7 LONG-TERM SUSTAINABILITY OF INDIA'S ENERGY USE

7.1 Local and Regional Impacts

The question of long-term sustainability of India's energy sector in relation to environmental impacts at local, regional, and national level is important. In order that future growth is sustainable, it needs to be resource-efficient and environmentally accountable. The challenge is to thus use conventional energy resources in a manner, which cost-effectively maintains environmental quality.

- Environmental taxes and subsidies based on a consistent application of polluter pays principle or user pays principle can go a long way in preserving environmental quality. This would be relatively easily implementable for organized establishments.

- In cases where such taxes and subsidies are not easy to administer and transaction costs are high, alternative policies such as setting emission and energy consumption standards on equipments may be followed. Environmental impact assessment of power plants, dams, mines, infrastructure, construction etc., is already required. Environmental conditionalities and ameliorative actions should be specified to maintain desired level of environmental quality.

7.2 India's Approach to Climate Change

Climate change, resulting from anthropogenic emissions of a suite of gases (called "greenhouse gases" or GHGs) due to fossil fuel use, certain agricultural and industrial activities, and deforestation, leading to their increasing concentrations in the atmosphere, has the potential, over the next few generations, to significantly alter global climate. This would result in large changes in ecosystems, leading to possibly catastrophic disruptions of livelihoods, economic activity, living conditions, and human health. On the other hand, abatement of GHGs would involve significant economic costs.

While climate change is a global environmental issue, different countries bear different levels of responsibility for increase in atmospheric GHGs concentrations.
Further, the adverse impacts of climate change will fall disproportionately on those who have the least responsibility for causing the problem, in particular, developing countries, including India.

Though India is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC), she is not required to contain its GHG emissions. India’s policies for sustainable development, by way of promotion of energy efficiency, renewable energy, changing the fuel mix to cleaner sources, energy pricing, pollution abatement, afforestation, mass transport, besides differentially higher growth rates of less energy intensive services sectors as compared to manufacturing, results in a relatively GHG benign growth path.

India’s GHG emissions in 1994 level were 1228 million-ton (Mt) CO$_2$ equivalent, which is below 3% of global GHG emissions. In per-capita terms, it is 23 percent of the global average, and 4 percent of USA, 8 percent of Germany, 9 percent of UK and 10 percent of Japan per-capita emissions in 1994. In terms of the GHG intensity of the economy in Purchasing Power Parity terms, India emitted a little above 0.4 tonne CO$_2$ equivalent per 1000 US dollars in 2002, which is significantly lower than those of the USA and the global average. In terms of primary energy use, India’s share of renewable energy (being a non-GHG emitting energy form) at 36 percent is far higher than industrialized countries can hope to reach in many decades. Since GHGs emissions are directly linked to economic activity, India’s economic growth will necessarily involve increase in GHGs emissions from the current extremely low levels. Any constraints on the emissions of GHGs by India, whether direct, by way of emissions targets, or indirect, will reduce growth rates, and impair pollution abatement efforts.

Anthropogenic climate change, significant responsibility for which clearly does not lie with India or other developing countries, may, on the other hand, have severe adverse impacts on India’s precipitation patterns, ecosystems, agricultural potential, forests, water resources, coastal and marine resources, besides increase in range of several disease vectors. Large-scale resources would clearly be required for adaptation measures for climate change impacts, if catastrophic human misery were to be avoided.