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2408 A Framework for Carbon Dioxide Reduction: Perspectives for Energy Security in India

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Global warming is the greatest environmental threat of the 21st century. Since the dawn of time, concentrations of carbon dioxide have been fluctuating and associated with changes in temperature. Current human-induced climate change is linked to increasing carbon dioxide and other greenhouse gas concentrations in the atmosphere. The mean global rise in temperature already has been recorded as 0.74 degrees Celsius during 1905 to 2006 and a rise in carbon dioxide concentrations by 100ppmv above average has been observed in the post-industrial era. The severe adverse impacts of climate change demand that actions be taken to stabilize these concentrations before they reach dangerous levels.

In this context, India's has a unique position in the energy sector. India is the third largest producer of coal and has the fourth largest installed wind generation capacity. India's share of global energy consumption is 3.5% and it is the fifth largest producer of global carbon emissions, yet one of the lowest on a per capita basis. The future economic growth profile of India is expected to accelerate growth in energy demand. Fossil fuels dominate India's generation mix, at about 69%, and there are concerns for increasing carbon dioxide emissions and impending climate change. It is therefore imperative to develop and promote alternative energy technologies that can lead to sustainability of the energy-environment system. A National Action Plan on Climate Change was launched by the Government of India in 2008. This plan identified both mitigation and adaptation to climate change as core mission areas and addresses issues relating to food, water, ecosystem and energy security. This talk analyzes the energy sector priorities and assesses carbon sequestration technologies as an approach to mitigate climate change. Climate response strategies must be science-based and mitigation requires inclusive growth in the energy sector through the application of advanced clean technologies, in addition to nuclear and renewable sources. Recent initiatives, long-term stabilization strategies for a future low-emission trajectory for India, and the role of international cooperation in research are discussed.

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