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## Financial System for Sustainable Development in India



### >> Dr Rathin Roy

Dr. Rathin Roy is Director and CEO of the National Institute of Public Finance and Policy New Delhi. With postings in London, New York, Kathmandu, Brasilia and Bangkok, he has worked as an Economic Diplomat and Policy Advisor with UNDP, focusing on emerging economies. He has taught at the Universities of Manchester and London and served as Economic Adviser with the Thirteenth Finance Commission. Dr. Roy is Member, India Advisory Committee, United Nations Environment Programme (UNEP) Inquiry into a Sustainable Financial System, Member on the Meta Council on Inclusive Growth, World Economic Forum, Geneva, and Member, FRBM Review Committee, Government of India. Dr. Roy holds a PhD in Economics from the University of Cambridge.<sup>1</sup>

India faces three challenges in completing its development transformation. These are: access to finance, access to technology and access to institutional capacity. The global challenge of environmental sustainability imposes an additional contextual dimension. India is the first country in global history which is expected to complete its development transformation without substantial recourse to fossil fuels. This paper explores ways in which the development of a sustainable financial system in India can help address the first challenge.<sup>1</sup>

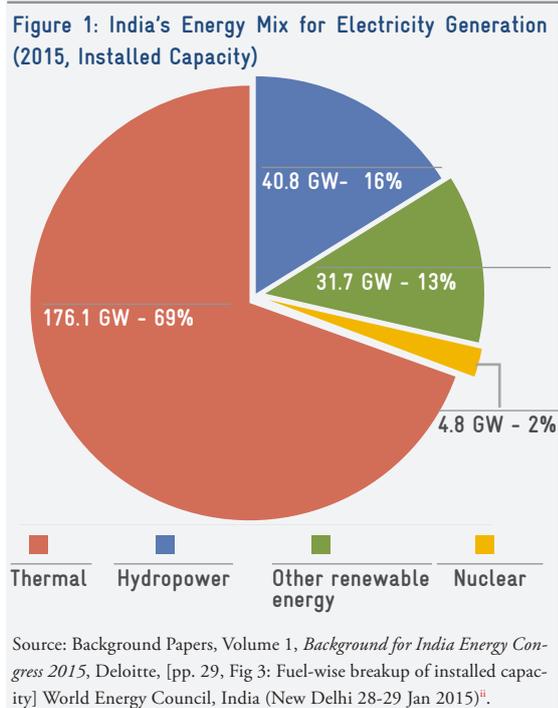
### Economic sector imperatives: barriers in access to finance

There are three economic sectors which face particular barriers in access to finance and are vital to India's development transformation.

### Energy

India faces the triple imperative of meeting its growing energy needs, extending access and improving the environmental performance of its power sector. Currently, thermal power generation based on coal accounts for close to 70 per cent of installed capacity (Figure 1). A key priority is improving the environ-

mental performance of coal mining, transportation and thermal power generation efficiencies. At the same time, India counts itself among a handful of large economies with over a tenth of total installed capacity as non-hydropower renewable energy, with ambitious plans to extend this further.



<sup>1</sup> Draws extensively from the UNEP Inquiry Report 2016: Delivering a Sustainable Financial System in India, co-authored by me. Author would like to thank Nick Robbins, Vivan Sharan and Meghna Paul for important research inputs. Usual disclaimer applies; <http://unepinquiry.org/publication/inquiry-global-report-the-financial-system-we-need/>

Banks in India have a substantive power sector loan portfolio—currently about 60 per cent of total outstanding credit to the infrastructure sector (and about one fifth of total credit to industry). The fundamental challenge for the sector is the fiscal viability of power purchasers (state distribution boards) that are unable to pay power generators in many states. This is a systemic problem that cannot be overcome without downstream reform, particularly in terms of rationalising power tariffs. Electricity remains heavily cross-subsidised for agricultural and domestic consumers and comes at a heavy premium to industry. As a result of cross-subsidisation and operational inefficiencies, Indian DISCOMs (power distribution companies) have been historically trapped in a vicious cycle of funding operational losses through debt. They had accumulated losses of around INR3.8 trillion with an approximate outstanding debt of INR4.3 trillion (USD58 billion) as of March 2015, an increase of over INR2 trillion since 2011, with interest rates as high as 15 per cent. Financially stressed DISCOMs are unable to supply power at affordable rates or purchase renewable power, which has higher tariffs on average than conventional sources. To mitigate this, the Union Cabinet approved in November 2015 a new scheme moved by the Ministry of Power, *Ujwal DISCOM Assurance Yojna* (UDAY)<sup>iii</sup>, with the goal of financially reviving and providing a sustainable operating environment for power distribution companies. This is done through: (i) improving operational efficiencies of DISCOMs; (ii) reducing the cost of power; (iii) reducing the interest cost of DISCOMs; and (iv) enforcing financial discipline on DISCOMs through alignment with state finances.

### Agriculture and Allied Sectors

The Indian economy has long depended on agriculture. Even today, the sector supports close to 50 per cent of the population, but accounts for only 16.1 per cent of total Gross Value Added (GVA).

The government has taken several measures to improve the credit flow and reduce interest rates on farm loans. For example, to discourage the distress

sale of crops by farmers, the benefit of interest subvention has been provided to small and marginal farmers having *Kisan* Credit cards for an additional six months (post-harvest) against negotiable warehouse receipts (NWRs) at the same rate available to crop loans. The remaining farmers have been granted post-harvest loans against NWRs at commercial rates. Additionally, the Interest Subvention Scheme for short-term production credit (crop loans) started in 2006-07 was extended to private-sector banks in 2013-14.

Although the agricultural credit flow target of INR7 trillion was achieved in 2013-14 (raised to INR9 trillion for the current fiscal), studies conducted by the RBI and the National Bank for Agriculture and Rural Development (NABARD) indicated that crop loans were not reaching the intended beneficiaries and several bank branches had no adequate procedures to monitor the end usage of funds. Also, although the overall credit flow to the agriculture sector has increased under 'Priority Sector Lending' in recent years, the share of long-term credit in agriculture or investment credit declined. Furthermore, approximately 40 per cent of agricultural credit still comes from informal sources, despite an increase in the flow of institutional credit to agriculture in recent years.<sup>iv</sup>

In order to address some of the sustainability challenges in agriculture, the Indian government has been implementing several policies and missions including the National Food Security Mission, the Mission for Integrated Development of Horticulture, the National Mission for Sustainable Agriculture, *Paramparagat Krishi Vikas Yojana* to promote organic farming practices, and *Pradhan Mantri Krishi Sinchayee Yojana* to promote efficient irrigation practices and the National Mission on Agricultural Extension and Technology. They are also part of India's Intended Nationally Determined Contributions (INDCs)<sup>2</sup> in context of the 2015 global climate agreement. Annexure 1 outlines the central and state action plans that need support, including initiatives highlighted in India's INDCs.

2 Countries across the globe adopted an historic international climate agreement at the U.N. Framework Convention on Climate Change (UNFCCC) Conference of the Parties (COP21) in Paris in December 2015. In anticipation of this, countries publicly outlined their post-2020 climate actions or INDCs, which largely determine whether the world achieves the long-term goals of the Paris Agreement. UNFCCC Report (2015): India's Intended Nationally Determined Contribution: Working Towards Climate Justice; <http://www4.unfccc.int/submissions/INDC/Published%20Documents/India/1/INDIA%20INDC%20TO%20UNFCCC.pdf>

### Micro, Small and Medium Enterprise (MSME) Sector

India's burgeoning MSME sector plays a pivotal role in the country's socio-economic development, contributing more than 35 per cent of GDP in recent years and is of particular importance to the manufacturing sector. MSMEs need equity capital and loans for fixed asset investment and working capital for meeting cash flow gaps. Several policy initiatives have been taken to promote availability of finance to this sector. These include, among others, credit support mechanisms administered by government institutions. Outstanding credit from scheduled commercial banks to MSMEs registered an annualised growth of about 23 per cent from March 2012 to March 2014, compared with 14.1 per cent for overall non-food credit. However, a severe shortage of credit remains: according to the International Finance Corporation, the sector faces a severe capital shortage of

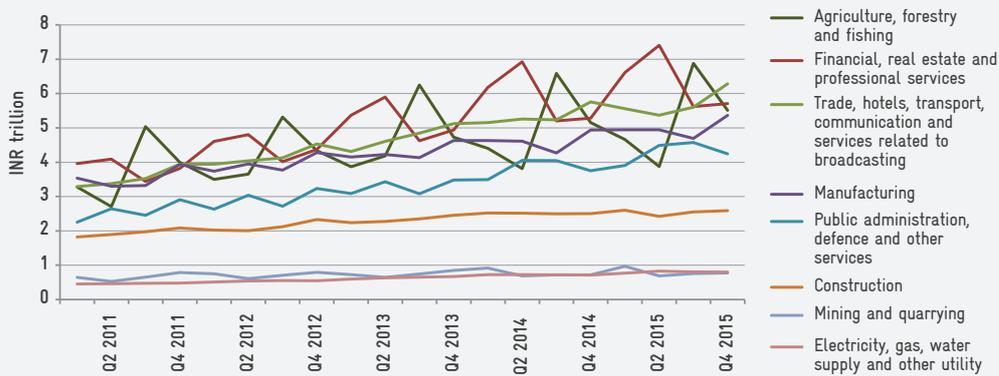
INR32.5 trillion<sup>v</sup>. Out of this, the debt shortfall is INR26 trillion, which the organised financial sector will have to provide to ensure that MSMEs are properly capitalised and can continue to grow.

### Availability of credit

The far-reaching changes in the Indian economy since the 1990s' liberalisation measures have had a large impact on the financial sector. It is one of the fastest growing sectors of the economy, and has witnessed increasing private sector participation, in the form of banks, insurance companies, mutual funds and venture capital firms (Figure 2). Despite the limited credit disbursement in certain sectors, credit advances are expected to grow exponentially by 2025 to reach USD28.5 trillion.<sup>vi</sup>

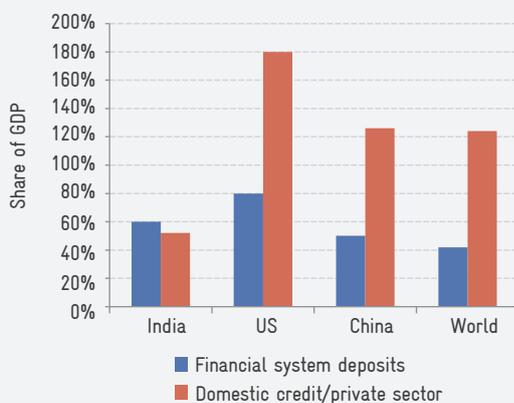
India's banking sector (by size and volume) is not too far behind China's. However, in India, (Figure

Figure 2: Gross Value-added by Sector



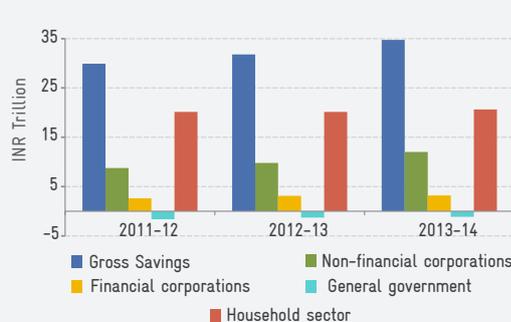
Source 2: RBI Handbook of Statistics Table 164 sheet three NAS 2011-12. Last updated 31 March 2016.<sup>vii</sup>

Figure 3: Relative Size of the Indian Financial Sector



Source 3: Author estimates

Figure 4: Gross Savings by Sector



Source 4: Sector-Wise Domestic Savings at Current Prices, RBI <sup>viii</sup>

3) insurance, pension and mutual fund penetration is low: while India has the largest insurance sector in the world with over 360 million policies, the penetration is only about 4 per cent of GDP.

High levels of gross savings in the household sector (Figure 4) indicate a significant opportunity to create channels for retail investments in small firms as well as critical sectors that are facing a shortage of credit.

### What is the Sustainable Development Financing Challenge?

Financing for sustainable development requires the availability of low-cost, long-term finance. In the Indian context, banking regulations and RBI guidelines direct credit to various sectors and influence interest rates, exposure limits, security and other conditions for lending by banks. For example, the system of priority sector lending ties 40 per cent of aggregate bank credit to sectors including agriculture and MSMEs.

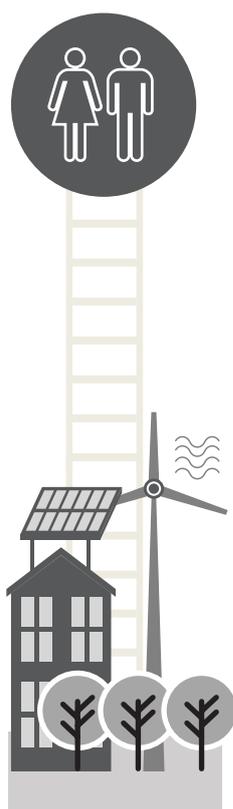
However, this is not enough. Sustainable development financing in India faces barriers, not only in terms of the funds available but also political, regulatory, technological and financial risks that affect the bankability of new projects. Three main challenges relating to the mobilisation of finance are evident in the Indian context:

- First, India does not have substantial access to multilateral finance or grant funding for plugging the fiscal gap in sustainable development-related expenditure. The *Niti Ayo*<sup>3</sup> estimated that the country needs to spend close to USD1 trillion every five years on basic infrastructure (over the 12th Five-Year Plan period between 2012 and 2017)<sup>ix</sup>, whereas the total budget of the central government is closer to USD250 billion and the total size of international climate finance by 2020 will be closer to USD100 billion per year. Moreover, India has graduated from its low-income status and is now a lower middle income country according to World Bank classification, which means that access to concessional lending from the World Bank will decrease.

- The second challenge relates to the participation of the private sector. Again, the example of the infrastructure funding requirement is indicative of the size of the challenge: the government estimated that around half of the USD1 trillion requirement would have to come from the private sector. Similarly, India's public expenditure on health is about 1.4 per cent of its GDP<sup>x</sup> and the figure was 3.8 per cent for education<sup>xi</sup> according to the latest available World Bank statistics. There is a large gap to fill, and private sector participation is currently limited, both because of the limited banking credit available for long-term projects and the lack of institutional capacities to mitigate or manage political risk<sup>xii</sup>. Private sector participation is also linked to the challenge of structural economic reform—the longer the country delays substantive reforms in sectors ranging from public procurement to tax administration, the bigger the challenge.

- The third challenge is one that the country has begun to respond to: instituting overarching political frameworks for focused bilateral and multilateral cooperation on the sustainable development agenda. Such cooperation where the government leads and the industry follows could become a global template for sustainable development-linked cooperation. For instance, at COP21, the Indian government took the lead in instituting the International Solar Alliance<sup>xiii</sup>, which aims to bring together developed and developing countries, governments, industries, academics and other relevant institutions. The members of the Alliance will make joint efforts through innovative policies, projects, programmes, capacity building measures and financial instruments to “mobilise more than USD1 trillion of investments that are needed by 2030 for the massive deployment of affordable solar energy”. India will be hosting this initiative at the premises of the National Institute for Solar Energy and will provide around USD30 million to build the secretariat infrastructure. All partners hope that this will help catalyse investments and research in solar energy across the world, with the private sector expected to play a critical part.

3 National Institution for Transforming India, Government of India, replacement of the erstwhile Planning Commission of India



## The Momentum for Sustainable Finance

The momentum for sustainable finance seeks to take advantage of the fact that this should help India overcome a major challenge in access to finance. Simply put, this challenge is posed by what is termed by credit rating agencies and long-term investors as “regulatory risk”—posed by what these agents perceive as imperfections in institutional structures within a country that increases the long-term risk of financial investment. Typically, all countries that face an overwhelming majority of long-term projects, whatever their *sui generis* attractiveness or viability, are rated the same as the sovereign risk rating of the country in which they are located<sup>4</sup>. Since the sovereign risk rating is dependent principally on the level of per capita income, India’s rating would not exceed BBB (currently at BBB-) in the medium term. This can mean a three-to-four-hundred basis point difference in the cost of capital compared with AAA rating. Building a sustainable financial system will not solve this problem but can certainly ameliorate it at the margin and in the future, allow emerging economies to collectively argue for a change in the rules of the game by demonstrating that they have done enough to justify such a demand.

Traditional sovereign credit risk analysis has not covered pressures from increasing global natural resource scarcity, environmental degradation and vulnerability to climate change impacts. However, there has been growing concern among global investors over the mounting threat of systemic risks outside of the financial system, notably environmental risk, which can impact multiple financial markets. Preliminary research by UNEP-FI (UN Environment Programme’s Financial Initiative) has sought to build evidence on materiality of environmental risks in credit risk analysis (Box 1<sup>xiv</sup>).

UN-PRI initiated a *Statement on ESG in credit ratings* this year, signed by leading raters (including Moody’s

### Box 1: ESG risk integration in sovereign credit rating

UNEP-FI’s E-RISC (Environmental Risk in Sovereign Credit analysis) focuses on the development of metrics and methods to demonstrate the potential materiality of natural resource and environmental risks in the context of sovereign credit risk analysis, which can affect the underlying value of sovereign bonds. Five countries—Brazil, France, India, Japan and Turkey—were analysed, based on consultations with the participating financial institutions. The first phase of the E-RISC project provided the following preliminary results: First, a 10 per cent variation in commodity prices can lead to changes in a country’s trade balance equivalent to between 0.2 and 0.5 per cent of a nation’s GDP. Second, a 10 per cent reduction in the productive capacity of renewable, biological resources, and assuming that consumption levels remain the same, could lead to a reduction in trade balance equivalent between 1 and over 4 per cent of a nation’s GDP. Given the growing body of scientific evidence on ecosystem degradation and climate change impacts, governments, bondholders and credit rating agencies should take note of these issues in the short to medium term. Results of the E-RISC project show risks related to natural resource constraints and their broader environmental consequences can exhibit significant risks for the five countries studied over both short (0–5 years) to medium-term (5–10 years) time frames. This contradicts the conventional belief that natural resources risks are only relevant in the long term.

Corporation and S&P Global Ratings) and investors, which articulates a common vision to enhance systematic and transparent consideration of ESG factors in the assessment of creditworthiness—both in corporate and sovereign rating contexts.<sup>5</sup> Further, S&P in 2014 had conducted a study<sup>xv</sup> of potential climate vulnerability based on a composite measure<sup>6</sup> and indicated that all of the sovereigns in the Top-20 most vulnerable nations are emerging markets, including India. It also revealed that lower-rated sovereigns tend on average to be more vulnerable, with

4 Sovereign ratings are important not only because some of the largest issuers in the international capital markets are national governments, but also because these assessments affect the ratings assigned to borrowers of the same nationality. Agencies seldom, if ever assign a credit rating to a local municipality, state government, or private company that is higher than that of the issuer’s home country.

5 It states: “For companies, concerns such as stranded assets linked to climate change, labour relations challenges or lack of transparency around accounting practices can cause unexpected losses, expenditure, inefficiencies, litigation, regulatory pressure and reputational impacts. At a sovereign level, risks related to, inter alia, natural resource management, public health standards and corruption can all affect tax revenues, trade balance and foreign investment. The same is true for local governments and special purpose vehicles issuing project bonds. Such events can result in bond price volatility, and increase the risk of defaults.”

6 Comprising i) Share of the population living in coastal areas below five meters of altitude (livelihood and economic production of that population may be at risk should sea levels rise in the course of global warming), ii) Share of agriculture in national GDP (this measures the risk to the sector that is typically most dependent on climatic conditions), and iii) The vulnerability index compiled by Notre Dame University Global Adaptation Index (ND-GAIN), which measures the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change

the average vulnerability rank of ‘AAA’-rated sovereigns at 18 and that of the ‘B’-rated sovereigns at 84. This indicates that over a long time horizon, climate change could contribute to diverging ratings.

Evidently, the roles of government, financial institutions and private sector are equally important in mobilising finance that enables India to transition onto a more sustainable pathway.

A range of voluntary and legislative actions have highlighted prominent strands of the sustainability imperative in India, particularly related to financial markets and the banking system. The Reserve Bank of India (RBI) issued its first circular on banking and sustainable development in 2007, encouraging adoption of best practices and greater transparency. Since then, important steps have been taken, as outlined in Table 1.

### Responsible Banking in India

Responsible banking and finance means capital allocations made from the point of view of preserving stakeholder interests. Apart from all market

participants, non-market participants are also stakeholders—all those affected by the capital allocation directly or indirectly. The high level of savings by Indian households, amounting to close to 60 per cent of gross savings, is both an opportunity and a challenge for policymakers and market participants to allocate this capital efficiently.

### Directed lending

The Priority Sector Lending (PSL) norms are a unique feature of Indian banking. These sectors have been identified as agriculture, infrastructure, education, and MSMEs. Many banks fall short on their PSL targets every year and the targets have come under criticism as the banking sector’s Non-Performing Assets (NPAs) have been a challenge, particularly in the priority sectors. However, NPAs in PSL advances have actually increased only marginally across the board, with the exception of private sector banks. It should also be noted that PSL related NPAs as a percentage of total NPAs have reduced in recent years. This is due to a combination of a contraction in PSL growth, and due to relatively higher NPAs in non-PSL assets.

Table 1: ESG-related initiatives in India	
2007	RBI circular on Corporate Social Responsibility, Sustainable Development and Non-Financial Reporting—Role of Banks
2008	Launch of the S&P ESG India Index: comprising 50 Indian companies that meet certain ESG criteria and have been drawn from the largest 500 companies listed on the National Stock Exchange
2011	Release of National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business
2012	Market Regulator, SEBI’s mandate for inclusion of Business Responsibility Reports as part of annual reports for top 100 companies listed on Indian stock markets Launch of the S&P BSE CARBONEX: analyses companies from the S&P BSE 100, with the constituent weights modified in accordance with the companies’ relative carbon performance as measured by the level of their GHG emissions and mitigation policies
2013	Launch of the MSCI ESG India Index: a capitalisation-weighted index that lists companies with good ESG performance relative to sector peers
2014	The Companies Act of 2013 mandates 2 per cent of profits towards Corporate Social Responsibility (CSR)*
2015	Inclusion of renewable energy under Priority Sector Lending Mini-Ratna status granted to IREDA** (Indian Renewable Energy Development Authority), enhancing its operational autonomy Indian Banking Association’s National Voluntary Guidelines on Responsible Finance Exim Bank of India issued a five-year USD500 million green bond YES Bank issued the first INR-denominated green bond
2016	SEBI extends mandatory BRR filing to top 500 listed companies SEBI proposed new norms for issuance and listing of green bonds

\* The CSR mandate is unlikely to make a significant or sustainable impact, given that the law does not allow CSR programmes to be linked to core business and projects are largely delivered in silos with no provision for data-linked planning and measurement at the aggregated level.

\*\* IREDA provides debt financing for renewable energy and energy efficiency projects. It also offers financing schemes, such as project financing of up to 80 per cent of project costs, equipment financing of up to 75 per cent of equipment costs and other types of medium to long-term debt

Social infrastructure and renewable energy have recently been included under PSL for the banking sector<sup>xvi</sup>. Both categories pave the way for funding sustainability initiatives. For instance, waste management centres can be counted under social infrastructure as part of sanitation initiatives. The RBI's Internal Working Group to Revisit the Existing Priority Sector Lending Guidelines recommended that given the importance of social infrastructure and its impact on credit absorption, financing certain infrastructure development activities should be treated as a separate category under PSL, subject to a ceiling of INR50 million per borrower. This includes the construction of schools, health care facilities, potable water facilities, and sanitation facilities in Tier II to Tier VI centres with less than 100,000 inhabitants. The RBI followed this recommendation and revised the PSL guidelines to include sanitation in social infrastructure in April 2015. The definition for renewable energy is straightforward. Bank loans to organisations up to INR150 million (USD2.5 million) and individual loans up to INR1 million (USD20,000) for augmentation of installed renewable capacity now qualify as PSL.

PSL-related NPAs as a percentage of total NPAs have reduced in recent years due to a combination of a contraction in PSL growth, and due to relatively higher NPAs in non-PSL assets

In the context of credit targets such as those prescribed by the RBI, the regulations do not mandate lending to any particular sector as the credit decision ultimately lies with the lender: sector-wise exposure limits are not specified under PSL or any other regulation. This means that in practice, the exposure that any banking institution has to a particular sector, for instance renewable energy, depends on its internal risk assessment policies as well. Therefore, as is the case in India, PSL norms for off-grid renewable energy projects have not necessarily resulted in an increased credit flow to the sector, even though loans given to individuals to set up off-grid solar and other

renewable energy solutions for households were allowed to be classified as priority sector in 2012.<sup>xvii</sup>

### Voluntary measures in the financial sector

The Small Industries Development Bank of India (SIDBI) and GIZ have co-developed the National Voluntary Guidelines on Responsible Finance for India's financial institutions. These guidelines aim to integrate the ESG principles into both lending and investment decisions<sup>7</sup>. In light of increasing NPAs in infrastructure projects, these guidelines may serve as a useful tool to improve lending practices and due diligence. In the global context, the Equator Principles are a benchmark for responsible finance. They provide a credit risk management framework for identifying, assessing, and managing environmental and social risk in project finance. The Infrastructure Development Finance Company (IDFC) has been the only Indian bank to have signed these Principles. Some public financial institutions have been very active in taking up sustainable financing initiatives as well (Box 2).

### Market instruments: Green Bonds

Green bonds have emerged as one way to raise capital to promote sustainable development-linked infrastructure. They are particularly relevant to Indian sustainability financing requirements given the over-reliance on the banking sector, which suffers from an asset liability mismatch. The proceeds of a green bond offering are earmarked towards financing green projects. International experience has shown that the main challenge for green bonds to work is to get investors to view sustainable development-linked infrastructure projects (and therefore their funding) as investments and not costs, and to provide a steady stream of investable projects.

These two challenges apply to the Indian market as well, but the biggest challenge is an illiquid bond market. Despite this, India will have to discover ways to make green bonds work, especially in the context of developing urban infrastructure for India's Smart Cities Initiative<sup>8</sup>. The measures taken by the RBI and SEBI, the securities regulator, have resulted in some

<sup>7</sup> Refer special section at the end of this volume

<sup>8</sup> Urban renewal programme for 100 cities through smart solutions that harness technology for sustainable development; the Central Government support is proposed at INR 480 billion over five years i.e. on an average INR 1 billion per city per year. An equal matching grant is to be contributed by the State or Urban Local Body; <https://india.gov.in/spotlight/smart-cities-mission-step-towards-smart-india>



**Box 2: Sustainable financing initiatives by Indian FIs**

**State Bank of India**

- India's largest bank (by a large margin), SBI was the first bank to venture into generation of green power by installing windmills for captive use and provided long-term repayment plans with concessional rate of interests. It has financed more than USD818.33 million worth of projects in wind power.
- SBI focuses on financing alternative energy projects including solar energy; it has financed USD491 million worth of solar energy projects which include financing industrial units. The repayment window for such projects has been at a long period of about 15-20 years.
- SBI also finances pollution control projects. For example in Tirupur, Chennai, a highly polluted area due to huge garment manufacturing industries, SBI helped in setting up common effluent treatment plants.
- SBI has been extending project loans on concessionary interest rates to reduce greenhouse gas (GHG) emissions by adopting efficient manufacturing practices through acquisition of latest technology. It has been providing consultancy services in CDM (Clean Development Mechanism) registration process. SBI is also a signatory to the Carbon Disclosure Project (CDP), a reporting based initiative of over 550 institutional investors.

**Small Industries Development Bank of India**

- SIDBI has funded various energy efficiency initiatives in the MSME sector through lines of credit in the form of loans and partial credit guarantees. These credit lines are targeted towards training programmes, knowledge sharing on new technologies, process changes and purchase of equipment to ensure energy savings and emission reduction etc.
- SIDBI provides loans of up to seven years at a 75:25 debt equity ratio for existing MSME units. Equipment is screened as per its identified Energy-Saving Equipment List for energy efficiency and loans have first charge of the assets financed along with other collateral as deemed necessary. For strengthening the competitiveness of MSMEs in the global market, SIDBI introduced the "Sustainable Finance Scheme" during 2012-2013 to broaden the scope of finance through its own fund.
- SIDBI has also renewed its membership of "The Montreal Group" (TMG), Canada, as one of the founder members. TMG is an association of eight development banks engaged in financing and development of MSMEs.

progress in the issuance of corporate bonds as well as in secondary market trading.

2014-15<sup>xviii</sup>. Yet, the bond market in India is much smaller than in other Asian economies (Table 2).

**Table 2: Size of Local Currency Corporate Bond Market**

% of GDP	Q2 2014	Q3 2015
China	17.8	18.8
Hong Kong, China	29.3	29.0
Indonesia	2.2	2.2
Korea, Republic of	74.0	76.4
Malaysia	41.3	41.5
Philippines	5.6	5.8
Singapore	30.6	32.4
Thailand	16.7	17.4
Japan	16.9	16.2

Source: Asia Bond Monitor, September 2015

According to the RBI, the total corporate bond issuance has increased by around 155 per cent from INR2.7 trillion in 2010-11 to INR 4.8 trillion in 2014-15 (approximating 4 per cent of GDP) and the number of issuances has increased by almost 77 per cent from 4,280 in 2010-11 to 10,941 in

Recognising the potential for growth from a low base, YES Bank, a private bank, issued the first green bond in February 2015. Its INR10 billion (USD161.5 million) bond is for financing renewable energy projects. The Export Import Bank of India has also raised money through a larger USD500 million green bond from international investors. This bond will finance renewable energy and low-carbon transport projects. The investment areas funded by the international green bond market seem to be aligned with India's priority investment areas and retail participation by Indian investors should be encouraged through advocacy and awareness campaigns.

In order to help meet financing requirements of USD2.5 trillion for climate change actions in India by 2030, SEBI has proposed new norms for issuance and listing of green bonds in 2016<sup>xix</sup>, which may also include the details of expected environmental impact of such projects. The issuance, listing and disclosure requirements as prescribed under existing regulations for debt securities will continue to be applicable, like

any regular corporate bond issuance. However, for designating an issuance of corporate bonds as green bonds, in addition to the compliance with the requirements under the existing regulations, an issuer will have to disclose in the offer document certain additional information about the green bonds, based on Green Bond Principles<sup>xx</sup>.

In the Indian context, developing a market for green bonds will also address the larger financial challenge. Indian bond markets are not deep and listings of Indian bonds on global financial markets tend to face exchange rate risk which hinders investors' appetite. The rupee is a relatively volatile currency, which makes the cost of hedging against the foreign exchange risk high, estimated at around 8 per cent for a 10-year bond by USAID PACE-D programme for green bonds in India. This takes away the cost advantage for foreign currency financing in India.<sup>9</sup> Recent instances of "masala" bonds seek to address this issue by fostering a market for rupee-denominated bonds with some exchange rate risk coverage. Looking ahead, the adoption of inflation targeting—combined with a series of demonstrably successful measures by the RBI to lower volatility in the exchange markets—means that India is able to calibrate its exchange rate depreciation in line with stable current account deficit. With low inflation and real returns close to 4 per cent, bonds become attractive to international investors looking for predictable medium- to long-term returns. Green bonds offer the required regulatory comfort to such investors as they secure international certification that a project financed by such bonds both confers to investor mandate and sustainability scrutiny.

### Responsible investing in equity markets

ESG-related ratings for India are an example of how investors increasingly use sustainability-related indices to guide investment decisions in equity markets. A few ESG indices created to provide investors with an instrument to incorporate sustainability performance into their investment decisions have been op-

erating in India with mixed success. The S&P ESG India Index comprises of 50 Indian companies that meet certain ESG criteria and have been drawn from the largest 500 companies listed on the NSE. The MSCI India ESG Index is a capitalisation-weighted index that lists companies with good ESG performance relative to sector peers. The S&P BSE CAR-BONEX analyses companies from the S&P BSE 100, with the constituent weights modified in accordance with the companies' relative carbon performance as measured by the level of their GHG emissions and mitigation policies.

Reporting requirements of stock exchanges are also creating triggers for sustainability-linked financing. Valuations for companies have traditionally focused on short-term performance indicators such as quarterly earnings. However, indices and ratings that focus on evaluating sustainability performance aim to deconstruct long-term metrics such as the efficiency of energy use and the robustness of corporate governance practices. Therefore, the sustainability valuation of companies is useful for investors with long-term horizons. It can be argued that most retail investors have long-term horizons by default as they look to the financial markets for preserving and increasing the value of cash assets over time.

Table 3 highlights the prominence of issues such as energy efficiency measures and carbon emissions mitigation in the factors considered by asset managers for making investment decisions. Funds are managed using a wider set of investment criteria than ESG indices, and no structured products are based on the existing ESG indices, but ESG criteria can add to the robustness of risk assessment. Tools such as PRISM (Portfolio Risk, Impact, and Sustainability Measurement<sup>10</sup>) are used by impact investors who are focused on sustainability targets. Between 2000 and 2011, the total capital committed through such impact funds grew from USD1.17 million to USD250 million<sup>xxi</sup>.

9 The Partnership to Advance Clean Energy—Deployment Technical Assistance Program (PACE-D), a US-India bilateral initiative, is also being leveraged to create expertise to help India raise green funds. PACE-D is funded by the USAID. In their recent issue paper on risk assessment of issuance of green bonds for Indian entities, they point out certain challenges for the issuance of Green Bonds in the international markets. These include high currency hedging costs; poor sovereign ratings (currently at BBB-); and low tenure (currently, Green Bond tenures are mainly concentrated between 3-10 years, with only some issuances reaching or exceeding 15 years tenure). <http://www.pace-d.com/wp-content/uploads/2015/02/Issue-paper-Green-Bonds-Report-Reprinted-Feb-2015.pdf>

10 PRISM is an assessment and reporting platform developed with the goal of driving transparency and accountability in measuring social impact and hence strengthening the impact investing industry; <http://prismforimpact.com/about-prism/>

**Table 3: Factors Considered by Indian Asset Managers in Investment Decisions**

Indicators	Per cent of responses	
	Mutual Fund Managers	Private Equity Managers
Risk profile of the company	26.9	20.0
Capital gains generated	16.4	26.7
Companies taking measures to reduce carbon footprint	10.4	6.7
Energy-efficient companies	9.0	6.7
Companies with high retention rate of employees	14.9	13.3
Companies with least legal disputes	19.4	13.3
Other	3.0	13.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

Source: Proceedings of the International Symposium on Emerging Trends in Social Science Research (IS15Chennai Symposium)

While initiatives ranging from reporting standards to ESG indices are not new to the Indian market, the fact that less than 10 per cent of asset managers use the available data indicates a gap between the demand and supply of such information. The supply of sustainability-related data points needs to be linked to a more robust approach to risk management through a combination of investor advocacy, greater awareness, better products and policies to bring coherence to existing initiatives.

### Public Finance

Indian public finance does not have an explicit objective of promoting sustainability. However, certain instruments of taxation and public expenditure are used to improve sustainability by enhancing allocative efficiency of public spending. Three examples in this context are the introduction of sustainability concerns in the horizontal devolution of the divisible pool of taxes made by the Fourteenth Finance Com-

mission<sup>11</sup> (FFC), the taxes on coal and the Biodiversity Finance Initiative (BIOFIN).

The FFC sought to encourage the greening of the Indian economy by treating forest cover in a given state as an index of delivery of ecological services. Recognising that this imposed an opportunity cost on states that maintain their forest cover, they assigned a 7.5 per cent weight in the horizontal devolution formula for the area under forest cover in a given state<sup>xxii</sup>.

The Indian government increased its coal cess from INR50 per tonne to INR100 in 2014, INR200 in 2015, and finally INR 400 per tonne in 2016. The proceeds from the cess are used to finance clean energy initiatives, and were estimated to contribute INR130 billion to the NCEF<sup>12</sup> in 2015-16 when the cess was increased to INR200. In addition, India has decreased subsidies and increased taxes in the form of excise duty on petrol and diesel, even as global oil prices have collapsed. For example, the basic excise duty rate on aviation turbine fuel has increased from 8 per cent to 14 per cent. This has acted as an implicit carbon tax. Both these fiscal measures, combined with India's ambitious renewable energy initiatives, are substantive steps in the direction of sustainable development.

The UNDP is implementing the Biodiversity Finance Initiative (BIOFIN), a global multi-country project that provides tools and the methodological framework for measuring expenditure on biodiversity, which the countries may choose to use in their efforts to mobilise resources required for achieving the global and national biodiversity targets<sup>13</sup>. The Ministry of Environment, Forests and Climate Change (MoEFCC) is a participant in the BIOFIN project, and has emphasised that BIOFIN implementation in India would be completely country-driven, taking into account the activities already undertaken for developing national biodiversity tar-

<sup>11</sup> Established under the Indian Constitution and tasked to define the financial relations between the centre and the state, the FFC submitted its report in February 2015; <http://www.finmin.nic.in/tfc/tfc.asp>

<sup>12</sup> With the value of this fund going up further with the latest hike, the entire budget allocation for Ministry of New and Renewable Energy for this year—INR 50 billion—is proposed to come from NCEF. Half the plan outlay for Environment Ministry, about INR 10 billion, is also proposed to be met through this fund. <http://indianexpress.com/article/india/india-news-india/union-budget-2016-17-coal-cess-doubled-to-fund-ministries-green-drives/>

<sup>13</sup> Since its launch in 2012, 19 countries are implementing the initiative and many more are expected to join soon. The BIOFIN project is significant as available evidence and the decisions adopted by Parties to the Convention on Biological Diversity (CBD) indicate that a significant gap remains in finance for biodiversity management, for countries to drastically scale up their efforts and achieve the 20 Aichi Targets defined in the CBD's Strategic Plan for 2011-2020. <http://www.biodiversityfinance.net/>



gets and assessing the funding for biodiversity in the country. The UNDP has allocated USD1 million for piloting BIOFIN initiative in India<sup>xxiii</sup>. The Ministry is currently assessing how much finance has flowed in from various national banking and financial institutions towards biodiversity conservation within the country and is also mapping out how much companies have spent towards biodiversity conservation under their CSR (corporate social responsibility) budgets.

The above examples indicate that Indian public finance is not indifferent to sustainability concerns. However, there is no space for any additional allocation of public resources directed specifically to sustainability; the effort, therefore, must be to endogenously and simultaneously improve both productivity and sustainability in delivery of public services and to off-set any cost disadvantages incurred in protecting the commons as in the case of forest cover.

## Conclusion

The INDCs for India (Annexure 1) appear to have been designed bureaucratically and projected as public sector initiatives. However, this is neither accurate nor desirable. The role and scope of public finance in addressing sustainability challenges is a limited, at best catalytic, one. The opportunity presented by the elision of the actions needed to secure sustainable finance and the challenge of securing long-term finance for India's development transformation is best secured by delivering a sustainable financial system for India in which the private sector plays a key role. This article has discussed different initiatives in this context. The role of the government would be to a) foster development of an adequate financial system that encourages sustainable finance; and b) remove regulatory and policy barriers that may inhibit the flow of such finance to India. In this context, subsidies, interest subventions etc. would be of limited value. Further, privileging sustainable finance products by government fiat—for example, by making green bonds a permissible priority sector asset—would not be desirable.

Evidently, there is considerable action on the ground in India in equity, bond and bank markets, with respect to sustainable finance. It is also clear that these actions can potentially contribute significantly to alleviating India's challenges in securing sustainable finance. Here, the role of the State could be helpful in many ways. For example, as green bonds serve the purpose of bringing long-term investments to India, it makes sense to remove the withholding tax on external commercial borrowings from green bonds. Government could also use its access to the Green Climate Fund<sup>14</sup> to provide exchange rate risk guarantees to international credit enhancement. Indian insurance and pension fund organisations could be permitted to invest in non-AAA green bonds.

The role and scope of public finance in addressing sustainability challenges is a limited, at best catalytic, one. The most important initiative that the government could take would be to mainstream sustainability into the draft Indian Financial Code (IFC). The draft IFC has a provision mandating that any measure for market infrastructure or directed lending should be reviewed in terms of its costs to society as a whole.

An important institutional reform would be to use the financial strength and capability of keystone financial institutions such as the Indian Renewable Energy Development Agency (IREDA) to increase the bank book size. IREDA was presented with the *Mini-Ratna* (Category 1) status by the Department of Public Enterprises under the Union Ministry of Heavy Industries and Public Enterprises, allowing it to make capital expenditure on new products, approve modernisation measures and purchase equipment without the approval of the government up to a limit of INR5 billion. A larger financial capabil-

<sup>14</sup> The Green Climate Fund has been designated as an operating entity of the financial mechanism of the UNFCCC to assist developing countries in adaptation and mitigation practices to counter climate change. It will support projects, programmes, policies and other activities in developing countries and is governed by the GCF Board.

ity mandate would allow the deployment of international funding through the Green Climate Fund (GCF)<sup>15</sup>. Additionally, strengthening swap and hedging capabilities of the IREDA with government support and building in products for take-out, guarantees and loan life extension would garner additional lines of finance to provide low-cost, long-tenor financing in both foreign and Indian currency.

The most important initiative that the government could take would be to mainstream sustainability into the draft Indian Financial Code (IFC). The draft IFC has a provision mandating that any measure for market infrastructure or directed lending should be reviewed in terms of its costs to society as a whole. This includes claims by firms with respect to environmental sustainability standards met (or often not met) by their products. This should curb lending to environmentally harmful sectors, and perhaps encourage lending to greener sectors. The IFC contains provisions for the regulation of financial products aiming at protecting consumers. The IFC also envisages regulations with respect to capital controls as these regulations currently do not include future cross border flows of capital that finance 'dumping' of environmentally undesirable investments. The opportunity now exists to make sustainable finance a critical dimension of the final version of the Code.

Sustainable finance in India thus has an exciting future. The way forward is to deepen private financial markets and make existing institutions capable of delivering increasing amounts of sustainable finance for the long term investment required for India's development and transformation. This is particularly important for the energy sector. In the case of agriculture and small industry, preferential financial regulations will suffice. The challenge is to build a framework that demonstrates in these sectors that long term investments are typically sustainability enhancing investments. In the case of energy what is required is not preferential treatment but addressing the regulatory risk constraint. This is best addressed by putting in place an IFC that mainstreams sustainability and by leveraging existing sustainable finance to attract domestic and foreign investment in that sector. Sustainable finance will therefore be an additional lever to secure the resources to maintain high levels of growth and sustainability. For the first country that is to complete its development transformation without substantial recourse to fossil fuels, sustainable finance presents an opportunity not a threat.

For the first country that is to complete its development transformation without substantial recourse to fossil fuels, sustainable finance presents an opportunity not a threat.

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<sup>15</sup> NABARD is accredited as National Implementing Entity in 10th Board meeting of GCF held on 9th July 2015 and is eligible to submit projects of outlays larger than USD 250 million. <https://www.nabard.org/English/GreenClimateFund.aspx>

## Annexure 1: Intended Nationally Determined Contributions and Related Initiatives

Initiative	Description
National Action Plan on Climate Change (NAPCC)	Comprehensive national climate change policy that addresses eight priorities for sustainable development with climate change co-benefits. The project is expected to cost a total of USD38 billion
National Solar Mission (NSM)	Comprehensive policy aimed at incentivising solar power generation. The NSM is being scaled up from its initial target of 20 GW solar capacity addition to 100 GW. The initiative is expected to require a total outlay of USD100 billion.
National Mission on Enhanced Energy Efficiency (NMEEE)	Covers a variety of policies and initiatives, including PAT, ZWS Compact Fluorescent Lamp Programme and the operationalisation of the Partial Risk Guarantee Fund/Venture Capital Fund for Energy Efficiency. An estimated outlay of USD28.74 billion for the 12th Five-Year Plan is required.
	Perform Achieve and Trade (PAT): A market-based efficiency trading mechanism, at present covering 478 plants in eight energy-intensive sectors. Under the PAT programme, the respective industries have achieved a 4 to 5 per cent decline in their specific energy consumption in 2015 compared with 2012.
	Zero Effect, Zero Defect (ZED): ZED is a policy initiative aimed at rating MSME industries on quality control and certification for energy efficiency, enhanced resource efficiency, pollution control, usage of renewable energy, and waste management. It is currently envisaged to cover about one million MSMEs.
Smart Cities	100 smart cities are planned with the object of developing new generation cities, which will provide core infrastructure and a decent quality of life to their citizens in a clean and sustainable environment. The total expected outlay over five years is INR480 billion or USD7.3 billion.
Atal Mission for Rejuvenation and Urban Transformation (AMRUT)	AMRUT is a new urban renewal mission launched for 500 cities with a focus on ensuring basic infrastructure services including water supply, sewerage, and the development of green spaces and parks. The total expected outlay over five years is INR500 billion or USD7.6 billion.
Solid Waste Management (SWM)	The government has invested significantly in SWM projects as grants-in-aid to states for SWM through PPP. An estimated USD397 million has already been allocated.
Swachh Bharat Mission	The mission has the objective of making the country clean and litter-free in more than 4,000 towns, covering a population of 306 million people.
Dedicated Freight Corridors (DFCs)	The first phase of DFC implementation will see two corridors, Mumbai-Delhi and Ludhiana-Dankuni, being constructed. The project is expected to reduce emissions by about 457 million tonne CO <sub>2</sub> equivalent over a 30-year period.
Mass Rapid Transport System (MRTS)	Around 236 km of metro rail is operational in the country, with an additional 550 km under construction. The Delhi metro, which has become India's first MRTS project to earn carbon credits, has the potential to reduce emission by about 0.57 million tonne of CO <sub>2</sub> equivalent annually.
Green Highways (Plantation and Maintenance) Policy	The policy aims to develop a 140,000km tree-line with plantations along both sides of national highways, with 1 per cent of total civil cost of projects set aside to implement this.
National Electricity Mobility Mission Plan 2020 (NEMPP)	This initiative promotes hybrid and electrical mobility through a combination of policies aimed at gradually ensuring a vehicle population of about 6-7 million electric/hybrid vehicles in India by the year 2020. The project will require an estimated cumulative outlay of INR140 billion or around USD2.1 billion.
Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India (FAME)	FAME is a scheme formulated as part of the NEMPP to promote faster adoption and manufacturing of hybrid and electric automobiles.
Fuel Efficiency Programmes	The government has introduced several fuel efficiency initiatives, such as the Vehicle Fuel Efficiency Programme which finalises the first passenger vehicle efficiency standards, potentially keeping 50 million tonne of CO <sub>2</sub> out of the atmosphere. Other initiatives include the National Policy on Biofuels, aimed at achieving a 20 per cent blending of biofuels, both for biodiesel and bioethanol.
Green India Mission	As of 2015, the Perspective Plans and Annual Plan of Operations submitted by four states—Mizoram, Manipur, Jharkhand and Kerala—had been approved for the development of forests and their fringe areas. The cumulative outlay amounts to an estimated USD6.9 billion, while USD1.97 billion has already been allocated.
Abatement of Pollution	Initiatives include the Continuous Emission Monitoring System (CEMS), Common Effluent Treatment Plants (CETPs), Fly Ash Utilisation Policy, Implementation of the National Air Quality Index and amendments to the Municipal Solid Waste Management Rules.

Initiative	Description
Citizens and Private Sector Contribution to Combating Climate Change	In addition to the initiatives being carried out by the government of India, the private sector has also embarked on a number of voluntary and mandated actions.
	Companies Act: The Companies Act of 2013 directs companies earning a certain level of profits to spend 2 per cent of annual profit on CSR activities.
	New Ventures India: It is an initiative to support cleantech entrepreneurs in developing their business plans and access to finance and markets.
	SME Cluster Programmes for Energy Efficiency: It currently covers more than 150 clusters all over the country and has resulted in substantial improvement in sustainability parameters.
National Mission on Sustainable Agriculture (NMSA)	NMSA aims at enhancing food security and protection of resources such as land, water, biodiversity and genetics, with an estimated outlay of USD16.34 billion for the 12th Five-Year Plan, while USD1.97 billion have already been allocated.
Other agricultural initiatives	Other agricultural initiatives include the National Initiative on Climate Resilient Agriculture (NICRA), the introduction of Soil Health Cards and the National Agroforestry Policy (NAP).
National Water Mission	The progress includes the preparation of state-specific action plans on climate change under way; a pilot study of basin-wise water done for two basins (Godavari and Brahmani-Baitarani), with studies extended to all the basins; and an MoU that has been signed between the Ministry of Water Resources and the Asian Development Bank (ADB) for technical assistance with the objective of undertaking research for identifying and testing flood mitigation and flood management strategies. An outlay of USD13.78 billion was required for the 12th Five-Year Plan.
National Mission for Clean Ganga	Aims to regenerate the river along its length of more than 2,500 km through diverse activities.
Initiatives for Coastal Regions	Initiatives for the mitigation of climate change on coastal regions include the Integrated Coastal Zone Management project (ICZM), the Mangroves for the Future (MFF) project, and the implementation of the Island Protection Zone (IPZ).
National Mission for Sustaining the Himalayan Ecosystem (NMSHE)	The objective is to develop national capacity to assess the health of the Himalayan ecosystem and to assist progressive policy formulation at the level of the states and relevant sub-regions. USD226.9 million was the required outlay for the 12th Five-Year Plan, while USD83 million had been approved.
National Mission on Sustainable Habitat (NMSH)	An estimated USD143.72 million was required for the 12th Five-Year Plan. Notable progress achieved under this mission: NMSH standards developed for six sub-sectors, namely solid waste management, water and sanitation, storm water drainage, urban planning, energy efficiency, and urban transport for integration in developmental activities in the state. Energy Conservation Building Code 2007 made mandatory for new as well as old buildings and incorporated in the Central Public Works Department (CPWD) general specifications for electrical works in 2013. Green Building norms made mandatory for the CPWD since 2009 and incorporated in the CPWD Works Manual 2012.
National Mission on Strategic Knowledge for Climate Change (NMSKCC)	Seeks to build a dynamic knowledge system that would inform and support national policy and action in addressing climate change challenges while not compromising on the nation's growth goals. An outlay of USD378.2 million is required for the 12th Five-Year Plan period.
National Clean Energy Fund (NCEF)	Created from a coal cess of INR50 per tonne (about USD1), which was gradually increased to INR400 per tonne in the Union Budget of 2016-17. As of 10 March 2016, approximately USD5.3 billion has been approved for clean energy projects since the financial year 2011-12.
National Adaptation Fund	The objective of the fund is to assist states and union territories that are particularly vulnerable to the adverse effects of climate change in meeting the cost of adaptation. USD55.6 billion has been allocated for the various projects.
State Action Plans on Climate Change (SAPCC)	As a follow up to the NAPCC, SAPCCs were introduced to identify state-specific priorities and strategies to combat climate change at subnational levels. As of April 2014, 26 states/union territories had prepared their SAPCCs. A new central-sector scheme titled Climate Change Action Programme has also been approved during the 12th Five-Year Plan. The objective of the scheme is to build and support capacity at central and the state levels for assessing climate change impact and formulating and implementing adequate response measures. Thus far, USD13.62 billion has been allocated for the initiative.



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