

India's Policy Priorities – Bleak Forecast for a Global Climate Regime?

By Deepa Badrinarayana*

A. Introduction

The future of an effective climate regime, post-2012, depends on three nations – China, India, and the United States of America.¹ While a deadlock persists when it comes to the question of accepting binding international legal obligations for targeted reduction of greenhouse gas (GHG) emissions, all three countries favor action to address climate change.² Nationally, each country is exploring a range of policy and legislative options to retard carbon emissions, especially by promoting alternative energy options and energy efficiency.³

Ultimately, however, the success of any climate endeavor will depend on the ability of each of these countries, notably growing economies such as India that are faced by multiple challenges of economic growth, social inequities, and environmental

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¹ Spotlight on China and India as delegates gather for U.N. global warming summit in Bali, International Herald Tribune (December 1, 2007), available at <http://www.iht.com/articles/ap/2007/12/02/asia/AS-GEN-Bali-India-and-China.php>.

² See generally, C. Boyden Gray, U.S. Ambassador to the European Union, Foreign Press Center Briefing, Washington D.C. (December 18, 2007), available at <http://fpc.state.gov/fpc/97780.htm>. For an overview of China's policy, see, Yang Zhang and Yongnian Zheng, *New Development in China's Climate Change Policy*, UNIVERSITY OF NEW SOUTH WALES FACULTY OF LAW RESEARCH SERIES (2007), available at <http://law.bepress.com/unswwps/flrps/art73>.

³ For an outline of U.S. policy, see U.S. Climate Policy and Actions, U.S. Environmental Protection Agency, available at <http://www.epa.gov/climatechange/policy/index.html>. For an overview of China's policy, see Yang Zhang and Yongnian Zheng, *New Development in China's Climate Change Policy*, UNIVERSITY OF NEW SOUTH WALES FACULTY OF LAW RESEARCH SERIES (2007), available at <http://law.bepress.com/unswwps/flrps/art73>. India's climate policy is discussed later in this article.

degradation, to align their competing national policies, and then to translate them within an international regime. This article analyzes the case of India—the economic and climate challenges of the sub-continent, and the scope of its laws—to provide an understanding of the multiple national policy challenges that will directly influence the efficacy of the future global climate regime.

The first part of the article lays out India's emerging challenges. The second part provides an overview of India's policy and legislative response to the challenges. The third and final part will provide concluding remarks.

B. India's Multiple Challenges--Economy, Energy and Environment (Climate)

In just over a decade of economic liberalization,⁴ India's GDP has grown steadily at a rate of about 8% annually.⁵ A recent report of the International Monetary Fund (IMF) listed India as one of the countries making the "largest country-level contributions to world growth;"⁶ according to the report India, China, and Russia accounted for one half of global growth in 2007.⁷ The Organization for Economic Development and Cooperation (OECD), which is considering the possibility of extending an invitation to India to become an OECD member,⁸ classified the nation as the third largest economy in the world in a recent survey.⁹

As such, Indian industries have received global attention with their recent acquisitions and global ventures. Significant developments that have drawn international attention in the recent past include Mittal Steel's acquisition of Arcelor,¹⁰ making it the world's largest steel company, and Tata's bid for Jaguar

⁴ See generally Vijay Joshi & I.M.D. Little, *INDIA'S ECONOMIC REFORMS 1991-2001*, (1996). Until the 1990s, India was a closed economy, in favor of protecting its national industry from global competition.

⁵ Reserve Bank of India Press Release, *RBI Increases Cash Reserve Ratio* (February 13, 2007), available at http://www.rbi.org.in/scripts/BS_ViewBulletin.aspx?Id=8333. In fact, in the past three years, India has posted a growth of about 9%, which may slow down to 8.4% in 2008. IMF, *infra* note 6.

⁶ World Economic Outlook, *Globalization and Inequity*, International Monetary Fund, xi (October 2007), available at <http://www.imf.org/external/pubs/ft/weo/2007/02/pdf/text.pdf>.

⁷ *Id.*

⁸ See OECD invites five countries to membership talks, offers enhanced engagement to other big players, Council Resolution on Enlargement and Enhanced Engagement (16 May 2007), available at http://www.oecd.org/document/33/0,3343,en_33873108_39418537_38603809_1_1_1_1,00.html.

⁹ See Economic Survey of India, Policy Brief, Organization for Economic Cooperation and Development (October 2007), available at <http://www.oecd.org/dataoecd/17/52/39452196.pdf>

¹⁰ See e.g. Anand Ghiridharadas, *Mittal's Stormy Quest for Arcelor*, INTERNATIONAL TRIBUNE, June 27, 2006, <http://www.iht.com/articles/2006/06/25/yourmoney/mittal.php>.

and Land Rover.¹¹ Incidentally, Tata has launched the world's cheapest car--approximately USD 2500.¹² There has also been a steady flow of capital investments in different sectors, notably technology-based outsourcing.¹³

These positive developments in the Indian economy are, however, subject to continuing market-based reforms to sustain economic growth. Such reforms according to OECD include lowering of protective labor regulations that inhibit growth and investment in infrastructure projects.¹⁴ The demand for construction of roads and other facilities such as water supply and sewage to accommodate a growing population and vehicular traffic is steadily curving upwards.¹⁵ Economists, political leaders, and industrialists in India have acknowledged that maximizing industrial production and agricultural output depends on an efficient supply chain, which in turn requires reliable infrastructure.¹⁶

Infrastructure development is directly correlated with a steady energy supply. Electricity generation, distribution, and supply are under strain, and the demand for energy in the subcontinent is spiking upwards.¹⁷ The International Energy Agency (IEA) predicts that demand for all types of energy in India will continue to

¹¹ See Bryce G. Hoffman, Ford Picks Tata as Top Bidder for Jaguar, Land Rover, THE DETROIT NEWS, January 3, 2008, available at <http://www.detnews.com/apps/pbcs.dll/article?AID=/20080103/UPDATE/801030436/1148/AUTO01>

¹² See Anand Ghiridharadas, The Making of Tata's New Car, INTERNATIONAL HERALD TRIBUNAL, January 7, 2008, available at <http://www.iht.com/articles/2008/01/07/business/car.php>.

¹³ In fact, by now several Indian companies are "outsourcing" the outsourced work into the United States. See Anand Ghiridharadas, Outsourcing Works, So India Exporting Jobs, THE NEW YORK TIMES, September 25, 2007, available at <http://www.nytimes.com/2007/09/25/business/worldbusiness/25outsource.html>

¹⁴ *Supra* note 9.

¹⁵ The Planning Commission of India estimates that India will require seven or more times its current electricity supply to sustain its 8-10% GDP growth through 2031. See Integrated Energy Policy, Report of the Expert Committee, Planning Commission, Government of India (August 2006), available at http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf

¹⁶ See, e.g., INDIA: MEETING NEW EXPECTATIONS, INDIA COUNTRY REPORT NO. 07/63, INDIA ECONOMIC SUMMIT, World Economic Forum, New Delhi (26-28 November 2006).

¹⁷ The Planning Commission of India estimates that India will require seven or more times its current electricity supply to sustain its 8-10% GDP growth through 2031. See Integrated Energy Policy, Report of the Expert Committee, Planning Commission, Government of India (August 2006), available at http://planningcommission.nic.in/reports/genrep/rep_intengy.pdf

grow by an average of 3.6% by 2030.¹⁸ Notably, energy consumption for power generation for commercial use and for industrial operations, as well as for transportation, is projected to grow rapidly. According to IEA, India could become the third largest importer of oil and coal by 2030, overtaking Japan.¹⁹

Further, India will likely increase the exploitation of its significant domestic reserve of petroleum and coal for energy supply. India has the second largest reserve of crude oil in the Asia-Pacific region—about 5.6 billion barrels, of which it produced about 845,000 barrels per day (bbl/d) in 2006 and consumed 2.65 million bbl/d.²⁰ The US Energy Information Administration (EIA) estimates that India's registered oil demand will continue to grow at a rate of about 100,000 bbl/d.²¹

Coal reserves in the nation are also substantial—as of 2003 it had 101, 903 million short tons of coal, of which it produced and consumed 443.7 and 478.2 million short tons, respectively.²² Coal is also one of the major sources of energy in India, making it the third largest producer in the world.²³ The reduction in consumption of coal in other countries may in fact be resuscitated by growing demand in India, and China. The two countries are predicted to account for 83% of the increase in global coal use by 2020.²⁴

Demand for other sources of energy is also slated to increase, particularly, natural gas and liquefied natural gas. Much of the demand for natural gas, as well of coal and petroleum will have to be satisfied by importing the fuels.²⁵ Thus, the Indian government must, on the one hand, increase domestic production, and, on the

¹⁸ World Energy Outlook, 2007, China and India, INTERNATIONAL ENERGY AGENCY, available at <http://www.iea.org/Textbase/npsum/WEO2007SUM.pdf>

¹⁹ *Id.*

²⁰ See ENERGY INFORMATION ANALYSIS, COUNTRY ANALYSIS BRIEF, INDIA (January 30, 2007), available at <http://www.eia.doe.gov/emeu/cabs/India/pdf.pdf>, hereafter EIA Country Analysis Brief.

²¹ *Id.*

²² *Supra* note 20.

²³ Energy Information Agency, REPORT#: DOE/EIA-O484 (2002), INTERNATIONAL ENERGY OUTLOOK 2002 (March 26, 2002), available at http://www.eia.doe.gov/oiaf/archive/ieo02/coalbox_txt.html

²⁴ Energy Information Agency, INTERNATIONAL ENERGY OUTLOOK 2002, COAL, available at <http://www.eia.doe.gov/oiaf/archive/ieo02/pdf/coal.pdf>

²⁵ *Id.*

other hand, expand imports. Further, it must also establish strategic petroleum reserves, an effort for which projects are already under construction.²⁶

Global warming is obviously linked to these issues of infrastructure and energy demands. The rise in global temperatures and the consequent catastrophic impacts on climate are attributed directly to increases in anthropogenic greenhouse gas emissions.²⁷ Of specific concern is carbon dioxide (CO₂) emissions, which are byproducts of fossil fuel combustion, primarily petroleum, coal, and natural gas.²⁸ Land use shifts, particularly deforestation or permanent removal of trees from forests, not only shrinks carbon sinks, or areas where CO₂ is absorbed from the atmosphere, but also increases emissions.²⁹

In its most recent report the Intergovernmental Panel on Climate Change (IPCC) determined that failure to stabilize global temperatures increase at 2 degrees Celsius by 2020 will result in irreversible non-linear, exponential, impacts and feedback effects in the climate.³⁰ The IPCC further predicts that such a change will lead to catastrophic climate consequences globally.³¹ In fact, the predictions for the sub-continent and the Asian region are significantly disturbing.

The melting of the Himalayan glaciers is projected to increase flooding and land slides, which will destabilize land and water resources in the entire region.³² The availability of fresh water in Central, South, East, and Southeast Asia could be jeopardized, even as population increases drive up demand.³³ Land use in mega

²⁶ Construction of storage tanks in the coastal region of Mangalore has already commenced under the supervision of the State-controlled company, Oil Industry Development Board, EIA Country Analysis Brief, *supra* note 20.

²⁷ See FOURTH ASSESSMENT REPORT, CLIMATE CHANGE 2007: SYNTHESIS REPORT, SUMMARY FOR POLICY MAKERS, Intergovernmental Panel on Climate Change, *available at* http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_spm.pdf.

²⁸ U.S. Environmental Protection Agency, HUMAN-RELATED SOURCES AND SINKS OF CARBON DIOXIDE, *available at* http://www.epa.gov/climatechange/emissions/co2_human.html#fossil

²⁹ Intergovernmental Panel on Climate Change, CONTRIBUTION OF WORKING GROUP I TO THE THIRD ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 2001: THE SCIENTIFIC BASIS, *available at* <http://www.ipcc.ch/ipccreports/tar/wg1/100.htm>

³⁰ *Supra* note 27.

³¹ Intergovernmental Panel on Climate Change, CONTRIBUTION OF WORKING GROUP II TO THE THIRD ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL OF CLIMATE CHANGE 2001: IMPACTS, ADAPTABILITY AND VULNERABILITY, *available at* <http://www.ipcc.ch/ipccreports/tar/wg2/index.htm>

³² *Id.*

³³ *Id.*

deltas and coastal areas could be disrupted due to flooding. Agricultural outputs could change indiscriminately in the region—with East and Southeast Asia experiencing an increase of 20%, and Central and South Asia witnessing a decrease of about 30%.³⁴ Endemic morbidity and diseases could grow in the entire region.³⁵

Studies about the impact of climate change on India indicate major changes in hydrological cycles,³⁶ agricultural outputs,³⁷ forest ecosystems³⁸ and coastal areas,³⁹ as well as human health concerns.⁴⁰ As such, the Gangotri glacier of the Himalayas, also the perennial source for the sacred river Ganga, has reportedly receded by about 30 meters.⁴¹ Also, water level rises in the Sunderbans region shared by India and Bangladesh has submerged land.⁴² These catastrophic climate change consequences will not only lead to loss of life and property, but also migrations both locally and regionally.⁴³

³⁴ *Id.*

³⁵ *Id.*

³⁶ Rivers could either flood or recede significantly, as indicated by studies conducted on the river basins of Krishna and Mahanadi. See A. K. Gosain, Sandhya Rao, and Debajit Basuray, *Climate Change Impact Assessment on Hydrology of Indian River Basins*, 90 CURRENT SCIENCE (No. 3, February 10, 2006).

³⁷ Short crop durations are predicted to decrease yields. See Jayant Sathaye, P.R. Shukla and N.H. Ravindranath, *Climate Change, Sustainable Development and India: Global and National Concerns*, 90 CURRENT SCIENCE, (No. 3, February 10, 2006).

³⁸ The damage to biodiversity hotspots could be irreversible. See N.H. Ravindranath, N.V. Joshi, R. Sukumar, and A. Saxena, *Impact of Climate Change on Forests in India*, 90 CURRENT SCIENCE (No. 3, February 10, 2006). See also, *Climate Change Impacts on Industry in India*, Keysheet 8, IIM Ahmadabad Report, available at <http://www.defra.gov.uk/environment/climatechange/internat/devcountry/pdf/india-climate-8-industry.pdf>.

³⁹ Extreme sea-level rise could threaten life and property in coastal regions, as also increase in cyclones. See A.S. Unnikrishnan, K. Rupa Kumar, Sharon E. Fernandes, G.S. Michael and S.K. Patwardhan, *Sea Level Changes Along the Indian Coast: Observation and Projections*, 90 CURRENT SCIENCE, (No. 3, February 10, 2006).

⁴⁰ Malaria-carrying vectors are particularly worrisome. See Sumana Bhattacharya, C. Sharma, R.C. Dhiman and A.P. Mitra, *Climate Change and Malaria in India*, 90 CURRENT SCIENCE (No. 3, February 10, 2006). See also HEALTH MINISTRY WARNS SPURT IN DISEASES, THE INDIAN EXPRESS, May 16, 2007.

⁴¹ Emily Wax, *A Sacred River Endangered by Global Warming*, THE WASHINGTON POST, June 17, 2007, at A14.

⁴² Roger Harrabin, *How Climate Change Hits India's Poor*, BBC NEWS, 1 February 2007.

⁴³ See generally, NATIONAL SECURITY AND THE THREAT OF CLIMATE CHANGE, CNA CORPORATION, pp 16-18, available at <http://securityandclimate.cna.org>. (CNA Report).

Economic growth and infrastructure development are increasing India's contribution to climate change. Presently, India is the fifth largest emitter of GHGs,⁴⁴ even though its *per capita* contribution remains noticeably lower than that of China and the United States.⁴⁵ The nation's contribution will continue to increase if its dependency on traditional energy fuels continues to grow. Of particular concern are the demand trends in the urban areas—electricity for commercial and residential buildings for air conditioners and light, petroleum for increasing private transportation, and coal for cement and steel industries.⁴⁶ Infrastructure projects such as road building and electricity generation and distribution will also cause adverse land use shifts.⁴⁷

The close link between India's economic growth, infrastructure deficits, energy requirements, and climate consequences translates into complex law and policy-making. Unless government policies and legislation balance the competing and overlapping interests, it may not be in a position to sustain its economic growth or prevent climate-related catastrophes.

C. Policies and Law – Economics, Energy, and Environment

India's economic policies have undergone dramatic transition since the early 1990s, when the then prime minister, P.V. Narasimha Rao, signed the General Agreement on Tariffs and Trade (GATT), making India a member of the World Trade Organization (WTO).⁴⁸ The new liberal economic policies helped stabilize the

⁴⁴ The Little Green Data Book, World Bank, 2007, available at <http://siteresources.worldbank.org/INTDATA/64199955-1178226923002/21322619/LGDB2007.pdf>

⁴⁵ See Climate Change Performance Index 2008, German Watch, available at <http://www.germanwatch.org/klima/ccpi2008.pdf>.

⁴⁶ See P.R. Shukla, Rajesh Nair, Manmohan Kapshe, Amit Garg, S. Balasubramaniam, Deepa Menon, and K.K. Sharma, *Development and Climate: An Assessment of India*, INDIAN INSTITUTE OF MANAGEMENT, Ahmadabad (2003) (on file with author).

⁴⁷ See Sathaye, *supra* note 37.

⁴⁸ See ECONOMIC AND POLICY REFORMS IN INDIA, NATIONAL COUNCIL OF APPLIED ECONOMIC RESEARCH, 2002 (on file with author); VIJAY JOSHI, *supra* note 4.

country's external debts.⁴⁹ Now, the government's focus is on increasing the country's share of global merchandise and employment opportunities.⁵⁰

The Foreign Trade (Development and Regulation) Act (1992) not only enforces India's obligations under GATT, but also limits the application of some of the exceptions to free trade provided under the agreement, such as restrictions on non-tariff trade barriers to protect the environment or human health.⁵¹ The objective of the 1992 Act is to reduce red tape and trade restrictions. The legislation has been successful in promoting trade in coal and petroleum products.⁵² As a result of the legislation and the government's trade policies, major trade arrangements have been established with almost every region, including Africa, Americas, Asia, Europe, and the Middle East.⁵³

The Government has also adopted policies and legislation to promote infrastructure development. A major step in this direction has been the deregulation of relevant sectors—power, roads, airports, and ports—to attract foreign direct investments (FDIs).⁵⁴ The administration also plans to promote policies that would encourage domestic oil production. For instance, the New Exploration License Policy adopted in 2000 by the Ministry of Petroleum and Natural Gas permits foreign companies to hold 100% equity in oil and natural gas projects, even though the corresponding companies, such as the Indian Oil Corporation (IOC) and the Oil and Natural Gas Corporation (ONGC), are State-owned.⁵⁵ To date, however, no international oil company owns major equities in any project.⁵⁶

⁴⁹ India: 2006 Article IV Consultation—Staff Report, Staff Statement, and Public Information Notice on the Executive Board Discussion, IMF Country Report No. 07/63, International Monetary Fund (February 2007).

⁵⁰ Foreign Trade Policy, 1st September 2004-1st March 2009, Notification No. 1 (RE-2006)/2004-2009, New Delhi, 7 April 2006 (with effect from 1 April 2006).

⁵¹ *Id.*

⁵² See Annual Report 2004-2005, Ministry of Commerce and Industry, available at <http://commerce.nic.in/traderemedies/annualreport.asp>.

⁵³ *Supra* note 49.

⁵⁴ FDIs have been facilitated by a series of policy measures. For an overview of how FDIs in India, see Manual of Foreign Direct Investment in India, Policy and Procedures, Secretariat for Industrial Assistance, Department of Industrial Policy and Promotion, Department of Industry and Commerce (May 2003), available at http://dipp.nic.in/manual/manual_0403.pdf

⁵⁵ *Supra* note 20.

⁵⁶ *Id.*

The Government is also promoting policies to facilitate the expansion of exploration and production activities abroad by its corporations. ONGC reportedly holds interests in about 25 projects in 15 countries, including Sudan and Russia.⁵⁷ The administration has de-regulated the supply side of the oil sector, allowing private refiners to directly enter the market to provide petroleum products to their customers.⁵⁸ The new Market Determined Price Mechanism (MDPM)⁵⁹ allows market pricing of fuel, and subsidies are slowly being phased out as fuel prices increase.⁶⁰

Energy policies to catalyze and sustain economic growth are supplemented by legislation to promote infrastructure development. The Indian Electricity Act of 2003, a consolidated version of earlier legislation, is aimed at stimulating private investments, both national and foreign, to boost the power sector.⁶¹ The new law is aimed at upgrading the national grid system by 2012. If properly implemented, the legislation will support efforts to supply electricity to nearly 40% of the population that is currently without access to power.⁶² The legislation also aims to cut losses faced by State Electricity Boards by establishing irrevocable letters of credit and escrow accounts, thereby ensuring proper management of the resources.⁶³

Legislative activity to support construction projects is also on the rise. For instance, the National Highway Act permits "build-own-transfer" projects to expand and

⁵⁷ India has also started several new projects for import of natural gas, including projects to construct pipeline with Iran-Pakistan, Turkmenistan-Afghanistan-Pakistan, and Myanmar. EIA Country Analysis Brief, *supra* note 20.

⁵⁸ *Id.*

⁵⁹ MDPM replaces the Administered Price Mechanism (APM), under which the Government determined the prices. *Id.*

⁶⁰ See generally Heather Timmons, *Citing Oil Prices, Asia Starts Reducing Fuel Subsidies*, THE NEW YORK TIMES, Nov. 2, 2007, available at <http://www.nytimes.com/2007/11/02/business/02fuel.html>. However, the Government continues to subsidize fuels for consumers, driving several private refiners such as Reliance Petroleum to export their products. *Supra* note 20.

⁶¹ The Electricity (Amendment) Act, 2003, No. 57 of 2003.

⁶² Measures to drive up investments include a fixed return of 16% on investment, removing licensing requirements to operate and maintain power-generation stations, participation in distribution and transmission with license from a newly created Central Electricity Regulatory Commission (CERC), provision for selling power directly without government intervention, and the creation of a separate Appellate Tribunal for Electricity. See Mark J. Reidy and Andrews Kurth, *Project Finance India*, 1587 PRACTICING LAW INSTITUTE 143 (2007).

⁶³ Nandan Nelivigi, Doug Peel, and Christopher Krishnamoorthy, *Infrastructure Project Finance in India: Recent Developments*, 1587 PRACTICING LAW INSTITUTE, 133 (2007).

improve the highway system in India.⁶⁴ The establishment of a special Airport Economic Regulatory Authority to oversee the modernization and construction of airports is in the pipeline.⁶⁵ A range of targeted policies have been adopted to attract FDI for marine ports, telecommunications and real estate development projects.⁶⁶

In addition to the above legislation, cumbersome regulations that slow down infrastructure development are under review for change. A special committee--the Govindrajan Committee--was established to identify laws and policies that hindered fast growth, and to provide recommendations to resolve the issue. Among several recommendations, the Committee identified environmental impact assessment regulation as a major hurdle to infrastructure improvement and recommended a single window procedure to expedite regulatory clearances.⁶⁷

Legislations to speed infrastructure development and expand energy supply are complemented by policies and laws to achieve energy efficiency. The Energy Conservation Act of 2001 was passed to promote efficient use and conservation of energy, as part of the goal to provide electricity to all citizens by 2012.⁶⁸ The Bureau of Energy Efficiency created under the Act comprises a Governing Council representing all energy-related ministries.⁶⁹ The Council advises the Central Government on energy conservation policies and coordinates the implementation of corresponding action. The Appellate Tribunal for Energy Conservation adjudicates disputes arising from both Central and State government orders on energy conservation.⁷⁰

⁶⁴ *Id.*

⁶⁵ See Reidy and Kurth, *supra* note 62.

⁶⁶ *Id.*

⁶⁷ REPORT ON REFORMING INVESTMENT APPROVAL AND IMPLEMENTATION PROCEDURES, PART-I (INVESTMENT APPROVAL PROCEDURES-GOVERNMENT AND PUBLIC SECTOR PROJECTS), Government of India, May 2002.

⁶⁸ The Energy Conservation Act, 2001, No. 52 of 2001, Ministry of Law, Justice and Company Affairs, Sec. 1, The Gazette of India Extraordinary 3.

⁶⁹ These include the Ministries of Power, Petroleum and Natural Gas, Coal, Non-conventional Energy Sources, Atomic Energy, Consumer Affairs, Central Electricity Authority, Commerce and Industry of Kolkata, the Central Mine Planning and Design Institute, the Bureau of Indian Standards, and the Central Power Institute of Karnataka. See Section 4 of the Energy Conservation Act, *supra* note 68.

⁷⁰ Section 30, Energy Conservation Act, 2001, The Gazette of India, Extraordinary, NO. 60, New Delhi, October 1, 2001, available at http://powermin.nic.in:80/acts_notification/pdf/ecact2001.pdf

The Bureau has initiated several projects to promote sustainable energy use, starting with an evaluation of government buildings for efficiency. It is also consulting key industries through the Indian Industry Programme for Energy Conservation, which comprises task groups representing the Textile, Cement, Paper & Pulp, Fertilizer, and Aluminum industries that share best practices and establish voluntary targets and benchmarks towards energy efficiency, to set up workable efficiency programs and strategies.⁷¹ In the pipeline are projects such as energy standard-setting, labeling, green building codes, energy certification, accreditation programs, school education, and supply side conservation projects.⁷²

The work of the Bureau is complemented by the Ministry of New and Renewable Energy, which explores alternative energy sources such as solar, wind, hydropower, and biogas.⁷³ The Ministry's target is to ensure that 5-6% of all energy will be derived from renewable energy sources by 2032.⁷⁴ Notably, the Government of India is presently exploring civilian nuclear energy options, having recently decided to negotiate an agreement with France,⁷⁵ and working on another with the United States.⁷⁶

India's climate change policy and law primarily flow from global arrangements. India acceded to the Kyoto Protocol in 2005,⁷⁷ but, because of low *per capita* emissions, it enjoys a surplus of emission rights.⁷⁸ In other words, unlike Annex I

⁷¹ *Id.*

⁷² For a comprehensive overview of the powers and functions of the Bureau, see <http://www.bee-india.nic.in>

⁷³ The Ministry began as the Department of Non-Conventional Energy Sources within the Ministry of Energy, which was established in the 1980s to ensure energy security during the oil crisis in the 1970s. The Department became a separate Ministry of Non-Conventional Energy Sources in 1992 and was renamed the Ministry of New and Renewable Energy in 2006. See Ministry of Renewable Energy, Annual Report 2005-2006. See also Administrative Circular Notification, NO. 24/1/1993-Admn.II, Government of India, October 20, 2006.

⁷⁴ *Id.*

⁷⁵ India, France to Sign Nuclear Deal, BUSINESS STANDARD, New Delhi, January 26, 2008, available at http://www.business-standard.com/common/news_article.php?leftnm=3&autono=311767.

⁷⁶ See Jim VandeHei and Dafna Linzer, *U.S., India Reach Deal on Nuclear Cooperation*, THE WASHINGTON POST, March 3, 2006, at A1.

⁷⁷ See Clean Development Mechanism of India, <http://cdmindia.nic.in>

⁷⁸ Per capita emission is defined in terms of total emissions (excluding land-use) Units—thousands metric tones of carbon dioxide consumption per capita per 1000 population, see The World's Top Emitters, CENTER FOR AMERICAN PROGRESS, Sept. 21, 2007, available at <http://www.americanprogress.org/issues/2007/09/emissions.html>. For a list of countries with high

countries such as Australia, Japan, Canada, and Europe, India is not legally required to reduce its emissions within a specific target date.⁷⁹ Further, Annex I countries can invest in clean development mechanisms (CDM) and other emission reduction projects in India, and receive credits towards meeting their own reduction targets under the Protocol.⁸⁰

The administration has established a National Clean Development Mechanism Authority (NCDMA) within the central Ministry of Environment and Forests (MoEF) to coordinate CDM projects.⁸¹ NCDMA has developed interim procedures for granting approval to projects proposals and it supervises the implementation of the projects.⁸² However, poor infrastructure, market viability, and intellectual property regimes that inhibit transfer of low-carbon technologies into India limit the efficacy of CDM undertakings.⁸³

Specific policies and legislation to mitigate or adapt to climate change are, however, absent. A special committee, the National Council on Climate Change (the Council) established by the Prime Minister of India, is finalizing a draft policy.⁸⁴ The report, which was scheduled to be released in December 2007, may not be out until June 2008.⁸⁵

per capita emissions, *see* CO2 Emissions (per capita) (most recent) by Country, NationMaster, *available at* http://www.nationmaster.com/graph/env_co2_emi_percap-environmentco2-emissions-per-capita. A listing of countries in the order of per capita emissions is available at http://www.ucsusa.org/global_warming/science/each-country-share-of-co2-emissions.html.

⁷⁹ Annex I countries are required to reduce their GHG emission by specific percentages below their 1990 levels under Article 2 of United Nations Convention on Climate Change, Dec. 10 1997, 37 I.L.M. 32.

⁸⁰ *See* Article 12, Kyoto Protocol to the United Nations Convention on Climate Change, Dec. 10 1997, 37 INT'L LEGAL MATERIALS 32, *available at* <http://unfccc.int/resource/docs/convkp/kpeng.pdf>

⁸¹ The Authority was established by an Order of the Joint Secretary, as required under UNFCCC. Ministry of Environment and Forests, Order, New Delhi, the 16th April, 2004, S.O. 515 (E), F.No. 4/5/2003-CCC, issued by R.K. Viash, Joint Secretary, *available at* <http://envfor.nic.in/news/aprjun04/so515e.doc>.

⁸² *See* National CDM Authority, CDM INDIA: DESIGNATED NATIONAL AUTHORITY, *available at* http://cdmindia.nic.in/cdm_india.htm

⁸³ *See, e.g.*, UK-India Collaboration to Identify the Barriers to the Transfer of Low Carbon Energy Technology, University of Sussex, The Energy and Resources Institute, and Institute of Development Studies, October 2006 (on file with author).

⁸⁴ PM's Council on Climate Change constituted, Press Release, Prime Minister of India's Office, June 5, 2007, *available at* <http://pmindia.nic.in/prelease/pcontent.asp?id=585>.

⁸⁵ *See* Aasha Khosa, *Draft Climate Change Report This Month*, THE BUSINESS STANDARD, February 20, 2008, *available at* http://www.business-standard.com/common/news_article.php?leftnm=3&autono=314119.

As matters currently stand, efforts to conserve energy are driven more by concerns of meeting growing economic demands than by a desire to arrest climate change.⁸⁶ Supplementary, and not entirely successful, efforts such as conservation of forests are incidental to and part of ongoing efforts that were launched in the 1980s.⁸⁷ In fact, these initiatives may be affected by the nation's drive to increase production of biofuels as an alternative source of energy.⁸⁸

The government has not taken any step to reduce carbon dioxide emissions under its pollution control law, nor are any plans to do so imminent.⁸⁹ If experience is any indication, the government may not undertake such measures voluntarily--critical pollution controls in the past have been motivated by judicial intervention.⁹⁰ The

⁸⁶ For instance, the former President of India Abdul Kalam noted the importance of energy efficiency to energy independence, stating "Energy independence [was] the lifeline of [the] nation," but not referring to the nexus with global warming. See Address at the Inauguration of The South Asian Conference on Renewable Energy, New Delhi, 18th April 2006.

⁸⁷ For example, in 1988 the Ministry of Environment and Forests adopted the National Forest Policy under the Forest (Conservation) Act, 1980, and launched a series of afforestation and reforestation programs through community partnerships--the Joint Forest Management Programs. However, much needs to be done yet in terms of conservation of species and gene pools, and drawing up comprehensive forest management plans. See e.g. Armin Rosencranz, Edward Boenig, and Brinda Dutta, *The Godavaran Case: The Indian Supreme Court's Breach of Constitutional Boundaries in Managing India's Forests*, 37 Environmental Law Reporter 10032 (January 2007).

⁸⁸ See Jayalakshmi K., *Biofuels and the Need for Caution*, Deccan Herald, Tuesday May 29, 2007, page 3. The government's interest in promoting biofuels is evident in its efforts to establish a National Mission on Biofuels by 2011-2012. See Preety Bhandari, *India's Pragmatic Approach to Climate Change*, SCIENCE AND DEVELOPMENT NETWORK, 31 August 2006, <http://www.scidev.net/Opinions/index.cfm?fuseaction=readOpinions&itemid=518&language=1>.

⁸⁹ India's reluctance to adopt any pollution-reduction measure was articulated by Prime Minister Manmohan Singh in a recent address in which he stressed the importance of climate change and assuring that India's per capita emissions would not surpass that of industrialized nations, implicitly conveying that no emissions control measures would be taken. Kritivas Mukherjee, *India's Climate Change Roadmap to be ready in June*, REUTERS UK, February 7, 2008, available at <http://uk.reuters.com/article/oilRpt/idUKSP28730620080207?pageNumber=3&virtualBrandChannel=0&sp=true>.

⁹⁰ For instance, the government passed legislation adopting the Euro Emissions II standards for all road vehicles, following litigation before the Supreme Court of India. See *M.C. Mehta v. Union of India and Others*, WP 13020/1985 (1999.04.06). Litigation, however, may not be the answers to many of the concerns either. See e.g. R.K. Pachauri, *Clearing the Way: Many Roadblocks on the CNG Route*, THE TIMES OF INDIA, 1 September 2001.

administrative structure to address environmental concerns is, as such, inadequate to address most problems, and climate change is not an exception.⁹¹

Adaptation policies and law are also subject to the recommendation of the Council, and to consultations with the Global Environment Fund.⁹² Until proper adaptation strategies are designed, citizens will have to be resilient, as in the past, when catastrophic events have occurred.⁹³ In the alternative, courts may be approached, but, despite the Indian judiciary's liberal interpretation of constitutional rights,⁹⁴ access remains problematic.⁹⁵

In sum, India is progressively aligning its policy and legislation to sustain its economic growth and infrastructure development, but has yet to adopt a comprehensive climate change policy that would address mitigation and adaptation concerns without interfering with economic and ancillary growth.

D. Conclusion: Looking Ahead

India's kaleidoscope of policies and laws shows a steady focus on economic growth. The policies and law clearly promote energy use, much of which will have to come from traditional sources that have high emissions. Environmental laws are lax and being subject to de-regulation to promote infrastructure development. As a barometer of the nation's future participation in the global climate regime, these policies do not indicate any major shift from the current position.

⁹¹ See generally India's Initial Communications to the United Nations Framework Convention on Climate Change, Ministry of Environment and Forests, New Delhi, 2004, available at <http://unfccc.int/resource/docs/natc/indnc1.pdf>.

⁹² The Government is currently exploring insurance and technology solutions to address the issue. See Climate Change Dialogue India Country Presentation, Surya P. Sethi, Adviser, Energy Planning Commission, India, May 2006 (on file with author).

⁹³ See generally PM Reviews India's Response to Tsunami, December 24, 2005, available at http://pmindia.nic.in/tsunamireview_body.htm; Indian Monsoon Death Toll Soars, BBC News, 28 July 2005.

⁹⁴ See S.P. Sathe, *Judicial Activism: The Indian Experience*, 6 WASHINGTON UNIVERSITY JOURNAL OF LAW AND POLICY 29, 38 (2001),

⁹⁵ See Honorable Mr. Justice Y.K. Sabharwal, Chief Justice of India, Speech at the Inauguration of the Joint Conference of Chief Justices and Chief Ministers, March 11, 2006, available at http://supremecourtfindia.nic.in/news_links/cji11_3_06.doc. See also Dr. Jayaprakash Narayan, *Judicial Reforms – Need of the Hour*, Loksatta Research Paper, available at <http://www.loksatta.org/Jud%20Reform.pdf>

The Government is determined to push for economic growth and to expand its share of global energy consumption. Its only concession to climate change can be linked to the government's focus on alternate and efficient energy use. Other efforts such as policies for adaptation remain indeterminate. Given the general thrust of the administration and the general lack of concern, the future of the global climate regime remains bleak; at the very least, emission reduction targets may not be a good platform for engaging India in negotiations for a legally binding treaty.