

India' s Energy Policy for Sustainable Development

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작성일 : 2013년 6월 24일

The use of energy in modern society is synonymous with economic development. Almost all the developing nations are trying their best to catch up the developed nations using energy as a major driving power. The International Energy Agency (IEA) forecasts that world primary energy demand between now and 2030 will increase by 1.5% per year from just over 12,000 million tonnes of oil equivalent to 16,800 (Mtoe) an overall increases of 40%. Developing Asian countries are the main drivers of this growth, followed by Middle East. The environmentalists, however, show their concern over the process of development of these developing nations who follow the similar path of development of the rich and developed countries. It is argued that if the developing countries use the natural fuel as the main source of energy for economic development at a similar rate like developed countries, the conventional non-renewable energy sources will be exhausted in the midway of development. This is a particular area of exploitation of natural capital in terms of extraction of fossil fuel. But there are several areas of exploitation of natural capital like fresh water, tropical forest, atmosphere etc. Now, the question is what could be possible threats to humanity for lessening the reliance on nature. There is convincing evidence that the rates at which we currently exploit the natural resource (both renewable and non-renewable), will force to mutate the character of the natural capital towards worse side without any prior intimation. The survival of ecosystems is at stake if not collapsed in many areas due to overuse of natural recourses without giving scope for resurgence. Natural capital like agricultural land, water bodies, forests, atmosphere etc. are self-regenerative, but suffer from depletion or deterioration when they are over-used. In a recent paper Sir Partha Dasgupta concluded that "Development policies that ignore our reliance on natural capital are seriously harmful – they do not pass the mildest test for equity among contemporaries, nor among people separated by time and uncertain contingencies."

In the year 2000 a conference on 'Sustainable Future for Global System'

was organized by United Nation University and Institute of Advanced Studies, in Tokyo, where the Indian participants expressed their concern over the rising energy demand in India in this century. They projected that from 2000 to 2005 that the primary power consumption will grow at annual rate of 5.2% per annum. They have argued that to meet the challenge of the rising energy demand and environmental constraints arising due to higher usage of fossil fuels, India should pursue a long term energy strategy. Thus, the energy policy for sustainable development is not a very recent phenomenon in India. India being a member of United Nation Framework Convention on Climate Change (UNFCCC) attaches great importance to climate issues. The basic aim of the Convention is to reduce the Green House gas concentration in the atmosphere at a safer level to prevent dangerous anthropogenic interference with the climate system. Eradication of poverty, reduction of risk of food grain production, and sustainable developments are three integrated principles deeply embedded in the Convention. In fact, most of the environmental problems that confront the world today are related to the use of energy. Indian economy has been growing faster since the process of liberalization initiated during the early nineties with an even more rapid growth of energy sector during this period. This is basically due to dependency of growth on the energy intensive sectors where the energy efficiency is low compared to international standard. But the substantial increase in the total demand for electricity leads to an emerging energy supply–demand imbalance. In the electricity sector, official peak deficits are of the order of 12.7%, which could increase over the long term. In view of electricity supply shortages, huge quantities of diesel and furnace oil are being used by all sectors – industrial, commercial, institutional or residential. Naturally, a high growth of these sectors leads to high energy consumption and high rate of environmental emissions of gases and other pollutants. The rapid industrial growth, expansion of transportation sector and modernization of agriculture leads to high growth of energy sector and thereby causing serious environmental concerns.

In India the livelihood of most of her population depends on agricultural and related activities. Since productions or yields of all these sectors depend mostly on rainfall, water reserve and other climatic conditions, India has every reason to be concerned about climate change. According to an estimate of 2000 it was found that the relative emission of CO₂ from the energy sector to total Green House Gas emission was highest in the energy sector. However the main thrust of the policy for reduction of Green House Gas sinks is given

in the energy sector and to increase energy efficiency in different industrial and transportation sectors. In the case of power generation, there are environmental hazards associated with most of the conventional technologies. In India most of the thermal power generation use coal, that leads to severe environmental pollution. Since coal quality in India is poor and ash content is very high (about 30% to 40%) any use of coal in power generation generate a significant amount of fly-ash. Also, the use of coal in power generation leads to generate air pollutants like, fine particles, sulphur dioxide, oxides of nitrogen etc.

The Government of India has launched many initiatives towards sustainable development in recent years in which stresses were given in energy sector, particularly in non conventional energy use. Under the National Solar Mission, the government targets to set up 1,100 MW grid-connected solar plants including 100 MW capacity plants as rooftop and smaller solar power plants for the first phase of the National Solar Mission till March 2013. The government also formulated the National Policy on Bio-fuels and has given its approval for setting up the National Bio-fuel Coordination Committee and Bio-Fuel Steering Committee. Under the policy, it targets increasing the blending of bio-fuels with petrol and diesel to 20 per cent by 2017.

Renewable energy has been an important component of India's energy planning process since quite some time. During the first three years of the 11th plan period, renewable power capacity addition has been 8,395 MW, while the conventional power capacity addition has been 25,598 MW. It is to be also noted that 23% of all capacity today is large hydro which is renewable but not counted as such. Central Electricity Authority has given high priority to low-capacity River-type hydro projects and basin-wise optimization studies for all the major river basins are to be carried out to find out the feasibility of hydro electric projects. Major contribution of renewable energy capacity in the last decade has come from wind power which is about 70% of the total capacity. In the long term energy policy India also put its effort to Nuclear Power generation which is conducive to the local environment and by using local resource. The energy potential from natural uranium can be increased to about 300000 MW in the second stage through fast breeder reactors (FBRs).

Some of the primary objectives of the Ministry of New and Renewable Energy are (i) Develop, demonstrate and commercialize technologies for new and renewable energy sources with the help of corporate, scientific and technical institutions. (ii) Replace the use of different fossil fuels wherever

possible, and increase access to electricity/ lighting in remote and rural areas, through Renewable Energy Systems and (iii) Increase the contribution of Renewable Energy in the total energy mix of the country to 6 per cent by 2022, with about 10 per cent contribution to total electricity mix. To fulfill the objectives some strategies for the year 2012–17 have been taken by the Ministry. (a) Promoting the concept of small power plants at tail–end of grid for both solar and biomass and developing financial support structures, (b) Development of entrepreneurship for rural electrification through biomass wastes, rice husk, solar, etc. and enabling availability of banks/ grant funds, (c) Large–scale deployment and movement towards indigenization as already incorporated in the Solar Mission, (d) Incremental improvements in technologies for achieving greater efficiencies to make them more viable and acceptable, especially for solar cooling and cooking. (e) Promoting energy plantations of fast growing species of bamboo/ other trees to provide feedstock for small capacity biomass power plants for captive or local uses (Source: Ministry of New and Renewable Energy, Government of India).

Renewable energy is recognized as the alternative of conventional energy for sustained economic growth and growing global concerns regarding climate change. Indian policy makers have taken the responsibility to make the population aware of the use of renewable energy and researches are conducted to make those renewable energy sources commercially viable. Considering the high demand of energy, policies have been taken to promote any type of environmentally benign energy generation required for over all development and economic growth.