Catalysing Private Capital for Green Investments in India

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Accelerating Sustainability

SHAKTI
SUSTAINABLE ENERGY
FOUNDATION

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About cKinetics

cKinetics is a mission driven Sustainability Insight, Innovation & Capital Advisory Firm. We work with businesses, investors, industry groups as well as thought leaders to continually generate market insight and catalyze change. cKinetics leverages thought processes for accelerating sustainable business and investing practices that include: (a) Closed loop systems, (b) Decentralized production and consumption, and (c) Resource conservation.

About Shakti Sustainable Energy Foundation

Shakti Sustainable Energy Foundation works to strengthen the energy security of India by aiding the design and implementation of policies that support renewable energy, energy efficiency and sustainable transport solutions.

Acknowledgements

The team is thankful to all the stakeholders representing financial institutions, policy and regulators, credit rating agencies and many other experts for sharing their experiences and learnings over the course of this study.

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Research Team

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Context

Climate finance takes its roots in the ever-intensifying debate about the health of our planet and actions being undertaken (or planned) by countries, cities and companies to keep it habitable for future generations. Financing for climate change mitigation and adaptation efforts is a global, complex, political and economic issue. While there is sufficient scientific consensus on climate change, mobilizing finance is key to unlocking action on climate change.

In recent years, Sustainable and Responsible Investing (SRI) has emerged as a key investment trend globally. Broadly, SRI is often construed to be the 'strategy' for investing in, but not limited to, publicly tradable instruments. It includes various strategies like:

1. **Screening**: Inclusion of companies based on positive Environmental, Social and Governance (ESG) performance or exclusion of sectors such as tobacco/alcohol based on investor's choice of sectors they want to avoid due to the negative impacts on environment and society
2. **ESG integration**: Designed to help investors achieve better investment outcomes, ESG integration involves the consideration of ESG risks and opportunities as part of the investment decision making process
3. **Sustainability themed investing**: Investments being directed towards clearly pre-defined focus areas or themes such as clean energy and sustainable agriculture
4. **Active ownership**: Involves leveraging one's influence as an equity owner to guide corporate business activity or the behavior of investee companies through proxy voting and corporate engagement

Given the focus of climate/green finance[1] on environmental actions, a natural overlap potentially exists with Sustainable and Responsible Investing (SRI) due to the consideration of environmental risks and opportunities. While both climate/green finance and SRI have emerged from very different sets of conversations (and different priorities), the overlap in certain areas opens an avenue for uncertainty and confusion.

Lens for the report

This report takes the perspective of investors with the objective of capturing the significance of the conflation between green/climate finance and SRI, and to recommend steps for enabling climate finance. In this context, the report discusses and maps:

- Overlaps and differences between green/ climate finance and SRI
- State of SRI market in India
- Estimations on the potential capital flows through 2033 for meeting India's climate mitigation target

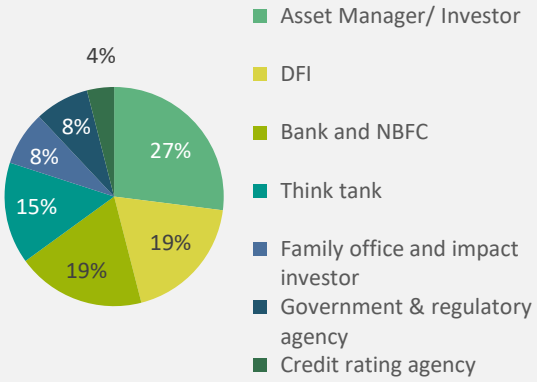
[1] While Climate/Green Finance hold their differences (refer to cKinetics-CPI report: Building a Consensus on the Definition of Green Finance), these terms have been bucketed together for the purpose of this report

Mapping the overlaps and differences between green/ climate finance and SRI

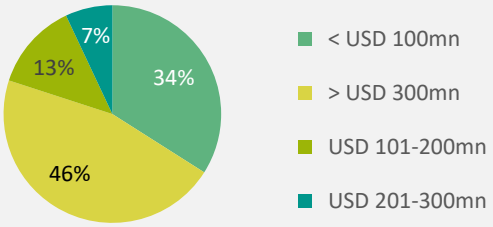
Around 30 stakeholders from the financial community, think tanks, regulators were engaged for the purpose of the study.

Mapping the state of SRI market in India

A bottom-up model mapping around 145 SRI funds across 60 international and domestic asset management companies was constructed. The India allocation of these funds across different sectors and SRI strategies was used to arrive at the state of SRI market in India.



Respondent profile



Categorization of funds mapped based on Assets Under Management (AUM)

Estimations on the potential capital flows for India's climate mitigation need

A multi-pronged approach was adopted to estimate the potential capital flow for climate mitigation in India from 2020 to 2033. The approach adopted is captured below.

Identifying the different capital sources	Mapping the current contribution of the identified sources to different sectors	Capital flow projections to climate-aligned sectors
For the purpose of estimation eight capital sources were identified. The dataset comprised of annual records of these capital sources covering, bond, equity and loan flows into India - The bond flows include capital raised from the international and domestic market through **External Commercial Borrowing (ECBs)** and **Private Placement of Corporate Debt** - Equity investment included both international and domestic sources like **Foreign Direct Investment, Qualified Institutional Placements** and **Private Equity/ Venture Capital** Loans from **domestic banks**, **NBFCs** and **All India Financial Institutions** (NABARD, SIDBI, National Housing Bank) were also included	Contributions from each of the identified capital sources to different sectors including non-service industries and agriculture & allied sectors were mapped	Capital flow projections to different sectors were based on past trends. The capital flow for climate mitigation within each sector was based on the extent of composition of green activities for each sector Two different scenarios were analyzed based on market evolution, policy push, and investor focus on climate investments for risk diversification, that is likely to drive capital flow

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Glossary

Term	Description
All India Financial Institutions	Regulated and supervised by RBI (Reserve Bank of India), the AIFIs play a statuary role in the financial markets through credit extension and refinancing operation activities and cater to the long-term financing needs. It includes EXIM Bank, National Bank for Agriculture and Rural Development (NABARD), National Housing Bank (NHB) and Small Industries Development Bank of India (SDIBI); For the purposes of this study, NABARD, SIDBI and NHB have been considered (Source: RBI)
Asset	An asset refers to any resource, property or item which has a financial or economic value
Asset manager	A company which manages assets/ capital on behalf of its clients (asset owners)
Assets under Management (AUM)	Market value of assets that an investment company manages /invests
Asset owner	It includes pension funds, insurance funds, foundations, that have legal ownership of assets /capital
Benchmark	Measurement of the performance of an investment /business against a baseline created through market/ peer indexing or best-in-class
Bonds	Bonds are a fixed income instrument where one party lends a sum of money to the borrower for a given period of time (the term) against a given rate of interest (the coupon)
Business Responsibility Report (BRR)	Is a standardized format introduced by the Securities and Exchange Board of India (SEBI) for corporates to report on the actions undertaken towards adoption of responsible business practices
Capital flow	Net investments made in a given specified period of time within a defined boundary such as a project, a firm, a country, or a fund
Climate adaptation	Any adjustment in natural or human systems in response to actual or expected climate change which moderates harm or exploits beneficial opportunities (Source: IPCC)
Climate mitigation	An anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases (Source: IPCC)
Credit rating agencies	Ratings which evaluate the credit worthiness of companies or their ability to repay investors
Development Finance Institutions	Financial institutions which provide financial services to the underserved markets
E&S risks	Financial risks for the investors due to environmental and social risks related to the operations of the investee company/ project
Equities	Shares in a company that can owned, traded, by an individual/ institution that entitles them to a portion of the company's profits
ESG investing	Integration of Environmental, Social and Governance parameters in stock selection process in addition to financial parameters
Foreign Direct Investment (FDI)	Investment through capital instruments by a person resident outside India (a) in an unlisted Indian company; or (b) in 10 percent or more of the post issue paid-up equity capital on a fully diluted basis of a listed Indian company (Source: RBI)
Greenhouse gas (GHG)	Atmospheric gases (including carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor) that contribute to the greenhouse effect by absorbing infrared radiation from the sun
Gross Domestic Product (GDP)	It is the market value of all final goods and services produced within a country in a given period of time
Official Development Assistance (ODA)	It is defined as government aid comprising of either "grants" and/or "soft" loans (where the grant element is at least 25% of the total) and /or technical assistance designed to promote the economic development and welfare of developing countries (excluding military purposes) (Source: OECD)
Reserve Bank of India (RBI)	Central banking institution of India controlling the issuance and supply of the Indian rupee
Securities and Exchange Board of India (SEBI)	Regulator for the securities market in India
Stock Exchange	A facility where financial securities can be bought or sold
VC/ PE	Venture capital (VC) and private equity (PE) investments are equity investments in very early and early stage companies with high growth potential

Executive Summary

The risk of climate change is one of the central issues facing the world. There is widespread consensus that climate change can dramatically alter ecosystems and hence, requires immediate action. Steps are being taken globally and the same need to be further intensified to reduce the build-up of greenhouse gases in the atmosphere thereby reducing the magnitude and rate of climate change across the globe.

An important milestone in this direction, the Paris Agreement, stressed on the need for concerted action to achieve this common goal. Aligning the capital flows with low-carbon, resilient development pathways is critical to achieve this goal. This not only requires the private sector to drive action by investing into low carbon intensive sectors but also to support the transition of conventional brown sectors to green areas.

Meeting our NDC target: Private capital to be an important cog in the wheel

It is estimated that India will require **USD 1.6tn** between 2020-2033 to meet its NDC commitments for climate mitigation. While public finance will continue to play an important part through supportive action in the form of credit enhancement and risk mitigation tools, an enhanced role of private capital is foreseen.

Sustainable and Responsible Investing to provide impetus

Sustainable and Responsible Investing (SRI) refers to the investment approach that goes beyond financial risk assessments and considers Environmental (E), Social (S) and Governance (G) factors to make prudent and resilient investment decisions.

While climate/green finance and SRI have emerged from very different sets of conversations (and different priorities), overlaps exist in certain areas (owing to their connectedness across environmental objectives). The figure below illustrates the potential for overlap between the two terms.

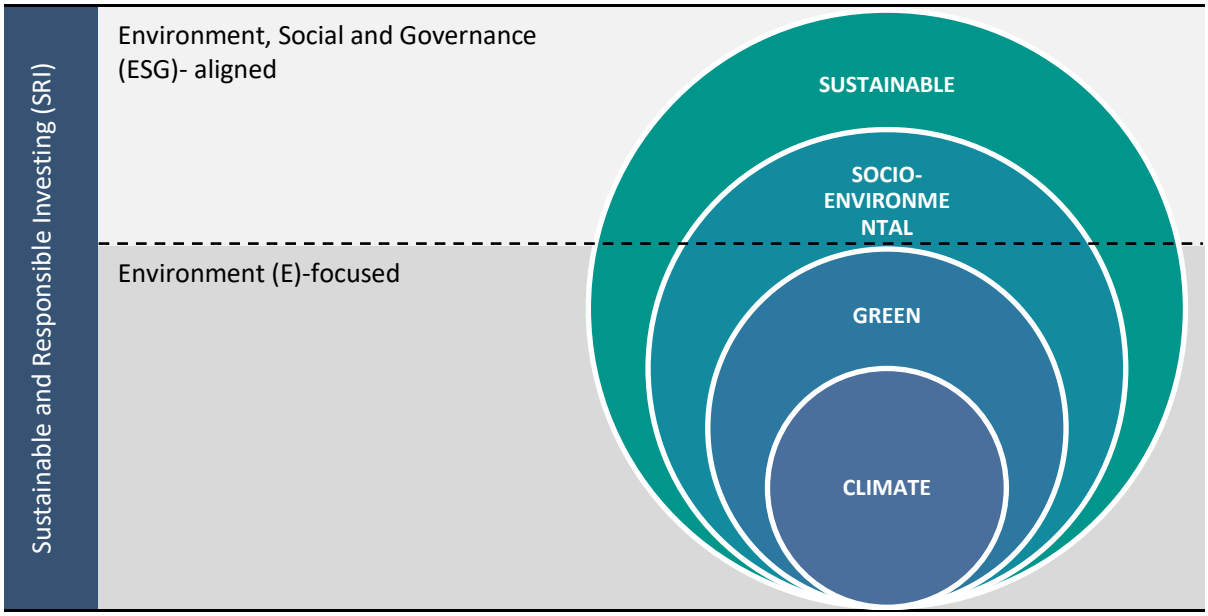


Figure 1: Intersection of Climate/Green finance and SRI

While an overlap may exist across climate finance and SRI, it cannot be construed as a perfect one each time. Integration of Environmental, Social and Governance risk parameters in the portfolio selection process may inadvertently result in the selection of a carbon-intensive company that is in compliance with all the regulatory norms of the country of its operation. Therefore, the company is often considered to be managing its ESG risks and could thus be screened-in. However, investment in such a company cannot be considered climate/ green finance as the regulatory norms so far do not consider carbon emissions and climate risk management. An illustrative example is depicted below.

Regulatory considerations for a conventional thermal power plant		
	Water and wastewater	
	Limits on water withdrawal and usage	✓
	Limits on wastewater discharge	✓
	Air emissions	
	Limits on Particulate Matter	✓
	Limits on Sulphur Dioxide	✓
	Limits on Oxides of Nitrogen	✓
	Limits on Mercury	✓
	Limits on Greenhouse gases (like CO_2)	✗
	Social	
	Rehabilitation and resettlement	✓
	Labour wages and welfare	✓
	Governance	
	Tax, MoU with state government, Power Purchase Agreement	✓

Categorization (ESG investment and Climate finance)	
If the thermal power plant is in compliance with all regulatory norms	**ESG** ✓
Since, emission norms do not consider carbon emissions	**Climate Finance** ✗

Also, a point of overlap can exist even without *intentionality* (to consciously generate a positive environmental impact) being factored in, i.e., investment may be made in climate-friendly sectors as a way to minimize risk without necessarily looking to achieve a positive contribution to climate mitigation or adaptation objectives.

Thus, SRI by itself may not lead to climate finance however it represents an important capital pool which can be appropriately steered by considering the requisite environmental and social risks, thus driving climate-related action.

Rapid growth in global SRI assets: a signal for opportunities in the domestic market

SRI assets managed in five major markets – Europe, US, Japan, Canada and Australia/New Zealand – witnessed a substantial 34% increase over the past two years to reach USD 30.7tn in 2018.[2] The strongest growth was witnessed in Japan where sustainable assets grew 4.6x during the period (USD 474bn in 2016 to USD 2.2tn in 2018), primarily driven by strong government and regulatory commitment to mainstream SRI investing.

Even while globally Sustainable and Responsible Investing is becoming mainstream, only USD 1tn[3] out of the total SRI pool of USD 30tn can currently be considered as aligned to green/ climate finance. However, the narrative is now changing with an increasing awareness on climate change amongst investors driven largely by large international asset owners. For instance, the Norwegian Government Pension Fund Global's environment-related investment mandate requires Norges Bank (their asset manager) to establish environment-related investment mandates in the range of 30-60 billion kroner; and Stichting Pensioenfonds ABP (Dutch pension fund for civil servants) had set a € 5bn renewable energy investment target for 2020, of which € 4bn has already been achieved as of 2017.

Within India, the size of the SRI asset base is still comparatively small (USD 28bn or 0.1% of global SRI assets), although growth in the past two years has been led by domestic asset managers whose SRI assets

[2] Global Sustainable Investment Review 2018
[3] Ibid.

have grown over 70% (albeit from a small base). The asset management industry is witnessing a rapid flux of activity with multiple recent announcements to launch ESG/SRI focused funds for better risk management. While investment is yet to be undertaken in these funds, the views of domestic investment managers are positively leaning towards SRI as an investment product and strategy.

In response to the changing investment landscape, the domestic market is expected to evolve with:

- New 'green' businesses getting established and over time, moving towards the capital markets
- Existing brown business transitioning to green through:
  - Business diversification
  - Reduction in corporate carbon footprint
- Lenders greening their loan books through funding of green projects/ businesses and supporting green transition

Redirecting private capital toward low carbon pathways

The need to accelerate greater climate action necessitates transitioning to cleaner and more efficient technologies, sustainable resource use, and greater use of alternative energy sources. Initial estimates suggest that India's climate finance ambitions will require an average investment of between USD 95bn to USD 125bn per year for climate mitigation alone. Therefore, the total investment requirement for setting up projects for climate mitigation between 2020 and 2033 is expected to be around USD 1.6tn.

Due to the market evolution towards a greener economy in the backdrop of India's NDC targets, backed by a healthy domestic savings rate (29% of GDP) and capital investment rates (~31%), India would be able to potentially grow annual capital flow to green sectors. It is estimated that India can potentially attract USD 686bn cumulatively by 2033. However, driven by the push from the SRI community and greater actions from the capital markets, India can potentially direct capital to the tune of USD 1,322bn to finance India's climate mitigation targets.

However, to attract capital from global SRI investors, concerted action and preparedness is key. Further, it is expected that public financing would be required to support only around USD 277bn of the total financing requirement. This is expected to emerge from both domestic and international public finance sources in the form of directed financing lines and risk mitigation instruments such as credit guarantees, etc.

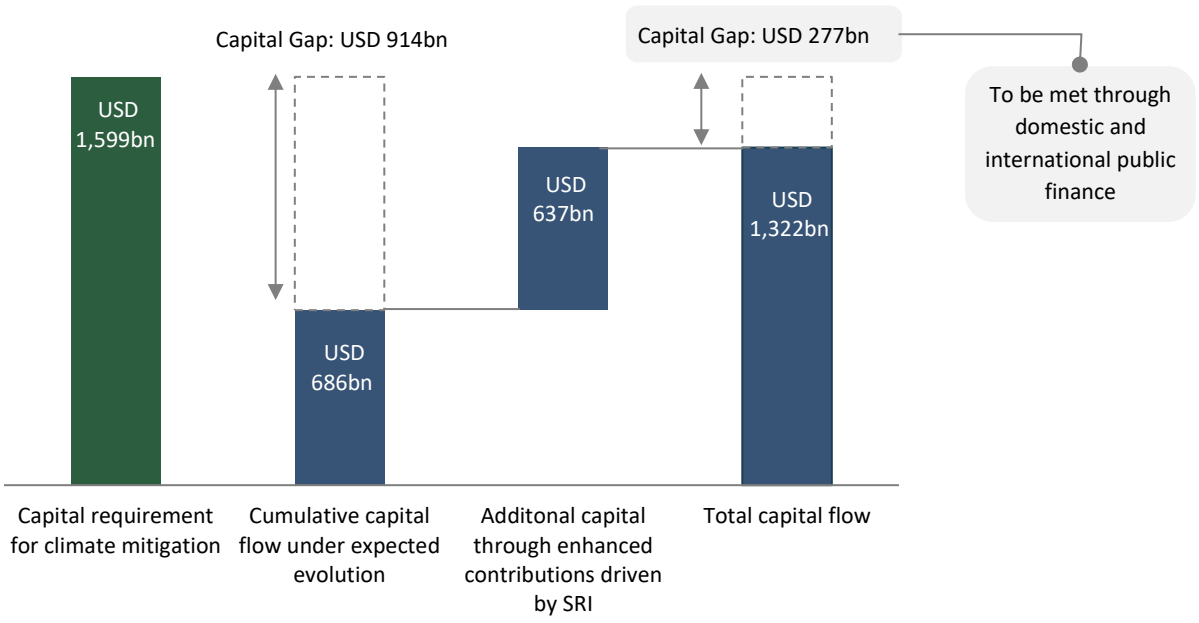
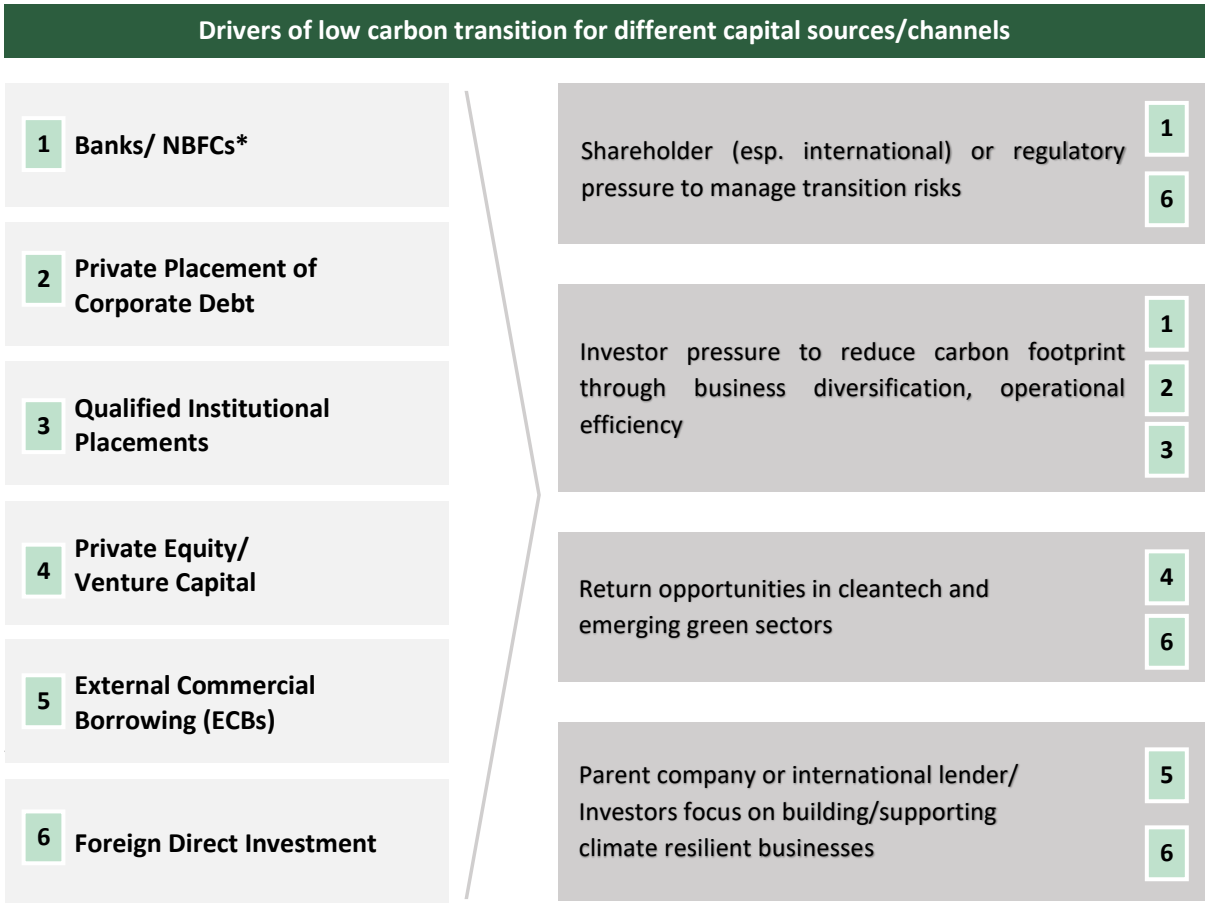


Figure 2: Capital flow for climate mitigation targets through 2033

A set of drivers influenced by a mix of international and domestic factors will encourage existing sources of debt and equity to redirect into cleantech and emerging green sectors.

Some of these drivers include:



*Significant shareholding of foreign funds and investors in domestic private banks

While the opportunity to meet climate financing need exists, tapping into the opportunity pool requires preparedness and concerted action as discussed below. A key aspect to this is sensitization on the risks of climate change complemented by supportive regulatory and policy measures to inspire investors and thus enable India to be a central destination on the SRI map of the world.

Interventions	Action to be taken by				
	R&P	I&L	CRA	SE	C
Enhancing quality of ESG disclosure - Standardized disclosure frameworks from market regulators is likely to enable informed investment decisions	■			■	
Improving the accessibility and usability of ESG data - Stock exchanges can improve access to parametrized and analyzable data in downloadable formats, which will lead to increased interest from international SRI investors. This will also enable peer comparison				■	■
Support listing of green companies - Stock exchanges can support listing of green companies through relaxed listing norms and incentives like lower listing fee - Green companies and green subsidiaries/ SPV of non-green companies should be listed to attract private capital	■			■	■
Creation of low-carbon/ green indices - Creation of green index by stock exchange will enable passively managed funds to invest in green companies		■		■	
Creation of sectoral climate risk assessment tools - Credit rating agencies can enable domestic and international investors to ascertain exposure to risk of climate change and hence enable low-carbon investments			■		
Formulation of internal carbon price by the SRI community - SRI funds to formulate an internal carbon price (given the lack of a universally recognized carbon price) and apply it to their valuations and portfolio allocations to ensure a quantitative reflection of these critical dimensions in the returns outlook. This in turn would automatically lead companies, seeking to tap into these funds, to disclose their carbon emissions		■			■
Creation of long-term risk mitigation instruments - Risk mitigation instruments such as credit guarantees, insurance and forex hedging products can help accelerate the flow of private capital in newer 'green' sectors	■	■			

Legend	
Regulatory and policy	R&P
Investor and lender	I&L
Credit rating agency	CRA
Stock exchange	SE
Corporate	C

1. India's journey towards a climate resilient future

The threat posed by climate change demands an urgent global response to keep the global temperature rise in this century well below 2° Celsius above pre-industrial levels, to limit the impact on land, biodiversity and ecosystems[4]. At the current rate of increase, average global temperature will likely hit the 1.5° Celsius mark between 2030 and 2052, exacerbating current levels of environmental damage caused by the ~1.0°C global warming that has already occurred.

The Paris agreement has brought climate action front and center to national plans and global priorities. The voluntarily pledged Nationally Determined Contributions (NDCs) marked a significant milestone in climate-associated global action. What sets the Paris agreement apart is an emphasis on active participation from the private sector – represented by corporate leaders from industries such as cement, energy, transport[5] setting emission reduction targets, and promoting the sustainable use of resources.

On its part, India submitted its NDCs (earlier known as Intended Nationally Determined Contributions) in 2015 for the period of 2021 to 2030. Key components of the major commitments made by India were[6]:

	***Unconditional target for 2030*** To reduce the emissions intensity of its GDP by 33 to 35 percent by 2030 from 2005 level
	To create an additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional forest and tree cover by 2030
	***Conditional target for 2030*** To achieve 40 percent cumulative electric power installed capacity from non-fossil fuel- based energy resources by 2030 with the help of transfer of technology and low-cost international finance including from Green Climate Fund (GCF)

1.1 Need to operationalize Article 2.1c of Paris Agreement

Under Article 2.1c of the UNFCCC Paris Agreement, countries committed to "making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development"[7]. This not only includes signaling the private sector to make a conscious effort to proactively invest into low-carbon sectors, but also to ensure that investments flowing into conventional brown sectors do not end up undermining transition efforts. For policy makers and regulators, it is a tight walk between attracting new capital and re-routing existing flows to operationalize a transition.

Initial estimates suggest that India's climate finance ambitions will require an average investment of between USD 95bn to USD 125bn per year for climate mitigation alone. Therefore, the total investment requirement for setting up projects for climate mitigation between 2020 and 2033 is expected to be around USD 1.6tn.

While developed nations have jointly committed to mobilize USD 100bn per year and direct those towards developing nations in support of climate actions, this must be contextualized in view of the substantive financing needs the countries present, e.g. India's cumulative requirement alone till 2033 is USD 1.6tn, whereas the net Official Development Assistance (ODA) to India in 2017 was a meagre USD 3bn, of which

[4] unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement
[5] www.worldbank.org/en/news/feature/2015/12/30/private-sector-an-integral-part-of-climate-action-post-paris
[6] www4.unfccc.int/sites/ndcstaging/PublishedDocuments/India%20First/INDIA%20INDC%20TO%20UNFCCC.pdf
[7] unfccc.int/sites/default/files/english_paris_agreement.pdf

60% was contributed by Japan alone. Clearly, in the context of developing nations' actual requirements, which is assessed to be in the *trillions* of dollars, current inflows are low.[8]

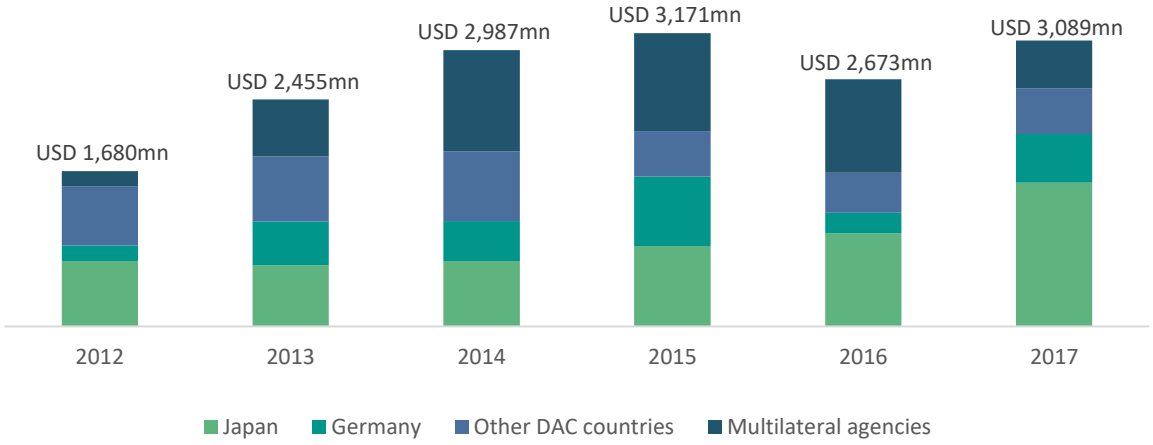


Figure 3: Net ODA inflow to India

Source: OECD

Public finance has played an important role in fueling India's low-carbon transition. Support in the form of subsidies, sovereign guarantee backed credit lines have helped unlock international capital for green areas. For instance, a sovereign guaranteed backed credit line worth USD 625mn was provided to State Bank of India Bank in 2016 by World Bank for kick-starting the financing of solar PV rooftop segment at scale. While public finance will continue to play a supporting role through creation of credit enhancement and risk mitigation tools, private capital is required to play an enhanced role in meeting the financing gaps through 2033.

[8] 3 Essential "S"s of Climate Finance - Scope, Scale and Speed: A Reflection (Climate Change Finance Unit, Department of Economic Affairs, Ministry of Finance, Government of India)

2. Climate finance and Sustainable and Responsible Investing: finding solutions to overlapping issues with different approaches

Climate finance is an imperative to support the transition to a low-carbon global economy but there are certain inherent challenges like the lack of consistent modalities for accounting of financial flows between countries[9], insufficient disclosures and reporting requirements, and inconsistent definitions and their applications, making it difficult to coordinate efforts at a global level. Although there is no universally agreed upon and accepted definition of climate finance, in its broadest form, climate finance is referred to by the United Nations Framework Convention on Climate Change (UNFCCC) as **"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"**[10]**.**

2.1 Sustainable and Responsible Investing: Steering capital towards climate goals

A number of terms have emerged that are important and connected to mainstreaming of climate issues into all areas of finance although these may not have gained similar recognition yet (partly due to insufficient understanding). For instance, *green finance*[11] includes not only climate change mitigation and adaptation goals, but also other environmental objectives like pollution prevention, biodiversity, and resource conservation.

In the capital markets and investment management domain, investors and investment managers are going beyond financial risk metrics and are assessing associated environmental, social, and corporate governance risks to ensure long-term sustainability of their investments. Various terminologies have come to be associated with this, such as Environmental, Social and Governance (ESG) based investing, Socially Responsible Investing, and Impact Investing. All these terminologies can be placed under the umbrella of Sustainable and Responsible Investing (SRI)[12].

Globally, some of the commonly applied Environmental, Social and Governance (ESG) parameters considered in investment analyses are indicated in the table below. As is clear, international investors have started to recognize the climate change risks which has crystallized into actions to reduce exposure to carbon-intensive sectors. Indian investors too need to enhance their approach to respond to the changing climate conversation.

Environmental	Social	Governance
• Energy efficiency • Climate change • Clean technology • Pollution/ toxics • Sustainable agriculture • Natural resource management • Water management and conservation	• Human rights • Workplace safety • Labour relations • Diversity • Community development • Avoidance of tobacco and other harmful products	• Corporate political contributions • Executive compensation • Board diversity • Anti-corruption policies • Board independence

Even as SRI seems to encompass 'environmental' dimensions, the lack of specificity towards 'green' aspects creates uncertainty and subjectivity.

[9] 3 Essential "S"s of Climate Finance - Scope, Scale and Speed: A Reflection
[10] unfccc.int/topics/climate-finance/the-big-picture/introduction-to-climate-finance
[11] While Climate/Green Finance hold their differences (refer to cKinetics-CPI report: Building a Consensus on the Definition of Green Finance), these terms have been bucketed together for the purpose of this report
[12] For the purpose of this study, SRI and ESG investing are used interchangeably

The illustration below highlights how an environmentally compliant conventional thermal power plant may get filtered-in for investment on integration of ESG (Environmental, Social and Governance) risk dimensions yet can't be categorized as climate finance.

Regulatory considerations for a conventional thermal power plant	
Water and wastewater	
Limits on water withdrawal and usage	✓
Limits on wastewater discharge	✓
Air emissions	
Limits on Particulate Matter	✓
Limits on Sulphur Dioxide	✓
Limits on Oxides of Nitrogen	✓
Limits on Mercury	✓
Limits on Greenhouse gases (like CO_2)	✗
Social	
Rehabilitation and resettlement	✓
Labour wages and welfare	✓
Governance	
Tax, MoU with state government, Power Purchase Agreement	✓

Categorization (ESG investment and Climate finance)	
If the thermal power plant is in compliance with all regulatory norms	**ESG** ✓
Since, emission norms do not consider carbon emissions	**Climate Finance** ✗

The following section aims to highlight the evolution of SRI, discuss different SRI strategies and reflect on differences between Climate/ Green Finance and SRI.

2.2 Global perspectives on Sustainable and Responsible Investing

A first-generation version of the SRI concept primarily focused on the idea of *protest divestment* whereby one may divest from a company to bring about positive social change. One of the earliest examples is the South African Divestment movement in the 1980s when students at New York's Columbia University demanded the University to cease investing in companies doing business with South Africa, thereby aligning their investments to anti-apartheid values; by 1993, ethical investments amounted to USD 625bn and nearly all of it had been steered away from companies doing business with South Africa[13]. This is also one of the first examples of shareholder advocacy in practice**. The focus of such initiatives has extended over time to cover** a wide range of issues including social values; **natural resource degradation and fossil fuel reliance,** corporate board governance and executive pay, etc. **The strategies to assess these risks have also evolved from exclusionary screens (negative screening) to ESG integration (assessing portfolio risk through an ESG lens) to corporate engagement and advocacy (shareholder voting on ESG issues), thus giving prominence to the wider practice of Sustainable and Responsible Investing**. While SRI adopts the route of integrating environmental risks such as climate change in portfolio construction process, it may not result in financing climate positive projects/ companies but instead projects/ companies that are compliant to the regulations of the operating geography.

One of the first major milestones in SRI was the launch of United Nations Environment Programme Finance Initiative (UNEP FI) in 1992. UNEP FI is a partnership between UN Environment and the global financial sector to provide impetus to sustainable finance. Consisting of a mixed group of stakeholders from the

[13] www.law.upenn.edu/cf/faculty/mknoll/publications/ethicalscreening.pdf

financial sector such as investors, banks, and insurers, the initiative intends to understand ESG challenges, associated risks, and approaches to address them[14]. Some of the key SRI strategies are discussed below.[15]

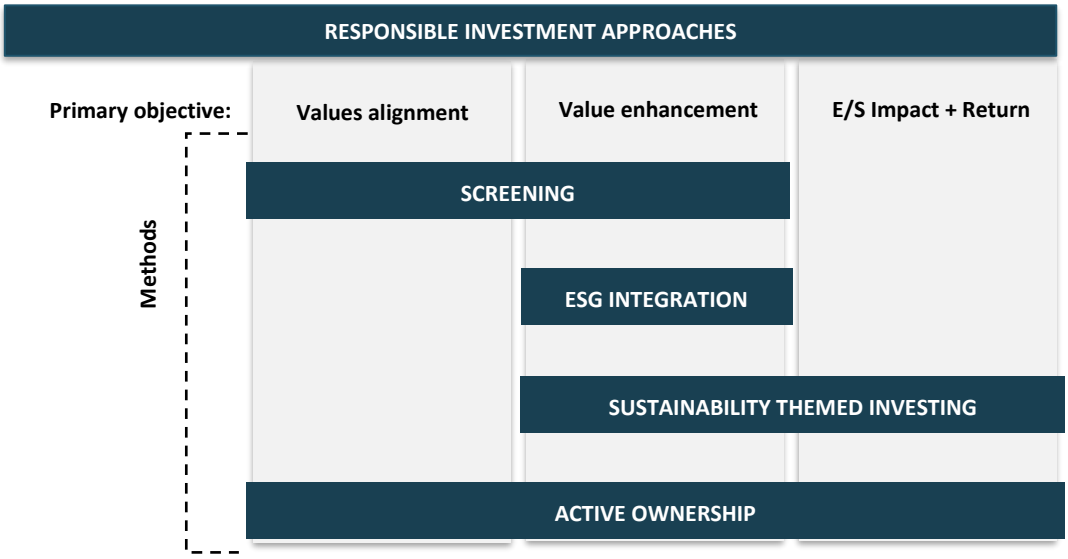


Figure 4: Responsible investment approaches and methods

Source: Mercer

- **Screening**: Is the inclusion (positive screening or best-in-class) or exclusion (negative screening) of companies based on ESG performance compared to industry peers. Avoidance of companies or sectors due to their conflict with ethical, environment or societal values is negative screening; for instance, avoidance of investment in mining or utilities companies that are heavily dependent on fossil fue3ls, producers of alcohol or tobacco, violators of nuclear weapons treaty, etc. A positive screening approach is adopted whereby companies or sectors are included into an investment pool basis their positive ESG performance. While negative screening excludes entire sectors such as tobacco, positive screening allows investment in a tobacco company showing leadership on ESG parameters such as workplace practices, pollution, despite the overall record of the tobacco industry

- **ESG Integration**: Involves consideration of ESG risks and opportunities as part of the investment decision making process. It does not reduce the investment opportunity set (as observed in the case of screening) and ESG becomes a framework for risk management, acting as a supplement to traditional financial analysis. Companies that rank higher on ESG factors are thus preferred

- **Sustainability Themed Investing**: Involves investments being directed towards clearly pre-defined focus areas or themes such as clean energy, sustainable agriculture, water and wastewater management

- **Active Ownership**: Involves leveraging one's influence as an equity owner to guide corporate business activity or the behavior of investee companies through proxy voting and corporate engagement. For example, shareholders voting to promote reporting of better climate disclosures at companies, voting against executive compensation hike, voting on appointment or extension of board members etc.

[14] www.unepfi.org/

[15] Note: Some impact investments are made intentionally at below market financial rates of return. However, such investments are typically made by foundations and is not presented in the diagram

2.3 Evolution of Sustainable and Responsible Investing in India

Globally, SRI accounts for ~26%[16] of the total asset under management. In India too, SRI has started to gain traction with the launch of dedicated ESG funds[17] and asset management companies signing up the UN-supported Principles for Responsible Investment[18] (PRI). The total assets deployed using SRI strategies in India as of 2017 was USD 30bn.[19]

ESG comprises of a number of themes, and each theme holds its own relevance depending on its materiality to an industry. In India, the recognition of one of those ESG themes, energy efficiency, started in 1988 with the Companies (Disclosure of Particulars in the Report of Board of Directors) Rules, which required companies to disclose on energy conservation measures (including total energy consumption, specific energy consumption, energy conservation measures adopted, additional investments and proposals implemented for reduction in energy consumption)[20]. However, it took over two decades for the release of Voluntary Guidelines on Corporate Governance for Central Public Sector Enterprises (2007), that were implemented in 2009 and later mandated in 2010[21]. **The table below presents a snapshot of evolution of SRI in India.**

Table 1: Evolution of SRI in India

	1988	2009	2010	2011	2012	2013	2015	2017	2018	2019
Reporting	Companies required to report on energy conservation				BRR mandatory for Top 100 companies by market capitalization		BRR mandatory for Top 500 companies by market capitalization	Top 500 companies advised to adopt <IR> framework		
Corporate Governance		First-time implementation of Voluntary Guidelines on Corporate Governance for CPSEs	Mandatory Guidelines on Sustainable Development and Corporate Governance for CPSEs					Kotak Committee on Corporate Governance for listed companies constituted	SEBI accepts select recommendations from Kotak Committee on Corporate Governance	
National Voluntary Guidelines on Social, Environmental and Economic Responsibilities				First release					Update released (Draft stage)	National Guidelines for Responsible Business Conduct released in March 2019
ESG Funds & Indexes	Shariah funds have been around since the '90s				BSE launches Greenex and Carbonex	MSCI India ESG Leaders Index launched		S&P BSE 100 ESG Index launched	Nifty100 ESG Index launched SBI Magnum Equity ESG Fund launched; Avendus announces launch of India ESG fund	Three former Tata group executive's tie-up with Quantum Advisors to launch USD 1bn ESG fund. BNP Paribas filed an offer document for its BNP Paribas India ESG Fund.

[16] Global Sustainable Investment Review (GSIA, 2016)
[17] SBI Magnum Equity ESG Fund, Avendus India ESG Fund, ESG fund launched by three former Tata group executives and Quantum Advisors
[18] Launched by UNEP Finance Initiative it is an independent network of global investors promoting responsible investment
[19] Drops before the rain?
[20] www.mca.gov.in/Ministry/actsbills/rules/CDoPitRoBoDR1988.pdf
[21] dpe.gov.in/publications/guidelines-corporate-governance-cpses-2010

Recognizing the need for Indian businesses to take responsibility of their operations, National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business (NVGs) were released in 2011. The following year, Business Responsibility Reporting (BRR) based on the NVGs was mandated for Top BSE 100 companies (and scope was later expanded to include Top 500 listed companies in 2017). In March 2019, an update to NVGs called **National Guidelines for Responsible Business Conduct** was released[22].

In the past, domestic investors have played a limited role in SRI. However, with increased global recognition of implications of ESG risks on performance of stocks, **several international asset management companies investing in India and domestic asset management companies have started to consider ESG risks of companies as material. The momentum seems to be picking up with the announcement/launch of ESG funds within India over the past year** like SBI Magnum Equity ESG Fund and Avendus India ESG Fund. Even while, globally, investors have started to adopt SRI strategies, ESG integration and exclusionary stand out to be the most widely adopted strategies, and only USD 1tn23 in the total SRI pool of USD 30tn can be categorized as climate aligned. In India, the number is much lower with only USD 0.04bn climate aligned investments out of the total USD 28bn sustainable and responsible investments in India. However, with the new set of green businesses emerging on the horizon, it is expected that these numbers will rise significantly in the coming years.

2.4 Climate Finance and SRI: Mapping the potential overlaps

As discussed earlier in this report, both climate/green finance and SRI have different priorities, but the potential overlaps owing to considerations of environmental parameters may often lead to conflation (as depicted in the table below).

SRI Strategy	Description	Illustrative examples	Implications for climate finance
Screening: **Negative (exclusionary)**	Exclusion of stocks, bonds or investment funds based on environmental and social values	Exclusion from polluting projects related to thermal coal mining or avoidance of utilities dependent on conventional energy sources	Exclusion of carbon-intensive sector results in reduced carbon footprint of the portfolio and hence confused with climate finance
ESG Integration:	Approach involving identification and assessment of environmental, social and governance risks to adjust forecasts of stocks to make better investment decisions	Investment in a project which has all environmental clearances, no environmental penalties and is transparent about its operations	Consideration of climate risks of a company/ projects' as a function of their emissions or dependence on fossil fuel is considered as climate finance since company/ projects with poor ESG scores are screened out. However, adoption of this strategy may result in capital flow into a carbon-intensive sector with all regulatory compliances
Sustainable Themed Investing:	Investing with a focus on environmental and social themes	Investing in projects or solutions that focus on clean energy, abating climate change, water conservation or recycling	This strategy most closely aligns with climate finance as the fund focuses on climate aligned sectors

[22] www.mca.gov.in/Ministry/pdf/NationalGuildeline_15032019.pdf

[23] Global sustainability themed investments, as reported by GSIA Investment Review 2018

SRI Strategy	Description	Illustrative examples	Implications for climate finance
Active Ownership:	Engagement with an investee company to drive change in business strategies, operations or business reporting	Voting to influence changes in corporate action on carbon emissions (e.g. in 2017, Royal Dutch Shell was called on to set GHG reduction targets), or engaging corporates to push for climate-related action (e.g., in 2019, Glencore plc was campaigned to cap its coal production, prioritize investment in low-carbon technologies as also improve assessment of climate risks and opportunities in its disclosures).	Active ownership is an important tool being exercised by investors to influence operations of their portfolio in order to preserve long-term shareholder value and enhance long-term returns. Active shareholders can drive their portfolio companies to improve their environmental footprint and support transition of brown sectors to green but may not result in climate aligned investments

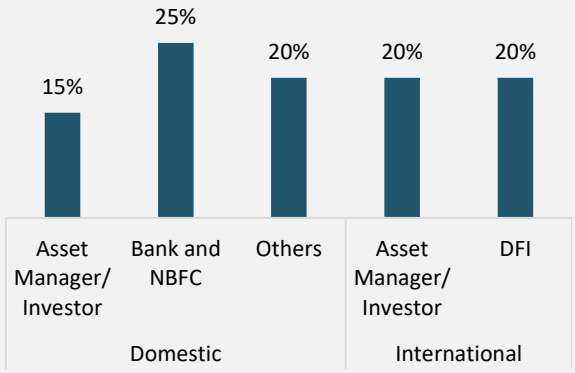
Given the above-illustrated overlaps, some subjectivity in attribution of investments is possible. This next section probes into such overlaps and applies inputs from stakeholders (especially investors) to illustrate differences between Climate Finance and SRI more clearly through a mapping of strategies, stated objectives and capital flows.

Further, effort has been undertaken to evolve a decision tree to help investors identify and tag their investment activities, without necessarily interchanging one for the other, and use that knowledge to consciously align their investments to greener solutions.

2.5 Stakeholder view

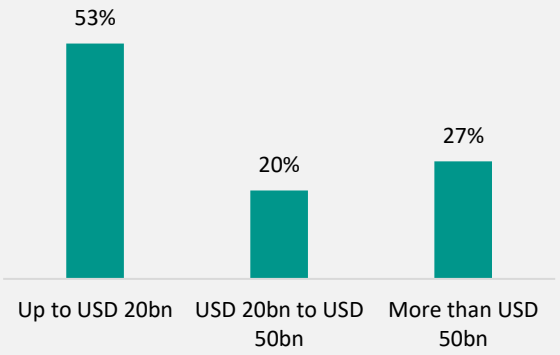
The study entailed a detailed survey of over 25 respondents including 17 financial institutions and intermediaries (such as asset managers, specialized funds, banks) to understand their perspectives on Climate finance and SRI. Summary of the key takeaways is presented below.

Respondents' profile



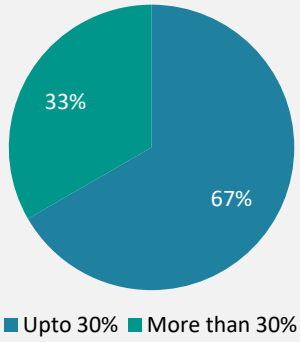
Respondent categories

Other includes credit rating agencies and family offices

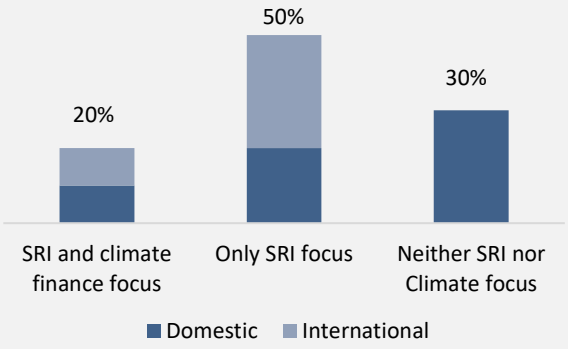


Assets under Management/ loan book size of the respondents

*(*Based on latest available data)*

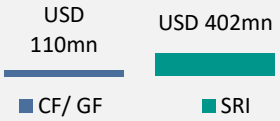


India exposure of international investors



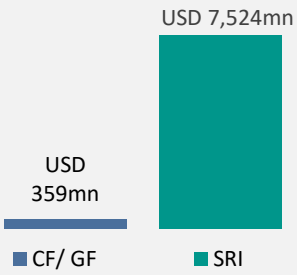
Respondent' focus on SRI and climate finance (excluding DFIs)

Domestic FI exposures in India



Total India Portfolio: USD 39bn

International FI exposures in India

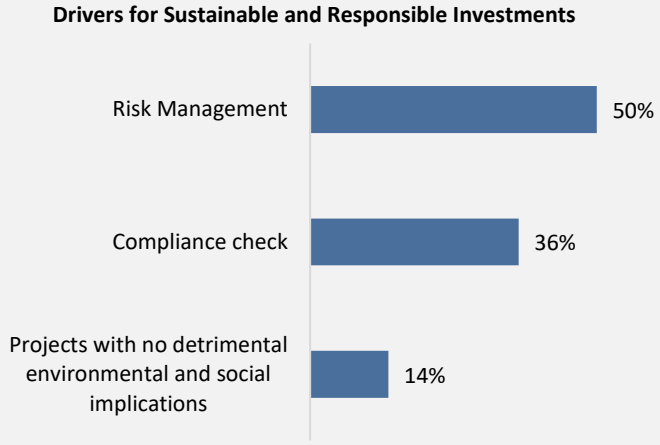


Total India Portfolio: USD 7.6bn

Note: Financial Institution (FI) exposures represented above may be overlapping in some cases (like when SRI occurs in CF/GF areas). The above categorization (CF/GF and SRI) is based on an assessment of the investment strategy adopted by the fund/FI

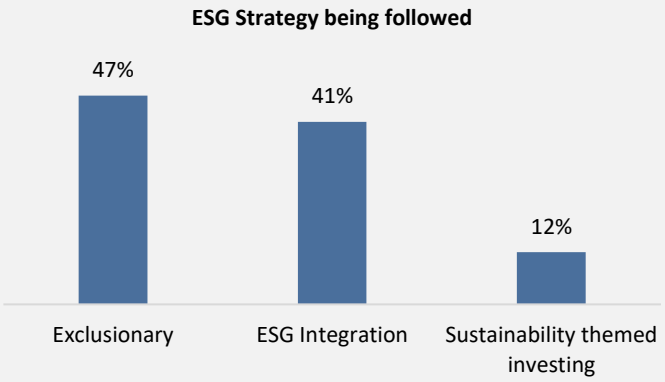
Less than one-fifth of investors see SRI as aligned to climate finance

While international financial institutions mostly view ESG as a risk management tool, domestic financial institutions (banks and NBFCs) collectively viewed ESG considerations only as a compliance check in the lending process.



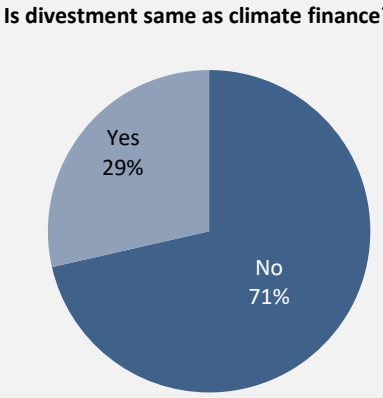
Exclusionary strategy most widely followed; International investors concur that exclusionary not the same as climate finance

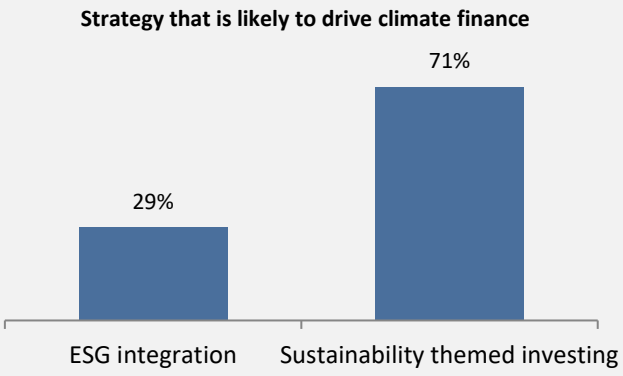
International FIs and domestic environmental/green funds do not consider exclusionary screening strategies (that eliminate sectors like coal extraction, oil & gas) as climate investing



Divestment not the same as climate finance

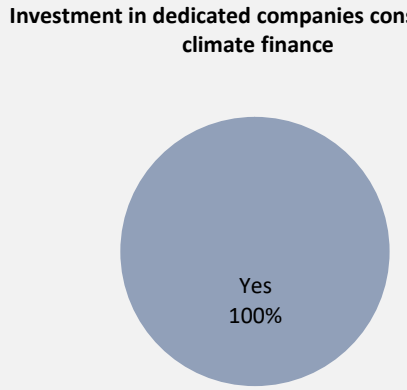
Most stakeholders were clear that divestment is not climate finance as capital thus released can still be redirected to sectors/ segments not aligned to climate strategy. Further, divestment would result in reduced carbon footprint of the investment portfolio but not the company per-se. Also, divestment doesn't imply reduction in capital invested but just a change in the investor. It however is an important 'signaling' tool in the mid-term. Large divestments can result in reduced demand for such securities, resulting in lower prices and thus, higher cost of capital, making it difficult to finance a carbon-intensive project





Over 70% of respondents foresee sustainability themed investing as the pathway to drive capital in climate aligned sectors

Sustainability themed investment is most closely aligned to climate finance with focus on similar sectors and is expected to enable climate finance



Equity investment in businesses generating positive outcomes on climate goals is also categorized as climate investing

As majority stakeholders aligned with this view, our climate flow estimates take into account company level investing also as climate finance (provided it feeds into climate goals).

Stakeholders however highlighted that trading in equity market does not result in creation of new climate-aligned assets and hence has limited ability to drive climate finance needs

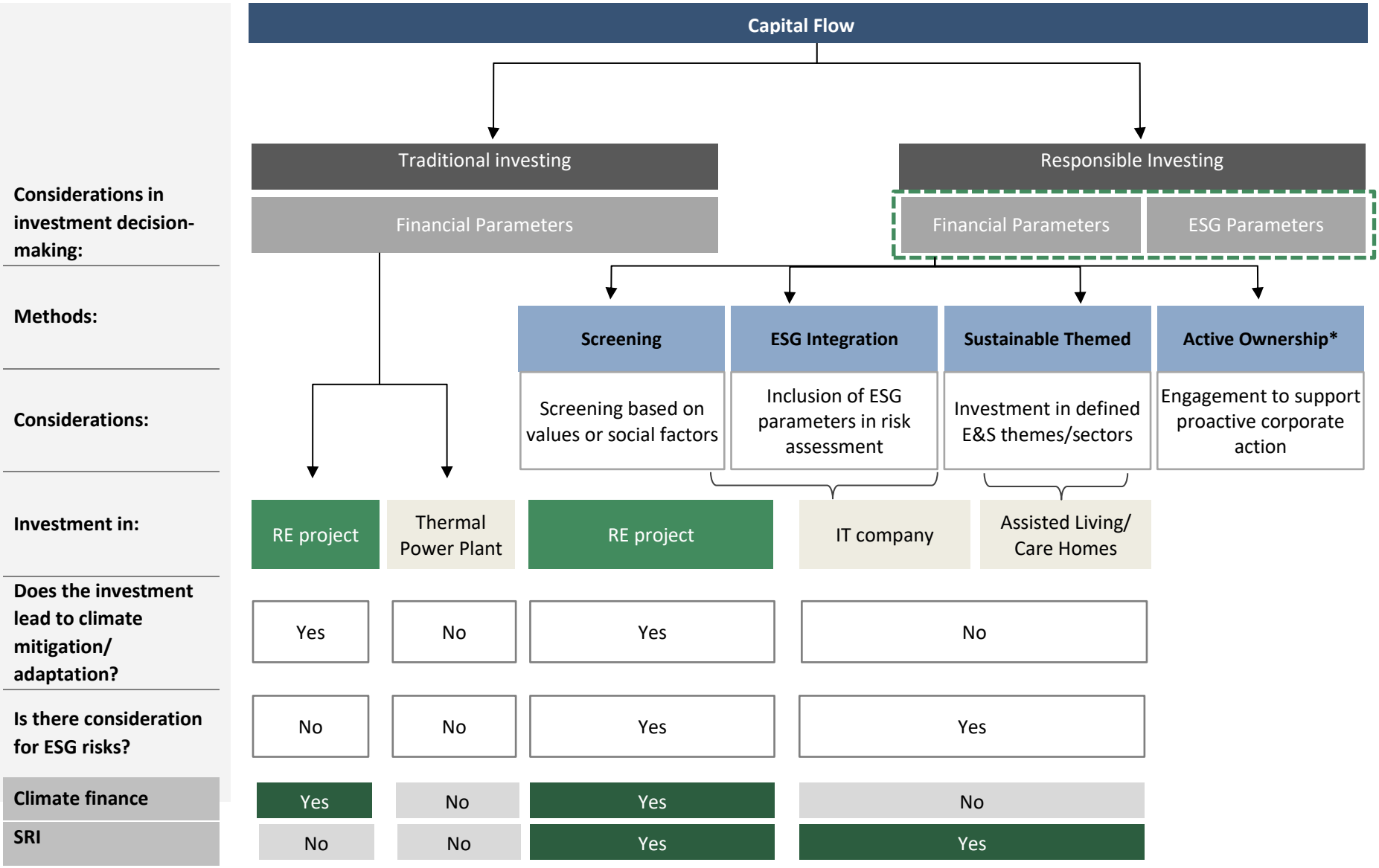
2.6 SRI intrinsically different from climate finance but supplements the theme of long-term sustainability

- **Stakeholders concur that sustainable and responsible investing supplements climate finance by considering risks and opportunities on environment and society**. *However, that is not the same as contributing to climate finance or mitigation and adaptation objectives*.
- It is to be noted that while some overlap may exist between Climate finance and SRI, it may **exist even without *intentionality*** (to generate a positive environmental impact), i.e., investment may be made in climate-friendly sectors as a way to minimize risk without necessarily being driven by the lens of enabling a positive contribution to climate mitigation or adaptation objectives.
- All SRI strategies do not lead to climate finance although some of them may very well contribute to "climate-related action".

Overlap and differences between climate finance and sustainable and responsible investing can be illustrated as below.

SRI but not CF		CF but not SRI		Both CF and SRI	
SRI ✓	**CF**	**SRI**	**CF ✓**	**SRI ✓**	**CF ✓**
Exclusion of Larsen & Toubro and ITC due to their involvement in production of nuclear weapons and tobacco, respectively		A large RE project with negative social impact due to displacement of communities without proper rehabilitation measures		Investing in industrial wastewater treatment company	
Reason: - Leads to investment in climate mitigation/ adaptation?	No	**Reason:** - Leads to investment in climate mitigation/ adaptation?	Yes	**Reason:** - Leads to investment in climate mitigation/ adaptation?	Yes
- Involves application or consideration of ESG risks?	Yes	- Involves application or consideration of ESG risks?	No	- Involves application or consideration of ESG risks?	Yes

The representation overleaf presents a decision tree to enable financiers and investors to characterize the capital flows appropriately in context of financing into climate outcome positive projects.



*Active Ownership is an SRI strategy to engage with investee company to influence their strategies and hence not classified as climate finance

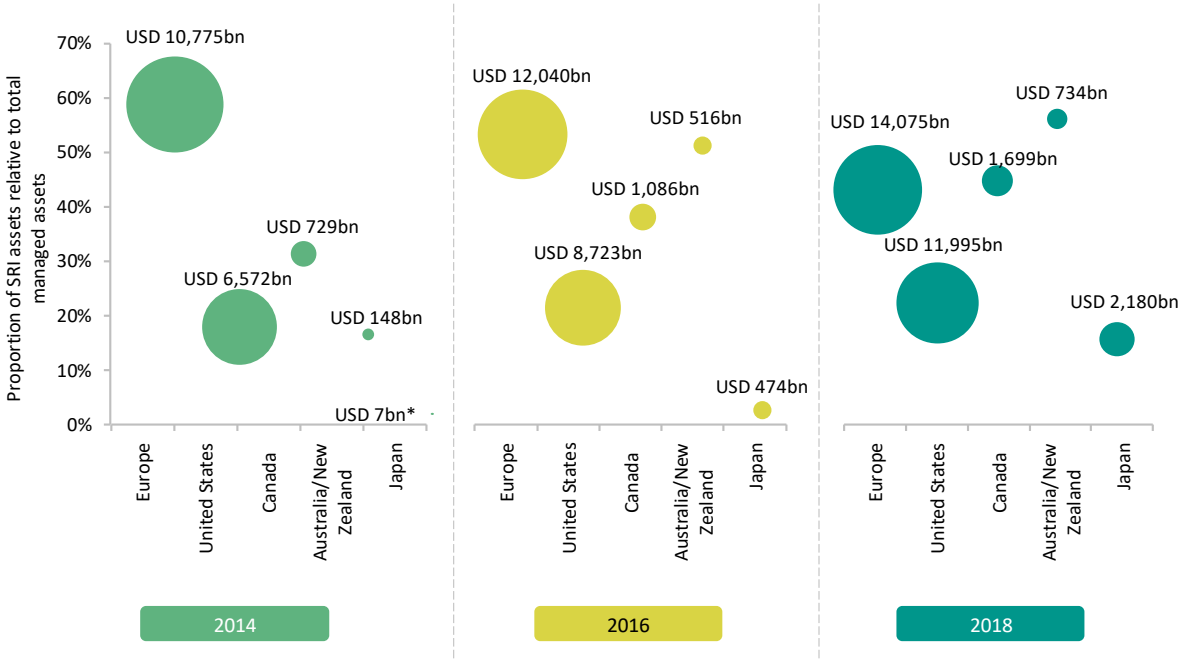
3 Potential for Sustainable and Responsible Investment segment to emerge as a critical pivot for climate finance

3.1 Global Sustainable and Responsible Investment reaches USD 30.7tn

SRI assets managed in five major markets – Europe, US, Japan, Canada and Australia/New Zealand – increased from USD 22.9tn in 2016 to USD 30.7tn in 2018.[24] In fact, Japanese sustainable assets grew 4.6x during the period (USD 474bn in 2016 to USD 2.2tn in 2018), primarily driven by strong government and regulatory commitment to mainstream SRI investing. Various factors provided the impetus to SRI market in Japan, including:

- Two major government-backed institutions signing up to UN Principles for Responsible Investment (UN PRI) – Government Pension Investment Fund and Pension Fund Association
- Formulation of Guidance for Collaborative Value Creation by Ministry of Economy, Trade and Industry, and the release of discussion summaries and recommendations of the study group on Long-term Investment (Investment Evaluating ESG Factors and Intangible Assets)
- Launch of the Green Bond Guidelines
- Revision of Japan's Corporate Governance Code, Stewardship Code, and Guidelines for Investor and Company Engagement

Between 2014 and 2018, SRI assets managed in the five major markets grew at a CAGR of 14%. US and Europe are still the dominant SRI financial centers (cumulatively accounting for 85% of SRI assets in 2018 vs. 95% in 2014) although their dominance is being challenged by developed Asia-Pacific markets, namely, Japan, Australia/New Zealand.



Note: in 2014, the proportion of SRI assets relative to total assets managed is not available for Japan

Figure 5: Snapshot of global SRI assets under management

Source: GSIA

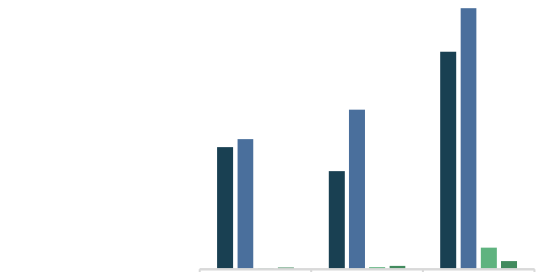
[24] Global Sustainable Investment Review 2018

3.1.1 Key emerging trends in the global SRI market

A survey of 281 global asset owners and investment managers on their expectations through 2030 highlighted a few key emerging trends[25]:

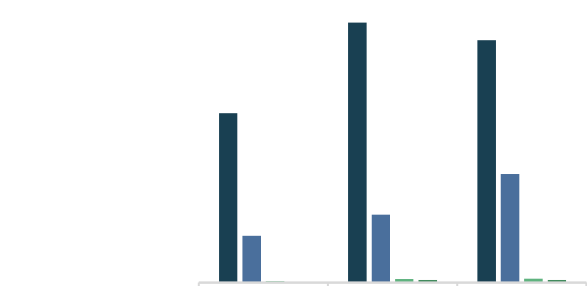
- Investors are now transitioning to adoption of ESG integration across their entire portfolio; 97% expect ESG information to become integral in investment decision making by 2030
- There is a transition from ESG focused funds to impact investing and specific products such as green bonds
- Greater stress on corporate engagement and shareholder action to drive corporate action
- Increased push for greater accountability and transparency through reporting on actions, impact and outcomes
- Over 50% of survey respondents highlighted their intent to divest from coal, weapons and tobacco by 2030
- Environmental protection, climate change and renewable energy investments were ranked among top themes highlighted by investors. It is important to note that, while environmental themes are amongst the foremost issue on investors' radar, it is to typically to ensure that the portfolio is compliant with any environmental norms and not necessarily targeted towards meeting some carbon emission reduction target – thus it may result capital flow in climate aligned sectors without intentionality

3.1.2 ESG integration and exclusion continue to be prominent SRI strategies however sustainability themed investment is viewed as most closely aligned to climate finance



	2014	2016	2018
Exclusionary	$4,441 bn	$3,575 bn	$7,921 bn
ESG Integration	$4,739 bn	$5,811 bn	$9,503 bn
Sustainability themed	$30 bn	$73 bn	$781 bn
Impact Investing	$69 bn	$123 bn	$295 bn

Figure 6: SRI investments by strategy in United States
Source: GSIA



	2014	2016	2018
Exclusionary	$7,471 bn	$11,470 bn	$10,695 bn
ESG Integration	$2,071 bn	$2,990 bn	$4,791 bn
Sustainability themed	$64 bn	$164 bn	$168 bn
Impact Investing	$22 bn	$111 bn	$123 bn

Figure 7: SRI investments by strategy in Europe
Source: GSIA

Nearly, 6.5% of SRI assets in the Unites States and 1.2% in Europe are sustainability themed[26]. Increasingly, investors and money managers are considering climate as a major risk. Money managers in the United States stated climate change to be a leading factor in asset-weighted terms. In fact, **assets to which the climate change criterion applies doubled to USD 3tn between 2016 and 2018[27].**

[25] Going mainstream: The future of ESG investing
[26] Investment in themes or assets that address specific sustainability issues such as climate change, food, water, renewable energy, clean technology and agriculture. (GSIA)
[27] Report on US Sustainable, Responsible and Impact Investing Trends, 2018

3.2 Recent developments indicative of positive trends for SRI in India and early changes in investment behavior

To estimate the size of Indian SRI flows, a bottom-up approach was adopted. Over 145 SRI funds across more than 60 asset management companies were analyzed to size their current Indian SRI allocations. Funds were identified based on fund description, SRI policy and stated strategy, as well as the member filings at UNPRI. The primary focus was placed on mapping SRI-aligned public equity funds, considering public equity forms 51% of the total SRI allocation globally (GSIA 2018).

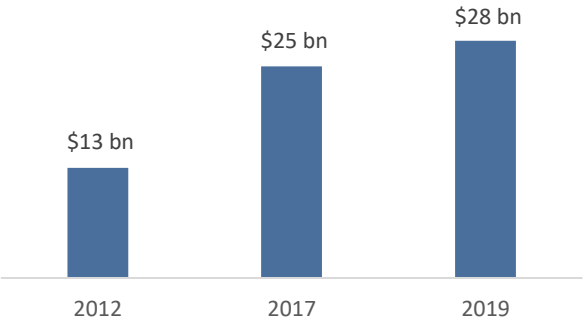


Figure 8: International SRI allocation towards India

Source: cKinetics

Over the past two years, domestic asset management companies have started to integrate ESG risks in their portfolio selection process. As a result, **while the SRI-aligned strategies of international investors in India have increased 4% since 2017, SRI assets managed by domestic asset managers has grown over 70%, albeit from a small base**. **There is new momentum in the domestic SRI market on the back of a number of recent announcements**.

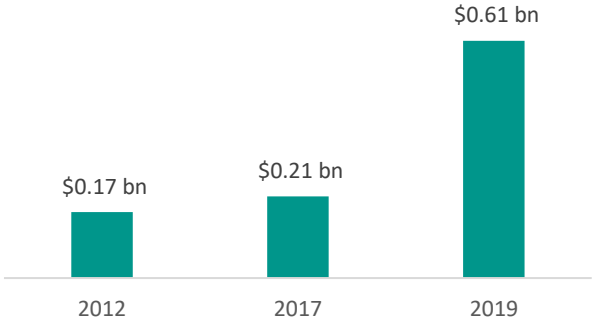


Figure 9: Domestic SRI allocation in India

Source: cKinetics

The launch of new funds in India – SBI Magnum Equity ESG Fund[28], Avendus India ESG Fund, ESG fund announced by former Tata group executives and BNP Paribas India ESG Fund (offer document filed with SEBI) – are expected to strengthen domestic SRI-aligned allocations.

As some of these recently announced funds have not yet undertaken any investments, these have not been included in our sizing of domestic SRI market. But these are early signs that long-term sustainability in investments will likely become an important barometer against which ESG performance of corporates will be measured.

Domestic capital market participants starting to venture into ESG

The market, previously dominated by exclusionary strategies from ethical and Shari'ah funds, has now ventured into ESG integration strategies through funds like the SBI Magnum Equity ESG Fund

Domestic asset management companies such as SBI Funds Management Private Limited (2018), Wingspan Funds Advisors LLP (Provisional Signatory) (2018), and Equicap Asia Management Private Limited (2017) have signed up to UN supported Principles for Responsible Investment (PRI), an independent network of global investors promoting responsible investment

Aditya Birla Capital announced Responsible Care Policy in 2019[29] integrating it into the Group's Sustainable Business Framework

[28] SBI Magnum Equity Fund was re-positioned as SBI Magnum Equity ESG Fund in 2018.
[29] sustainability.adityabirla.com/pdf/Responsible-Care-Policy-Version-1.pdf

3.2.1 Sustainability themed funds– an untapped opportunity for India

As discussed in the previous chapter, stakeholder consultations validated that climate finance most closely aligns with sustainability themed investing. However, it was also observed that such funds are a niche category and often times get defined broadly, without necessarily aiming to achieve climate goals (so there is a possibility for 'greenwashing' or insufficient establishment of intentionality).

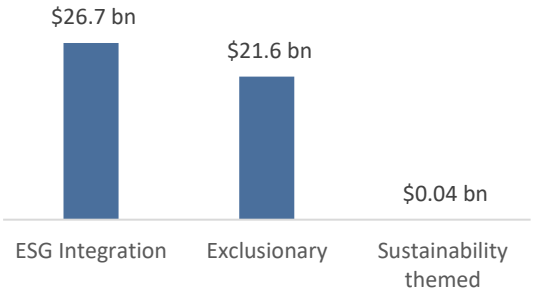


Figure 10: Strategy-wise investment in Indian equities
Source: cKinetics

Of the 145 international funds mapped in estimating the SRI capital flows into India, only six funds were identified to be focused on environment and even those hold very limited exposure to India (~USD 40mn against total AUM of ~USD 950mn). Their portfolios include companies such as VA Tech Wabag and Jain Irrigation Systems. Given that SRI asset allocation towards emerging markets is around 6%[30] and **considering India is amongst the fastest growing economies, there is opportunity for India to tap into the growth in sustainability themed international funds.**

This will require the establishment of listed companies/instruments that correspond to the environmental considerations of thematic investors.

3.2.2 Limited universe for SRI investors looking to invest in climate aligned areas

SRI strategies like ESG integration are typically applied from the lens of risk management although the gating criteria for nearly every investment manager is the strength of an entity's credit rating. This is why international SRI funds when investing in India typically focus on the top listed and credit-rated companies where they are comforted by a high level of regulatory oversight and corporate disclosures (mandatory BRR reporting for Top 500 companies by market capitalization). Stakeholders interviewed as part of this study also confirmed that their focus on top listed companies is driven by better disclosures and transparency in reporting.

There are no stand-alone (pure play) green companies within the BSE Top 100 list and less than 5% of BSE Top 500 can be considered as operating with "green" business models. It is thus a likely reason why leading ESG funds are skipping India (while investing in other emerging markets like China) or have very small portfolio allocation of their ESG fund into Indian equities[31]. The Shanghai Stock Exchange has 17 companies listed under the industry 'Water conservancy, environment and public facilities management'[32] Further, there are 5 renewable energy companies listed in China (6 companies headquartered in China are listed on other stock exchange) and 24 in United States.

In comparison, India only has four renewable energy listed companies, of which one is listed in New York, and one is a small cap company. With a less-than-sufficient pool of investible securities in the local market, there is limited attraction for international SRI investors to allocate a significant portion of their portfolio to India.

[30] www.eurosif.org/wp-content/uploads/2014/04/Eurosif_2010_SRI_Study.pdf
[31] Examples include Goldman Sachs ESG Emerging Markets Equity Fund, Tortoise Global Water ESG Fund, Oppenheimer Global ESG Revenue ETF, Pax World Global Environmental Markets Fund, Boston Common ESG Impact International Fund, Sit ESG Growth Fund
[32] english.sse.com.cn/listed/statistics/

4 Catalyzing private capital to meet India's climate finance needs

The need to accelerate greater climate action necessitates transitioning to cleaner and more efficient technologies, sustainable resource use, and greater use of alternative energy sources. Initial estimates suggest that India's climate finance ambitions will require an average investment USD 95bn to USD 125bn per year for climate mitigation thus representing a cumulative need of about USD 1.6tn between 2020 and 2033.

4.1 SRI action to drive more climate aligned investments

As discussed in previous chapters, increasing awareness on the materiality of climate change risks could trigger a virtuous cycle of investment decisions that will increasingly get measured against climate change outcomes. Global pension funds are already taking proactive steps in that direction. For instance, the Norwegian Government Pension Fund Global's environment-related investment mandate requires Norges Bank (their asset manager) to establish environment-related investment mandates in the range of 30-60 billion kroner[33]. Stichting Pensioenfonds ABP (Dutch pension fund for civil servants) had set a € 5bn renewable energy investment target for 2020, of which € 4bn has already been achieved as of 2017.[34]

Given that financiers aren't appropriately factoring in climate related risks and/or costs, their investments into conventionally carbon intensive segments are fraught with the possibility of getting stranded once those risks manifest themselves in the future years. This is likely to lead to significant financial instability and it is hence critical that investors start evolving mechanisms for assessing and pricing such risks while building their portfolios.

Further, sectors and activities that are dependent on natural resources are at risk of premature write-downs due to tightening of regulations. Therefore, driven by risk, climate aligned investments are expected to see an upsurge.

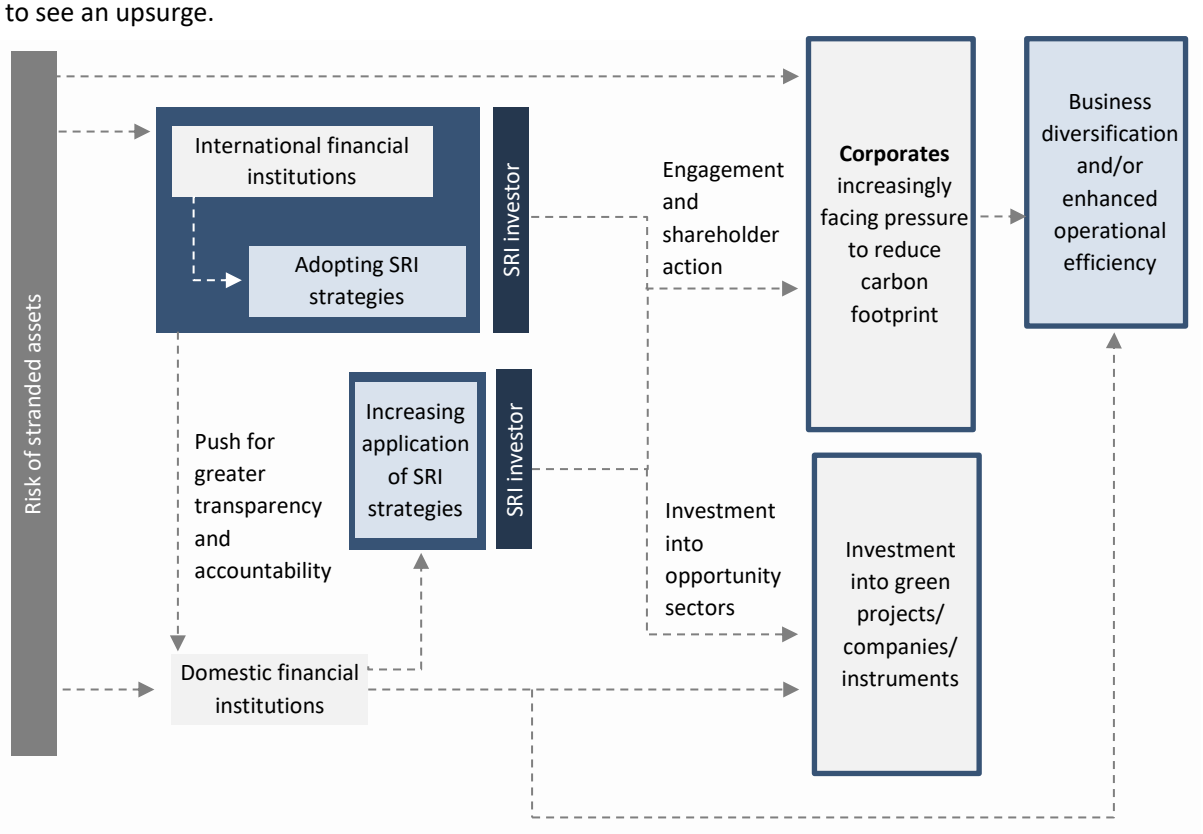


Figure 11: Expected evolution of the capital markets through 2033

[33] www.nbim.no/contentassets/c3fce99f4f424f839722093cd4109e29/20181030_spu-environmental-related-investment-mandates.pdf
[34] www.abp.nl/images/responsble-investment-report-2017.pdf

The two broad trends expected to drive responsible investing through 2033 include:

- SRI becoming mainstream internationally with nearly all assets aligned to such strategies. International SRI investors, driven by risk and regulatory push, will increasingly look to invest in dedicated green projects, instruments and companies

- As is already being observed internationally within global majors in oil & gas and extractives (such as Shell, BP, Vale), there is greater corporate advocacy and active engagement by institutional investors urging their respective portfolio companies to recognize the integration of climate risks into corporate strategies and business models. Investors are now seemingly pushing their investee companies to reduce their carbon footprints, diversify into clean sectors, and improve their ESG monitoring and reporting processes

    - **Business diversification of corporates**
      Driven by significant investment, business risk, and push from international investors, corporates will look to diversify their businesses, especially the ones that are dependent on fossil fuel sectors. Further, as many asset owners now disallow investments into fossil fuel businesses, leading Indian equities Reliance Power, Tata Power have been shunned by some large investment universes like those of Norges Bank and Nordea Asset Management, despite initiatives from these entities in the clean energy space as indicated in the table below.

Company Name	Green Initiative
Reliance Power	• Wind power project: 45 MW • Solar power project (PV & CSP): 165MW • MoU signed with Government of Rajasthan to develop 6,000 MW of Solar Power projects over the period of 10yrs
Tata Power	• Wind power project: ~328 MW • Solar power project: ~294 MW • Waste Heat Recovery Generation: 375 MW

      A way to overcome this is to float dedicated, special vehicles for undertaking these green activities since most investors' treat these as separate entities from the Parent or Holding Company.[35].

    - **Reducing carbon footprint**
      Significant shareholding of foreign funds and investors in domestic private banks creates space for international investors to drive and/or influence shareholder voting at these banks. As investor focus on climate issues continues to expand, banks will also witness an increasing push to report assessments on greenhouse gas emissions (funded by bank operations) and their current exposures to climate risks. With greater transparency in reporting and increasing pressure to manage transition risks and capture opportunities[36], banks will see greater prudence in diversifying into climate/green sectors.

[35] There are some pension funds, foundations and charities that follow a more restrictive approach and avoid investment even in subsidiaries that have ties to a Parent entity in a polluting industry like coal.
[36] Change in climate and energy policies and shift to low-carbon technologies

Table 2: Shareholding pattern of leading private banks in 2017 (sample for illustration)

Bank Name	Financial Institutions		Other Corporates		Total Individual		Total	
	Resident	Non-Resident	Resident	Non-Resident	Resident	Non-Resident	Resident	Non-Resident
HDFC Bank Ltd.	11%	-	7%	74%	9%	0%	26%	**74%**
IndusInd Bank Ltd.	13%	43%	10%	26%	7%	1%	30%	**70%**
ICICI Bank Ltd.	28%	60%	5%	-	6%	0%	39%	**61%**
Axis Bank Ltd.	36%	53%	4%	0%	7%	0%	47%	**53%**

Source: Reserve Bank of India

4.2 Green aligned capital requirements through 2033

As highlighted earlier in the chapter, India faces a challenge of raising USD 1.6tn through 2033 (for actions on climate mitigation) in order to fulfil investment requirement of greening existing sectors (efficiencies) and nurturing new sectors (low-carbon solutions in energy, mobility, buildings). Based on capital flow estimates, India can potentially grow annual investments into green/climate aligned areas on the back of strong demand for credit in a growing economy, a healthy domestic savings rate (29% of GDP[37]) and capital investment rates (~31%[38]).

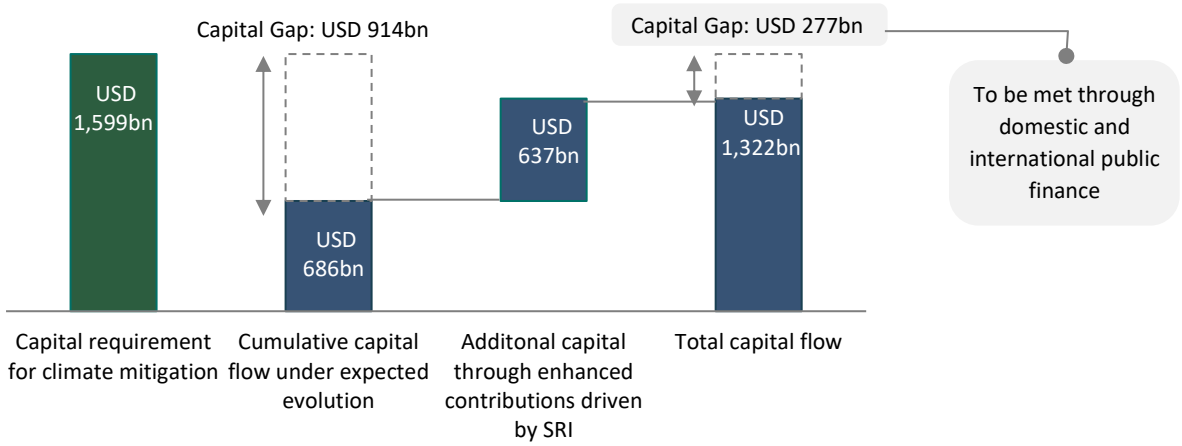


Figure 12: Capital flow for climate mitigation targets through 2033

Source: cKinetics

Expected evolution	Enhanced contributions driven by SRI
• The cumulative capital gap will be USD 914bn	• Driven by investor push, in addition to policy push and market evolution, the cumulative financing gap is expected to be USD 277bn
• Banks will continue to play a significant role, providing around 40% of the total capital in 2033	• With increased action from the capital markets, the role of banks is expected to decrease from to 34% by 2033
• FDI inflow is expected to grow at a CAGR of 16% and cumulatively provide USD 84bn through 2033	• In line with government's aim to catalyze FDI inflow in the country, it is expected to grow at a CAGR of 21% and cumulatively amount to USD 137bn through 2033

[37] data.worldbank.org/indicator/NY.GDS.TOTL.ZS
[38] data.worldbank.org/indicator/ne.gdi.totl.zs

With increasing investor consciousness on climate change and its associated risks, it is foreseen that India will be able to attract capital to the level foreseen under the enhanced private sector participation scenario catalyzed by the leading role from the SRI community. However, in order to attract capital from global SRI investors, concerted action and preparedness is key. Yet, accounting for all sources of domestic and international capital, in the form of debt and equity, there will be a cumulative financing gap of USD 277bn. Domestic and international public finance sources are expected to plug this remaining gap. Capital flows from such sources could potentially be driven through credit guarantees and directed financing lines.

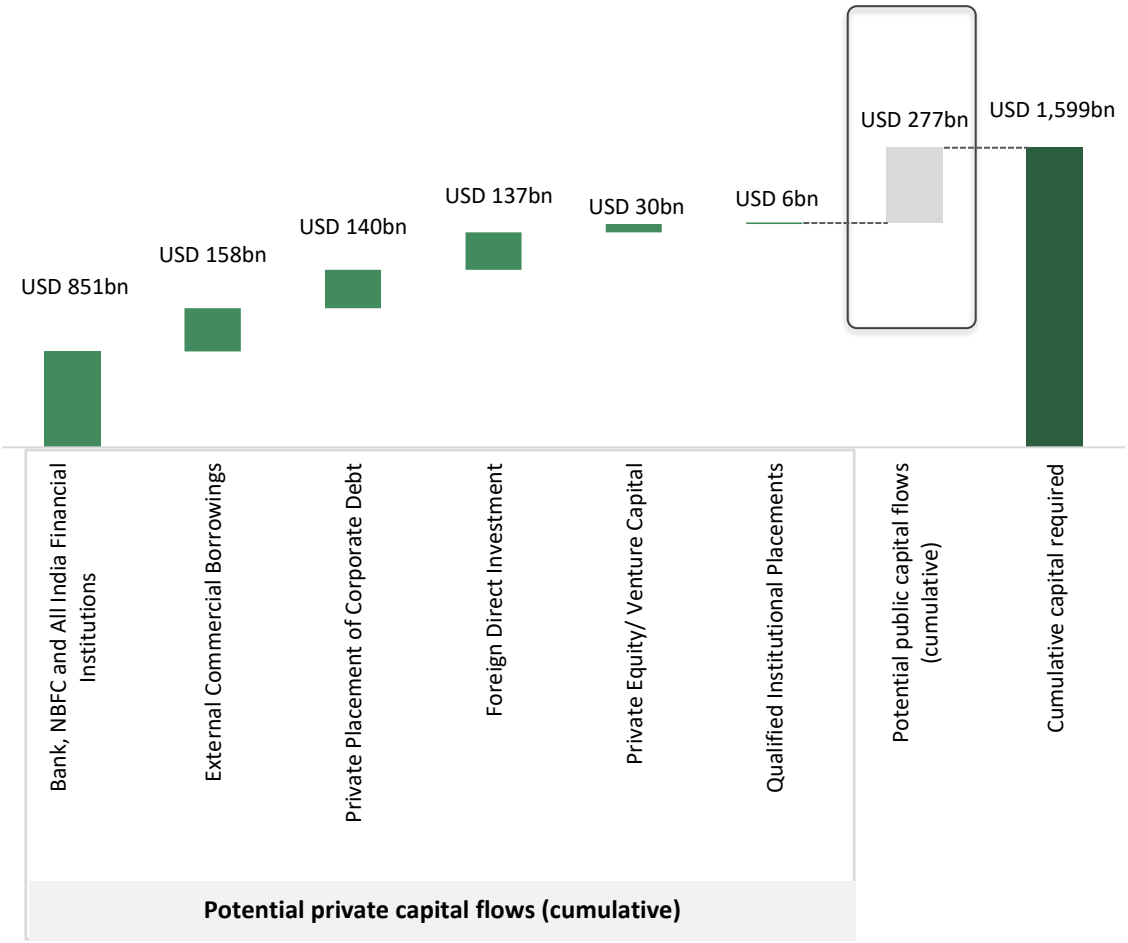


Figure 13: Cumulative capital flows for climate mitigation through 2033

Source: cKinetics

All stakeholders in the Indian market will be required to play a proactive role to attract more international capital to finance India's NDC ambitions. Steps and actions thus required are discussed in the following chapter.

5 Preparing India for the opportunity: Attracting private capital to meet climate mitigation targets

To enable a financial sector transition away from polluting industries in the medium term, public policy efforts and regulatory pushes are needed in equal measure. Innovative mechanisms such as guarantees, project aggregation mechanisms, fund of funds are continuously being identified to unlock private capital flows. Some of the green finance instruments that now feature in the investment portfolios of investors looking to exploit opportunities in upcoming sectors are discussed below. These solutions will however require data and evidence to establish market confidence, and dedicated effort to attract capital to fund these instruments.

5.1 Green bonds

There is a critical need to identify new channels/instruments through which capital can start flowing into green or climate-friendly sectors due to various reasons, such as:

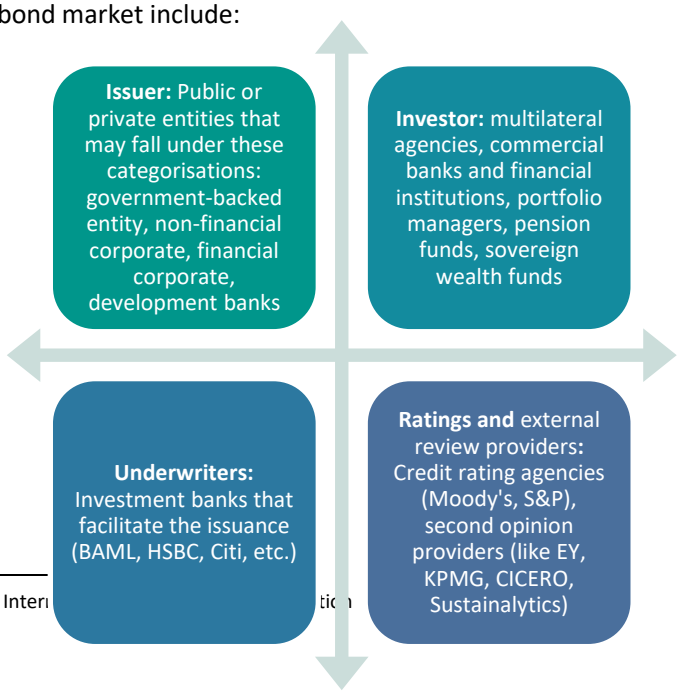
- Existing dependence of infrastructure's on government and bank lending for capital flows
- Increasing pressures on government to undertake low-carbon initiatives across sectors

6 Indian banks becoming averse to additional risk taking due to stricter Basel III norms and RBI mandates (requiring quicker recognition of loan defaults, higher capital adequacy requirements)

The green bond is one such avenue that is increasingly gaining popularity globally. Green bond is defined as "any type of bond instrument where the proceeds will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible Green Projects which are aligned with the four core components of the Green Bond Principles (GBP)".[39] Like any other bond, a green bond is an instrument with a fixed tenor, coupon (interest rate) and maturity, the only difference being that proceeds are deployed in funding projects, assets, and activities that can be identified as "green".

As a result of their ability to generate environmental benefits and direct investment towards the "greening" of brown sectors, green bonds provide investors an opportunity to take exposures to environmentally sound projects while being assured of quality information disclosures (as mandated for green bonds).

Key actors in the green bond market include:



[39] Green Bond Principles (GBP), Interı ti

The market for labelled green bonds stood at USD 167.6bn in 2018 (vs. USD 162.1bn in 2017). Of this, the largest share in 2018 issuances was led by US (20%) and China (18%) followed by France (8%), Germany (5%) and The Netherlands (4%)[40].

6.1.1 Status on India's green bond market

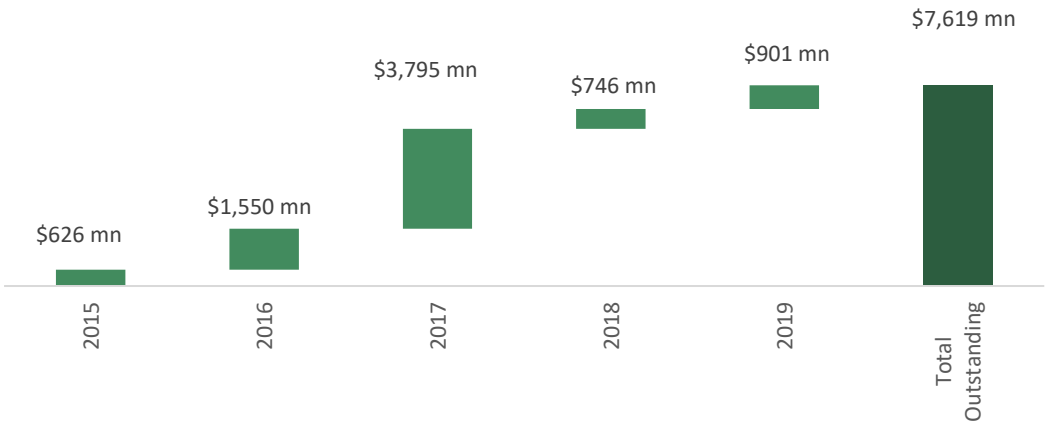


Figure 14: Green bond issuances in India

Source: cKinetics

2018 saw the country's largest lender, State Bank of India (SBI), enter the market with a USD 650mn green bond, as part of a larger program to raise up to USD 3bn via green bonds. At the end of 2018, India ranked as the second largest among emerging markets, having issued green bonds of a cumulative value of USD 7.1bn (2015-19). This amount however is fairly small compared to China that has been witnessing very strong rise in green bonds (2018 issuance: USD 30bn, cumulative issuance: USD 77.5bn) and the US (2018 issuance: USD 34bn, cumulative issuance: USD 118.6bn). For China, in particular, growth has been realized with the adoption of the Green Bond Endorsed Project Catalogue under the regulation of the People's Bank of China (PBOC) in 2015. The Catalogue lays down a multi-level project categorization of projects at sector, sub-sector and activity level.

Smart cities green bonds

In a first, the Pune municipal corporation became the first civic authority to issue green 'municipal' bonds worth INR 200 crore to fund its project of enabling 24-hour water supply under its Smart City initiative in 2017. The bond is backed by the city's AA+ rating (highest among all the cities under the initiative). The bond received subscriptions of over INR 400crore. In 2018, Greater Hyderabad Municipal Corporation also issued a similarly sized bond to fund its road projects under the Smart City Initiative. Such efforts need to be intensified to nurture the market which is mostly dominated by renewable energy sector issuances but where significant inflows in other green areas which demand high amounts of long term, stable capital like transport, green buildings, transmission infrastructure, railways electrification, smart cities (green municipal bonds), etc. are possible.

It is important to note that the mere existence of green bonds does not guarantee wider market acceptance and that policy and regulatory interventions of some nature are essential to bring the market to scale. Setting up green standards or rolling out a green investment strategy to supplement national targets would be a vital catalyst for fostering faster uptake. However, attracting the attention of international and domestic capital into green bonds will require increase in market scale and variety.

[40] www.climatebonds.net/files/reports/cbi_gbm_final_032019_web.pdf

- On the demand side, most of the Indian issuances have been oversubscribed by anywhere between 1.45x to 5.10x, indicating significant demand.[41] These subscriptions are of most interest to European and North American investors where the market for green investing is led by pension funds, endowments and foundations, sovereign wealth funds, and family offices, all of which are looking to de-carbonize their portfolios.[42] On the supply side, current **issuance sizes are small** – the biggest sized Indian issuance was of USD 1bn compared to an issuance of USD 9.6bn by China's Industrial Bank in 2018 (second largest issuance globally)[43]. International stakeholders have indicated a preference for bigger sized investments given that they manage multiple mandates that cumulatively amount to very large portfolios; therefore, the ticket size that is sought in such cases is preferred to be of higher value.

- International investors prefer investment grade bonds, and given that some of these sectors where green bonds are being tested are new**, reduction in the risk perception** associated with these instruments **through partial risk guarantees and credit enhancement features would provide more comfort to investors**.

- To enable a domestic uptake for green bonds, some relaxation from the insurance regulator will broaden the investible pool of securities as current regulations only permit investment in AA rated bonds.

6.2 Green securitisation

Securitisation is a fairly evolved concept in larger financial centers. It is the process of creating financial instruments where returns are backed by a pool of underlying financial assets like mortgages and leases or receivables of various denominations that together create a larger portfolio of securitized assets. These structures allow issuers to offload the holding and repayment risk associated with keeping pooled assets on their balance sheets, thereby freeing up capital that can be redeployed elsewhere. Examples include mortgages to green certified buildings (LEED, BREAM standards), loans or leases to finance electric vehicle purchases, loans to SMEs (small and medium sized enterprises) with business models aligned to green areas, loans or lease receivables on solar and wind farm assets, etc.

In green finance, it is one of the avenues where the participation of institutional investors is witnessing growth. In 2018, a total of USD 24.6bn ABS/MBS[44] were issued (Climate Bonds Initiative), primarily driven by green MBS issuances from The Federal National Mortgage Association (Fannie Mae) in the US, now the world's largest issuer of green bonds.[45] Under its green MBS program, Fannie Mae has come up with an innovative financing solution whereby it securitizes green property loans acquired from lenders and issues them as green MBS. The mortgage-backed property either should have a green certification or commit to making improvements in energy or water consumption in return for lower interest rate.

Green MBS: benefits to participants

Lenders	Investors	Property Owners	Green MBS Issuer (Fannie Mae)
•Free up regulatory capital •Reduce balance sheet risk •Extend lending capacities	•Helps meet green investment targets •Enhances value of investments over time	•Reduces utility expenses •Improves quality and value of the property	•Creates liquidity in the mortgage market •Promotes greater acceptance of sustainability initiatives among home owners •Greens the housing stock

[41] acraa.com/doc/GB_06%20India_CARE_201812.pdf
[42] Based on conversations with market stakeholders engaged during the course of this study.
[43] China Green Bond Market 2018
[44] Mortgage-backed securities (MBS) are created from mortgage pools and Asset-backed Securities (ABS) include non-mortgage assets.
[45] Fannie Mae issued USD 51.7 billion green MBS during 2012-18

By incorporating energy and water efficiencies targets at properties, Fannie Mae has transformed the traditional mortgage lending market by making it greener and contributing to Federal government energy and water conservation goals.

The massive success of the green MBS program is a learning module for developing markets.

6.3 Enhancing equity flows for green growth

In addition to the traditional structures entailing platform level private equity flows, some additional routes which can help enhance equity flows into green sectors include:

- **Increasing listings of green corporates**

Listing of green corporates will enable India to attract SRI pool available, particularly the sustainability themed funds. Increase in market depth will also signal investors on the growing green Indian economy and hence help garner more interest.

The listing scale can be augmented through the establishment of dedicated Special Purpose Vehicles (SPVs) by diversified corporates to attract the sustainability themed funds, which may otherwise not invest in them.

- **Listed green infrastructure funds**

Listed green infrastructure funds in the form of closed- or open-ended investment trusts/ vehicles can emerge as a channel for capital flow. Managed by a fund manager responsible for asset selection, this construct will enable retail investors to directly invest in green assets by subscribing to the 'units' of the fund. Though the units /shares of the listed green infrastructure fund may be bought and sold on the exchanges, the capital raised would be directly invested in green assets based on the fund strategy. The fund may be used to provide equity to both listed and unlisted project companies undertaking green projects.

6.4 Interventions to make investment environment conducive for SRI investors

As discussed in the earlier section, attracting SRI capital would be imperative for India to meet India's climate goals by 2033. The table on the page overleaf maps specific interventions that would enable India to tap into this opportunity.

While the opportunity to meet climate financing need exists, tapping into the opportunity pool requires preparedness and concerted action as discussed on the page overleaf. A key aspect to this is sensitization on the risks of climate change complemented by supportive regulatory and policy measures to inspire investors and thus enable India to be a central destination on the SRI map of the world.

Table 3: Steps to catalyze SRI investments in India

Interventions	Action to be taken by				
	R&P	I&L	CRA	SE	C
Enhancing quality of ESG disclosure - Standardized disclosure frameworks from market regulators is likely to enable informed investment decisions	■			■	
Improving the accessibility and usability of ESG data - Stock exchanges can improve access to parametrized and analyzable data in downloadable formats, which will lead to increased interest from international SRI investors. This will also enable peer comparison				■	■
Support listing of green companies - Stock exchanges can support listing of green companies through relaxed listing norms and incentives like lower listing fee - Green companies and green subsidiaries/ SPV of non-green companies should be listed to attract private capital	■			■	■
Creation of low-carbon/ green indices - Creation of green index by stock exchange will enable passively managed funds to invest in green companies		■		■	
Creation of sectoral climate risk assessment tools - Credit rating agencies can enable domestic and international investors to ascertain exposure to risk of climate change and hence enable low-carbon investments			■		
Formulation of internal carbon price by the SRI community - SRI funds to formulate an internal carbon price (given the lack of a universally recognized carbon price) and apply it to their valuations and portfolio allocations to ensure a quantitative reflection of these critical dimensions in the returns outlook. This in turn would automatically lead companies, seeking to tap into these funds, to disclose their carbon emissions		■			■
Creation of long-term risk mitigation instruments - Risk mitigation instruments such as credit guarantees, insurance and forex hedging products can help accelerate the flow of private capital in newer 'green' sectors	■	■			

Legend	
Regulatory and policy	R&P
Investor and lender	I&L
Credit rating agency	CRA
Stock exchange	SE
Corporate	C

Annexure 1: List of stakeholders engaged

Name	Designation	Organization
Ajay Mathur	Director General	TERI
Ajit Dange	Fund Manager& Head of PMS (Domestic)	SBI Mutual Funds
Alex Bernhardt	Principal, US Head of Responsible Investment	Mercer
Amarendra Mohan	Senior Program Director	Centre for Advanced Financial Research and Learning (CAFRAL)
Anand Bhoumik	Managing Director	India Ratings
Anita George	Executive Vice-President, Strategic Partnerships	CDPQ
Aparajit Pandey	Programme Director	Observer Research Foundation
Claas Langner	Environmental & Social Specialist	DEG
Dinesh Pruthi	Deputy General Manager (Sustainability)	State Bank of India
Eoin Fahy	Head of Responsible Investing, Chief Economist	KBI Global Investors
Frédéric Asseline	Principal Climate Change Specialist	Asian Development Bank
Jaisingh Dhumal	Chief Manager & Head, Technology Finance Group	ICICI Bank
K.P. Baiju	Deputy General Manager	State Bank of India
Karine Hirn	Partner,	East Capital
Koel Kumar	Head-ESG	Eversource Capital
Kristina Alnes	Senior Advisor	Center for International Climate Research
Mike Lubrano	Managing Director	Cartica
Mona Kachhwaha	Director Investments	Caspian
Pawan Singh	MD & CEO	PTC India Financial Services
Raakhee Kulkarni	Vice President & Head - ESG	GEF Capital
Rajasree Ray	Economic Adviser, Dept. of Economic Affairs	Ministry of Finance
Rajeev Kumar Gupta	Deputy General Manager	India Infrastructure Finance Company Limited
Rajesh Kumar Miglani	Senior Climate Business Specialist	International Finance Corporation
Rajnish Kadambar	Senior Environment Risk Specialist	IDFC Bank
Ritu Kumar	Director Environment and Social Responsibility	CDC
Satish Mandhana	Managing Director & Head of Investments	EverSource Capital
Satyajit Suri	Chief Operating Officer	Raintree Ventures
Shankar Pande	Chief General Manager	National Bank for Agriculture and Rural Development
Sudipto Basu	Deputy General Manager, Project Finance	ICICI Bank
Supratim Bandyopadhyay	Member (Finance)	Pension Fund Regulatory and Development Authority