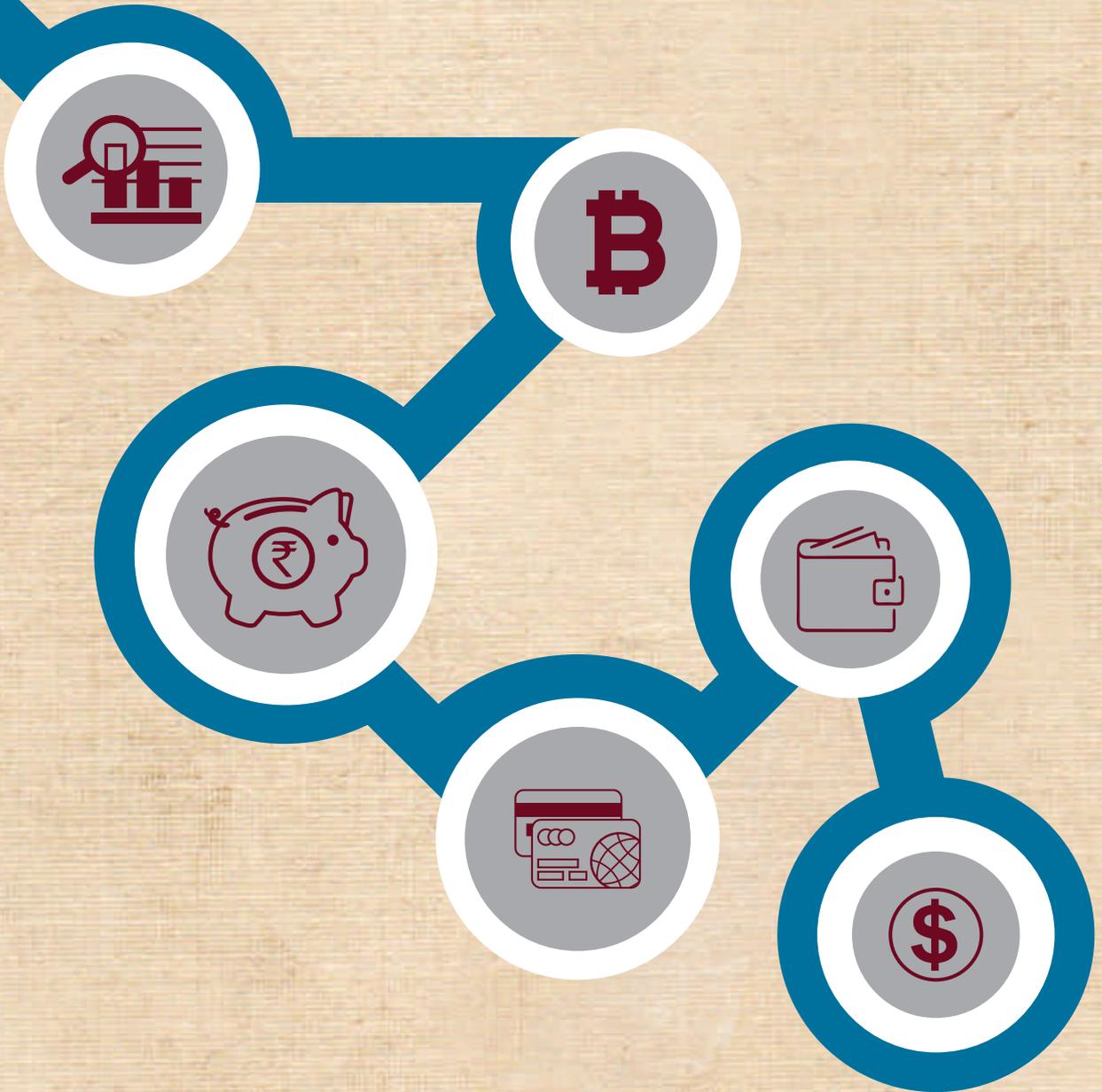


Climate Finance Architecture in India



September 2017

This document is for private circulation and is not a priced publication. Reproduction of this publication for educational and other non-commercial purposes without prior written permission is authorised, provided the source is fully acknowledged.

Copyright ©2017 Centre for Budget and Governance Accountability (CBGA)

Author

Divya Singh

For more information about the study, please contact: divyasingh.jnu@gmail.com

Designed by

Common Sans, 1729, Sector 31, Gurgaon, Haryana

Published by

Centre for Budget and Governance Accountability (CBGA)

B-7 Extn./110A (Ground Floor), Harsukh Marg, Safdarjung Enclave,
New Delhi-110029

Phone: +91-11-49200400/ 401/ 402

Email: info@cbgaindia.org

Website: www.cbgaindia.org

Views expressed in this document are those of the author and do not necessarily represent positions of CBGA.

Contents

| | | |
|------|---|----|
| | List of Abbreviations | 2 |
| I. | Introduction | 5 |
| II. | Climate Change and Its Implications for India | 7 |
| III. | Climate Change - Institutional and Policy Responses | 8 |
| IV. | Climate Finance in India | 11 |
| | A. Domestic Public Finance - National Climate Funds | 12 |
| | B. Domestic Public Climate Finance | |
| | Budgetary Support at the National Level | 16 |
| | Budgetary Support at the Subnational Level | 26 |
| | C. Domestic Public Finance - Other Sources | 29 |
| | D. Private Climate Finance in India | 30 |
| | E. International Climate Finance from Multilateral and Bilateral Sources | 33 |
| | 1. Multilateral Climate Funds | 34 |
| | 2. Bilateral Development Agencies | 37 |
| V. | Some Observations on Climate Finance Landscape in India | 39 |
| VI. | In Conclusion: Climate Finance Accountability | 40 |
| | References | 42 |

List of Abbreviations

- AF** - Adaptation Fund
- AFB** - Adaptation Fund Board
- BE** - Budget Estimates
- BEE** - Bureau of Energy Efficiency
- CAMPA** - Compensatory Afforestation Fund
- CBGA** - Centre for Budget and Governance Accountability
- CCAP** - Climate Change Action Programme
- CCFU** - Climate Change Finance Unit
- CDM** - Clean Development Mechanism
- CIFs** - Climate Investment Funds
- CPWD** - Central Public Works Department of India
- CSOs** - Civil Society Organisations
- CTF** - Clean Technology Fund
- DAC** - Department of Agriculture and Cooperation
- DAE** - Direct Access Entity
- DCs** - Designated Consumers
- DoEA** - Department of Economic Affairs
- DoST** - Department of Science and Technology
- FFC** - Fourteenth Finance Commission
- FIT** - Feed-in Tariffs
- GBI** - Generation Based Incentives
- GBS** - Gross Budgetary Support
- GCF** - Green Climate Fund
- GDP** - Gross Domestic Product
- GEF** - Global Environment Facility
- GIM** - Green India Mission
- GoI** - Government of India
- GST** - Goods and Services Tax
- HRD** - Human Resource Development



IEBR - Internal and External Budgetary Resources
IEE - Indian Energy Exchange
IMG - Inter-Ministerial Group
INDC - Intended Nationally Determined Contributions
IPCC - Intergovernmental Panel on Climate Change
IPPs - Independent Power Producers
IREDA - Indian Renewable Energy Development Agency
JICA - Japan International Cooperation Agency
JNNSM - Jawaharlal Nehru National Solar Mission
JNNURM - Jawaharlal Nehru National Urban Renewable Mission
LDCF - Least Developed Country Fund
MGNREGA - Mahatma Gandhi National Rural Employment Guarantee Act
MoA - Ministry of Agriculture
MoDWS - Ministry of Drinking Water and Sanitation
MoEA - Ministry of External Affairs
MoEFCC - Ministry of Environment, Forests and Climate Change
MoF - Ministry of Finance
MoHFW - Ministry of Health and Family Welfare
MoHUA - Ministry of Housing and Urban Affairs
MoNRE - Ministry of New and Renewable Energy
MoRD - Ministry of Rural Development
MoWR - Ministry of Water Resources
MTEE - Market Transformation for Energy Efficiency
NAF - National Adaptation Fund
NAPAs - National Adaptation Programme of Actions
NAPCC - National Action Plan on Climate Change
NCCD - National Calamity Contingency Duty
NCDMA - National Clean Development Mechanism Authority
NCEEF - National Clean Energy and Environment Fund
NCEF - National Clean Energy Fund
NDA - National Democratic Alliance
NDRF - National Disaster Response Fund
NIEs - National Implementing Entities
NMEEE - National Mission for Enhanced Energy Efficiency
NMSA - National Mission for Sustainable Agriculture

NMSH - National Mission on Sustainable Habitat
NMSKCC - National Mission on Strategic Knowledge of Climate Change
NRLM - National Rural Livelihood Mission
NWM - National Water Mission
ODA - Overseas Development Assistance
PAT - Perform, Achieve and Trade
PMFBY - Pradhan Mantri Fasal Bima Yojana
PRGFEE - Partial Risk Guarantee Fund for Energy Efficiency
PRSP - Partial Risk Sharing Programme
PXIL - Power Exchange of India Limited
RE - Revised Estimates
RECs - Renewable Energy Certificates
RKVY - Rashtriya Krishi Vikas Yojana
RPOs - Renewable Purchase Obligations
SAPCC - State Action Plans on Climate Change
SCCF - Special Climate Change Fund
SCF - Strategic Climate Fund
SERCs - State Electricity Regulatory Certificates
UNFCCC - United Nations Framework Convention on Climate Change
UPA - United Progressive Alliance
VCFEE - Venture Capital Fund for Energy Efficiency

I. Introduction

Climate Change is one of the most difficult challenges facing the world today and its resolution requires concerted global action by countries across the world. The 2015 Paris Agreement was an effort in this direction. It saw as many as 195 countries commit to drastically reducing their greenhouse emissions (through mitigation actions) and protecting their people from the negative impacts of climate change (through adaptation actions). As countries prepare to undertake climate actions that they had committed to in Paris, it is becoming clear that significant investments would be required to meet these ambitious goals. Policies would need to be backed by financial commitments if countries are to “reduce their emissions, decarbonize their economies, and adapt to the impacts of climate change” (Nakhooda, Watson and Schalatek, 2013, 2). Climate Finance has to be a key element of action against climate change.

Climate Finance includes climate related financial flows both within and between countries dedicated to climate mitigation and adaptation. Climate Finance in India comes from multiple international (multilateral and bilateral aid agencies, and multinational private firms) and national (domestic budgets and private funds) sources. These funds flow either through the government budgets at the national and subnational level to be managed by the government departments and agencies; or take “off budget” routes or can even be in form of direct project funding to be managed by the private players and non-government organizations at the project level. The funds are in form of budgetary allocations, taxes, subsidies, generation based incentives, private equity, loans, soft-loans and grants.

Despite the many sources of climate finance in India, the biggest portion of climate related funding comes from the domestic budget, both at the national and the subnational level. International and private climate financing sources, while anticipated to play an important role in the future, do not play a very significant role at present. At present, it is largely government's budgetary allocations that are financing climate action in India. India requires significant financial assistance to manage the tradeoffs between economic growth (required for poverty alleviation and employment generation) and reduction of greenhouse gas emissions (required to curb climate change). The Economic Survey of India (2015) has argued that at least US\$ 2.5 trillion would be required for meeting India's climate change targets between now and 2030 and international climate finance is necessary to meet the difference over what can be made available from domestic sources.

It is important not only to mobilize climate finance, but also to build robust, transparent and accountable public finance system to ensure that funds both domestic and international are used more effectively and efficiently. It is also important to ensure that allocation of funds is more sensitive to the needs of the people, particularly the marginalized and vulnerable. All this is possible through effective public engagement and oversight of the public spending process. In India, the diversity of climate finance sources and the complexity that it leads to makes the public engagement and oversight of the finances difficult. Climate finance accountability is also challenging because, by and large, mitigation and adaptation actions are accomplished through traditional development goals and objectives. It is



important to assess the “climate relevance” of development interventions to assess the financial allocation made towards climate action.

Any attempt at building climate finance accountability in India would require a comprehensive mapping of the diverse sources of climate finance, an estimate of the volume flowing from these sources and an assessment of the constraints involved in monitoring these funds. This report is an attempt in this direction. It looks into the various sources of climate finance in India along with the volume of finance coming from these sources. It also looks at the challenges in monitoring the money flowing through these sources. Section II of the report begins by looking at the implications of climate change for India. Section III looks at the Institutional and Policy responses to Climate Change in India at the national and subnational level. The paper subsequently delves into the various sources of climate finance in India-public, private and the international at the national and subnational level in section IV. The paper concludes by some preliminary remarks on climate finance accountability, which is an emerging area of concern, particularly in the developing countries.

II. Climate Change and Its Implications for India

Intergovernmental Panel on Climate Change (IPCC) (2007) has affirmed India's high vulnerability and exposure to climate change. It has argued that climate change will slow India's economic growth, impact health and development, make poverty reduction more difficult and erode food security. The number and intensity of extreme weather events is likely to increase. India is already one of the most disaster-prone nations in the world and many of its people live in areas vulnerable to hazards such as floods, cyclones and droughts. Extreme weather events will not only affect agricultural output and food security, but will also lead to water shortages and trigger outbreaks of water and mosquito-borne diseases such as diarrhea and malaria. Climate impacts will also adversely affect the natural ecosystems that sustain lives of rural households in several places. India, like many other developing nations, is likely to suffer losses in all major sectors of the economy including energy, transport, farming and tourism.

These observations have been reiterated by the IPCC (2014) Fifth Assessment Report, arguing that climate change will have widespread impacts on Indian society and its interaction with the natural environment. Climate change will impact settlements and infrastructure through flooding, human health, and contribute to food and water shortages in the country. Climate change will progressively threaten economic growth and human security in complex ways in India. Sustainable development in India would not be possible with the natural disasters and other disruptive climate impacts threatening economic growth and social progress in the country.

The Government of India recognizes that there is an urgent need to invest in climate action. The government, however, is faced with a number of competing development challenges. It is incumbent upon the government to undertake measures for poverty eradication, infrastructure development and employment generation. With a large majority of people living lives of deprivation without access to basic amenities and services, the Indian government cannot look away from these developmental goals.

The resources available to the government are, however, limited and inadequate to address both sets of challenges. India, therefore needs to mobilize large amounts of funds both domestically and internationally. The Government of India is already spending close to 2.6 percent of its GDP on adaptation but is still left with a funding gap of 38 billion US dollars for effective climate action. India has been able to articulate a clear case for international aid for undertaking low carbon development, adaptation to climate impacts and building climate resilience of local communities through the Intended Nationally Determined Contributions (INDCs). At present, however, the most important source of climate finance in India is the funds raised domestically by the government and routed through the national and subnational budgets.

III. Climate Change - Institutional and Policy Responses

At the National Level

The Indian government is aware of the threat that climate change poses to the lives of people in the country and has responded to the challenge through policies and institutions aimed at addressing it. The first institutional response to climate change came as early as 2008 when the then Prime Minister Dr. Manmohan Singh appointed PM's Council on Climate Change to coordinate and oversee India's climate response. PM's Council on Climate Change had 26 members with representatives from Ministry of Environment, Forests and Climate Change (MoEFCC), Ministry of Finance (MoF), Ministry of External Affairs (MoEA), Ministry of Agriculture (MoA), Ministry of Water Resources (MoWR), DST (Department of Science and Technology) and Ministry of New and Renewable Energy (MoNRE). Each of these ministries and departments play an important role in determining and executing India's climate interventions.

The next important institutional response came in the form of Climate Change Finance Unit (CCFU), which was established in 2011 in the Department of Economic Affairs (DoEA) in the MoF. CCFU is the nodal agency for all matters pertaining to climate finance in the MoF. It is the nodal agency that represents MoF in all climate finance platforms - national and international, guides MoEFCC on climate finance issues in the international negotiations, and analyzes the commitments of various United Nations Framework Convention on Climate Change (UNFCCC) signatory countries and their relevance for India. While it was expected that CCFU would play the main climate finance coordinating role in the country, this is, however, far from truth. There are multiple channels of climate finance in the country, funding different policies and interventions and many of them are independent of any control by the government, driven largely by the priorities of the donor.

Before the present government took over, the Planning Commission was primarily responsible for assessing the finance requirements for the country, including that required for climate action. The role has now been taken over by the *Niti Aayog*.

India's climate change policy is located within the framework provided by the National Environment Policy, 2006, which promotes sustainable development within the constraints imposed by ecology and imperatives of social justice. On June 30th 2008, the PM came out with National Action Plan on Climate Change (NAPCC), which till date is the most comprehensive policy response to climate change from India. The NAPCC brought a sharper focus on climate change interventions, articulating India's road map to achieve sustainable development in the context of climate change. The NAPCC comprises of eight national Missions. These are: 1) National Solar Mission, 2) National Mission for Enhanced Energy Efficiency, 3) National Mission on Sustainable Habitat, 4) National Water Mission, 5) National Mission for Sustaining the Himalayan Eco-system, 6) National Mission for a Green India, 7) National Mission for Sustainable Agriculture and 8) National Mission on Strategic Knowledge for Climate Change. Each national mission works under the purview of a nodal ministry. The MoEFCC is the nodal

agency, which coordinates and supervises the overall climate policy formulation in India. It helps various ministries and agencies to mainstream climate concerns in their work. It is supported in its role by the MoEA, which plays an important role in climate negotiations, and MoF and CCFU within it.

In order to broaden the scope of India's response to climate change, the Gol recently announced four new National Missions. These are: (1) National Mission to promote wind energy aimed at making India a global leader in wind power by creating conditions conducive for its diffusion across the country in a time-bound manner; (2) The Mission on dealing with the climate impacts on health, which is likely to carry out a comprehensive assessment of the kind of effects climate change is likely to have on human health in different regions of the country and build up capacities to respond to these and also to health emergencies arising out of natural disasters; (3) National Coastal Mission to prepare an integrated coastal management program and map vulnerabilities along India's coastline. This mission found has found a place in the budget 2017-18 with an allocation of Rs. 5 crore; and (4) The waste-to-energy mission to incentivize efforts towards harnessing energy from all kinds of waste and is again aimed at lowering India's dependence on coal, oil and gas, for power production.

At the Subnational Level

At the subnational level, climate policy has been articulated in the form of State Action Plans on Climate Change (SAPCC). Decentralized climate policy formulation and implementation is important for a number of reasons. To begin with, India is a vast and diverse country with regions differentially vulnerable to the impacts of climate change. Climate policies and interventions not only need to be sensitive to the differential vulnerabilities of various states, but also need to be implemented at all levels of governance to be effective. Also, India is a federal polity with a distribution of responsibilities and jurisdictions between the Centre and the states through the Union and the State list. Many of the climate relevant sectors such as agriculture, water, mines and land use fall under the jurisdiction of the states, and therefore, effective climate action cannot happen without substantial involvement of the state governments. Decentralized decision making is important as it will be more efficient and effective way of dealing with climate impacts.

In this regard, the recommendations of the Fourteenth Finance Commission (FFC) are important and must be considered here. The Recommendations of the FFC will change the basic architecture of centre-state financial relations. First, the states will have significantly higher and genuine revenue autonomy, with the enhancement of their share in central taxes to 42 percent from the earlier 32 percent. Second, there would be a clear reduction in Centre's discretionary control on fiscal transfers to the states. Also, there would be a reduction in number of Centrally Sponsored Schemes, which would be subsumed under newly described core or umbrella schemes giving larger flexibility to state governments to design and implement schemes as per state-specific conditions, preferences and requirements.

Overall, these recommendations can potentially have significant efficiency improving effects if both the central and the state government initiate a restructuring of management of their finances. States will need to make a clear assessment of their specific needs in sectors like health, education and infrastructure, paying closer attention to their demographic and geographic features as well initial conditions to improve both growth and welfare of their citizens. They will have a greater role to play in not just assessment of their climate needs but also in financing climate action, especially adaptation measures.



In 2009, the state governments were asked by the MoEFCC to formulate SAPCC in line with the priorities of NAPCC since the plans and priorities outlined in NAPCC need to have resonance at the state level be effective. Formulated SAPCC outline state specific circumstances and vulnerabilities and identify strategies and interventions required to bring about sustainable development. While at the Central level, various ministries are responsible for the various National Missions, at the state level different institutional arrangements from climate change cells to climate change departments. Also, interdepartmental inputs are required for the formulation of SAPCCs. While in some of the states this has been undertaken very systematically.

Out of 29 states, 27 states have already formulated SAPCC and these have already been approved for 19 states by the MoEFCC (Sharma, 2014). Others are in the process of refining their plans and financial requirements. The extent to which the process of preparing SAPCCs engaged with other key departments related to climate change (for instance, energy, agriculture or water) and brought their concerns and suggestions on board varies widely across states. Even in states that performed better on this front, the frequent transfer of officials has meant that the capacity briefly built has dissipated, and contact points lost.

It is also not really clear how the state-driven SAPCC process will relate to the NAPCCs and its Missions. The states have drawn and costed these plans. These cost estimates have been found to lack credibility in many instances. This is largely because the plans were not based on any systematic vulnerability assessments but were based on narrow sectoral studies. State Plans are primarily concerned with adaptation with limited focus on mitigation activities.

Apart from the NAPCC and SAPCC, the twelfth Five Year Plan, prepared by the Planning Commission is also an important document outlining India's initiatives at addressing climate change. It outlines several climate related policies and programmes. The most important among these is the Climate Change Action Programme - a scheme aimed at building research capacity on climate change and supporting domestic climate actions at the national and the subnational level.

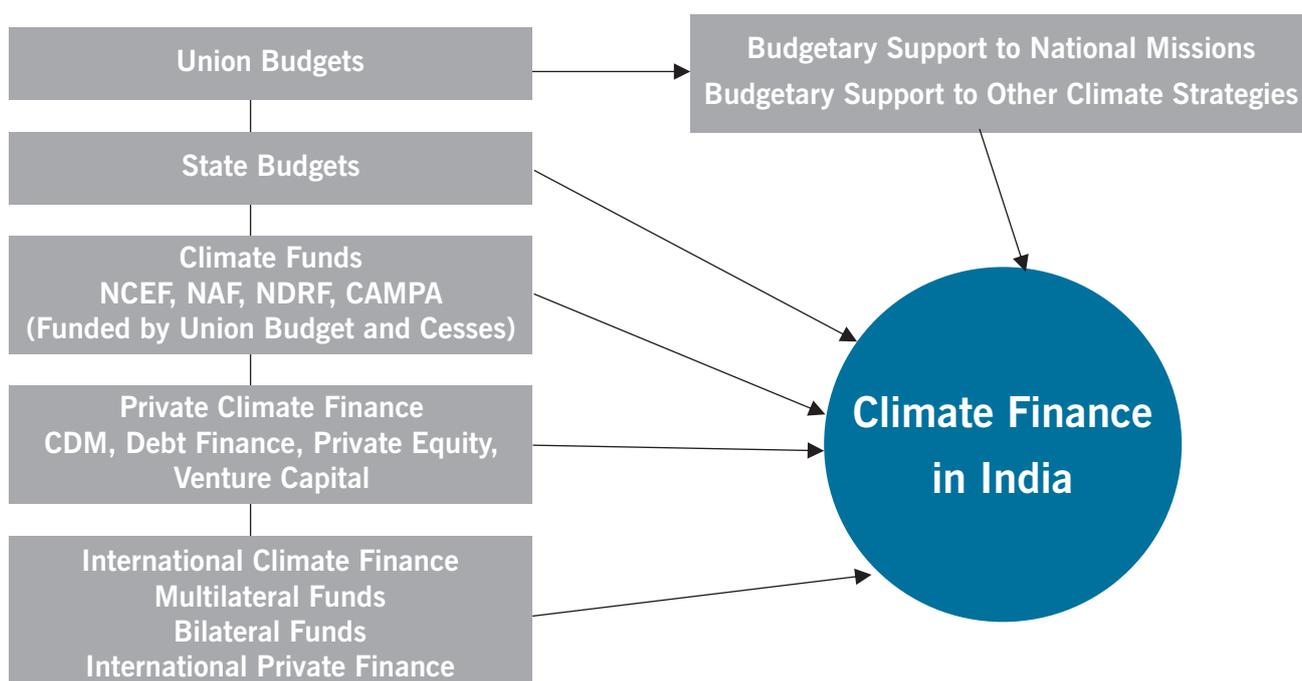
The above policy interventions are supplemented by other national policies and strategies such as the National Conservation Act, which promotes the conservation and efficient usage of energy; the National Policy for Farmers, which promotes sustainable development of agriculture; the National Electricity Policy, which aims at universalizing energy access and Integrated Energy Policy, which promotes the usage of renewable energy. There are others related to biodiversity conservation and coastal management. This list is far from exhaustive and there are other policies and strategies, which yield climate benefits either directly or indirectly.

IV. Climate Finance in India

Climate finance in India has been understood as budgetary outlays made towards climate missions under the NAPCC. This understanding has gradually given way to a more nuanced picture of climate finance structure, which is heterogeneous, fragmented and decentralized with several public, private, national and international actors playing important roles (Jha, 2014). The institutions providing climate finance in India include amongst others, the national government, state governments, Civil Society Organisations (CSOs), international donor agencies, bilateral development agencies, private investors, public and private banks.

Climate Finance in India can be distinguished into public and private. Public climate finance is in the form budgetary outlays (both at the national and the sub national level), tax, subsidies and government backed market mechanisms. Private climate finance exists in the form of loans (local and foreign currency loans), private equity, venture capital, partial risk guarantees, green bonds and Clean Development Mechanism (CDM). Apart from these sources, international funds, multilateral development banks and bilateral financial institutions also provide climate finance in the form of grants, loans and concessional loans. The distinction between public and private finance in many instances is difficult to maintain. The public climate finance both national and international have the potential to incentivize private climate financing in the country, something that is the need of the hour as recognized by the Low Carbon Committee and the Economic Survey (2015). The need is also to blend the various disparate sources of funds in a manner that they align with the national development priorities.

Climate Finance Architecture in India





A. Domestic Public Finance - National Climate Funds

Government of India finances climate action through (1) Climate Funds (routed through the Union Budget); (2) Direct Budgetary Allocations, and (3) Mechanisms aimed at leveraging private climate finance.

Climate funds support climate actions both under the national climate missions and outside it. These are (1) National Clean Energy Fund (NCEF), (2) National Adaptation Fund (NAF), (3) Compensatory Afforestation Funds and (4) National Disaster Response Fund (NDRF). Some of these funds are financed by levying cesses while others are budgeted for by the Government. These funds are routed through the Union Budget.

(1) National Clean Energy Fund (NCEF): NCEF was introduced in the budget 2010-11. The Fund is designed as a non-lapsable fund under Public Accounts with its secretariat in Plan Finance II Division, Department of Expenditure, MoF. The NCEF has been instituted to support research and innovative clean energy projects in public and private sector entities. The funding provided by NCEF is in the form of loans or a viability gap funding, sometime upto 40 percent of the cost of the project. The form of funding is decided by the Inter-Ministerial Group (IMG), which decides upon the merits of the project. The Inter-Ministerial Group is chaired by the Finance Secretary in the Ministry of Finance. The IMG can consult experts in the field of clean energy from other organisations while appraising a project. Proposals are forwarded to relevant ministries by individuals and consortiums, and they are then submitted to the NCEF, which if deemed relevant is sent to Ministry of Finance/ *NITI Aayog* for their comments. The final appraisal is done by the Inter-Ministerial Group.

The NCEF is funded using a clean energy cess. A “clean energy cess” of Rs. 50 per tonne was levied on the production of coal and coal imports in the country. This was doubled to Rs. 100 in the 2014-15 annual budget and the further to Rs. 200 in the 2015-16 budget. It was further increased to Rs. 400 per tonne in 2016-17 budget. The fund had a corpus of Rs. 17000 crore as of early 2015. By 2014, the NCEF has recommended projects worth Rs. 18577 crore.

Any project/scheme related to innovative methods in Clean Energy technology and Research & Development are eligible for funding under the NCEF. Projects being funded by any other arm of the Government of India or receiving grants from any other national/international body are ineligible for funding under NCEF. However, no project relating to basic research is supported through NCEF. Since June 2014 it has been decided that NCEF will also finance the schemes/programmes of Ministry of New and Renewable Energy (MoNRE), if balances are available with the NCEF after financing projects approved by the IMG. This is to be done with the approval of Finance Minister.

While the NCEF has been able to build a substantial corpus till now, there have been issues with allocation and disbursement of funds. A large portion of what has been collected as a “clean environment cess” is not transferred to the NCEF and is used for purposes, which have little or no relevance to climate mitigation. The Comptroller and Auditor General (C & AG) of India had raised red flags on the handling of NCEF accounts in its report on the central government’s accounts for financial year 2012. The government auditor, in its report, said that while Rs. 3,646.01 crore (Rs. 1,066.46 crore in 2010-11 and Rs. 2,579.55 crore in 2012-13) had been collected through clean energy cess, only Rs. 1,066.46 crore was transferred to NCEF. Similarly, In 2017, as noted by the Parliamentary Committee on Energy, a cumulative amount of Rs. 86,440 crore would be collected as a part of the coal cess by 2017, and only Rs. 29,645 crore has been transferred to the NCEF and out of which only

Rs. 15,911 crore has been transferred for the NCEF projects, approximately 18 percent of the total amount collected as cess (See table 1 for details). Similar problems in the disbursement and allocation of funds were noted by the committee for financial year 2016-17. The government till date has approved 55 projects for NCEF including projects from MoNRE, MoWR and MoEFCC. The number of projects and the amount allocated to these projects for financial year 2011 -12, 2012-13, 2013-14 and 2014 -15 are given in the Table 2.

Additionally, the fund utilization of NCEF is low and is not necessarily used for clean energy initiatives. The National Democratic Alliance (NDA) government in a detailed discussion in Parliament confirmed that collections by the fund were used to meet the government's fiscal deficit by the previous governments. Both The United Progressive Alliance (UPA) and the NDA governments have used the fund for fiscal balancing. NCEF funds initially aimed at promoting new and innovative renewable energy projects are being used to fill the MoEF and MoNRE budget deficits. Thus a substantial portion of what should have been directed towards renewable energy initiatives is being allocated elsewhere.

Table 1: Amount of coal cess collected and transferred to NCEF over years (Rs. crore)

| Year | Coal Cess Collected | Amount transferred to NCEF | Amount provided from NCEF for Projects |
|---------|---------------------|----------------------------|--|
| 2010-11 | 1066.46 | 0 | 0 |
| 2011-12 | 2579.44 | 1066.46 | 220.75 |
| 2012-13 | 3053.19 | 1500.00 | 246.43 |
| 2013-14 | 3471.98 | 1650.0 | 1218.78 |
| 2014-15 | 5393.46 | 4700.00 | 2087.99 |
| 2015-16 | 12675.60 | 5123.09 | 5234.00 |
| 2016-17 | 28500.00 | 6902.74 | 6902.74 |
| 2017-18 | 29700.00 | 8703.00 | - |

Source: Parliamentary Standing Committee on Renewable Energy (2016)

It has been argued that most of these problems are due to the lack of vision, clear strategy and targets. Also, there is very little transparency in the functioning of NCEF with very little information about it in the public domain. The reports with these criticisms have argued for a more transparent functioning of the NCEF. A study done by the Centre for Budget and Governance Accountability (CBGA, 2012) has argued that the NCEF project appraisal process is full of inconsistencies. There is a lack of proper appraisal and monitoring framework under the NCEF. Also, there are no clear guidelines for the fund disbursement. In the year 2013-14 the Finance Minister in his budget speech, decided to provide Indian Renewable Energy Development Agency (IREDA) with low interest funds from NCEF to be lent to renewable projects in the country in an attempt to operationalize the NCEF. In 2014, the Government of India renamed the NCEF as the National Clean Energy and Environment Fund (NCEEEF) and expanded the scope of the NCEF to include financing and promoting clean environment initiatives and funding research in the area of clean environment to promote fund utilization. This has been seen by many as dilution of the mandate of the NCEF as an exclusive fund for clean energy initiatives. Now many schemes, not directly related to clean energy, are being financed by the NCEEF such as production of

nuclear power under the Department of Atomic Energy, urban development projects under the Smart City Mission, solid waste management and “projects undertaken in pursuance of the National River Conservation and the National Lake Conservation programme. The budget 2017-18 saw Climate Change Action Plan, National Adaptation Fund, National Mission on Himalayan Studies, National Mission for Green India, Integrated Development of Wildlife Habitats, Conservation of Natural Resources and Ecosystems being financed by the NCEEF.

Moreover, there are also many problems in the way of getting project funding from the NCEF. While NGOs, private agencies and individuals can approach the NCEF for funding, they can do it only when they have arranged for 40 percent of the project funding independently. To make the problems worse, the National Clean Energy Fund’s 2011 guidelines disqualify projects that seek part-funding by a private sponsor, national and international bodies, and even other arms of the government. Eventually, project funding if granted covers on 40 percent of the project funding. The reason for this arbitrary cap is not given. But these guidelines are not always followed and flouted very often (Panda and Jena, 2012). Organizations, think-tanks and even private agencies have all spoken out about how the National Clean Energy Fund needs an overhaul, both in terms of management and intent (KPMG, 2014).

Now, the cess, it has been decided, will feed the GST Compensation Fund, a fund meant to compensate various state governments for any loss in revenue arising out of the goods and services tax – giving funding of climate change combat a go-by. If the cess collections are to go into the GST Compensation Fund, where will the NCEF get its resources from is a question all climate concerned individuals need to grapple with.

Table 2 : Projects funded by the NCEF

| Financial Year | No. of Projects | Amount Approved (Rs. crore) |
|----------------|-----------------|-----------------------------|
| 2011- 12 | 9 | 566.50 |
| 2012- 13 | 6 | 2715.11 |
| 2013- 14 | 12 | 1229.65 |
| 2014 -15 | 19 | 12,000.17 |
| Total | 46 | 16,511.43 |

Source: Gol (2014)

(2) National Adaptation Fund (NAF): Government established a National Adaptation Fund in 2015 with the budget allocation of Rs. 350 crore for the year 2015-16 and 2016-17 (PIB, 2015). The primary aim of the fund is to assist states and union territories vulnerable to the impacts of climate change to meet the costs of adaptation. National Bank for Agriculture and Rural Development (NABARD) has been made the National Implementing Entity for the Fund. The objectives of the National Adaptation Fund include, funding concrete adaptation projects/programmes, which are aligned with the relevant Missions under the NAPCC and SAPCC. These could be in the sectors such as agriculture, horticulture, agroforestry, disaster management, and other sectors impacted by climate change. It would also seek to support preparation and updation of climate scenarios, vulnerability and climate impact assessment. Fund would also assist capacity building of various stakeholders on climate adaptation, and also knowledge management. Till date, 12 projects have been sanctioned worth Rs. 235 crore and 4 projects have been approved for development (Rs. 84.89 crore). In the Union Budget of 2014-15, Rs. 100 crore were allocated towards the National Adaptation Fund.

(3) Compensatory Afforestation Fund (CAMPA): Under the India Forest Conservation Act of 1980, the state government is liable to receive compensation for the forest land diverted towards non forest purposes in the state. The compensation is to be given by the agency diverting the forest land to the state government on twice the amount of land diverted. Also, this can be done only after receiving permission from the Central Government. Consistent failure to follow this Act led the Supreme Court to create a Compensatory Afforestation Fund to be managed by Compensatory Afforestation Management and Planning Authority (OCM, 2015). In 2008, the Central Government formulated the Compensatory Afforestation Fund Bill, 2008. The Bill was passed by the Lok Sabha on 23rd December, 2008. However, the Bill could not be taken up for discussion in Rajya Sabha and on dissolution of the 14th Lok Sabha, the Bill lapsed. Following this, an adhoc national CAMPA fund was established and by 2012 this was able to build a corpus of Rs. 25,000 crore.

The fund lay largely unused, however, due to the differences between the Central and the state governments over how the funds should be used. This compelled the Supreme Court to intervene again. The Supreme Court instructed the Central Government to release Rs. 1000 crore every year for five years proportionate to their contribution. The states were also asked to establish state CAMPA authorities to undertake proper management of the funds received. The Compensatory Afforestation Bill, 2016 was finally passed by both the houses in 2016.

The Act primarily aims to help state governments in conservation, protection, and expansion of the forest resources. It encourages more efficient and transparent usage of resources by the states. The Act will provide for the transfer of 90 percent of the accumulated funds, now Rs. 20,000 crore, to states. The remaining 10 percent will be retained at the national level for monitoring and evaluation purposes. On the comparison of available amount with adhoc CA fund till March 2016 with the amount released to various States till financial years 2016-17, it was found that around 26 percent of available amount is released to states. The higher level of underutilization defeats the purpose of CAMPA fund creation and therefore need to be monitored.

Table 3: Position of adhoc-CAMPA fund till March 2016 (Rs. crore)

| Total amount available in adhoc CAMPA as on 31.03.2016 | | | Distribution between the Centre and the States as per act | | Total amount released to States | Percent releases of total amount to States |
|--|----------|---------|---|---------|---------------------------------|--|
| Principal | Interest | Total | Centre | State | | |
| 29139.6 | 11000.0 | 40139.6 | 4014.0 | 36125.6 | 9565.0 | 26.48 |

Source: MOEFCC portal on CA fund and PIB release of MOEF& CC

India has laid huge emphasis on its forests playing a major role as carbon sinks as part of the mitigation measures mentioned in its climate action plan. Government's long-term plan is to bring 33% of area under forests and tree. As per India's INDC submitted under Paris agreement, India is expecting to create additional carbon sinks of 2.5 to 3 billion tonnes of CO₂ equivalent. Compensatory afforestation can be huge financial resource for the state government for accelerating the afforestation activity and in a way supporting India's INDCs and NAPCC.

Supreme court ruling on CAMPA fund regarding effective monitoring of it, reiterated the importance of transparent accounting system on the utilization of national climate funds and monitoring of the

physical achievement such as, increases in forest cover or capacity addition of clean energy etc. over the years due to domestic funds. The ruling made sure that certain portion of the fund is allocated for monitoring and evaluation of the fund functioning. This practice can be helpful in climate finance monitoring and can be encouraged in the governance of other funds as well, especially in NCEEF.

(4) National Disaster Response Fund (NDRF) is defined in Section 46 of the Disaster Management Act, 2005 (DM Act) as a fund managed by the Central Government for meeting the expenses for emergency response, relief and rehabilitation due to a disaster. NDRF is constituted to supplement the funds of the State Disaster Response Funds (SDRF) of the states to facilitate immediate relief in case of severe calamities. The financial assistance from SDRF/NDRF is for providing immediate relief and not compensation for loss/damage to properties /crops. In other words, NDRF amount can be spent only towards meeting the expenses for emergency response, relief and rehabilitation.

The NDRF is financed through the levy of a cess on certain items, chargeable to excise and customs duty, and approved annually through the Finance Bill. The requirement for funds beyond what is available under the NDRF is met through general budgetary resources. Currently, a National Calamity Contingency Duty (NCCD) is levied to finance the NDRF and additional budgetary support is provided as and when necessary. A provision also exists in the DM Act to encourage any person or institution to make a contribution to the NDRF. However, this source has not yet been tapped.

The financing of the NDRF has so far been almost wholly through the levy of cess on selected items, but if the cesses are discontinued or when they are subsumed under the Goods and Services Tax (GST) in future, FFC recommended that the Union Government should consider ensuring an assured source of funding for the NDRF. It was decided that even though all other cesses would be subsumed in the GST, the Centre would continue to levy Clean Environment Cess on coal, peat and lignite. The Centre had also proposed to continue collection of the National Calamity Contingency Duty, presently collected as a cess, for the purpose of funding the National Disaster Relief Fund. These decisions are still to be confirmed.

B. Domestic Public Climate Finance - Budgetary Support at the National level

(1) Budgetary Support for NAPCC “missions”

The Government of India supports a number adaption and mitigation actions through the national missions under the NAPCC. The funding for the National Missions is routed through the Union Budget in form of sectoral funding for the ministries and departments, which are the executing agencies of these missions. It has happened on a number of occasions that funds have been inadequate and the missions had to be accommodated within the existing government programs and schemes with vastly scaled down budgets. The budget for the National Mission for Sustainable Habitat was met through the budget of Jawaharlal Nehru National Urban Renewal Mission (JNNURM). Similarly, the National Mission for Sustainable Agriculture was short of funds and some of its elements had to be supported by the budget of the existing schemes and programmes of the Agriculture and Cooperation departments. Some of the missions also try to mobilize private investment towards their mission objectives with some initial investments made by the government. The National Mission on Solar Energy and National Mission on Enhanced Energy Efficiency are two missions that have shown enormous potential in this regard.



| National Missions | Amount Allocated and Key Achievements |
|---|--|
| <p>National Solar Mission. This mission is under the purview of Ministry of New and Renewable Energy.</p> | <p>The budgetary allocation for the 12th five-year plan (2012-2017) is Rs. 8,795 crore Key achievements: Installed 2,970 MW of grid-connected solar generation capacity; Installed 364 MW of off-grid solar generation capacity; Installed 8.42 million sq. meters of solar thermal collectors.</p> |
| <p>National Mission for Enhanced Energy Efficiency. This Mission is under the purview of Ministry of Power.</p> | <p>The total funding requirement assessed for the 12th five-year plan period (2012-2017) is Rs. 190 crore. Key achievements to date:</p> <ul style="list-style-type: none">• Perform Achieve and Trade (PAT cycle I) has achieved an energy saving of 8.67 mtoe against the targeted energy saving of 6.68 mtoe which is about 30 percent over achievement and is equivalent to monetary savings of approximately Rs. 9500 crore at end year 2016. At the end of 2nd PAT Cycle by 2019, the national target is set at 8.869 mtoe.• Distributed 7 crores LED bulbs under <i>UJALA</i> scheme initiative by Energy Efficiency Services Limited (EESL) at the end of March 2017; cost of an LED bulb reduced from Rs. 500 to Rs. 204.• Super-efficient ceiling fans to be introduced in the market by 2015. |
| <p>National Mission on Sustainable Habitat. This Mission is under the purview of Ministry of Urban Development and Ministry of Housing and Urban Poverty Alleviation.</p> | <p>The total funding requirement assessed for the 12th five year plan period (2012-2017) is Rs. 950 crore, which is to be met from existing budget of the Jawaharlal Nehru National Urban Renewable Mission (JNNURM).</p> <p>Key achievements to date: Energy Conservation Building Code 2007 made mandatory for new as well as old buildings; incorporated in Central Public Works Department (CPWD) General Specification for Electrical Works in 2013; Long term transport plan for cities prepared; Sanctioned 760 water supply projects at an estimated cost of Rs. 35,650 crore under ongoing programmes such as JNNURM.</p> |
| <p>National Water Mission. This mission is under the purview of Ministry of Water Resources, River Development and Ganga Rejuvenation.</p> | <p>The mission requires budgetary support of Rs. 89,101 crore during the 11th (2007-2012) and 12th (2012-2017) five year plan periods. Proposals for Rs. 196 crore have been approved.</p> <p>Key achievements to date: Revised National Water</p> |

| | |
|--|--|
| | <p>Policy (2012) adopted by National Water Resources Council; Created 1,082 new Ground Water Monitoring Wells; Several capacity building and training programmes are underway.</p> |
| <p>National Mission for Sustaining the Himalayan Ecosystem. This mission is under the purview of Ministry of Science and Technology.</p> | <p>The total funding requirement for 2010 to 2017 is Rs.1,695 crore. Proposals for Rs. 500 crore have been approved.</p> <p>Key achievements to date: Established 6 new centers relevant to climate change in existing institutions in Himalayan states; Created an observational network to monitor the health of the Himalayan ecosystem; Several capacity building and training programmes underway.</p> |
| <p>Green India Mission. This mission is under the purview of Ministry of Environment and Forests.</p> | <p>The total mission cost is estimated to be Rs. 46,000 crore. Funding of Rs. 13,000 crore has been approved for implementation of various activities under the mission.</p> <p>Key achievements to date: Preparatory activities underway in 27 Indian states; 11 Indian states have submitted perspective plans that cover 33 landscapes and working area of 85,000 hectares; Finalized implementation guidelines after extensive consultations with state governments and civil society.</p> |
| <p>National Mission for Sustainable Agriculture. This mission is under the purview Ministry of Agriculture.</p> | <p>The mission requires budgetary support of Rs.1,08,000 crore up to the end of 12th five-year plan period (2011-2017). Proposals for Rs.13,034 crore have been approved.</p> <p>Key achievements to date Developed 11,000 hectares of degraded land; 1 million hectares brought under micro irrigation to promote water efficiency; Created 5.4 million metric tonne agricultural storage capacity.</p> |
| <p>National Mission on Strategic Knowledge on Climate Change. This Mission is under the purview of MOEF & CC with technical inputs coordination from Ministry of Earth Science and Ministry of Science and Technology.</p> | <p>The total funding requirement for the 12th five-year plan period (2012-2017) is Rs. 2,500 crore. The allocations to undertake these mission activities will be met out of the budget allocation of the existing scheme of the Department of Science and Technology, Government of India.</p> <p>Key achievements to date: Established 12 thematic knowledge networks; Developed 3 regional climate models; Trained 75 high quality climate change professionals.</p> |

Jawaharlal Nehru National Solar Mission (JNNSM): The Union Cabinet headed by the Prime Minister in 2015 approved stepping up of India's solar power capacity target under the JNNSM to 1,00,000 MW by 2022.

The total investment to meet this ambitious target will be around Rs. 6,00,000 crore. The budgetary allocation for the mission under the 12th five year plan (2012-2017) is Rs. 8,795 crore (IFMR, 2015a). Further investment is understood to come from large Public-Sector Undertakings and Independent Power Producers (IPPs). The financial requirements to reach 100 GW are mammoth and the Indian government will have to think beyond fiscal allocations if it wants to take the concern for clean energy seriously. The Government of India is also approaching bilateral and international donors and also the Green Climate Fund for achieving this target.

National Mission for Enhanced Energy Efficiency (NMEEE): The National Mission for Enhanced Energy Efficiency (NMEEE) was approved by the Union Cabinet in June 2010. It falls under the purview of the Bureau of Energy Efficiency (BEE), which by the Energy Conservation Act of 2001 has been empowered to put in place policy regulatory framework for improving energy efficiency in energy intensive industries. The mission seeks to improve overall energy efficiency using various approaches such as putting in place enabling policies and regulations and fostering sustainable business models. The Mission, developed by the Ministry of Power (MoP) and the BEE, spells out four initiatives to enhance Energy Efficiency (EE). These include: (1) Perform, Achieve & Trade (PAT), a market based mechanism to enhance cost effectiveness of improvements in EE in large, energy intensive industries. This is done by certifying voluntarily tradable energy savings. Phase I of the PAT (2011/12 to 2014/15) has been able to accomplish an emission reduction of 31 million tonnes of carbon and encouraged an investment of Rs. 24,517 crore (IFMR, 2015b). (2) Market Transformation for Energy Efficiency (MTEE) includes innovative measures to accelerate the shift to energy efficient appliances in designated sectors, by making them more affordable. To leverage international funds for promoting energy efficiency through MTEE, it was decided that projects will be designed and prepared to utilise bi-lateral and multi-lateral funds already in existence. The natural choice for this was the Clean Development Mechanism (CDM) that promotes adoption of such energy efficient instruments. Two initiatives have been envisaged under the Mission, viz., (3) the Energy Efficiency Financing Platform (EEFP) and (4) the Framework for Energy Efficiency Economic Development (FEEED). Both initiatives seek to address risks and barriers faced/perceived by FIs and build their capacity to finance EE projects on a commercially sustainable basis.

The National Mission on Sustainable Habitat (NMSH) seeks to build resilience of urban infrastructure to climate change. The Mission document (National Mission on Sustainable Habitat, 2010) was prepared by the Ministry of Urban Development (MoUD) and received Cabinet approval in 2010. The NMSH was announced with a small budget of Rs. 950 crore for the Twelfth Plan Period, in comparison to the total outlay proposed by the Mission, which was around Rs. 54,200 crore (IFMR, 2015c). The Mission was initially planned to be funded through an exclusive allocation. However, budget estimates underwent substantial cuts due to identification of JNNURM schemes that could subsume NMSH activities. Accordingly, it was decided in early 2014 that no separate fund allocation would be made under the Mission. This strategy was revised in December 2014, wherein the MoUD has stated that a fresh scheme under the NMSH would be launched. With the scrapping of JNNURM, the mission objectives are now served with restructured schemes of GoI such as Smart City Mission, HARIDAY etc.

The National Water Mission (NWM) has been envisaged with the core objective of “conservation of

water, minimizing wastage and ensuring its more equitable distribution both across and within States through integrated water resources development and management” (Mission Document for National Water Mission, 2011). The NWM has received an approval from the Ministry of Finance (MoF) for Rs. 196 crore for the Twelfth Plan Period, as against the Planning Commission allocation of Rs. 1,390 crore. A Plan outlay of Rs. 40 crore has been earmarked for the year 2014-15 under this scheme. A separate budget of Rs. 100 crore has also been allocated for Human Resource Development (HRD) and Capacity Building for the NWM (IFMR, 2015d). Some activities under the Mission, with linkages to some of the schemes in states will also receive funding from the state budgets.

The Green India Mission (GIM) was launched in June 2010. The Mission (The National Mission for a Green India, 2010) proposes adoption of scientific and inclusive methods for implementing afforestation programmes. As in the case with other Missions, the GIM too had envisaged a massive investment of Rs. 46,000 crore to complete its proposed activities. The budget for the first phase of the Mission has been approved for Rs. 13,000 crore for activities whose implementation is to span over the 12 and 13 Five Year Plans (IFMR, 2015e). The Ministry plans to acquire this funding through the following sources:

Table 4 : Sources of Funds for Green India Mission

| Sources of Funds | Amount (Rs. crore) |
|---|--------------------|
| Ministry of Environment, Forests and Climate Change | 2000 |
| Compensatory Afforestation Fund Management and Planning Authority | 6000 |
| Mahatma Gandhi National Rural Employment Generation Scheme | 4000 |
| Finance Commission Grants | 600 |
| National Afforestation Programme | 400 |

Source: Gol (2014)

Till 2013-14, an amount of approximately Rs. 63 crore was released to the States to prepare their plans for implementing the mission. For the year 2014-15, Rs. 80 crore was initially approved for funding Perspective Plans submitted by 11 States. This was later downsized to Rs. 3 crore. It is also perceived that several ongoing schemes under the MoEF&CC could potentially be used as a financing route for implementing the Mission activities. Hence, no alternate financing channel is expected in this regard. A perusal of the 2017- 18 demand for grants reveals that the Green India Mission is to be now funded by the NCEF. The Schemes under the mission also will also have an EAP component of Rs. 5 crore of the World Bank Funded Ecosystem service improvement project. (Gol, 2017)

The **National Mission for Sustainable Agriculture (NMSA)** seeks to make agriculture sector more resilient to climate change risks by devising appropriate adaptation and mitigation strategies in the sector. The NMSA was approved in September 2010. The Department of Agriculture & Cooperation (DAC) is the designated nodal agency for this Mission. The initial Mission document estimated the overall cost for implementing the activities to be Rs. 1,08,000 crore (IFMR, 2015f). After restructuring the DAC programmes in 2014, the estimated cost for implementing the revised set of interventions under the Mission had been projected at Rs. 12,564 crore. Subsequently, the Mission is stated to have been approved for Rs. 13,054 crore. There are sixteen deliverables in the programme and the funds are available for four among them. A fund crunch led some of the goals of this mission to be embedded into

the existing programmes of agriculture and cooperation department. The Mission was dovetailed with five major existing programmes including National Mission on Food Security and National Horticulture Mission, which have been restructured to meet climate change goals.

The **National Mission on Strategic Knowledge for Climate Change (NMSKCC)** seeks to build a robust knowledge system that informs and supports national policy and action on climate change, while not compromising on the nation's growth. The Mission was approved in July 2010 and was envisaged for providing strategic knowledge support to the other seven Missions under the NAPCC. Financing for the NMSKCC is envisaged from (1) ongoing activities of various knowledge institutions supported through internal resources of the Ministry/Department. Various arms of the government have already earmarked large resources for climate change related actions leading to development of strategic knowledge; (2) the Mission shall support research and analysis in areas associated with technology related activities in the R&D sector. While the Mission has proposed most activities to be completed by 2010-11, budgetary allocations have been continued till the end of the Twelfth Five Year Plan period. It is proposed that Rs. 150 crore will be required for the implementation of the Mission for the remainder of the eleven Plan Period. An additional special provision has been made for Rs. 150 crore within the allocated fund of Rs. 11,028 crore for the DoST for the Twelfth Plan Period. Special allocations of Rs. 2,500 crore are planned to build capacity for various Missions/Sub-Missions (IFRM, 2015g).

The **National Mission for Sustaining the Himalayan Ecosystem (NMSHE)** was launched in June 2010 and received approval from the Union Government in February 2014. It was initiated to address the high degree of vulnerability of local communities living in the Himalayan region to climate change impacts. The Mission outlines a set of targets that are to be achieved by the end of the Twelfth Plan period through Sub-Missions and indicates associated cost figures for the same. Of the Mission's estimated cost of Rs. 1,500 crore for the Twelfth Plan Period, a budget of Rs. 550 crore was approved in February 2014 (IFMR, 2015h). The Department of Science & Technology (DoST) is the nodal agency for this Mission. In the latest demands for grants, this mission will now be funded by the NCEF (Gol, 2017).

(2) Budget Support for low carbon strategies and adaptation interventions through the Union Budget: 2014-2017- National Level (Climate Budget Analysis for years 2014-2017 drawn from CBGA budget analysis for corresponding years)

The government also makes allocations towards other low carbon strategies and environmental policies pursued by the various line ministries through the budget. These are climate interventions, which do not fall under the purview of the National Missions. These include the budgetary outlays towards ministries such Ministry of New and Renewable Energy (MoNRE), Ministry of Environment, Forests and Climate Change (MoFCC), and Ministry of Agriculture (MoA) for their various interventions, schemes and policies, which have direct relevance for climate objectives but are not covered under the Missions.

The MoNRE has emerged as an important player not only in meeting India's energy needs but also in achieving sustainable development goals. It is the nodal agency for all matters relating to new and renewable energy sources. The government has scaled the target of Renewable Energy power capacity to 175 GW and has the largest Renewable Energy capacity expansion programme. To achieve the target, the Ministry has formulated a range of policies and schemes and has been supporting the sector through fiscal and financial support. Allocations towards this ministry constitute an important part of climate finance provided by the government. Under the MoNRE, allocations are made towards Grid

Interactive and Distributed Renewable Power, Renewable Energy for Rural Applications, Renewable Energy for Commercial and Urban Applications, Research, Design and Development in Renewable Energy, and Investments in Public Enterprises including provision of equity support to IREDA, which has been set up to promote new and renewable energy projects. The Central Government supports all the schemes under the MoNRE. There is no transfer of schemes to the state governments.

Budgetary allocation towards MoEFCC is another important component of climate finance provided by the government through the budgets. The important heads for which allocations are made include, amongst others, National Coastal Zone Management Programme, National Coastal Mission, Climate Change Action Plan (Funded by NCEF), National Adaptation Fund (Funded by NCEF), National Mission on Himalayan Studies (Funded by NCEF), Statutory bodies such as Central Pollution Control Board and National Biodiversity Authority, Green India Mission (Funded by NCEF), Integrated Development of Wildlife Habitats (Funded by NCEF) and National River Conservation Programme (partially funded by NCEF).

Ministry of Health and Family Welfare (MoHFW), Ministry of Drinking Water and Sanitation (MoDWS), Ministry of Rural Department (MoRd) and Ministry of Housing and Urban Affairs (MoHUA) are also some of the other important ministries allocations towards which must be looked at. A substantial portion of budgetary outlays towards these ministries facilitate climate adaptation and helps make development more climate resilient. This is not to say that all financial allocation towards these ministries is climate relevant but a lot of it is. Infact, India's claims of spending approximately 2.6 percent of its budget on climate adaptation does include a lot of this spending, which might not immediately be climate related but goes a long way in helping people adapt to the negative impacts of climate change.

When we assess the public climate finance available in the country, we need to take account of budgetary allocations towards all these ministries and also the changing fate of these outlays through the various budgets. This will give us an idea of the quantum of resources available for climate action in India and also the priorities of the government. We will now take a look at the budgetary allocations made towards climate relevant sectors, policies and schemes in the Union budget from 2014-17. The description is not exhaustive and is only meant to be indicative of the variety of heads (schemes and programs) under which climate allocations are made, the volume of finances flowing to them and the changes in these allocations over the last four years.

Union Budget 2014-15

Mitigation: Proposed an increased allocation for the renewable energy sector. It proposed an increase of 46 percent in allocation of MoNRE in comparison to Interim Budget 2014-15. The Budget also proposed Rs. 500 crore for ultra-mega solar power projects in Tamil Nadu, Ladakh, Rajasthan and Gujarat; new schemes on solar pump and solar parks with an allocation of Rs. 400 and Rs. 500 crore respectively; an initial sum of Rs. 100 crore for a new project aimed at promoting cleaner and more efficient thermal energy called "Ultra-Modern Super Critical Thermal Power Technology, and Rs. 1 crore for the Green Energy Corridor. The coal cess that funds the NCEF corpus was increased from Rs. 50 to Rs. 100 in this budget.

Adaptation: The Budget also created a 100-crore National Adaptation Fund (NAF). It has been argued that in a country where the economy is inextricably tied to climate-sensitive resources at several levels, Rs. 100 crore as a national adaptation budget is just notional. This needs to be scaled up and



rationalized with external funds for adaptation, provided under the UNFCCC and through bilateral and multilateral aid.

The developmental budgets in agriculture, rural development and health saw marginal increases in Union Budget 2014-15. The allocations for MGNREGA - the flagship livelihood scheme stagnated around Rs. 34000 crore. With the apprehension of bad monsoon and drought conditions impacting people's livelihood, the allocation was rather inadequate. Increasing allocation towards a livelihood scheme is not only good for providing a safety net for people, whose livelihoods get affected by the negative impacts of climate change (this is important in case of India as majority of people depend on climate sensitive sectors for their livelihood), but also because this scheme can help village communities undertake bunding and damming, which can help build climate resilience of village communities.

The budget also saw the creation of long term credit fund with National Bank for Agriculture and Rural Development (NABARD) with an initial corpus of Rs. 5000 crore. Several schemes such as *Rashtriya Krishi Vikas Yojana*, National Food Security Mission, Integrated Watershed Management Programme, Accelerated Irrigation Benefit and Floor Management Programme, Integrated Scheme for Farmer's Income Security and *Prime Minister Krishi Sinchayee Yojana* have potential for climate adaptation in agriculture and the allocation towards these in the budget must also be looked at.

Union Budget 2015-16

In 2015, in order to promote clean energy sources in electricity generation, the Government announced a massive renewable energy production target of 175 Gigawatt (GW) by 2022. The revised total target includes 100GW from solar power, 60 GW from wind energy, 10 GW from biomass energy and 5 GW from small hydro power projects.

Mitigation: The budget allocations in the Union Budget 2015-16, however, were not adequate to meet the objectives set out. The budgetary allocations towards the MoNRE amounted only to 1/10 of the total budgetary allocations. This was a continuation of the trend that began in 2007-08, in the post NAPCC period. The budget also saw a decrease in Gross Budgetary Support (GBS) for MoNRE, which came down from Rs. 541 crore (2014-15) to Rs. 288 crore in the budget of 2015-16. There was an additional grants in aid announced for the MoNRE of Rs. 503 crore to be met through the NCEF. Supplementary grants were also given to meet other schemes under the MoNRE and while these grants made the budget 2015-16 comparable to the previous budget, it was still inadequate to meet the expanded demand.

The clean energy cess was raised from Rs. 100 to Rs. 200 per metric tonne of coal. Apart from the MoNRE allocations, around Rs. 750 crore was earmarked for the ecology and environment which included Rs. 100 crore for a National Coastal Management Programme, Rs. 76.10 crore for environmental monitoring and governance and around Rs. 150 crore for the National Afforestation Programme. The Prime Minister's ambitious smart cities plan did not find a mention in the budget, but was allocated Rs. 6082 crore in 2015-16 budget and Rs. 7060 crore in the previous budget.

Adaptation: The budgetary allocation towards MoEFCC was Rs. 1680 crore. This figure needs to be viewed in the context of fiscal devolution. State governments were now to have an increased capacity to spend on core activities such as forest conservation, regeneration and protection activities as Finance Commission recommended that 42 percent of the central divisible revenue pool were to be given to the



states. Adaptation was supported by increasing allocation towards Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) to Rs. 34, 699 crore.

The budget saw the announcement of *Krishi Unnati Yojana*, which subsumed most mission programmes on agriculture and also the *Rashtriya Krishi Vikas Yojana* (RKVY). The *Pradhan Mantri Krishi Vikas Yojana* is the other umbrella programme covering the irrigation and watershed programmes. The RKVY, which had significant allocations in the eleventh and twelfth plan, received inadequate allocations in the budget of 2015 -16 (BE). Allocations towards PMKSY was reduced by Rs. 730 crore from the allocation made in the Union Budget 2015-16. The budget also saw the expansion of farm credit to Rs. 34,699 crore and allocation of Rs. 5300 crore for micro irrigation, which would help the farmers adapt to uncertainties created by climate impacts. The budgetary allocations towards MGNREGA, micro irrigation or farm credit might not immediately appear to be climate related investments but if one carefully looks at the implications of climate change for agriculture (which is the mainstay of large sections of the Indian population), it becomes obvious that these measures that reduce the dependence of agriculture to the vagaries of nature can really be considered climate adaptation measures. Allocations towards food subsidy and health can also be seen in the same light.

Union Budget 2016- 17

Mitigation: The Budget saw a significant increase in gross budgetary support (GBS) for MoNRE in 2016-17 BE of Rs. 5,000 crore as compared to 2015-16 (RE) of Rs. 247 crore. There is a visible increase in allocation for the scheme of Off Grid / Distributed and Decentralized Renewable Power with allocation of Rs. 983 crore in 2016-17 (BE) as against Rs. 97 crore in 2015-16 (RE). The Union Budget 2016-17 also renamed the 'Clean Energy Cess' levied on coal, lignite and peat as 'Clean Environment Cess' and increased its rate from Rs. 200 per tonne to Rs. 400 per tonne. The cess contributes to the NCEF corpus. However, no announcements were made to accelerate the utilization of the collected Clean Energy Cess.

The Government allocated Rs. 8500 crore for *Deendayal Upadhyaya Gram Jyoti Yojana* and Integrated Power Development Schemes. This reflects government's commitment to rural electrification. Rs. 2,000 crore were also allocated for an LPG connection scheme to poor households as a measure to reduce the drudgery of cooking and for providing a clean and healthy environment to women. An allocation of Rs. 3000 crore was made for nuclear power as a clean energy source. An allocation of Rs. 2000 crore was made for providing LPG connections to poor households as a measure to reduce drudgery of cooking and providing a clean and healthy environment.

Adaptation: The Budget allocations to the Ministry of Environment, Forests and Climate Change (MoEFCC) continued to rise, from Rs. 1,681.60 crore in previous year's budget to Rs. 2,250.34 crore in 2016-17. Funds allotted specifically for climate change mitigation, under the NAPCC, also saw an increase. The budgetary estimate of about Rs. 180 crore for climate change action was split among the Climate Change Action Programme (CCAP) (Rs. 30 crore), the National Mission on Himalayan Studies (Rs. 50 crore) and the National Adaptation Fund (Rs. 100 crore). Departments of Agriculture, Cooperation and Farmer's Welfare; Urban Development, Rural Development and Ministries of Drinking Water and Sanitation; Housing and Urban Poverty Alleviation; Road were among the major gainers in social sectors and related sectors. Since most of these sectors are impacted by climate change in one way or the other, an increase in allocation towards these is a welcome step.

An additional allocation of Rs. 500 crore for the production of pulses was made under the National Food Security Mission. An allocation of Rs. 5500 crore was made under the PMFBY in 2016-17, an upward revision from Rs. 2955 crore in 2015-16 (RE). A proposal of levying a *Krishi Kalyan Cess* at 0.5 percent on all taxable services, which would be used for financing interventions aimed at improvement of agriculture and welfare of the farmers.

Union Budget 2017-18

A significant fact for the budget of 2017-18 was that India rolled out its INDCs. INDCs represent India's contribution to global effort to curb climate change. The Economic Survey estimate stated that India's INDCs would require approximately US \$ 2.6 trillion between 2000 and 2030 to implement the INDCs. The budgetary allocations, however, did not reflect Indian government's movement towards implementing INDCs.

Mitigation: The allocations towards nodal ministries such as MoNRE and MoEFCC did not see any significant increase. The government did not announce any new financial scheme for funding climate action. The allocation for MoNRE, which had increased to an all-time high in 2016-17 (RE) with an allocation of Rs. 12,301 crore, declined in 2017-18 (BE) to Rs. 8,244 crore, a decrease of almost 33 percent. The budget also saw an allocation of Rs. 4814 crore for the *Deendayal Upadhyay Gram Jyoti Yojana* for rural electrification.

For the entire plan period of the twelfth Plan, the GBS for the MoNRE is Rs. 19113 crore. The amount actually allocated is Rs. 13961 crore. So approximately Rs. 5,151 crore will be left unutilized. Keeping the significance of the sector, an underutilization of approximately 54 percent of GBS is a matter of concern. The Lok Sabha Standing Committee on Energy noted that the Ministry must make maximum efforts for utilization of allocated funds so that the stipulated targets are met. Further, necessary steps must be taken to address the reasons for non-utilization of funds. The Committee also noted that during the last three years of the twelfth plan period, the plan outlay for the Ministry was enhanced at the Revised Estimates (RE) stage. This is indicative of the government's commitment towards renewable energy goals. This can also be seen through government's efforts to mobilize supplementary demand for grants at the RE stage.

Importantly, it was noted that the amount requested by the Ministry in the year 2017-18 was Rs. 5538.69 crore as the plan outlay. Against this, an allocation of Rs. 5472 crore has been made including Rs. 5341 crore as support for NCEF. Also, there is an increase of about 25 percent in the budgetary support for the year 2017-18. This according to the committee is inadequate given that more funds would be required in future to meet the ambitious renewable energy goals. The BE for the year 2017-18 [including the Internal and Extra Budgetary Resources (IEBR)] is less than the RE for the previous year by a significant margin of Rs. 3023 crore. In the event of GST, there is uncertainty over the continuance of NCEF and there is need for additional allocations for the MoNRE. It is important that additional GBS must be provided to the Ministry and the Ministry must also try to mobilize funds from IEBR, NCEF, other renewable energy development funds and low cost international finance. With the coming of GST, not only does the status of NCEF become uncertain, but also the delivered cost of Renewable Energy is likely to increase. All these factors make it incumbent on the government to mobilize private investment. The Ministry has already begun its efforts in this direction by providing some money as support through the viability gap funding and generation based incentives.

Adaptation: There was an increase of 14 percent in the overall allocation for MoEFCC in 2017-18 (BE)

as compared to 2016-17 (RE). Within the overall budget, however, there was no increase in allocation for climate adaptation interventions. National Adaptation Fund was given an allocation of Rs. 110 crore and Climate Change Action Plan was allocated a sum of Rs. 47 crore. When compared to the revised estimates of the previous budget, there is only a marginal increase in the allocations of these two schemes aimed at adaptation.

In this budget, agriculture sector saw some positive developments. The allocation for *Pradhan Mantri Fasal Bima Yojana* (PMFBY) in 2017-18 (BE) is Rs. 9,000 crore up from Rs. 5,500 crore in 2016-17 (BE). The entire allocation for this purpose would be met from the *Krishi Kalyan* Cess. The Long-Term Irrigation Fund, which was created with NABARD to boost irrigation facilities, received an additional Rs. 20,000 crore in 2017-18 (BE). These would make agriculture more robust and resilient to the negative climate impacts. The budget saw an increase of 25 percent in allocation under MGNREGA pegged at Rs. 48,000 crores in 2017-18 (BE). An increase in allocation towards MGNREGA is welcome step and would greatly facilitate adaptation. The allocation for National Rural Livelihood Mission (NRLM) for promotion of skill development has also been increased to Rs. 4,500 crore in 2017-18. This was an increase of Rs. 1500 crore from the 2016-17 (RE), which was pegged at Rs. 3000 crore.

An analysis of the Union Budget for the past four years is indicative of the priorities of the present government vis a vis climate action. India's ambitious commitment under the INDCs requires massive investments in climate action. The government spending towards climate action and mitigation, despite it being the main source of climate finance, is not inadequate if its own projection of US\$ 38 billion (required for NAPCC) is to be met. The investment in direct adaptation interventions is woefully inadequate for a country highly vulnerable to climate impacts and with huge adaptation needs. While the government has created National Adaptation Fund, the allocations towards it are quite small when we compare them with what is required. Government intervention in this area is critical as private investment in this area is not likely to be forthcoming.

The government had previously argued that it allocates close to 2.6 percent of GDP towards adaptation through its budget. This figure included allocations towards those development schemes that yield some climate benefits as co benefits. In the process, schemes with marginal climate benefits are seen as part of the Indian climate action and the budget for it is counted as a part of climate finance. There is a lot of "green washing", where projection of spending on climate is much more than the actual amount spent. This is largely because climate change adaptation measures are usually part and parcel of broader programmes that promote sustainable development and untangling the funding is difficult.

In an effort to estimate the extent to which a programme addresses Climate Change, Governments both at the state and National level, are now employing various measures to assess 'Climate Change relevance' (or CC%) of various interventions. Broadly, approaches for assessing Climate Change relevance fall into two groups: Some of Governments' assessments of Climate Change relevance have focused on the extent to which Climate Change is part of the explicit or implicit objectives of the programme. An alternative approach has been to apply a climate relevance score (CC%) which is based on an assessment of the proportion of total benefits from the programme that are associated with adaptation and mitigation, as compared with sustainable development.

B. Domestic Public Climate Finance - Budgetary Support at the Subnational Level

Till date 25 States have prepared documents on SAPCC and the National Steering Committee on

SAPCCs (NSC-SAPCC) in the MoEF has recommended the SAPCC of 5 States for funding. For the 13 States that have come up with detailed cost estimates, the combined resource requirement stands at Rs. 3,85,586.60 crore (IFMR, 2013). There are many other states that have come up with a SAPCC, but have failed to provide detailed cost estimates. In cases, where estimates have been provided, they are not very accurate or reliable as they involve future cost estimates. Despite the uncertainty involved, however, it is clear that the requirements are enormous and that mobilizing finance is absolutely essential for realizing sub-national climate change goals. It is extremely important for states to identify various funding sources and start developing strategies to target them based on their needs. States also need to align their actions more closely with the corresponding national missions catering to that sector in order to attract investment.

The sources of funding available to implement the SAPCCs have not yet been identified. Initially, additional funding was promised by the Union Government to implement SAPCC under the twelfth FY. But as the plan developed the funding for states was much reduced. The Twelfth Five Year Plan called on state governments to provide most of the funding through their respective budgets. Thus, it is likely that the state budgets are going to be the main source of funds for the SAPCC.

The states will, however, also receive some funds from the Central Government. After the 14th Finance Commission recommendation, the States will be receiving 42 percent of the divisible revenue pool collected by the Central Government. The devolution of finances is, however, not uniform across states and is decided on the basis of certain social and economic criteria. The extent of forest cover also determines the funding states will receive. This is in some sense recognition of the fact that forests need to be protected and conserved from exploitation.

The other source of major funding will be the MGNREGA budget. The scheme not only provides livelihood security, something seen to be crucial in face of climate aggravated extreme events, but can also help in building climate resilient infrastructure making the village communities more secure in face of climate impacts. Given state SAPCCs largely focus on adaptation, the MGNREGA funding will be an important source of climate finance at the state level.

Also, while there have been fewer opportunities for the states to directly access international finance in the past, the situation is likely to change. Managers of climate action can now apply for funding from international and domestic climate funds. The new climate funds provide opportunities to boost the importance of adaptation and to pilot new adaptation approaches. All states are preparing their first applications to these climate funds. There is also a greater likelihood of private investment in climate action at the state level. This is more likely to be in states, which are well resourced and industrialized. It has been felt that capacity or readiness of states to receive and utilize private finance needs to be built.

Table 5 : Budgetary Requirements of States for Implementing SAPCCs for next 5 years

| S.No. | States | Budget Requirement for 5 years (Rs. crore) |
|-------|-----------------------------|--|
| 1 | Andaman and Nicobar Islands | 440 |
| 2 | Andhra Pradesh | 3,19,471 |
| 3 | Arunachal Pradesh | 11,332 |
| 4 | Assam | Not Available |
| 5 | Bihar | 2142 |
| 6 | Chhattisgarh | 9900 |
| 7 | Delhi | Not Available |
| 8 | Gujarat | 21,059 |
| 9 | Haryana | 56,565 |
| 10 | Himachal Pradesh | 1,560 |
| 11 | Jammu and Kashmir | 67, 394 |
| 12 | Jharkhand | 3,179 |
| 13 | Karnataka | 7120 |
| 14 | Kerala | 2938 |
| 15 | Lakshadweep | Nil |
| 16 | Madhya Pradesh | 4708 |
| 17 | Maharashtra | Not Available |
| 18 | Manipur | 3,917 |
| 19 | Meghalaya | 6298 |
| 20 | Mizoram | 3,675 |
| 21 | Nagaland | 3778 |
| 22 | Odisha | 17,032 |
| 23 | Puducherry | 825 |
| 24 | Punjab | 58,796 |
| 25 | Rajasthan | 262 |
| 26 | Sikkim | 76,095 |
| 27 | Tamil Nadu | 4,02,928 |
| 28 | Tripura | 23,428 |
| 29 | Uttarakhand | 8,833 |
| 30 | West Bengal | 18,271 |
| | Total | 11,31,945 |

Source: Gol (2014)



The task of tracking climate finance flowing through government budgets is fraught with difficulties. The issue is more conceptual than practical. Most spending with climate implications, flowing through the government budget, is not labeled as such. The issue emanates from the fact that development finance and climate finance are viewed as two separate categories of funds. While this distinction is important to avoid the danger of reclassification of development spending as climate spending, it is also true that in most instances, the two are interlinked. Allocations for mitigation and adaptation action yield development benefits, just like development spending yields climate co- benefits. This broad definition brings money flowing to several ministries under the rubric, which then needs to be monitored for efficiency and effectiveness. There is a need for parameters (in form of weights or scores) that define the proportion of total adaptation and mitigation benefits in the larger development spending to undertake systematic monitoring, review and verification.

C. Domestic Public Finance - Other Sources

The government apart from the making budgetary allocations supports climate action through the cuts in subsidies, increase in taxes on petroleum and diesel, market mechanism such as Perform Achieve and Trade (PAT) and Renewable Energy Certificates (RECs) and regulatory regimes such as Renewable Purchase Obligations (RPOs) (Vasudha Foundation, 2014). PAT is a regulatory scheme for reducing specific energy consumption in energy intensive industries with an associated market mechanism to enhance cost-effectiveness through certification of excess energy saving, which can be traded. Industries that qualify to participate in this scheme are called the 'Designated Consumers'. The energy certificates provided under the scheme are equivalent to 1 metric ton of oil. The certificates are meant for facilities, which are not able to meet their renewable energy targets. PAT cycle I had identified 478 facilities and saved 8.67 MTOE from assessed 427 DCs. It was able to achieve CO₂ mitigation of 31 million tonne. PAT Cycle II has identified 621 facilities so far and has a target of 8.869 MTOE. The government plans to widen the scheme and involve more sectors such as railways, electricity distribution and refineries (INDC).

REC is also a market based measure to ensure compliance with the RPOs set by the State Electricity Regulatory Commissions (SERCS). Under the EA Act of 2003, the country SERCs set targets for power companies to purchase certain percentage of their total power from renewable energy sources. The scheme provides for certification of energy purchased from the renewable sources in excess of the limit stipulated by the RPO in form of RECs. Each REC is equivalent to 1 megawatt- hour of energy generated from renewable sources. The RECs are traded at the India's two major power exchanges - Indian Energy Exchange (IEE) and Power Exchange of India Limited (PXIL). The government has also introduced Feed-in Tariffs (FIT) to accelerate investment in renewable energy technologies. In India, feed in tariffs are set by the SERCs for various renewable sources of electricity generation. FITs usually use long term agreements and pricing tied to costs of production for renewable energy producers. By offering long term contracts and guaranteed pricing, producers are sheltered from certain inherent risks. FITs are supported through budgetary allocations.

The Government has also increased the authorized capital of Indian Renewable Energy Development Agency and extended new lines of credit to enable it to enhance its concessional loan to renewable energy projects; included Renewable Energy Projects in Priority Sector Lending of Banks; and approved the issuance of tax free infrastructure bonds for renewable energy projects. The MoNRE has approved the sale of tax free-bonds worth Rs. 5,000 crore to support the government's solar mission. Of this, the Indian Renewable Energy Development Agency (IREDA) is likely to raise Rs. 2000 crore through an issue of tax-free bonds. IREDA is a government supported NBFC that leads the debt financing of renewable energy projects in the country. IREDA was established in 1987 as a Public Limited



Government Company engaged in promoting, developing and extending financial assistance for setting up projects relating to new and renewable sources of energy and energy efficiency/conservation. The minimum loan amount that it provides is Rs. 5 million. The quantum of loan from IREDA is normally upto 70 percent of the total project cost. In some instances, bilateral agencies route their loans to India RE sector through IREDA. The Japan International Cooperation Agency (JICA) for instance, has been providing concessional loans and expertise through IREDA to help India develop its renewable energy sector. Since its entry into this space, JICA has been the biggest supplier of ODA to IREDA and instrumental in IREDA's growth. Other NBFIs include Power Finance Corporation and Power Trading Corporation.

To attract private investment in renewable energy sector, Government is providing incentives in the forms of generation based incentives/subsidies, viability gap funding from NCEF, fiscal incentives such as accelerated depreciation, concessional customs duty, excise duty exemptions, income tax holiday for 10 years and preferential tariff for renewable energy power projects. The MoNRE has already introduced Generation Based Incentive (GBI) scheme separately for wind and solar energy. Under the scheme for wind power, a GBI at the rate of Rs. 0.50 per unit of electricity fed into the grid is provided for a period not less than 4 years and a maximum period of 10 years with a cap of Rs. 62 lakhs per MW. The scheme is in parallel with accelerated depreciation but on a mutually exclusive manner. Under the Scheme for Solar Energy, GBI is provided to support small grid solar power projects connected to the distribution grid (below 33 KV) to the state utilities. Indian Renewable Energy Development Agency (IREDA) has selected 78 projects with a total capacity of about 98 MW for which the Ministry will provide GBI of Rs. 12.41 per kWh to the State utilities when they directly purchase solar power from the project developers (PIB, 2017).

Subsidies are given for capital investment on select renewable energy projects. Subsidies also take the form of subsidized/concessional interest rates to ensure access to low cost loans to purchase renewable energy products and appliances. Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE), a risk sharing mechanism for financial institutions involved in financing renewable energy projects and Venture Capital Fund for Energy Efficiency (VCFEE) to provide equity to renewable energy companies has also been constituted by the government (GoI, ND). Some of these mechanisms supported by the government can be categorized as private finance mechanisms. The distinction between public and private sources of climate finance becomes difficult to maintain in these cases.

D. Private Climate Finance in India

It has been pointed out by the reports of the MoF and Low Carbon Expert Group that India faces a multi-million-dollar funding gap and that private finance will have to play an important part if India has to meet its climate goals. The International Energy Agency has estimated that, by 2020, 40 percent of global climate investment will come from private households, 40 percent from businesses and 20 percent from government. Therefore, the ability of countries to leverage private climate finance will become instrumental in delivering climate action.

Most private climate finance in India have been leveraged by domestic and international public funds. A broad range of institutions are involved in mobilizing private climate finance in the country. These include - Multilateral Development Banks and Bilateral Financial Institutions which then mobilize commercial finance to be given to the Indian Financial Institutions for them to further lend it for climate action in India; Public Sector Banks (SBI), Private Sector Banks (AXIS Bank), Non-Banking Financial Institutions - public (IREDA) and private (IDFC); and private investors mostly (national and

international) through CDM. When public funds help mobilize private finance, it becomes difficult to distinguish them into the categories of public and private. We will now discuss some of the sources of private climate finance in brief:

(1) Clean Development Mechanism: The CDM provided under Article 12 of the Kyoto protocol enables the developed countries to undertake their mitigation commitments in a flexible, cost effective manner by financing mitigation projects in developing countries. In return of which, the developing countries receive certified emission certificates tradable in carbon market. India is the largest recipient of CDM projects after China, with 22 percent of the CDM project worldwide coming to India. While investors profit from CDM projects by obtaining reductions at costs lower than in their own countries, the gains to the developing country host parties are in the form of finance, technology, and sustainable development benefits.

The government established a National Clean Development Mechanism Authority (NCDMA) with representatives from MoEF, MoF, DST, MoEA and Planning Commission to review the CDM proposals coming to India. It is important that it reviews and accepts the proposals that align with national development priorities and comply with the legal framework of the country. The concentration of CDM projects in the more industrialised states in India is understandable, given that the industrial sector is particularly amenable to mitigation. However, the lack lustre performance of the CDM in the less industrialised states also means that the Indian government is not fully capitalising on the CDM's potential to contribute to sustainable development. To improve the CDM's contribution to sustainable development in India, the Government of India should consider investing in capacity building in those less developed states that are implementing fewer CDM projects, such as Bihar and Uttar Pradesh. Till April 30, 2015, it has NCDMA has accorded HCA to 2, 938 projects facilitating possible investment of about Rs. 579,306 crore in the country. The money is being invested in a range of sectors such as energy efficiency, fuel switching, industrial processes, municipal solid waste, renewable energy and forestry which spread across the country (covering all states in India) (see table 6).

Table 6 : Sector-Wise Distribution of CDM projects in India

| S.No. | Sectors | No. of Projects |
|-------|--|-----------------|
| 1 | Afforestation and Reforestation | 28 |
| 2 | Agriculture | 3 |
| 3 | Chemical Industries | 19 |
| 4 | Energy Demand | 224 |
| 5 | Energy Distribution | 9 |
| 6 | Energy Industries | 2311 |
| 7 | Fugitive Emissions from fuels (Solid/ Oil/Gas) | 4 |
| 8 | Fugitive Emissions from production and distribution of halocarbons and sulphuroxides | 5 |
| 9 | Manufacturing Industries | 243 |
| 10 | Mining / Mineral Production | 4 |
| 11 | Transport | 13 |
| 12 | Waste Disposal | 71 |
| 13 | Total | 2938 |

Source: Gol (2014)

(2) Private climate finance in India exists in form of **debt finance** too. These are usually in form of local and foreign currency loans. The former is given by domestic (public and private banks) and Non-Banking Financial (NBF) Institutions/Agencies. Public banks, which lend to the renewable energy sector in India are State Bank of India, Canara Bank, and Central Bank of India. Private Banks lending to the sector include ICICI, HDFC and Axis Bank. Foreign currency loans on the other hand, are provided by development banks, export import banks and foreign banks. In India these loans are being provided by JICA, Exim Bank of China and USA, Overseas Private Investment Corporation (OPIC) and Asian Development Bank (ADB) (Jha,2014)

In this regard, Green bond is fast emerging as another mechanism to finance green initiatives. To meet the renewable energy target, there is a need to look at innovative channels for financing and banking alone would not be able to support the huge requirements. “Green bonds could be a potential option to support these funding needs. They can act as a successful bridge between capital markets and addressing climate change. Since its first issuance in 2007, by two multilateral development banks (World Bank and European Investment Bank), green bonds have grown exponentially as a key tool to raise climate finance, with cumulative issuances pegged at over US\$180 billion globally by the end of 2016. India’s green bond market is currently pegged at about US\$3 billion, with the majority of it being allocated to renewable energy projects - contributing directly towards achieving India’s NDCs. A green bond is like any other regular bond but with one key difference: the money raised by the issuer are earmarked towards financing ‘green’ projects, i.e. assets or business activities that are environment-friendly. Such projects could be in the areas of renewable energy, clean transportation and sustainable water management

(3) Private Partial Risk Guarantee Facilities are also a source of climate finance in India, though it has a limited presence. ADB’s India Solar Generation Capacity is one such example. The World Bank Group’s Partial Risk Sharing Program (PRSP) also provides partial risk and credit guarantee products to support projects taken up by governments and private investors in developing countries (Jha, 2014).

(4) Private Equity and Venture Capital has also become one of the biggest sources of funds for renewable energy projects, especially the wind and solar power projects. Total PE/VC investments in the sector is around 4.1 billion in 2016. The Private Equity firms, which have invested in India, include GIC Singapore, Abu Dhabi Investment Authority, Asian Development Bank (ADB) and Goldman Sachs.

Tracking private finance is difficult because of the lack of acceptable definition of what constitutes private finance and how can it be distinguished from public climate finance in many instances. A GIZ Report (2015) on the role of private finance argues that many a times both public funds are used to mobilize private finance for funding climate action and there is little clarity on what part of the funding comes from private or public sources. Another issue in tracking private finance is data confidentiality. This issue has been highlighted by OECD and ODI as one of the key problems in tracking private climate finance. There are data availability issues in cases where private investment is undertaken, but not necessarily called ‘climate finance’. It is necessary to define climate relevant sectors to track effectively private finance flowing to it. In order to keep a pulse on what is happening; initiatives need to be taken by the banks and companies themselves. They need to evolve a reporting mechanism through which they put the information about their investments and projects in the public domain. But until that is done, it is very difficult to track private finance flowing for climate action. Role of private climate finance is only going to grow and the inability to track it puts large sums of money out of the purview of any public oversight or participation.

E. International Aid from Multilateral and Bilateral Sources

Climate finance has been a central element of the international climate change agreements from the outset. The UN Framework Convention on Climate Change (UNFCCC), agreed in 1992, stated that developed countries shall provide “new and additional financial resources” to developing countries, which are less resource endowed and more vulnerable. The contribution of countries to climate change and their ability to prevent or cope with its impact varies enormously. The developing countries, which have contributed very little to climate change are highly vulnerable to its impacts and possess few resources to prevent or adapt to climate impacts. The Convention established a financial mechanism to facilitate transfer of funds from the developed to the developing countries. The financial mechanism was initially partially entrusted to the Global Environment Facility (GEF), but after COP 17 the Green Climate Fund (GCF) has been designated as the operating entity of the financial mechanism of the Convention.

International climate finance flows to India through a number of channels. The primary route is the multilateral climate funds established by the UNFCCC such as the Global Environment Facility (GEF), Adaptation Fund (AF), and Green Climate Fund (GCF). Climate Investment Funds (CIFs), established and operated by the World Bank, also finance climate action in India but do not operate under the purview of UNFCCC. India has accessed several of these funds with varying degrees of success. Funds also flow through the bilateral development agencies or through developed country climate initiatives/ funds.

Funding from the international sources are usually in the form of grants, loans, soft loans, technical capacity and capacity building assistance. These flows are mostly project or sector specific. Many of the multilateral and bilateral agencies involved in climate finance such as World Bank, UNDP, DFID etc. not only provide funds but also, many a times, get involved in directly implementing the projects along with government ministries and non-government organizations (Jha, 2014).

Each of these channels has its own structure, and rules of access. The channels are many and while this increases India’s chance to procure more funding, it also makes the overall architecture more complex. It makes it difficult to monitor the flow of funds but also to assess their effectiveness in meeting their objectives. Also, there is no systematic publicly available national MRV system for international climate finance in India (GIZ, 2015).

While the magnitude of international climate finance coming to India is only a fraction of the domestic public investment, it is important to track and monitor international finance in order to hold the developed countries accountable for their climate commitments. It is also important to assess the sectors and areas, where international funds are invested and the form this funding takes - loan, grants, soft loans. It has been found that when the finance comes in form of loans or soft loans, the donors make mandatory practices, which do not allow the use of most useful and efficient technologies and prevent development of domestic private capacities and market. Tracking helps assess if international funds align with India’s national development priorities and match India’s financial needs. The funding from the international agencies usually comes on a piecemeal and is project based, making synergy with national climate goals rather difficult.

In several cases, the international funding agencies participate in the design and implementation of the projects along with national and sub-national governments. At other times, the funding agencies directly fund and implement climate projects through CSOs, without any participation by the government. To track finances of these disparate projects, executed by the CSOs based on their expertise, is a challenge and requires time and resources. It is, however, important to do so to get a

sense of the climate finance flowing to the various, albeit uncoordinated, projects. While private international finance is also coming in for climate action, in this section we would be looking mainly at the international public climate finance.

1. Multilateral Climate Funds

In 2009 at Copenhagen and later at Cancun, the developed countries pledged to provide developing countries US\$ 100 billion for meeting their climate obligations by 2025. Initially, the finance was primarily routed through Global Environment Facility (GEF) either directly or through funds administered by the GEF. But gradually the developing countries became critical of the GEF, which they saw as dominated by the developed countries. This finance is now most likely to be routed through the Green Climate Fund(GCF), which became operational in 2015 and will be the most important multilateral climate fund in the future (Nakhoda, Watson and Schalatek, 2013).

Climate finance through this route is in form of grants, concessional loans, guarantees and private equity. Developing countries, which are largely seen to be ill equipped to receive and utilize these funds, have strengthened their efforts by forming national and regional funds to be better able to access these funds.

a. Global Environment Facility (GEF)

Global Environment Facility (GEF) is a multilateral climate fund that has been contributing to climate action in India for some time. It has a long history of environmental funding. In the latest round of GEF replenishment (6th Round, 2014-18) around 30 donor countries have pledged US\$ 3.72 billion aimed at multiple focal areas including climate change, forests, land use, and sustainable cities(Nakhoda, Watson and Schalatek, 2013). The GEF also serves as a financial mechanism for the Convention on Biological Diversity, UN Convention to Combat Desertification, and Stockholm Convention on Persistent Organic Pollutants. The GEF also administers the Least Developed Country Fund (LDCF) and Special Climate Change Fund (SCCF) under the overall supervision of UNFCCC. Special Climate Change Fund (SCCF) was established under the Convention in 2001 to finance projects relating to: adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry, waste management; and economic diversification. Least Developed Countries Fund (LDCF) was made operational in 2002, and aims to address the needs of the 49 Least Developed Countries (LDCs), which are particularly vulnerable to the adverse impacts of climate change. The LDCF supports the preparation and the implementation of the National Adaptation Programs of Action (NAPAs). In India GEF has funded 97 projects with a GEF grant funding of US\$ 816.47 million and an additional co financing of US\$ 7.08 billion (GCF India website) (See table 7 for details). The funding is primarily in form of grants.

Table 7 : Total Funding Received through GEF

| Trust Fund | Project Type | Number of Projects | Total Financing (US\$) | Total Co- Financing (US\$) |
|------------|-----------------|--------------------|------------------------|----------------------------|
| GEF | National | 72 | 522,034,542 | 4,493,453,571 |
| | Regional/Global | 22 | 284,614,804 | 2,482,783,504 |
| | Total | 94 | 806,649,346 | 6,976,237,075 |
| SCCF | National | 2 | 9,818,182 | 106,534,000 |
| | Regional/Global | 0 | 0 | 0 |
| | Total | 2 | 9,818,182 | 106,534,000 |

Source: GEF India Website



b. Adaptation Fund

Also, attached to the UNFCCC is the Adaptation Fund (AF), which is financed by 2 percent levy on the sale of emission credits from the Clean Development Mechanism. The Adaptation Fund, which is financed through a levy on international carbon market transactions, is the only international climate fund besides the GCF that is independent of development finance institutions. The AF pioneered direct access to climate finance by the developing countries through National Implementing Entities (NIEs) based in the developing countries instead of working solely through multilateral agencies and banks (Nakhoda, Watson and Schalatek, 2016). NABARD is the NIE for India. By early November 2013, the Adaptation Fund Board (AFB) had allocated approximately US\$ 200 million to support climate adaptation in 29 countries. By October 2015, the Adaptation Fund had committed US\$ 331 million in 54 countries. However, the Adaptation Fund has seen its revenues drop when the international carbon price collapsed, demonstrating that government pledges aren't the only sources of finance that can prove unreliable. As the market for carbon credits plunged, other funding sources became more critical for the Adaptation Fund, and include donations from Annex 1 countries. In its capacity as NIE, NABARD has generated several feasible projects on climate change adaptation in diverse agro-climatic regions and livelihood sectors, five of which have been submitted as proposals to the Adaptation Fund amounting to US\$ 7.3 million (See Table 8).

Table 8: Projects funded by the Adaptation Fund in India

| Project Title | Funding Approved (US\$) | Funding Disbursed(US\$) |
|---|-------------------------|-------------------------|
| Building Adaptive Capacities of small island fishers for climate resilience and livelihood security, Madhya Pradesh | 1.79 million | .45 million |
| Climate Proofing of Watershed Development Projects in the states of Tamil Nadu and Rajasthan | 1.34 million | .47 million |
| Climate Smart Actions and Strategies in North Western Himalaya Region for sustainable livelihoods of agriculture dependent hill communities | .97 million | .17 million |
| Enhancing adaptive capacity and increasing resilience of small and marginal farmers | 2.51 million | .38 million |
| Conservation and Management of coastal resources | .69 million | .16 million |

Source: Compiled from the Climate Updates Website



c. Green Climate Fund (GCF)

The Green Climate Fund was approved at the Durban Conference and became fully operational in 2015. The GCF has been designated as an operating entity of the financial mechanism of the UNFCCC and aims to support developing countries to limit or reduce their greenhouse gas emissions and to adapt to the impacts of climate change. It will now most probably be the most important channel for international public climate finance. It would be following a country - driven approach, wherein the funding will be aligned to the identified priorities of the recipient developing country. It would also seek to create a balance in funding for mitigation and adaptation, giving equal importance to both. These funds are largely in form of grants. Green Climate Fund Board in its 16th meeting held during April 2017 at Songdo, South Korea sanctioned first ever project of India submitted by NABARD. The project “Ground water recharge and Solar Micro Irrigation to ensure food security and enhance resilience in vulnerable tribal areas of Odisha” aims to respond to climate change challenges resulting in drought and floods affecting the food security of agriculture dependent vulnerable communities.

NABARD has been accredited as Direct Access Entity (DAE) of GCF for channelizing resources under this fund. NABARD aims to use the GCF resources for projects and programmes related to climate resilient development and low emission pathways in India. NABARD as was mentioned previously has also been accredited as National Implementing Entity (NIE) for Adaptation Fund of UNFCCC as well designated as NIE for National Adaptation Fund for Climate Change.

d. Climate Investment Funds (CIFs)

The international climate finance landscape also includes bilateral aid agencies and international development institutions, which implement GEF projects and have set up their own climate finance initiatives. The most notable of them are the World Bank-led Climate Investment Funds (CIFs). These are not directly under the purview of UNFCCC. The Climate Investment Funds (CIFs) were established in 2008 and are administered by the World Bank in collaboration with regional development banks such as the Asian Development Bank, African Development Bank, European bank for Reconstruction and Development and Inter-American Development Bank. They include the Clean Technology Fund (CTF) and Strategic Climate Fund (SCF). CIFs have a total pledge of US \$ 8.14 billion. These are in the form of project loans, both soft as well as market based loans and technical assistance, which can be a component of a loan and also can be in the form of a grant. There are a range of projects being funded by the CTF and SCF in India. The former focuses primarily on mitigation (renewable energy projects) (See Table 9).

Table 9 : Projects funded by the Clean Technology Fund in India

| Project Title | Funds Approved (US\$) | Funds Disbursed (US\$) |
|---|-----------------------|------------------------|
| Rajasthan Renewable Energy Transmission Investment Program (Multi-tranche Financing Facility / MFF) | 200 million | 20.8 million |
| Solar Rooftop Investment Program Guaranteed by India | 175 million | 0 |
| Grid-Connected Rooftop Solar Program | 125 million | 0 |
| Development Policy Loan to Promote Inclusive Green Growth and Sustainable Development in Himachal Pradesh | 100 million | 100 million |
| Proposed Loan Power Grid Corporation of India Limited Solar Power Transmission Sector Project Guaranteed by India | 50 million | 0 |
| Shared Infrastructure for Solar Parks | 50 million | 0 |
| Transmission for Power Evacuation from Solar Parks Project | 30 million | 0 |
| Partial Risk Sharing Facility for Energy Efficiency | 25 million | 0 |

Source: Compiled from the Climate Updates Website

2. Bilateral Development Agencies

A significant share of international public climate finance comes to India bilaterally through bilateral development agencies. The key sources of bilateral assistance in form of grants are United States Agency for International Development (USAID), Canadian International Development Agency (CIDA), International Development Research Centre Canada (IDRC), Department of International Development (DFID) and British High Commission, Australian-Aid (Australia) and Swedish International Development Agency (SIDA) (Jha, 2014). These are largely in form of grants. Indian Government has signed bilateral agreements with Norway, Finland and France on issues such as clean technologies, including waste management, water, renewable energy, energy efficiency and sustainable forestry (Gol, 2014).

India requires considerable international financial support to achieve its climate goals. In the INDC, the Indian government has emphasized the importance of international finance to support climate mitigation and adaptation actions, including renewable energy development and climate-resilient infrastructure construction. India has long argued for funding from the Green Climate Fund (GCF), where developed countries have pledged to raise US\$ 100 billion annually by 2020. There is however, much debate on what part of international climate finance can and cannot be counted as financial assistance for climate change. Firstly, climate finance must be new and additional to the already existing ODA. Any increase in climate finance by flattening existing ODA implies that funds are being diverted from some other development concern. Also, when speaking about climate related financial assistance OECD countries count both grants and loans, whether concessional or full interest, given by

both public and private sources given to developing countries. It has been argued that climate finance in form of loans, especially the full interest loans, cannot be counted as financial assistance as the country is paying for it through its own future savings. It receives no assistance. The financial intermediary contributes nothing. Only if the assistance is on terms better than the standard sovereign borrowing from the market, can it be counted as financial assistance. Grant equivalent element of any claimed climate change financing must be deemed as financial assistance. These issues need to be clarified at the earliest as these are important to hold the international donor agencies accountable to their promises for providing climate related financial assistance.

Gol has stated numerous times that, despite its domestic spending on climate change adaptation, the magnitude of its adaptation efforts necessitates that it requires external financial support, particularly as international public finance. However, external flows received by India are heavily tilted towards climate change mitigation (Vasudha Foundation, 2014). Hence, it can be said that the external financial flows are not aligned with India's climate priorities. Most finance coming to India is for mitigation goals and very little is being invested in adaptation. This is a matter of concern for country such as India, where large majority of people are poor and dependent upon climate sensitive sectors for their livelihood. Investments in adaptation solutions and technologies is critical for the well-being of people.

It is also necessary to ensure that the funds touted as adaptation funds by the government or even by the international agencies have significant climate (adaptation) benefits and are not development programs with marginal climate benefits as co-benefits. This is true for mitigation investments as well but is more relevant for adaptation as adaptation interventions in many instances are regular development programmes. A nuanced methodology to assess the climate relevance of any intervention needs to be developed and must be used both at the national, subnational and international level. It is necessary to assess climate relevance of actions to be able to hold government accountable for its commitment to climate goals.

V. Some Observations on Climate Finance Landscape in India

The Climate Finance Landscape in India is highly heterogeneous, fragmented and dispersed (OCP, 2015). There are a large number of sources providing climate finance and there is no main agency directing/ streamlining the funds towards national climate goals. The problems thrown up by the absence of a central coordinating unit is compounded by lack of a coherent domestic climate strategy. There are several actors involved and each of these actors are providing India some portion of funds that help attain climate goals. The actors have their own interests, priorities and mandates and there is an urgent need for coordinating the multiple financial sources, both domestic and international (Jha, 2014). The ad-hoc and disparate nature of climate initiatives and lack of a clear climate strategy makes it very difficult to assess the real outcomes and impact of climate spending. To some extent, the streamlining of funds is being done by the Union Government through government budgets. At the state level, this process has, begun only in a few states like Odisha and Kerala, where the budgets have taken climate concerns into account. The budget helps mainstream climate considerations into conventional policies and financing decisions and also anchors international climate finance flowing from multilateral and bilateral funds into national financial system. The funds from the international public sources, however, do not always flow through budgets and many a times funds are allocated directly to the projects operating on the ground, independently of the Indian public financial system and national priorities.

While there is a need to create synergies across a multiplicity of national and international finance sources, there is also a need better targeting of both existing and additional funds. Transparency regarding the flow and use of funds will increase coordination and cooperation among different funding sources, better leveraging of scarce financial resources to achieve climate change goals and better targeting of funds. Greater transparency can be brought about through an understanding of the various institutions and players involved. There is a need for a more nuanced mapping of “existing flows, policy customisation, and access to project funding, and enable an outcome driven environment”. The mapping needs to look at the nature and volume of climate finance flows to and within India. It must also collate fragmented information on funding agencies, instruments, and project level funding to better identify, track, and access opportunities and information.

VI. In Conclusion: Climate Finance Accountability

Climate Finance Accountability is an emerging area of concern, particularly in the developing countries. Developing countries most likely to generate and receive climate funds have very often the least transparent and accountable public budgeting systems, providing little space for public participation or legislative oversight. Government accountability vis a vis climate spending (adaptation spending) is absolutely must if one is to ensure the interests of the vulnerable sections of the population. While climate impacts affect everyone, the poor and the marginalized, possess extremely low adaptive capacity and climate resilience. Effective utilization of climate funds, irrespective of the source they emanate from, is essential to ensure socio economic well-being of large masses of poor people in India. This can be ensured only if fund allocations and utilization is informed by people's needs and vulnerabilities. Greater transparency and oversight of climate spending will possibly help us achieve this goal. Importantly, there are issues specific to climate finance that make its monitoring rather difficult. There are serious difficulties involved in defining 'climate finance'. Due to the cross-sectoral implications of climate change and because in most instances climate actions are development actions with adaptation and mitigation co-benefits, it is quite difficult to tease out climate element from the general sectoral spending. If one has the parameters (in form of weights or scores) that define the proportion of total adaptation and mitigation benefits as compared to development, there is enough information to undertake tracking.

As of now, there is no systematic tracking of domestic budget allocations for climate goals. Tracking the impact of domestic public investments on climate change outcomes is limited to specific programmes or projects. Tracking of private finance is difficult because of the lack of acceptable definition of what constitutes private finance and how can it be distinguished from public climate finance. Another issue in tracking private finance is data confidentiality. There are also data availability issues in cases where private investment is undertaken.

As far as international climate finance is concerned, there have been attempts to track these funds internationally. A group of six multilateral agencies have tracked climate finance flowing through these agencies to various countries and project. No attempt of this kind has been made for funds coming to India. In case of international funds, the information is pretty easily available. The websites of GCF, Adaptation Fund etc. give a lot of information on projects funded, amounts allocated, countries supported etc. and if one wants to undertake tracking of funds flowing through these it can easily be done. Information pertaining to India can be filtered out. While there are not many practical problems involved in tracking international finance, there are normative issues involved. The promised international assistance ideally has to be public finance flowing from developed countries to developing countries, but increasingly international flows in form of loans are also being included by international reports on the subject. This issue needs resolution to ensure transparent tracking of the flows. There is confusion about whether international climate flows should include only public finance or private finance too. Also, whether finance in the form of loans or soft loans must be considered climate finance.



Most of these questions need political answers. It is when clarity is obtained on the definitional (read normative) front, can practical difficulties in tracking them can be resolved. A clear definition is therefore important.

There are very few studies, which have attempted to benchmark the volume of climate finance required for achieving effective climate action in India. More studies need to be undertaken to help us establish whether the finance available is adequate. The task of assessing quantum of climate finance available in the country, its varied sources and forms is an important first step to be able to monitor climate investment more effectively.

References

- Anju Sharma, Benito Muller and Pratim Roy (2015), Consolidation and Devolution of Climate Finance in India: The case of India, European capacity Building Initiative- Oxford Climate Policy.
http://www.oxfordclimatepolicy.org/publications/documents/Consolidation_and_Devolution_final.pdf
- CBGA, (Several Years), Analysis of Union Budget, New Delhi
- Panda, Gyana Ranjan and Narendra Jena (2012), Framework and Performance of National Clean Energy Fund, Centre for Budget and Governance Accountability, New Delhi.
- GIZ (2015), The Role of Private Sector to scale up Climate Finance in India, Final Report.
<https://www.giz.de/en/downloads/giz2015-en-nama-india-private-financial-institutions-climate-finance-final-report.pdf>
- GoI (2014) India's progress in Combating Climate Change: A Briefing Paper for UNFCCC CoP 20 Lima, Peru, New Delhi.
- GoI (ND), MoEFCC, India's Intended Nationally Determined Contribution: Working Towards Climate Justice, New Delhi.
- GoI (2017), MoF, Notes on Demands for Grants, New Delhi.
- GoI (2015), MoF, Economic Survey 2015 -16, New Delhi.
- IFMR (2013), Climate Finance at the Sub- national Level – The case of Odhisha, Chennai
- IFMR (2015), Jawaharlal Nehru National Solar Mission, Chennai.
- IFMR (2015b), National Mission for Enhanced Energy Efficiency, Chennai
- IFMR (2015c), National Mission on Sustainable Habitat, Chennai
- IFMR (2015d), National Water Mission, Chennai.
- IFMR (2015e), National Water Mission, Chennai.
- IFMR (2015f), Green India Mission, Chennai.
- IFMR (2015g), National Mission for Sustainable Agriculture, Chennai.
- IFMR (2015h), National Mission on Strategic Knowledge for Climate Change, Chennai
- IFMR (2015i), National Mission for Sustaining Himalayan Ecosystem, Chennai.
- IPCC (2007), Fourth Assessment Report.
- IPCC (2014), Fifth Assessment Report.
- KPMG (2014), Improving the Performance of National Clean Energy Fund, New Delhi.
- Nakhoda, Watson and Schalatek (2013), The Global Climate Finance Architecture, ODI.
- Parliamentary Standing Committee on Renewable Energy (2016), Report on Ministry of New and Renewable, Lok Sabha, New Delhi.

PIB (2015), Government has established National Adaptation Fund on Climate Change: Javadekar, New Delhi.

PIB (2017), Cabinet approves Raising of Bonds of Rs. 2360 crores for Renewable Energy, New Delhi

Shakti Foundation- Ricardo AEA (2014), Enhancing India's readiness to access and deliver International Climate Finance, Shakti Foundation.

<http://shaktifoundation.in/wp-content/uploads/2014/10/India-Climate-Finance-Readiness-FINAL-30914.pdf>

Vasudha Foundation (2014), Handbook of Climate Finance in India, Vasudha Foundation.

http://www.vasudha-foundation.org/wp-content/uploads/Climate_Finance_Handbook.pdf

Vyoma Jha (2014), The Coordination of Climate Finance in India, ODI

About CBGA

CBGA is an independent, non-profit policy research organisation based in New Delhi. It strives to inform public discourses through rigorous analysis of government budgets in India; it also tries to foster people's participation on a range of policy issues by demystifying them.

For further information about CBGA's work, please visit www.cbgaindia.org or write at: info@cbgaindia.org

Please visit the open data portal on budgets in India at: www.openbudgetsindia.org



Centre for Budget and Governance Accountability (CBGA)

B-7 Extn./110A (Ground Floor), Harsukh Marg,

Safdarjung Enclave, New Delhi-110029

Phone: +91 11 49 200 400 / 401 / 402

Fax: +91 11 40 504 846

Website: www.cbgaindia.org