind of energy security the government is contemplating to achieve then God bless the Indians.

Coming to 'Sustainable Development' which the Brundtland Report defined as the one which 'seeks to meet the needs and aspirations of the present without compromising its ability to meet those of the future' it is incomprehensible how after nearly exhausting the fossil fuel reserves a generation can claim to leave behind enough resources to the next in meeting the future needs and aspirations. The proposal is outright absurd unless natural energy sources are exploited vigorously.. The way by which the future generations can be ensured of sufficient energy supply is to develop the solar energy technologies to the point of economic acceptance. In fact the threat of global warming also demands a realistic action plan for immediate deployment of solar energy technologies so that the transition from 'carbon to non-carbon' energy can be effected without any social trauma. Unfortunately in spite of the quality human resources and extensive field experimentation facilities available in the country the progress made in this technology through research, development and deployment has been far from satisfactory. In the National Action Plan on Climate Change the government had announced eight missions of which the very first one is the Solar Energy Mission. However, the kind of seriousness with which the Mission objectives are to be pursued are not being observed. The bureaucracy is yet to initiate the collective inspired action and it is not really known how the lofty goals of installation of 20GW of solar photovoltaics from indigenous production can be attained. The conversion of pious declarations into ground realizations has traditionally remained an enigma in the Indian context. The Mission deserves a much larger attention from the government.

Time is running out. If an urgent action is not taken the goal of sustainable development, the most ethical social imperative of the present generation, will remain duly unaddressed with tragic consequences.

Hope the issue, overpowering indifference by its merit, will draw due attention. □□□