



India Climate Report

Vol. 2

January 2016

This paper is part of a series of briefing papers that is designed to provide an up-to-date account and analysis of India's efforts to address climate change. As the second in the series, this paper covers the Intended Nationally Determined Contribution (INDC) communicated by India, other recent developments, and an update on climate finance.

KPMG in India is the knowledge partner for this briefing paper

Recent developments

India put forth its INDC to the United Nations Framework Convention on Climate Change (UNFCCC) on October 1, 2015. In this communication, the Indian government has committed to reduce the emissions intensity of GDP by 33-35 per cent by 2030 from the 2005 level. Two additional goals include achieving about 40 per cent cumulative electric power installed capacity from non-fossil fuel based energy resources, and creating an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover by 2030. The INDC document also highlights the country's mitigation and adaptation strategies, climate finance instruments and policies, as well as the need for external cooperation and support for implementation with respect to finance, technology and capacity building¹.

Ahead of the recently concluded 21st session of the Conference of the Parties (COP21) the Ministry of Environment, Forest and Climate Change (MoEFCC) initiated a number of activities to showcase India's climate actions in domestic and international forums. The ministry launched a new website (www.justclimateaction.org) and a twitter handle (@India4Climate). A 'Science Express Climate Action Special' train has also been flagged off, which will travel across the country for seven months to increase awareness on the measures

that can be taken, at both local and national level, to tackle the threat of climate change². At COP21 it hosted an India Pavilion with exhibits and events to highlight the country's efforts to tackle climate change.

In other developments, solar power tariffs have continued to tumble during the second half of 2015, beating expectations of most analysts. The lowest tariff bid thus far was INR 4.63 (USD 0.07) per kilowatt hour in an e-reverse auction in November 2015, which is a milestone for the energy sector³. Today, the solar power prices in India are within 15 per cent of the coal power prices on a levelised basis, and at least one forecast indicates that by 2020 they could be up to 10 per cent lower than coal power prices⁴.

The MoEFCC notified revised emission standards for coal-based thermal power plants in December 2015⁵. Limits have been introduced for the first time on emissions of sulphur dioxide (SO₂), Oxides of Nitrogen (NO_x) and Mercury (Hg). Standards for particulate matter (PM), SO₂, NO_x and Hg for new power plants installed from January 1, 2017 have been set at 30, 100, 100 and 0.03 (mg/Nm³) respectively; these are comparable to China's standards for new power plants. Existing power plants are required to achieve the revised standards within a period of two years.

1. India's Intended Nationally Determined Contribution, <http://www4.unfccc.int/submissions/INDC/Published%20Documents/India/1/INDIA%20INDC%20TO%20UNFCCC.pdf>

2. Press Information Bureau, October 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=128721>

3. Press Information Bureau, November 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=130221> and 1 USD = 65 INR

4. The Rising Sun, Disruption on the horizon, November 2015, <https://www.kpmg.com/IN/en/IssuesAndInsights/ArticlesPublications/Documents/ENRich2015.pdf>

5. The Gazette of India, December 2015, <http://www.egazette.nic.in/WriteReadData/2015/167141.pdf>

The Ministry of Road Transport and Highways (MoRTH) has advanced the adoption of the Bharat Stage (BS) emission standards for vehicles. As per the road map laid down earlier in the draft Auto Fuel Vision and Policy 2025, BS V norms were to be implemented from April 2020 and BS VI from April 2024 onwards. These timelines were advanced for the fourwheeler category to 2019 and 2021 for BS V and BS VI respectively in a draft notification issued by the Ministry in November 2015. However, the Transport minister recently announced the government's decision to skip BS V and directly implement BS VI norms from April 2020 onwards⁶. The MoRTH has also issued a draft notification for mass emission standards for bio-diesel which regulate the use of alternative fuels in vehicles in India⁷.

The Ministry of Railways has signed Memorandums of Understanding (MoUs) with the Ministry of Power and Ministry of New & Renewable Energy to focus on electricity transmission, energy efficiency and promotion of renewable

energy in the Indian Railways. This collaborative effort aims to lower the cost and consumption of electricity, increase adoption of LEDs and enhance usage of renewable energy such as solar and wind⁸.

The National Executive Council (NEC) of the National Mission for a Green India (GIM), one of the eight missions under the National Action Plan on Climate Change (NAPCC), approved the Perspective Plans (PPs) and Annual Plan of Operations (APOs) submitted by four states – Mizoram, Manipur, Jharkhand and Kerala – with a financial outlay of INR 902 crore (USD 138 million) over the plan period. An existing forest area of 819 sq. km is proposed to be taken up for improvement of forest density, and another 164 sq. km as new forest land. Alternative energy devices, such as biogas, solar systems, liquefied petroleum gas (LPG), biomass-based systems and improved stoves, are also proposed for 81,233 households in the plan period, which will reduce pressure on forests⁹.

Under the 'Smart Cities Mission', the Ministry of Urban Development (MoUD) has shortlisted 98 cities – based on their financial and institutional capacity as well as performance track record – which will be eligible to receive funding for development as smart cities that provide a decent quality of life to its citizens through a clean and sustainable environment. In the next phase of evaluation, the shortlisted cities will submit city level development plans to the MoUD, based on which, the top 20 ranked cities will be selected to each receive total financial support of INR 500 crore (USD 77 million)¹⁰.

On December 2, 2015, Prime Minister Narendra Modi launched an International Solar Alliance to create a collaborative platform for increased deployment of solar energy technologies in partnering countries. The alliance will be hosted at the National Institute of Solar Energy and India will contribute almost INR 195 crore (USD 30 million) to build the Secretariat infrastructure¹¹.

In Focus: Intended Nationally Determined Contributions (INDCs)

As mentioned in the previous section, India's INDC document presents the country's goals for greenhouse gas (GHG) emissions intensity, non-fossil fuel based electric power installed capacity and the additional carbon sink through forest and tree cover that are to be achieved by 2030. The cumulative avoided emissions attributable to the

emissions intensity goal is estimated to be nearly 3.59 billion tonne of CO₂ equivalent by 2030 over business as usual¹².

In 2010, under the Copenhagen Accord, India pledged 20-25 per cent reduction in emission intensity of GDP by 2020, compared to 2005 levels. A number of

policies and measures adopted by the country has resulted in reduction by 12 per cent of the emission intensity of GDP between 2005 and 2010. Additionally, the United Nations Environment Programme (UNEP) Emission Gap Report 2014 states that India is well on track to meet the Copenhagen pledge¹³.

Forest and tree cover of India



Source: The State of Forest Report, Forest Survey of India, 2001-2013

Note: The State of Forest Report was not published by Forest Survey of India in 2007

6. Press Information Bureau, November 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=131977>; Press Information Bureau, January 2016, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=134232>; and Report of the Expert Committee on Auto Fuel Vision and Policy 2025, <http://petroleum.nic.in/docs/autopol.pdf>

7. Notification - Ministry of Road Transport and Highways, November 2015, <http://morth.nic.in/showfile.asp?lid=1861>

8. Press Information Bureau, August 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=124926>

9. Press Information Bureau, October 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=128649>

10. Press Information Bureau, June 2015 <http://pib.nic.in/newsite/PrintRelease.aspx?relid=122782>; <http://pib.nic.in/newsite/PrintRelease.aspx?relid=126384>; <http://pib.nic.in/newsite/PrintRelease.aspx?relid=126599>

11. Press Information Bureau, November 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=132121>

12. India INDC presentation, 2 October 2015, New Delhi, India <http://pib.nic.in/newsite/mbErel.aspx?relid=128405>

13. India INDC presentation, 2 October 2015, New Delhi, India <http://pib.nic.in/newsite/mbErel.aspx?relid=128405>

In April 2015, prior to submission of the INDC, the Government of India had announced a renewable energy capacity goal of 175 GW by 2022 which would result in avoided emissions of 326.22 million tonnes of CO₂ equivalent per year¹⁴. The Centre for Policy Research has concluded that if this goal is attained, India will likely considerably overachieve on its non-fossil fuel INDC goal. This would require India to frontload renewable expansion in the next seven years¹⁵.

The creation of additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover is estimated to add approximately

680–817 million tonnes of carbon stock in the country¹⁶. This will contribute towards realising the target of 33 per cent of total land area under forest and tree cover, as set out under the National Forest Policy of 1988. In the last decade, the forest and tree cover of India has been increasing steadily as illustrated in the figure on the previous page¹⁷.

MoEFCC has indicated that the programmes that will contribute to forest and tree cover growth include GIM, which is estimated to sequester 50-60 million tonnes of CO₂ by increasing 5 million hectares of forest cover and improving 5 million hectares of degraded forest land by 2020¹⁸; the Green

Highways (Plantations, Transplantation, Beautification and Maintenance) Policy 2015 which has been formulated recently to develop 140,000 km of tree line plantation along national highways; and the initiative to develop plantations along the banks of rivers through the 'Namami Gange Mission'¹⁹. The recommendations of 14th Finance Commission, which have been accepted by the Government of India, also include a fiscal incentive for states to increase their forest cover. In the overall formula for devolving funds to states from the central pool a weight of 7.5 per cent will be applied to area under forest cover²⁰. It is unclear whether these measures will be sufficient to meet the INDC carbon sink goal.

Climate finance

Two additional projects from India were approved by the Adaptation Fund Board of the UNFCCC in October 2015, bringing the total number of projects approved from the country to five. One project will support climate proofing of watershed development projects in Rajasthan and Tamil Nadu for a period of three years²¹, while the other has been initiated to support implementation of climate smart actions and strategies in the North-Western Himalaya region for sustainable livelihoods of agriculture-dependent hill communities for a period of four years²². The approved funding for the two projects are INR 8.7 crore (USD 1.34 million) and INR 6.3 crore (USD 0.97 million), respectively.

The modalities of India's own National Adaptation Fund for Climate Change (NAFCC) were announced in August 2015. Capitalised with an initial outlay of INR 350 crore (USD 53.8 million) entirely from domestic resources, the fund targets the scaling-up of climate change adaptation interventions that are aligned with the NAPCC and State Action Plan on Climate Change (SAPCC)²³.

The Climate Change Finance Unit of the Department of Economic Affairs, Ministry of Finance published a discussion paper on climate finance. The paper noted that cross-border flows in November 2015 from 17 special climate funds since their inception is currently around USD 2.2 billion which is far from the USD 100 billion a year goal set by developed countries²⁴.

National Adaptation Fund for Climate Change (NAFCC)

National Implementing Entity (NIE): National Bank for Agriculture and Rural Development (NABARD) is the NIE and has the responsibility for overall implementation of the projects under the Fund through its regional offices located in the states and union territories.

Executing Entities (EEs): Ministries/Departments of Government of India and state government departments would be the executing entities eligible to submit proposals for accessing funds.

Funding limit: There is an indicative cap of INR 25 crore (USD 4 million) per project under the fund.

Eligible components/activities: Projects that include the following components are broadly eligible to receive support from the NAFCC:

- Concrete adaptation measures/interventions, climate resilient technology transfer
- Preparing and updating climate scenario, assessing vulnerability and climate impact assessment
- Capacity building of various stakeholders including village communities on climate change adaptation and project cycle management and developing knowledge network
- Stakeholder mobilisation and organisation
- Baseline survey through participatory rural appraisal/focussed group discussions etc.
- Integration of knowledge management in cells created in the state with the financial support from Department of Science and Technology under National Mission on Strategic Knowledge for Climate Change
- Inventorisation and adoption of traditional knowledge on adaptation.

14. Press Information Bureau, October 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=128403>

15. <https://cpclimateinitiative.wordpress.com/2015/10/15/what-does-indias-indc-imply-for-the-future-of-indian-electricity/>

16. Carbon stock refers to the carbon stored in the soil and in living biomass. India INDC presentation, 2 October 2015, New Delhi, India <http://pib.nic.in/newsite/mbErel.aspx?relid=128405>

17. The State of Forest Report, Forest Survey of India, 2001-2013

18. Green India Mission, http://www.moef.gov.in/sites/default/files/GIM_Mission%20Document-1.pdf

19. India INDC presentation, 2 October 2015, New Delhi, India <http://pib.nic.in/newsite/mbErel.aspx?relid=128405>

20. Report of the Fourteenth Finance Commission, <http://finmin.nic.in/14fincomm/14forengVol1.pdf>

21. Climate Proofing of Watershed Development Projects in the States of Rajasthan and Tamil Nadu, http://www.adaptation-fund.org/wp-content/uploads/2015/08/India_NABARD_full_proposal_Tamil_Nadu_Rajasthan_revised_combined.pdf

22. Climate Smart Actions and Strategies in North Western Himalayan Region for sustainable livelihoods of agriculture – dependent hill communities, http://www.adaptation-fund.org/wp-content/uploads/2015/08/India_NABARD_full_proposal_Uttarkand_revised.pdf

23. Implementation Guidelines for National Adaptation Fund for Climate Change (NAFCC), MoEFCC

24. Discussion Paper, Climate Change Finance Unit, November 2015, <http://pibphoto.nic.in/documents/rlink/2015/nov/p2015112901.pdf>

International Negotiations and Cooperation

In October 2015, at the 36th Open-ended Working Group (OEWG 36) of the Parties to the Montreal Protocol in Dubai, the parties agreed on a mandate for a contact group on the feasibility and ways of managing hydrofluorocarbons (HFCs). This meeting was immediately followed by the 27th Meeting of the Parties to the Montreal Protocol, where nations committed to address HFCs under the Montreal Protocol and work towards an amendment in 2016. Research models suggest that phasing down the use of HFCs could avoid 0.5°C of warming by the end of the century²⁵.

India hosted a meeting of Like Minded Developing Countries (LMDCs) on climate change in September 2015 and participated in the 21st meeting of the BASIC group (Brazil, South Africa, India and China) held in Beijing in October 2015. In these meetings, member countries noted that the Paris agreement should address all six elements – mitigation, adaptation, finance, capacity-building, technology development and transfer, transparency of action and support in a balanced and elaborate manner. They also emphasised that the Paris agreement should ensure provision of adequate support for developing countries to meet their needs and costs of adaptation actions, and for responding to loss and damage associated with the adverse effects of climate change²⁶.

25. Resumed OEWG36 and 27th Meeting of the Parties to the Montreal Protocol, [http://www.iisd.ca/ozone/oewg36-resumed-mop27:The role of HFCs in mitigating 21st century climate change](http://www.iisd.ca/ozone/oewg36-resumed-mop27/The%20role%20of%20HFCs%20in%20mitigating%2021st%20century%20climate%20change), <http://www.atmos-chem-phys.net/13/6083/2013/acp-13-6083-2013.html>

26. Press Information Bureau, September 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=126913> and Press Information Bureau, October 2015, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=130119>



For further information, please contact kunal@shaktifoundation.in or santhoshj@kpmg.com



The views and analyses expressed in this document do not necessarily reflect the views of Shakti Sustainable Energy Foundation. The Foundation also does not guarantee the accuracy of any data included in this publication nor does it accept any responsibility for the consequences of its use.

For private circulation only