Accelerating Green Finance in India: Definitions and Beyond

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CLIMATE POLICY INITIATIVE

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ABOUT CPI

CPI is an analysis and advisory organization with deep expertise in finance and policy. Our mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has six offices around the world in Brazil, India, Indonesia, Kenya, the United Kingdom, and the United States.

SECTOR
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KEYWORDS
Climate Change, Finance, Green Finance, Definition, Financial Sector, India

EXECUTIVE SUMMARY

India is ranked the fifth most vulnerable nation to the effects of climate change with 2.5-4.5% of its GDP at risk annually. As a result, India has pledged to reduce the carbon intensity of its GDP by 33-35% by 2030 from its 2005 levels, but to achieve this target, India needs to mobilize a total of $2.5 trillion over 2016-30 (MoEFCC, 2015). However, climate-related investments—from public and private sources—remain limited. An upcoming study by CPI finds that India is mobilizing less than 25% of investment needed to reach this target (CPI, 2020).

While India has adopted a number of fiscal and policy measures to address this challenge, increasing green investments at this scale will require a more intense focus of India's financial system towards green sectors (UNEP Inquiry, 2015).

There is a growing need to sensitize India's financial sector to the importance and benefits of Green Finance.

A major barrier in this effort is the lack of an agreed definition of Green Finance in India. While there are a number of international initiatives that focus on aligning definitions, disclosure, and reporting practices, India's financial sector is not fully aligned with any organized efforts to accelerate green lending and investment. There is a growing need to sensitize India's financial sector to the importance and benefits of Green Finance. This can happen through sustained, market-led collaborative actions that accelerate green capital flows, beginning with an agreed definition of Green Finance.

A formal definition of Green Finance in India would enable more precise tracking of finance flows to green sectors, which, in turn, would help design effective policy, regulations, and institutional mechanisms directed towards increasing both public and private investments in green sectors.

A formal definition would also accelerate the development of green financial products/services for investors and depositors, enabling financial intermediaries to assess their climate change risks and opportunities, and improve reporting and disclosure practices. These benefits would have immediate impact on accelerating green finance.

India's Green Finance definition could be formed through a combination of adopting international practices, developing a set of principles for green economic activities, and obtaining stakeholder views. Our analysis finds that a combination of these approaches may be the best fit for India, with a finance sector taxonomy foundational to driving green economic activity.

This definition could be a first step toward developing a green finance strategy in India. Additional steps would include disclosure of climate change risks in the financial system, directed policy and regulations to incentivize green finance, and penalties for carbon-intensive investments. CPI proposes forming a taskforce of relevant stakeholders to take forward these approaches.

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1. CONTEXT

The top five risks that the world faces today are climate-related: extreme weather, climate action failure, natural disaster, biodiversity loss, and human-made environmental disasters (WEF, 2020). India is one of the most climate vulnerable countries in the world and is ranked fifth in the Global Climate Risk Index (Eckstein et al., 2019). This is mainly due to its long coastline, high share of fossil fuels in energy systems, and high dependence of rural livelihoods on agriculture, which in turn relies heavily on seasonal monsoon rains.

India is ranked the fifth most vulnerable nation to the effects of climate change with nearly 3% of its GDP at risk annually.

The World Bank estimates that, unchecked, climate change will reduce India's GDP by nearly 3% and adversely affect the living standards of almost half the country's population by 2050 (Mani et al., 2018). Another study shows how economic losses due to extreme weather are drastically increasing over the years and stood at USD45 billion between 2008-17 vs. USD20 billion over 1988-2007 (Singh, 2019). International Labor Organization (ILO) forecasts a loss of 34 million full-time jobs, primarily farmers, by 2030 due to increasing temperatures in India (ILO, 2019). Further, India's Economic Survey 2017-18 suggests that farmers' income could drop by 15%-18% on average due to climate change (MoF, 2017-18). These possible consequences have prompted the Government of India (GoI) to take several measures to mitigate climate change and implement adaptation measures.

Mobilizing capital for climate mitigation and adaptation is required to move towards a low carbon emission economy. The Intergovernmental Panel on Climate Change (IPCC) estimates that for a 1.5°C trajectory, annual average investments globally in energy efficiency and low-carbon energy technologies need to increase six times by 2050 as compared to 2015 (IPCC, 2019). Further, India requires a nine-fold increase in annual investments from 2018 to meet its Nationally Determined Contribution (NDC) goals. (CPI, 2020).

Green finance can play a crucial role in making India's economy resilient to climate change impacts.

The financial sector can play a vital role in mitigating overarching climate change risks by diverting capital from the carbon-emitting sectors to the carbon-mitigating sectors (Krogstrup and Oman, 2019). Green Finance could be one of the primary mechanisms to achieve this, allowing the financial sector to strategically increase capital allocation to climate mitigation and adaptation measures that would achieve the most environmental, social and economic benefits.

1.1 RELEVANCE OF GREEN FINANCE IN INDIA

India's transition to a low carbon sustainable economy requires massive investments in climate mitigation and adaptation.

Mobilization of capital is a prerequisite for India's transition towards a low carbon and sustainable economy. Reducing the carbon intensity of its economy by 33 to 35% by 2030 (India's international commitment), relative to the 2005 level, will require $2.5 trillion in investments over 2016-30 (MoEFCC, 2015). However, an ongoing study by CPI finds that India was only able to mobilize ~$18 billion in climate investments in 2018 compared to the annual requirement of ~$160 billion (CPI, 2020). Out of this, ~32% came from public sector investors and the remaining 68% from the private sector.

In other words, India needs to mobilize approximately nine times the current investments to meet its commitments. Public finance will not be able to bridge this large capital requirement (RBI, 2019), thus, a significant share must come from the private sector. And though a major share of these investments would need to come from India's domestic financial intermediation through banks and capital markets, India also needs external financial flows for climate investments.

Financial intermediation for green sectors in India is limited due to multiple challenges, some are sector specific while others are generic.

Financing this transition faces various challenges: some are specific to the green sectors, while others are more generic.

Table 1. Barrier to Financing Green Sectors

Generic Barriers	Unique Barriers
▪ Early-stage technologies ▪ Untested business models ▪ Long-term nature of green projects ▪ Lack of relevant financial instruments	▪ Lack of clarity in defining green economic activities (green sectors) ▪ Failure to internalize environmental externalities in financing costs ▪ Information asymmetry ▪ Limited historical information to assess financing risks

Source: *Authors' analysis based on RBI, 2020; FTSE Russel, 2018; OECD, 2012 and 2018; UNEP Inquiry, 2015; UK Government, 2019*

India has adopted several fiscal measures to address these barriers, such as taxing carbon-emitting sectors, and providing tax and non-tax incentives including interest subventions for financing green sectors. However, these are not enough by themselves. Increasing green investments will require directing India's financial system towards green sectors and mitigation of systemic climate change risk (UNEP Inquiry, 2015). This entails structural and fundamental changes in the financial system (Whalley, 2019; Dafermos, Y, 2018), resulting in incorporation of environmental factors in financial decision making and capital allocation.

Financial measures are not substitutes for the fiscal measures such as carbon taxes and subsidies but are essential to complement the climate mitigation incentives provided in the real economy.

Defining Green Finance is the first step towards directing finance to green sectors.

Defining Green Finance should be the initial step in India's Green Finance strategy which facilitates increased capital allocation to green sectors and supports its NDC commitments. Other likely components of this strategy include a) designing policy and regulatory incentives; b) improving reporting and disclosure practices; and c) launching green financial products (UNEPI, 2017).

2. DEFINING GREEN FINANCE IN INDIA AND ITS IMPLICATIONS

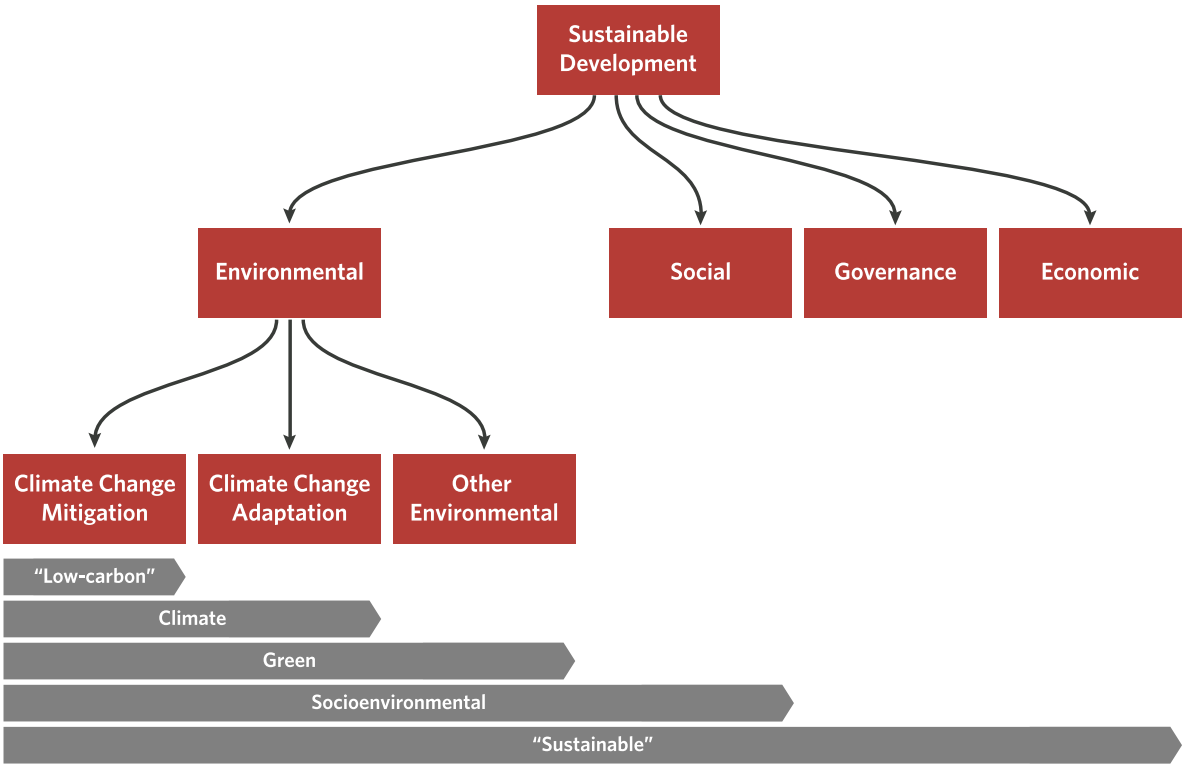
2.1 CHALLENGES DUE TO NO CLEAR DEFINITION OF GREEN FINANCE

In recent years, Green Finance as a terminology has gained attention by policy makers, regulators, and institutional bodies around the world. But, while Section 4 reviews attempts at defining Green Finance globally, Green Finance and its components are not clearly defined in any academic/scientific literature for India (Wright H. 2011; EIB, 2017). Since there is no formal definition of Green Finance, terminologies such as sustainable finance, climate finance, responsible finance, and ESG investments are used interchangeably or in an overarching manner with Green Finance (Charter Banker Institute, 2018; Inderst G. Kaminker, Ch. Stewart F. 2012). These multiple terminologies create unnecessary confusion among stakeholders. UNEP Inquiry defines and presents the interplay between these commonly used terminologies using a simple approach: Climate finance is a subset of Green Finance, which itself is a subset of sustainable finance, as represented in the figure overleaf[1]. UNEP defined sustainable, green, and climate finance as follows:

- **Sustainable Finance** covers a broader set of investment universe with the aim to build an inclusive, economically, socially, and environmentally sustainable world.
- **Green finance** includes climate finance but also includes other environmental objectives necessary to support sustainability, particularly aspects such as biodiversity and resource conservation.
- **Climate finance** refers to "local, national or transnational financing—drawn from public, private and alternative sources of financing—that seeks to support mitigation and adaptation actions that will address climate change."[2]

1 http://unepinquiry.org/wp-content/uploads/2016/09/1_Definitions_and_Concepts.pdf
2 https://unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance

Figure 1: Difference between Sustainable, Green, and Climate Finance



Source: *UNEP Inquiry, 2016*

CPI's own work to track global climate finance uses a definition aligned with the UNFCCC Standing Committee on Finance (see UNFCCC SCF, 2014, 2016, 2018), which states: "Climate finance aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts."

More broadly, green investment flows are often defined by the intervention areas related to GHG mitigation (such as renewable energy, energy efficiency, electric vehicles, etc.) and investments in adaptation (such as water, forests, preserving eco systems, and built infrastructure). Pollution abatement investments – while important to India's growing pollution-related risks – are also in a grey zone, in that they may not align well with climate mitigation or adaptation.

Absence of a clear definition of Green Finance and what constitutes "green" hinders meaningful analysis and misleads decision making.

Overall, multiple terminologies and a lack of globally or nationally agreed-upon definition of Green Finance causes several significant challenges, especially in the Indian context. In its annual report, "Trend and Progress of Banking in India", Reserve Bank of India identifies the plurality of green loan definitions as one of the key barriers financial intermediaries face in lending to green sectors. Not knowing what constitutes as green restricts proper tracking of capital flows into the green sectors, which in turn causes inaccuracies in the assessment of capital flows and inadequacy of current investments to meet India's NDC targets. It creates

ambiguity in green investments being made by the financial system and constrains capital allocation from banks and capital markets to green economic activities. Without a clear definition, attribution is likely to be subjective and may trigger dissonance if actions are not seen to be aligned to climate mitigation, adaptation and pollution control. Further, public expenditure on climate investments do not get mentioned in public budgets with appropriate green markers.

2.2 BENEFITS OF DEFINING GREEN FINANCE

Defining green finance can identify a universe of economic activities (sectors/industries) and the role of various stakeholders within this set of activities, that can contribute to India's plans of decarbonizing the economy and adapting to climate change. A common, nationally understood definition of green would also be useful to attract international investors who increasingly want to classify their investments as green wherever applicable.

A formal definition of Green Finance would create multiple opportunities:

- Designing appropriate interventions by assessing India's progress on NDC goals
- Enabling the financial sector and corporates to act upon climate change risk and opportunities
- Better reporting and disclosure

Each opportunity is described in detail below.

2.2.1 DESIGNING APPROPRIATE INTERVENTIONS BY ASSESING INDIA'S PROGRESS ON NDC GOALS

A formal definition of Green Finance could help in estimating the amount of capital flowing into green sectors and assessing whether it would be enough to meet India's NDC targets (Buchner et al., 2019). This exercise would help in identifying the gaps between the current and required financial flows in various green sectors/subsectors (Inderst, G. Kaminker, Ch. Stewart F. 2012). Further, it would help in accurately mapping the flow of finance, including sources of capital, types of financial instruments used to deploy capital, and the use of capital proceeds. Mapping of capital flows helps stakeholders, including the policy makers, regulators, public and private financial institutions to identify and tap the right sources of capital and deploy appropriate financial instruments (Buchner et al., 2019) to bridge the financing gap.

A widely accepted definition of Green Finance would allow regulators and policymakers, both at the central and state levels, to develop a Green Finance framework with appropriate policies and regulations (Gianpiero T. 2009). Policy and regulatory measures could be aligned with a common goal of increasing capital flows to green sectors, which would send the right signals to the market; the market could incorporate the cost and benefits of financing green sectors in their decision making.

Further, a database can be created at the central and state level, which could help in identifying gaps, measure progress, and optimize deployment of public resources in a

way that can unlock private investment at a transformational scale. Such a database on sectors and geographical distribution of green sectors could also help in setting the sectoral and geographical targets, and monitoring projects. A clear definition would also help in developing a manual for the green sector, which could result in better coordination between different agencies working on green growth, at both central and state governments. This was previously done for the infrastructure sector in India and has seen results.

2.2.2 ENABLING THE FINANCIAL SECTOR AND CORPORATES TO ACT UPON CLIMATE CHANGE RISK AND OPPORTUNITIES

To further scale green investments, there is a need to create various financial instruments such as green equity, green funds, green deposits/accounts etc. (UNEP Inquiry, 2016). An institutional definition of Green Finance can help financial intermediaries choose companies or projects based on their green taxonomy and design financial instruments to raise capital for directed investments. Companies involved in green businesses can classify themselves as green like in other sectors (for example, the infrastructure sector), which would allow institutional and retail investors to easily identify green businesses and invest in them without spending additional resources. Since long-term institutional investors understand the significance of climate change risks (Jena et al., 2018), they are likely to invest in these corporates/securities that have the potential and are working towards mitigating this risk. Moreover, a clear definition could also facilitate a green-themed investment strategy, by allowing investors to hold a positive (including only the green sectors/sub-sectors) and negative (excluding all the non-green sectors) screening.

Defining Green Finance would help financers/investors to identify businesses/projects contributing to the low carbon transition and would help them explore investment opportunities emanating from climate change (UK Government, 2019). Since large corporates, mainly in the capital-intensive businesses, invest in projects that yield long-term benefits, investments in green sectors/industries would be strategic for them. These corporates can also raise long-term capital from financiers looking to allocate capital in green sectors.

A definition would also improve the financial sector's ability in general, to identify, assess, and control the financial risks emanating from climate change (NGFS, 2019). While developing risk management systems, including climate change risk, would help the financiers/investors to make an informed decision on capital allocation (BIS, 2020; McKinsey, 2019). This could lead to an increase in capital allocation for sectors that are mitigating or have a potential to mitigate climate change risks.

2.2.3 BETTER REPORTING AND DISCLOSURE

A formal Green Finance definition could mitigate the risks of greenwashing and bring better reporting and disclosure to investors and financiers (European Commission, 2017). Several large and diversified companies are listed in the stock market; it is difficult for investors to assess the climate change risk they are exposed to accurately. With a formal definition, a

diversified company can disclose and report their businesses into two buckets: green and non-green business segments of the company. Investors can analyze the diversified company from the climate change risk and opportunity perspective like they analyze different business segments of a diversified company.

Through better reporting and disclosure, financial regulators and policymakers such as the Reserve Bank of India (RBI), Insurance Regulatory and Development Authority (IRDA), Pension Fund Regulatory and Development Authority (PFRDA), and Ministry of Finance (MoF) can identify and assess the quantum of financial assets in the financial system exposed to climate change risks. Better disclosure on climate change can help regulators and financial authorities make informed and appropriate policy and regulatory decisions to manage the risks emanating from climate change (BIS, 2020).

3. GLOBAL INITIATIVES – DEFINING AND MEASURING GREEN FINANCE

While there is no globally agreed definition of Green Finance, and less progress still in India, there are initiatives by a range of actors that attempt to address both definitional and other challenges. Governments, commercial and development banks, financial institutions, non-government organizations, and other institutions around the globe (Inderst, g. et al. 2012; Lindenberg N. 2014; European Commission, 2017; UNEP Inquiry, 2019) are working to form Green Finance definitions, allowing disclosures of climate-related information in financial reports, designing financial policies and regulations in the favor of green sectors, launching green financial products, developing of tools and frameworks to incorporate climate change in decision making, and increasing awareness about green finance.

There are several global initiatives to increase capital flows towards climate relevant sectors, and most global institutions approaches have focused on defining and measuring green finance.

Table 2. Selected International Approaches on Green Finance

Approach	Description	Objective
Defining Green Finance	Defining green economic activities while certifying and assessing the greenness of financial products	Help stakeholders take appropriate steps to drive capital to defined green economic activities
Disclosure	Disclosing climate change risks and opportunities in public financial reports	Address the asymmetric information issue between the corporates and financers/investors; assess the climate-related risks in the financial system
Policy and Regulation	Providing incentives and penalties for green and non-green sectors, respectively	Diverting capital flows from carbon-intensive to less-carbon intensive sectors
Financial products	Designing green financial products such as green bonds, green equity, green lending, equity index, green fund, and green bank	Seek capital from investors who have the mandate to invest in green projects/companies and investors seeking to invest in the green sector inn general to mitigate climate change risks
Tools and Frameworks	Tools and framework to incorporate climate change risks and opportunities in financial/investment decision making and practices	Accelerate the flow of capital to green sectors, assess and mitigate climate risk in the financial system, and align lending practices with green / climate goals
Information and Communication	Conducting awareness programs on climate risks and opportunities in the financial sector	Enable financers/investors to form an educated view on financing green

Source: *Authors' analysis based on Inderst, g. et al. 2012; Lindenberg N. 2014; European Commission, 2017; UNEP Inquiry. 2019; Reserve Bank of India (RBI). 2019.; Krogstrup S. Oman W. 2019; GCF, 2019*

3.1 APPROACHES FOR DEVELOPING A DEFINITION OF GREEN FINANCE

Many countries and regional economic groups, such as the European Union, have adopted some form of definition for lending and investing in green.

In the context of financing green economic activities, several governments, regional organizations, financial intermediaries, and non-government organizations have defined green through various approaches, namely: conceptual definition, principles-based, sectoral taxonomy, exclusionary criteria, tagged financial instruments (green bonds, green equity, green lending) (European Commission, 2017).

Table 3. Approaches of Selected Countries and Institutions to Define Green Finance

Countries		
Countries	**Approach**	**Comments**
China	Taxonomy	▪ A catalogue with three levels defining an established set of economic activities where proceeds of the green bond can be deployed
	Taxonomy	▪ Identified sector/sub-sectors designated as green for bank loans
Europe	Taxonomy	▪ A comprehensive set of environmentally sustainable economic activities ▪ Unlike China's green definition, EU's taxonomies are not restricted to green bonds and green credit; ▪ Green Finance frameworks can be used across the financial system, including policymaking and regulation, asset management, banking, pension funds, and other financial services.
Indonesia and Bangladesh	Guideline	▪ Not in detail for financial policy and regulation
Netherlands	Framework	▪ Identify projects which can use the proceeds of the bond in climate mitigation and adaption projects
Institutions		
Institutions	**Approach**	**Comments**
Development Financial Institutions	Guidance	▪ Identify green projects which help in issuance of green bonds and green lending
Independent Agencies, CBI, LuxFLAG, ISO	Taxonomy	▪ Green bond standards and certification (sectoral taxonomy) – defined set of economic activities considered as green
	Criteria	▪ Develop criteria to certify green bonds

Source: *Authors' analysis based on PBoC, 2015; Yujun Cui. 2017; European Commission, 2020; Sustainanalytics, 2019*

At a conceptual level, Green finance can be defined as an investing or financing activity that provides environmental benefits, including reductions in pollution and GHG emissions, sustainable utilization of natural resources, and climate adaptation. Green finance also covers enabling and directing initiatives, including regulatory, economic, and other mechanisms that aim to internalize the environmental cost of carbon emission activities and reduce the risk perception of climate-friendly sectors (Lindenberg N. 2014).

3.2 GREEN FINANCE INITIATIVES AND PRACTICES - BEYOND TAXONOMY

Besides defining Green Finance, global institutions have also taken several initiatives to sensitize the financial sector about green finance. These include, developing frameworks for better disclosure on climate change risks and opportunities, incorporating climate change in financing and investment decisions, setting up platforms for knowledge sharing and best practices, and requiring strong commitments from the financial sector. Table 4 details the various initiatives taken by global institutions to accelerate Green Finance.

Global institutions are paying attention to Green Finance disclosure, lending, and investment practices

Table 4. Selected International Initiatives to Accelerate Green Finance

Institutions	Initiatives
Network for Greening the Financial System (NGFS)	▪ NGFS is a network of 42 central banks and supervisors ▪ Designing financial regulation with a focus on accelerating Green Finance through possible regulatory interventions directed towards mobilizing capital for climate projects and on managing climate change risks in the financial system (NGFS, 2020).
Sustainable Banking Network (SBN)	▪ SBN is a group of banking regulators from emerging markets ▪ Aiming to incorporate climate risks in risk management frameworks through knowledge sharing and capacity building[3].
International Platform on Sustainable Finance (IPSF)	▪ Members are the governments of various countries, including India ▪ Enabling the financing of sustainable infrastructure through exchange of ideas and coordination between member countries in areas of disclosure, taxonomies, standards, and labelling[4].
International Development Finance Club (IDFC)[5]	▪ IDFC, an association of development banks, was set up for better coordination among its members to complement each other's developmental activities with a focus on green finance. ▪ IDFC has developed international best practices on green finance including the renowned green finance tracking practices ▪ IDFC augments its members' capacity on green finance by sharing technical know-how and international best practices, knowledge dissemination, and training

3 https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/company-resources/sustainable-finance/sbn
4 https://www.moodysanalytics.com/regulatory-news/oct-18-19-eu-and-several-countries-launch-global-platform-on-sustainable-finance
5 https://www.idfc.org/

UN Environment Finance Initiative (UNEP FI)	▪ Built partnership with financial intermediaries in many countries to integrate sustainability into financial decision making[6]. ▪ Co-created other similar initiatives such as Principles for Responsible Banking (PRB), Principles for Sustainable Insurance (PSI), and Principles for Responsible Investment (PRI), and Net Zero Owner Alliance
PRB – A Network of Banks	▪ PRB Framework: PRB framework helps banks to demonstrate their societal contribution in their lending portfolio ▪ Collective Commitment on Climate (CCC) - A declaration in which all the PRB signatory banks (36 banks) have committed to concrete and time-bound actions to augment the scale of financing to green sectors; aligns the PRB signatory banks' lending practices with the objectives of Paris Agreements on climate goals
PRI	▪ PRI is a network of investors (managing asset under management (AUM) of $90 trillion[7]) comprised of asset owners, investment managers, and investment service providers. ▪ Developed a set of six voluntary principles, which incorporate ESG issues in investment practices ▪ Asks investors to incorporate these principles in investment decision making, ownership policies, practices, disclosure, and promotion
PSI	▪ PSI is an initiative between the UN and the insurance sector, including insurance regulators and companies ▪ Developed a set of four principles that covers decision making, awareness, promotion, accountability, and transparency related to ESG issues in the value chain of the insurance sector ▪ The principle will address ESG risks and opportunities through better understanding and risk management frameworks in the insurance business
Net Zero Asset Owner Alliance	▪ The goal is to transition the investment portfolios of institutional investors to net-zero GHG emissions by 2050 ▪ Means to achieve the goal is through advocacy, and engagement with corporates, industries, and policy makers ▪ Currently represented by a group of 25 institutional investors managing $4.7 trillion
Task Force on Climate-related Financial Disclosure (TCFD)	▪ TCFD was set up by the Financial Stability Board (FSB) ▪ Framework for standardized climate-related financial risk disclosures for use by financial intermediaries such as the investors, lenders, asset managers, and corporates ▪ The framework will help financial intermediaries such as the investors, lenders, asset managers, and corporates to make an informed lending/investing decision; will also support policymakers and regulators better understand concentration of climate risks in the financial sector and macro-level exposure of the financial system to climate-related risks. (BIS, 2020).

Source: *Authors' analysis based on public information*

The diversity in approaches adopted by these initiatives range from responsible and sustainable finance to climate and green finance. Though some of these approaches do not necessarily contribute to climate investments directly, stakeholders including inter-governmental organizations, civil societies, responsible investors, policy makers and regulators have insisted that the financial sector adopts them.

6 https://www.unepfi.org/about/
7 https://www.top1000funds.com/2020/01/pri-milestone-500-asset-owner-members/

3.3 INDIA'S INVOLVEMENT WITH GLOBAL INITIATIVES

India's financial sector is not fully aligned with the global efforts to accelerate Green Finance in terms of awareness, interest, and recognition of "green" in lending and investment practices

Indian financial institutions have begun aligning themselves with global initiatives, but it is limited to a few institutions. For instance, Yes Bank is the only commercial bank from India which is a signatory to the Principles for Responsible Banking (PRB) and is a member of UN Environment Finance Initiative (UNEP FI). The Insurance Institute of India (insurance education and training provider) is the only institute that is a signatory of the Principles for Sustainable Insurance (PSI). And only four asset managers/investment services providers from India are signatories of the Principles for Responsible Investment (PRI). Indian Banking Association (an association of banks) is a member of the Sustainable Banking Network (SBN), and the Small Industries Development Bank of India (SIDBI) is a member of the International Development Finance Club (IDFC). There is no representation from India at the Network for Greening the Financial System (NGFS), which is considered a powerful network of banking regulators in Green Finance. India is a member of the International Platform on Sustainable Finance (IPSF), which started in 2019, but this initiative has made little progress. There are no national collaborations or industry association led initiatives that have started on Green Finance either. Financial markets, banks, and rating agencies are not also not considering green elements/factors in their decision making[8].

There is a growing need to sensitize India's financial sector about the importance of Green Finance and to the need for accelerating capital through sustained market-led collaborative actions and regulatory interventions.

The lack of integrated focus on Green Finance, indifferent financial regulations, and inadequate institutional mechanism on Green Finance is limiting the growth of the sector (CPI & cKinetics, 2019). And there is a growing need to sensitize India's financial sector about the importance of Green Finance and the need for accelerating capital through sustained market-led collaborative actions and regulatory interventions.

8 Primary research

4. POSSIBLE GREEN FINANCE TAXONOMY FOR INDIA

India can define Green Finance using a combination of the following options: 1. Learnings from international practices; 2. Developing a set of principles; 3. Considering stakeholder views. Each option presents different trade-offs, with some presenting a more conceptual view and others allowing for a more detailed classification.

4.1 INTERNATIONAL PRACTICES

There are considerable variations in the approaches used by various countries and institutions to define green with regards to methods (how), eligible economic activities (what), and level of detailing (how much) required to be classified as green. Green finance definitions have multiple applications: raising capital through various financial instruments and sources (green bonds, equity, green lending, green funds, green banks, etc.), designing policy and regulation for increasing green investments, tracking climate finance flows, and investment strategy/ practices for lending and investment (European Commission, 2017).

These various approaches are broadly divided into two levels:

- Level 1. Conceptual definition; and
- Level 2. Operational definition (Wright, 2011).

The conceptual definition is a guideline or theoretical meaning of green, based on which the green definition can be applied. The operational definition is a way of converting conceptual definitions into practice. International practices on these two levels are discussed below.

Table 5. International Practices on Green Finance Definition

Definition	Scope and Practices	Comments
Conceptual definition	**Financing and investment** ▪ Greenhouse gas (GHG) emissions ▪ Climate change adaptation ▪ Resource conservation and ecological protection ▪ Efficient use of natural resources ▪ Products and services offering solutions to climate change ▪ Financial Policy and Regulation ▪ Internalize environmental externalities ▪ Climate-friendly policies, regulations, and institutions ▪ Better understanding and pricing of financial risks related to environmental factors ▪ Financial instruments related to climate-friendly sectors	▪ Green Finance as a concept covers economics activities beyond climate change ▪ It also includes economic activities such as pollution which are not directly contributing to mitigating and/or adapting climate change ▪ Green Finance is more than just financing and investment in green but also includes policy, regulation, and financial market actions related to green.
Operational Definition	**Sectoral taxonomy** ▪ Classify economic activities by sectors, which are further divided into sub-sectors; each subsector gives a detailed explanation on projects and criteria eligible for green. **Negative screening** ▪ List of excluded economic activities **ESG** ▪ Inclusion of social and governance factors **Demonstration** ▪ Demonstrate a clear and measurable environmental benefit	▪ Sectoral taxonomy is the most favored operational definition as it offers maximum clarity to stakeholders; member countries of EU, China, and successful financial instruments like the green bonds (by Climate Bonds Initiative) and FTSE Russel have used sectoral taxonomy ▪ Sectoral taxonomy includes excluded activities used by a few institutions ▪ Integration of social and governance (S&G) factors could limit the flow of capital in green; S&G factors are dealt by separate institutions; financers/investors consider Environmental, Social, and Governance (ESG) factors in their decision making ▪ Demonstration: Useful in the case of the economic activities, as they contribute to environmental benefits indirectly

Source: *Authors' analysis based on Inderst, g. et al. 2012; European Commission, 2017; PBoC, 2015; CBI, 2019; CBD, 2017; EIB, 2015; Cicero; Lindenberg N. 2014; Climate Policy Initiative and cKinetics. 2019*

For India's purpose, moving towards adopting international practices have the major benefit of attracting international capital providers that are increasingly concerned about climate change risk.

4.2 PRINCIPLES FOR DEFINING 'GREEN'

Since green as an economic activity is evolving at the present stage, it is evolving but not yet clear for the financial sector in India. A set of principles could be developed, which could be used as a framework to define what constitutes as green. The following initial principles are based on learnings from international practices, expert views, existing literature, and economic theories.

- Principle 1: **Alignment with the national goals**. Promotion of green economic activities that align with India's NDC commitment and sustainable development plan.
- Principle 2: **Net carbon emission reduction**. Economic activities that make net carbon emission reductions over the lifetime of a project.

4.2.1 PRINCIPLE 1: ALIGNING WITH NATIONAL GOALS

Since NDC goals are specific, a detailed taxonomy that differentiates green from non-green could better reflect how Green Finance activities measure up to NDC-desired outcomes. India's national commitment to reduce carbon intensity in its GDP focuses on certain key areas: clean energy, energy efficiency, clean transportation, climate-resilient and low carbon cities, and an increase in forest cover (MoEFCC, 2015). India's clean energy expansion relies on renewable energy as well as other energy generation activities which offer incremental environmental benefits such as co-generation. India's energy efficiency plan is not restricted to energy consumption and includes energy efficiency at thermal power plants and research and development (R&D) activities on clean coal as well. Further, India's climate-resilient and low-carbon cities include clean electricity supply, energy-efficient street lighting and buildings, waste management and waste-to-energy, and clean transportation – which includes mass transit systems, and overall electric mobility.

India is also focusing on water efficiency, pollution control, and enhancing carbon absorption through an increase in forestry and tree cover. In the context of Green Finance, it may be noted that pollution control measures are neither direct mitigation nor fall under the standard description of adaptation. Therefore, it is often missing from many international practices on climate finance. Climate finance could be considered as a subset of Green Finance and include pollution reduction in the ambit of Green Finance. Besides, given India's NDC commitments and SDG targets, it may also be useful to cover all the other activities such as climate-resilient agricultural practices, safeguarding mountainous and coastal ecosystems, protecting forest-dependent communities, and ecologically sustainable production systems within the gamut of Green Finance.

4.2.2 PRINCIPLE 2: NET CARBON EMISSION REDUCTION

The more straightforward approach to defining Green Finance is any economic activity which is directly contributing to reducing carbon emissions. The essential advantage of this approach is a clear demarcation of green and non-green economic activities. A critical shortcoming of this approach is exclusion of economic activities, including manufacturing activities that indirectly contribute to reducing carbon emissions or help in climate adaptation. Alternatively, this principle could be applied to both direct and indirect economic activities. Adaptation activities remain broad and unclear often indistinguishable from broader sustainable development/ SDG investments. This principle is based on the value chain approach, which considers all the functional activities in the entire value chain, including manufacturing. It can be argued that manufacturing is a negative carbon activity since it leads to higher emissions when viewed on a standalone basis. The argument could change if the net impact on emissions is considered as a barometer under the value chain approach, wherein, the environmental impact of an entire asset or activity's value chain could turn out to be carbon positive (CPI & cKinetics, 2019). Overall, this principle covers economic activities whose outcomes generate a measurable impact or demonstrate change from business-as-usual with respect to reduction of carbon emissions. Two conditions need to be met for an economic activity to be declared as green under this principle: 1) creates positive climate results, directly or indirectly; and 2) there is a verifiable and measurable change from business-as-usual.

4.3 STAKEHOLDERS' VIEWS ON GREEN FINANCE DEFINITIONS: SECTORAL TAXONOMY

Through primary interviews with various stakeholders in the financial sector, we found a consensus that a standardized definition which can identify green economic activities across different sectors would be crucial in accelerating finance to green. Most stakeholders also indicated that a common definition should include a clear differentiation between green and non-green sectors/sub-sectors. A clear definition would also make it easier for stakeholders to identify the projects and economic activities that are eligible for Green Finance. Further, it would ensure appropriate prioritization of financing decisions by banks, financial institutions, and capital markets. Figure 2 summarizes and represents how Green Finance can be defined using the sectoral approach.

Stakeholders prefer a taxonomy that is differentiated by sector.

Figure 2. Defining Green Finance: A Sectoral Taxonomy

Source: *CPI and cKinetics, 2019*

4.4 A COMBINATION OF THE ABOVE FOR INDIA?

There are benefits and risks to each approach above, and a way forward may best be suited for some combination which defines Green Finance at both a conceptual level, possibly using the Principles approach, but also the sectoral level, taking on the international practices to align as well as possible to international capital flows.

5. WAY FORWARD: GOING BEYOND DEFINITIONS AND TAXONOMY

Given the complexity of the financial system and its policy and regulatory framework, greening the financial system requires identifying areas that need change. While an overall macro approach for mainstreaming Green Finance in India would need to include both, a) Greening Finance and b) Green Finance[9] - this report primarily focuses on Green Finance.

Any roadmap for Green Finance would ideally include a set of measures to increase the resilience of financial systems to climate risks.

A comprehensive and sequenced Green Finance strategy/ road map in India would comprise of the following elements:

- A common and accepted taxonomy of Green Finance
- Recognition and disclosure of climate change risk (preferably quantified) in the financial system
- Adjustments in current policies and regulations to incentivize Green Finance and penalize carbon-intensive investments

5.1 A COMMON AND ACCEPTED TAXONOMY OF GREEN FINANCE FOR INDIA

Finding a common definition of Green Finance that is accepted at the policy and regulatory levels, for both, public and private sector banks and financial institutions would be a good beginning to map the current Green Finance exposures in the financial system. A voluntary adoption of this definition by banks and/or financial institutions in their reporting and disclosure practices could be a good market led initiative. Subsequent steps of the formal adoption of the definition could take the form of compliance initiated by regulators such as RBI, PFRDA, IRDA, and Securities and Exchange Board of India (SEBI). Further, using the Green Finance definition for public finance, specifically in investment expenditure, would allow the Government to measure public finance spent on green investments. This would also lead to a better assessment of green investment needs from private finance. Finally, the wide acceptance of the definition would allow for a macro-level investment tracking in India and could be benchmarked to the GDP – a similar exercise was done for the infrastructure sector in India and has seen success.

9 Greening Finance is mainstreaming climate and environmental factors as financial and strategic imperative and Green Finance is about mobilizing and increasing private finance from climate and green investments (Green Finance Institute, UK).

5.2 RECOGNITION OF CLIMATE CHANGE RISKS IN THE FINANCIAL SYSTEM

Globally, the financial sector has recognized climate change as a systemic risk to financial stability (BIS, 2020). Climate change risks have been classified as a) physical risks and b) transition risks (TCFD, 2017). Physical risks arising from climate change can be event-driven or occur as longer-term shifts in climate patterns. This could result in direct damage to assets or cause indirect impacts through supply chain disruptions and resource unavailability. Transition risks refer to the potential risks incurred by the financial system due to policy, regulation, legal and market changes in a country that is transitioning towards a low carbon economy.

With increased environmental scrutiny and recognition of long-term climate change risks, carbon-emitting sectors such as mining, fossil fuels, coal-based power plants are currently facing climate change transition risks (Mercer, 2015). Financial performance of these sectors is likely to erode in the future and consequently affect the portfolio performance of banks and institutional investors with exposure to these sectors negatively (Jena et al., 2018).

Further, climate change risks would adversely affect long-term institutional investors like insurance companies and pension funds relative to short/medium-term investors. Long-term institutional investors have a long liability duration for most of their investments (Kaminker C. et al., 2012), and the horizon for impact of climate change risks is also long (Mercer, 2015). However, this could create a funding shortfall to meet their commitment to beneficiaries. Climate change risks are more problematic for insurance companies since their liabilities are positively linked to climate change risks. An increase in the frequency and intensity of natural disasters such as floods and storms would increase the insurance claims resulting in increased liabilities/pay-outs. Sectors prone to climate change risks, both physical and transition risks, have created an exposure of $1.4 tn for Indian banks and investors (Trucost, 2015). RBI, in its report, "Trend and Progress of Banking in India," acknowledged that climate change risks could adversely affect the stability of India's financial system, and the important role it needs to play in terms of disclosures and prudential regulations. It further states that that Green Finance could be an opportunity to diversify financial assets and enable mobilization of private capital for sustainable development in India (RBI, 2019).

5.3 POSSIBLE FINANCIAL POLICY AND REGULATORY INTERVENTIONS

The barriers to financing green sectors (as discussed in section 2) suggest that the market is not able to allocate capital for India's transition towards a low carbon economy due to various market and regulatory failures (Volz et al., 2015). And the existing initiatives are not enough to address these market failures (Tirole J., 2017). There is a clear case for incremental government interventions through the financial sector in correcting market failures (Tirole J., 2017) and developing a climate-resilient economy. These interventions would include shifting policies in favor of green, designing financial regulations to recognize and measure climate risks, and providing adequate capital. Incentives for Green Finance could help divert the flow of capital to green sectors and protect the economy against systemic climate change risks.

5.4 NEXT STEPS

Future work towards accelerating green finance in India would require building a roadmap that identifies ways to strengthen the resilience of Indian financial systems towards climate change risks and mobilize resources for green. This will require an empowered task force, comprised of experts from various relevant fields, that can advise on the steps the financial intermediaries and regulators can take in this direction.

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