

## IDFC Knowledge Capital in Environmental Studies and Climate Change



IDFC is a specialist infrastructure finance company in India. IDFC offers a composite financial services platform to infrastructure developers in India by operating a full range of business lines, from project finance and equity (proprietary and third party funds) to asset management (project development and operations), investment banking and retail products.

Since its inception in 1997, IDFC has been actively providing thought leadership and objective advice for facilitating private participation and competition in infrastructure. IDFC's unparalleled expertise in infrastructure development combined with its strong relationships with the Indian government, which gives it access to decision makers in government entities, has facilitated the significant contributions IDFC has made on infrastructure policy in the country. The Policy Group at IDFC works towards fulfillment of this role. Over the years, there has been increasing acceptance of the Group's policy philosophy and position by the governments at the national and sub-national levels and the Group has been offered membership of various committees formed by the Government of India (GoI) to further infrastructure reforms.

IDFC was the first Indian financial institution (FI) to have an Environment Risk Group (ERG) to identify, assess and mitigate the environmental and social impacts of projects financed by it. Going forward, IDFC intends to rate its projects in terms of their carbon footprint and low carbon technology integration. IDFC has an MoU with IdeaCarbon, to encourage adoption of ratings of environmental assets by carbon market participants and develop other products to enable structured growth of the carbon market. IDFC has a specific focus on clean technologies, having loaned over \$800m to renewable (wind, solar and small hydro-electricity) power generation projects of capacity 1300 MW, and over \$325m for energy



efficiency/ transmission loss reduction programs of electricity utilities. Besides, IDFC's Alternative Assets Management business has committed equity of \$275m in cleantech companies including in a pure play renewables entity, a (municipal) waste to energy company and in a carbon advisory firm. IDFC Private Equity holds the distinction of being the largest and most active private equity firm focused on infrastructure and the cleantech space in India.

The Policy Group at IDFC, being the knowledge repository of the firm, provides thought leadership and advocacy in areas of infrastructure policy and governance, with a thrust on sustainable infrastructure. It aims to stimulate thought and action for responsible development of infrastructure in the context of environmental sustainability, as well as propagate and promote good governance and inclusive development of infrastructure, thereby working towards IDFC's mission of nation building. Climate Change, being one of the most important sustainability challenges facing the nation today, forms a growing aspect of our policy research and advocacy. The Policy Group has been actively contributing towards improving the investment climate for renewable energy and more importantly to the implementation of the Government of India's Solar Mission.

The Policy Group at IDFC is more focused and actively involved in several national level policy discussions on climate change, environmental regulation, resource management, and energy sector. The Policy Group engages pro-bono with the infrastructure and environment ministries at the Central Government, and the corresponding line departments in the State Governments. Being part of one of the most important infrastructure finance institutions in India also connects us with private developers and financiers of infrastructure projects in the country. This unique position allows the Policy Group to engage with all the stakeholders key to the climate change debate. With negotiations on the extension of the Kyoto Protocol currently underway, there is extensive debate on the challenges and opportunities that a rapidly developing country such as India faces. By complementing the operational knowledge that comes from working with developers, with viewing policy developments inside the government, we hope to bring some practical value to the evolving climate policy in India.

The Policy Group work is reflected through various means such as (i) studies (suo moto or commissioned), discussion papers & articles; (ii) a Quarterly that examines innovative solutions aimed at addressing some infrastructure challenge and distills learnings; (iii) our annual flagship publication the India Infrastructure Report and (iv) workshops, seminars & conferences. Our increasing focus on sustainability and climate change challenges of infrastructure development is reflected in our recent works and activities, which are culled out below.

## **Policy Group Publications**

### **India Infrastructure Report**

The India Infrastructure Report (IIR) is an annual thematic report that reflects a central contemporary issue in infrastructure development. An outcome of the collaborative efforts of academics, researchers and experts, the IIR is an invaluable resource for policymakers, academicians and corporates. Our latest **India Infrastructure Report 2010** is on **Infrastructure Development in a Low Carbon Economy**.

This report focuses on issues and challenges of infrastructure development in a carbon smart way in keeping with India's inclusive growth objectives. Rapid infrastructure build-up is essential to sustain India's high economic growth. But infrastructure development has traditionally been carbon intensive. The challenge, therefore, is to build infrastructure with less carbon footprints without compromising poverty alleviation and energy security. A low carbon path could be achieved through carbon reduction, switching or capture. India is in early stages of infrastructure development, and so the choices now would determine the future. The opportunities are many; some may be infeasible now but need to be planned for the future. Technology and finance are central to low carbon interventions, which in turn require an enabling legal, regulatory and institutional framework.

Our forthcoming India Infrastructure Report 2011 is on Water.

### **Quarterly**

We at IDFC Policy Group bring out a Quarterly, which documents initiatives on the ground in the infrastructure sector and disseminate lessons from their experiences – mistakes as well as successes. Many of our Quarterlies reflect our inquiry into the initiatives having implications for sustainability and climate change. These include:

- Biomass-based DDG for universal energy access, March 2011
- Electric Vehicles: Driving Towards a Greener Future, Sept 2010
- Building Integrated Photovoltaics in Rabi Rashmi Abasan: A „ray“ of hope for sustainable energy solutions, Dec 2009
- Waste to Energy: An Imperative for Sustainable Waste Management, Mar 2009
- Bus Rapid Transit System, Sep 2008

### **Papers, presentations and articles**

- Renewable energy requires further policy impetus; published in the Economic Times, July 22
- Discussion paper on Barriers to development of renewable energy in India & proposed recommendations, Feb 2010 (done for IDFC's Energy Advisory Board) Paper on Energy Sector & India's Economy for presentation at the Vibrant Gujarat Investors' Summit 2009
- Presentation on Can India Create an Incentive Based Regime for Significant Power Industries on Renewable Energy?; presented at Green India Summit organized by U.S.-India Business Council; Washington

### **Our experts at various events and forums**

- Panel Discussion at the Carbon Map and Cap Conference on the Business of Carbon Management; April 9, 2011; Mumbai
- Panel discussion on Policy Framework for Low Carbon Buildings: Looking Ahead at Future Energy Policies at RICS & Oxford Brookes University's conference on Moving Towards Low-Carbon Buildings in India.
- Panel discussion on Infrastructure Development and Climate Risks at session titled Mainstreaming Adaptation and Linkages with Development Planning at the Workshop on Climate Change Vulnerability and Adaptation Planning for Urban Areas organized by SIMSR and IIT-Bombay; December 17-18, 2010; Mumbai
- Discussant at Roundtable on Leveraging Public & Private Finance in the Energy Efficiency Sector organized by Climate Group & ICICI Bank; August 13, 2010; New Delhi
- Panel discussion on Leveraging Investment at the 3rd Annual Conference on Solar Power in India: New Opportunities and Challenges; Projects and Technologies organized by Power Line; June 29-30, 2010; Delhi
- Panel discussion on The Bundling Scheme under the National Solar Mission at the Infraline Round Table on 'National Solar Mission; April 7, 2010; Delhi

### **Events organized**

- Panel discussion on The Road to Low Carbon Energy on the occasion of the release of the India Infrastructure Report 2010 - Infrastructure Development in a Low Carbon Economy
- Panel discussion on Transportation & Urban Development Options for a Low Carbon Economy on the occasion of the release of the India Infrastructure Report 2010 - Infrastructure Development in a Low Carbon Economy
- Panel discussion on Role of the Private Sector in Pursuing a Low Carbon Growth Path in India on the occasion of the release of the India Infrastructure Report 2010 - Infrastructure Development in a Low Carbon Economy
- The CleanTech Infrastructure Opportunity in India co-hosted by The Cleantech Group and IDFC.
- Financing IT and Telecom Enabled Energy Efficiency jointly with The Climate Group
- Roundtable on Hydro Power Development in India: Policy and Implementation Issues
- Expert talk on Mainstreaming of Solar Energy in India by Dr. S P Gon Chaudhuri, Managing Director, West Bengal Green Energy Development Corporation Ltd.

### **Policy Group - Team**

Group is a small team of intellectually committed specialists with several years of experience in academia, industry, multilateral development banks and financial institutions. The academic backgrounds cover engineering, urban planning, economics, and management. This diversity helps us look at critical issues from different perspectives. The cumulative experience of our team on environmental issues energy, transport and urban sectors is enormous. Our team members having worked closely with the Regulators, Utilities and Governments on several assignments in infrastructure sector brings with them the right blend of theoretical and practical experience, so very critical in arriving at implementable solutions.

### **Individual publications**

Ashish Garg, Manisha Gulati and Nachiketa Tiwari; Moving Towards Low Carbon Economy: The Need for Renewable Energy Solutions - Renewable Energy in India: Capability, Challenges, and Prospects; India Infrastructure Report 2010: Infrastructure Development in a Low Carbon Economy; 3i Network; Oxford University Press

Dhruba Purkayastha, Manisha Gulati and Sunder Subramanian; Financing Low Carbon Infrastructure in India; India Infrastructure Report 2010: Infrastructure Development in a Low Carbon Economy; 3i Network; Oxford University Press

Manisha Gulati. Financing Renewables: Investor risks and Opportunities; Renewable Watch; Volume 1, No. 2; December 2010 (Expert Viewpoint)

Kaushik Deb and Ankush Malhotra. Lessons in Urban Transport in South Asia. In South Asian Survey. Vol. 7. No 1.

Kaushik Deb and Pragya Jaswal. Greening the Transport Sector: Role of the Budget. Proceedings of the conference on Greening the budget 2002/03: Opportunities in Energy and Transport. 14 September 2001.

Kaushik Deb. Greening the Budget: The Transport Sector. Proceedings of the conference on Greening the budget: Impact on Industry and Economy. 13 January 2000. Kaushik Deb. Transport, Energy, and Environment. Proceedings of the Annual Congress of the Institute of Urban Transport. 10–11 December 2002.

Kaushik Deb. Transport. Agenda 21: An Assessment. Ministry of Environment and Forests, Government of India. 2002.

Kaushik Deb. Urban Transport and Climate Change: Potential CDM opportunities in India. Paper presented at the Side Event on Reducing CO2 from Transport in Delhi during the 8th Conference of Parties to the UNFCCC. 26 October 2002. New Delhi.

Nitin Desai and Manisha Gulati; Infrastructure and Environment: Exploring the Use of Environmental Policy Instruments for India; Accepted for publication in Business Standard's volume on Infrastructure Development in India; Ed. Rajiv B Lall; 2011

Pragya Jaswal and Kaushik Deb. A Framework for Estimating Environmental Taxes for the Transport Sector. Transitions towards Sustainable Development in South Asia. 2003

R K Batra, Manisha Kabra & Anjali Garg; Paper & presentation on „Impact of Reforms on Competition and Efficiency Improvement“; National Conference on Infrastructure Regulation in India organized by TERI; November 2003

Szymanski, M. and P. Tiwari, "ISO 14001 and the reduction of toxic emissions", *Journal of Policy Reforms*, 2004, Vol. 7(1), pp. 31-42.

Tiwari, P. "Energy tax and choice of house construction techniques in India ", *ASCE Journal of Infrastructure Systems*, 2001, Vol. 7, No. 3.

Tiwari, P. "Housing and development objectives in India", *Habitat International*, 2001, Vol. 25, No. 2, pp. 229-253.

Tiwari, P. and J. Parikh, "Cost of CO2 reduction in building construction", *Energy*, 1995, Vol. 20, No. 6, pp. 531-547.

Tiwari, P. and J. Parikh, "Housing paradoxes in India: is there a solution? ", *Building and Environment*, 2000, Vol. 35, No. 1, pp. 59-75.

Tiwari, P. and P. Pushpa, "Air pollution and property prices in Bombay", *Open House International*, 1997, Vol. 22, No. 1, pp. 55-61.

Tiwari, P., "A policy mechanism for housing construction activity to achieve social and environmental goals: a case for India", *International Transactions in Operation Research*, 2004, Vol. 11, pp. 645-665.

Tiwari, P., "An analysis of sectoral energy intensity in India", *Energy Policy*, 2000, Vol. 28, No. 11, pp. 771-778.

Tiwari, P., "Energy efficiency in building construction" , *Building and Environment*, 2001, Vol. 36, No. 10, pp. 1127-1135.

Tiwari, P., "Sustainable practices to meet shelter needs in India", *ASCE Journal of Urban Planning and Development*, 2003, Vol. 129, No. 2, pp. 65-83.

Tiwari, P., "Urban environment and city governance in India", *International Review of Environmental Strategies*, 2001, Vol. 2, No.2, pp. 295-315.

Tiwari, P., Parikh, J. and V. Sharma, "Performance evaluation of cost effective buildings: A cost, emissions and employment point of view", *Building and Environment*, 1996, Vol. 31, No. 1, pp. 75-90.

Vikram Limaye, Vinayak Mavinkurve & Manisha Gulati; Renewable energy requires further policy impetus; *Economic Times*, 22nd July 2010, Delhi Edition, Page 15;

**Select projects our team members were engaged in individual capacity**

Developing transport demand management strategies for GHG mitigation in three South Asian cities.

Estimating the Ecological Footprint of urban household energy use in selected cities in India and China.

Green Budgeting to identify and develop economic instruments for reducing the vehicular pollution in India taking into account the regulatory regime in place.

Identifying mitigation opportunities for making Hyderabad a low emissions city by 2050 based on economic and econometric modeling.

Project development in the transport sector as part of the National Strategy Study for CDM in India to assess opportunities presented by potential international markets for GHG offsets through the CDM, and to evaluate processes and methodologies to facilitate the CDM project cycle.

Sustainable Practices for Construction Sector in India, 2003, USAID,  
[http://www.climatechangeindia.com/gep\\_ccs/research/research7intro.htm](http://www.climatechangeindia.com/gep_ccs/research/research7intro.htm)

Swedish Development Co-operation in collaboration with International Academy of the Environment and INFRAS AG (Infrastruktur, Umwelt and Wirtschaftsberatung) sponsored project on Structural change and energy consumption, 1995.

Study of the Indian Thermal Coal sector, assessing the demand & supply drivers and the situation in the spot and long term, identifying the demand-supply gap and business opportunities, 2007-08.

Advised several electricity regulators on hydro policy, hydro tariff determination, tariff determination of non-conventional energy sources, renewable purchase obligations, demand side management, 2001-07

Simulating alternate power-environment development scenarios for India on the World Bank Study: Environmental Issues in the Power Sector, 1996-97

Constructing an inter-temporal power generation expansion plan model (taking cognizance of conventional and non-conventional sources on supply side and possible DSM and conservation measures on demand side) to explore policy issues in Power and Environment.