



Addressing climate change: concerns and challenges

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The challenge of climate change is a global one and, fittingly, the global community is addressing this challenge through a multilateral and cooperative approach. The UNFCCC (United Nations Framework Convention on Climate Change) was adopted at the Rio Earth Summit 10 years ago. The Government of India has demonstrated its deep and continuing commitment to global efforts to address climate change by acceding to the Kyoto Protocol to the UNFCCC, and hosting COP-8, the eighth session of the Conference of Parties to the UNFCCC.

Climate change is a matter of grave concern for developing countries like India, which are highly vulnerable to its potential impacts. The IPCC (Intergovernmental Panel on Climate Change) points out that developing economies rely more heavily on climate-sensitive sectors like agriculture, which operate close to environmental and climatic tolerance levels. Few developing countries have the necessary financial, technical, and institutional capacities for efficient adaptation to climate impacts (IPCC 2001).

Recent scientific studies of the possible impacts of climate change reiterate the higher vulnerability and low adaptability of tropical developing countries. For instance, a 40-cm

sea-level rise by the 2080s could lead to an annual flooding of 55 million people in South Asia, 21 million in South-East Asia, and 14 million in Africa, as opposed to only 3 million in the rest of the world. Agriculture in tropical countries is particularly vulnerable to climate change. Strong negative effects are expected for populations that are less prepared to adapt (due to lack of infrastructure, capital, or education) or are poorly connected to regional and global trading systems (IPCC 2001).

Changes in temperature and precipitation may adversely affect freshwater availability and quality in many areas. Climate change could also aggravate problems of biodiversity loss and desertification. Climate change disproportionately impacts the poorest in society, exacerbating inequities in access to adequate food, clean water, health, etc. Thus, the issue of climate change is closely linked to other environmental issues, and to the challenge of sustainable development itself.



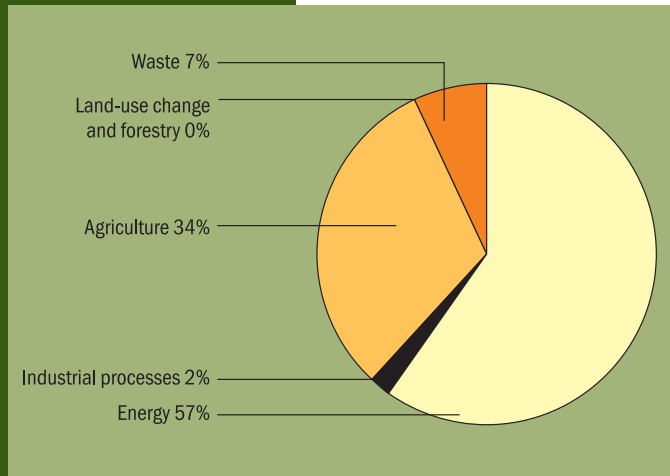


Figure 1 Sector-wise greenhouse gas emissions in India (1990)
Source ADB-GEF-UNDP (1998)

Although the countries of the developing world are more vulnerable to climate change, their contribution to the greenhouse problem has been much smaller than that of developed countries. Historically, developed countries have been responsible for more than 60% of GHGs (greenhouse gases) added in the last 100 years (WRI 2001). This is recognized in the UNFCCC, which follows the principles of ‘common but differentiated responsibilities’ and ‘respective capabilities’ in addressing its ultimate objective of stabilizing atmospheric GHG concentrations. It notes that the largest share of historical and current global emissions of GHGs has originated in developed countries, and enjoins upon them to take the lead in combating climate change.

In 1990, India accounted for approximately three per cent of global GHG emissions (1 001 352 gigagrams CO₂-equivalent¹). The major part of India’s emissions came from

fossil-fuel-related CO₂ emissions (Figure 1). In per capita terms, India emitted 1.19 tonnes of CO₂-equivalent, compared to Japan’s 8.8 tonnes and US’s 19.8 tonnes in the same year (ADB-GEF-UNDP 1998).

Ten years later, India’s CO₂ emissions from fossil fuel combustion continue to be much lower than those of key developed countries. In per capita terms, India’s emissions constitute just a fraction of the world average (Figure 2).

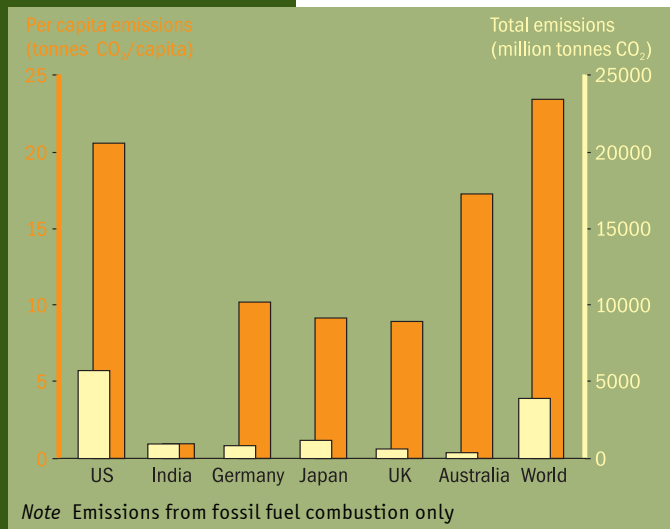


Figure 2 International comparison of total and per capita CO₂ emissions in 2000
Source IEA (2002)

¹ This takes into consideration the fact that greenhouse gases have different global warming potentials.

The CO₂ intensity of GDP (gross domestic product) at purchasing power parity is also lower than the OECD (Organisation for Economic Co-operation and Development) and world averages (Figure 3).

An associated challenge that India faces is serious energy shortage. Despite its conventional and non-conventional resource potential, 57% of the population lacks access to electricity (IEA 2002a). Access to sustainable energy is imperative to enhance economic opportunities and improve quality of life.

Despite its low share in atmospheric GHG concentrations, and its overriding development priorities, India is undertaking numerous initiatives that contribute significantly to international efforts for atmospheric protection, thus putting the country on the path of climate-friendly development.

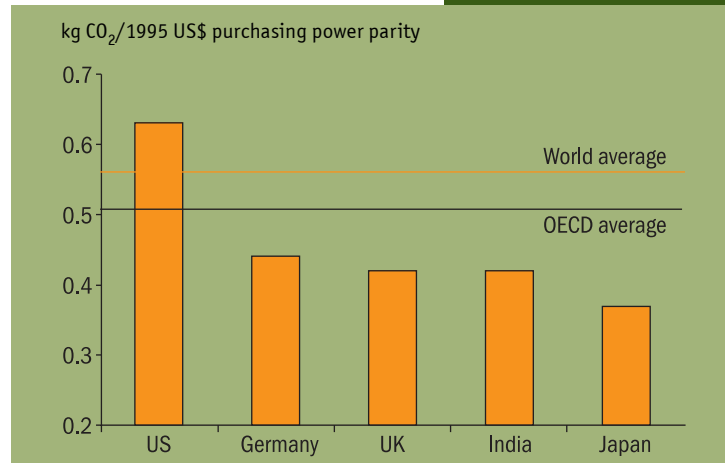


Figure 3 International comparison of CO₂ intensity of gross domestic product in 2000
Source IEA (2002)

