Innovating pathways to Sustainable Finance in India
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<td>YEAR</td>
<td>October, 2018</td>
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FOREWORD

Innovating pathways to Sustainable Finance in India

International conversations on climate change and sustainable development often quote the trillions that are required to achieve the Sustainable Development Goals (SDGs). Estimates suggest that achieving the SDGs by 2030 will require an annual investment of USD 5-7 trillion across key sectors and industries. This coupled with an additional USD 1 trillion investment annually in clean energy to limit global warming to below 2 degrees, appears to be a mammoth task at hand. However, when co-related with a broader economic activity, the figure represents only 7-10% of global GDP and therefore seems achievable. Global experts have estimated that an additional USD 12 trillion in market opportunities will be generated, on account of SDGs, as Governments and Companies increase investments in energy, cities, food & agriculture and health & well-being. The challenge remains though, as the volume of current investments into development and climate-positive activities is very limited and mostly sovereign in nature. With only USD 1.4 trillion invested annually from both public and private sector; the annual investment gap in major SDG sectors stands at USD 2.5 trillion in developing countries alone.

India, with its unique developmental challenges has emerged as an active player in the climate action space by displaying exemplary political will, evident from its ambitious Nationally Determined Contribution (NDC) targets and aggressive plans to scale critical sectors like renewable energy and e-mobility. The country has introduced a slew of reforms towards a cleaner environment, enhancing livelihood and job creation. Estimates suggest that India requires USD 960 billion annually to achieve the SDGs, of which there is a financing gap of USD 560 billion. Additionally, India’s NDC targets require USD 2.5 trillion by 2030. While the financial requirement is humongous, the bigger challenge in front of the Government is development and implementation of an ambitious roadmap, which focuses on inclusive financial architecture and structuring, financial standards & measures to attract investors, and including risk mitigation factors in long term financing.

The knowledge report ‘Innovating pathways to Sustainable Finance in India’ conducts a situational analysis of the current barriers and presents a mosaic of transformative solutions in the form of green products and practices to mobilize sustainable finance. The report also serves as an important start point in formalizing the underlying sustainable finance architecture in India to include favorable policies, accountability and disclosure frameworks and innovative financial structures to channelize investments at scale.

Existing financial products, particularly, Green bonds, Sustainability bonds and Social bonds are increasingly growing as viable capital to meet environmental and social financial gaps. These could be further leveraged to expedite climate-resilient growth. The Green bond market, in particular, has seen exponential growth, with annual issuance of more than USD 155 billion worldwide and a 78% growth just in one year in 2017. For emerging economies like India, Green bonds have been generating financing for renewable energy and energy efficiency. The market has picked up rapidly since 2015, with over USD 6.37 billion in issuances. On the back of a favourable policy mechanism, in 2015, YES BANK took the plunge and issued India’s first Green bond raising USD 160 million. This issuance catalyzed the Indian Green bond market and served as an exemplary demonstration of how enabling policy frameworks can fuel sustainable finance innovations.

I am confident that this report will not only serve as a repository of succinct and action-oriented case studies, but also stimulate relevant stakeholders including policy makers, regulators, financial institutions and the corporate sector in ecosystem to contribute towards making the transition to sustainable finance smoother and swifter.

Thank You.

Sincerely,

Rana Kapoor
Managing Director & CEO YES BANK
Chairman YES Global Institute
Innovating pathways to Sustainable Finance in India
Executive Summary

It is now an established fact that the global community has the financial resources to address the needs of the 2030 Agenda for Sustainable Development. What is really needed is realignment and channelizing of these resources to meet the estimated financial requirement of USD 90 trillion by 2030 for achieving the Sustainable Development Goals (SDGs). Unlocking finance for sustainable development is beyond moral obligation and provides immense business opportunities. Mark Carney, Governor, Bank of England, terms it as USD 7 trillion worth annual opportunity for Bankers to demonstrate the vital role they play in human prosperity. Despite the plethora of opportunities posed, the annual investment gap in major SDG sectors in developing countries alone has been estimated at around USD 2.5 trillion per year. This requires financial institutions to play a central role in redirecting the much needed trillions in achieving the Global Goals and climate targets.

India is fast emerging as a bright spot in the global economy and is pegged to grow at 7.5% for 2019 and 2020. The country is motivated to pursue the agenda of ‘development without destruction’ and is strategizing tackling growth-associated footprints, impact of climate change and rising inequalities. The annual financial requirements stands at USD 960 billion for SDGs and USD 2.5 trillion for Nationally Determined Contributions by 2030. Mobilizing this enormous amount of finance for India, with its unique challenges and opportunities, requires a systemic response involving transformative changes, notably in knowledge, policy and institutional systems. Going forward, it is imperative to institutionalize a sustainable finance architecture for India, backed by favorable policies, innovative financial mechanisms, and accountability & disclosure frameworks.

The Report ‘Innovating pathways to Sustainable Finance in India’ substantiates the business case for realigning financial flows to sustainable sectors and highlights the barriers that needs to be addressed in formalizing an India-specific sustainable finance architecture. Some of the concerns include:

- Arriving at a clear definition of sustainable finance and a national-level policy outlining guidelines for financial sector to mainstream sustainable financing products and practices
- Formation of specialized institutions to mainstream sustainable finance or mandating existing financial institutions to take specific targets on sustainable investments
- Strengthening governance and risk management frameworks, that embed Environment, Social & Governance (ESG) risks into lending decisions and monitoring of impact
- Encouraging non-financial disclosures leading to increased transparency and accountability
- Promoting climate literacy, through training and diversifying human resource skills, for greater understanding of risk & opportunities to provide financing solutions

The report further suggests that the current financial architecture needs to undergo a disruptive evolution and a proactive approach towards green products and practices would accelerate and mainstream sustainable finance. On the product front, green bonds have emerged as an alternative financial mechanism to raise funds for a range of environmental projects that are improving local economies, with the proceeds predominantly placed in renewable energy and energy efficiency sectors. There are global instances of blue bonds or social bonds issuances, accelerating investments in cash-strapped sectors like water and affordable housing, thus leveraging innovative instruments to meet several developmental requirements. Another recent disruptive financial innovation is World Bank and UBS partnering through innovative notes, linked to the Global Sustainability Signatories Index. Credit enhancements and blended finance are emerging as strategic tools of developmental finance, for mobilization of additional commercial finance, which would be the next big breakthrough in capital flowing towards emerging and frontier markets. From a product standpoint, regular financing for sustainability would emerge if financial institutions are nudged to take ambitious targets on financing green sunrise sectors, addressing hedging concerns and embedding green practices.
Emerging **green practices** include ESG Risk management, adoption of forward-looking approaches like Carbon Stress Testing, Internal Price of Carbon and enhanced disclosure frameworks, in line with internationally accepted standards like those of the Financial Stability Board’s Task Force for Climate-related Financial Disclosures (TCFD).

The evolution of sustainable finance is at a classic inflection point and the key to its almost inevitable expansion depends upon an enabling policy environment and ability of the financial sector to be future-ready, thus emerging as the backbone to fuel sustainable development and economic growth.

This report serves as a starting point to institutionalize a holistic approach towards mainstreaming sustainable finance, involving all critical stakeholders to co-create a green financial architecture in India.

**Namita Vikas**
Group President & Global Head, Climate Strategy & Responsible Banking  
Distinguished Fellow **YES Global Institute**
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Innovating pathways to Sustainable Finance in India
Recently the United Nations Secretary General (UNSG), Antonio Guterres, emphasized that the world is facing “a direct existential threat” from climate change and must rapidly shift from dependence on fossil fuels by 2020 to prevent “runaway climate change”. The climate change paralysis has led to a vicious circle of interlinked negative economic, social and environmental consequences affecting the world economy. Global leadership is cognizant of the urgency of addressing this global phenomenon, as the world today is experiencing record high temperatures and intense heat waves, wildfires, storms and floods perpetuated by climate change. The world is working towards a solution, and is bringing climate action to the top of the international agenda. The sentiment reflected by the UNSG is echoing across the globe and has resulted in world leaders coming together at COP21 in Paris and to adopt the Sustainable Development Goals (SDGs).

In 2015, 195 nations signed the Paris Agreement on climate change and agreed to limit the global temperature increase to less than 2°C and as close as possible to 1.5°C above pre-industrial level, by the year 2100. Though countries like India, China, Bangladesh, France and South Africa are actively developing national guidelines through specific policies and schemes aimed at inclusive growth and sustainable development, the commitments made so far in Paris Agreement represents only one-third of what is needed. A stronger and decisive response to climate change in the form of an action oriented approach, would deliver and promote environmental and social prosperity.

SDGs came into effect in January, 2016. It immediately became the blueprint for achieving a sustainable world for all. SDGs have a broader scope that includes economic growth, unemployment, urban development and energy, and placed equal emphasis on climate change, sustainability, environment, and peace and justice, addressing development holistically and comprehensively. The 2030 Agenda is a bold plan for humanity and requires concerted efforts to make them part of nations’ decision-making process. Nations can strengthen the path toward realizing these Global Goals by establishing a constructive baseline of where they stand and why.
Weathering climate change: Kerala floods

Experts globally have linked climate change with the occurrence and frequency of natural disasters. Closer to home in India, the grave consequences of climate change have resulted in floods in Kerala, which caused significant loss of lives. The State has witnessed extensive infrastructure destruction and registered cumulative economic damage around USD 2.7 billion. At present, India stands amongst the world’s 10 most disaster-prone countries and climate change is projected to further denigrate the status quo, requiring investments in not just disaster preparedness and restoration, but also to address social and economic impacts of loss and damage.

Sustainable Development: Transformational journey

Globally, there have been numerous milestones contributing to Sustainable Development. The transformational journey began from the Montreal Protocol and the formation of the Intergovernmental Panel on Climate Change, which resulted in development of knowledge based on climate change and its impact. The Rio Summit in 1992 was another landmark event that culminated in mainstreaming climate concerns world-wide and was pivotal in leading developments in climate finance, notably the 2009 Copenhagen Accord. This is where developed nations pledged USD 30 billion to emerging nations between 2010 and 2012, which has now been increased and reaffirmed to USD 100 billion per year by 2020. The Sendai Framework for Disaster Risk Reduction and Addis Ababa Action Agenda for financing sustainable development played a significant role in strengthening the initiatives towards building a greener economy globally, and made investing in disaster risk reduction a key priority area.

Figure 1: Timeline of Global Sustainability Initiatives

(Source: YES BANK Analysis)

Actualizing sustainable development initiatives and realizing ambition into actions requires realignment of financial flows. This mobilization of finance boils down to one concept that is Sustainable Finance.
Elucidating on Sustainable Finance

There are multiple definitions and interpretations of sustainable finance in use currently. The European Commission defines Sustainable Finance as “the provision of finance to investments taking into account environmental, social and governance considerations”. The Swiss Federal Ministry of Environment interprets Sustainable Finance as “Financial products and services, under the consideration of environmental, social and governance factors throughout the whole risk management and decision-making process, provided to promote responsible investments which create a positive environmental, social and governance impact”.

Following these definitions, sustainable finance is understood to be an investment that is resilient to risks at a much holistic level as it encompasses environmental and social risks and sets a pathway for sustainable development. Sustainable Finance is instrumental in responsibly modernizing the global economy that is progressing swiftly. The idea is to reshape finance, according to the pressing, collective needs of the society, which can ultimately lead to creating an inclusive and integrated world where no one is left behind.

A SWOT analysis of sustainable financing in India is represented below. Strong government led initiatives ensure that the objectives of the Global Goals are blended in the domestic policies whereas the threats illustrate the gaps that need to be bridged. India can significantly benefit from the numerous opportunities presented by sustainable finance, if integrated with a conducive policy environment and with support from its international peers.

(Source: YES BANK Analysis)
The growth in sustainable finance is captivating nations across the world and the transition is reflected in numerous dedicated initiatives that supplement market forces. China is one such nation, which is on its journey to become a global leader in green finance. It has adopted a comprehensive approach by developing a green financial system, which is a set of guidelines to connect the supply of green finance (in its major financial centres) with demand across the economy. China has also established five distinct green finance pilot zones to encourage faster and low-cost loans for environment-friendly industries. France, besides hosting COP21, has taken concrete steps by developing its green labelling system and passing the ‘Energy Transition for Green Growth’ Law, making climate and carbon risk disclosure mandatory for French institutional investors, pension funds and insurance companies.

**Capitalizing Sustainable Finance opportunities**

It is estimated that there is a global financing requirement of USD 5 to 7 trillion annually to achieve the Global Goals, of which India’s contribution boils down to USD 960 billion annually. Conservative estimates indicate that India will face a financial shortfall of approximately USD 8.5 trillion *(INR 533 lakh crore)* if it is to achieve the SDGs by 2030, translating to an annual shortfall of USD 565 billion *(INR 35.5 lakh crore)* from 2016 until 2030.

Interestingly, South Asia has a climate related investment opportunity of USD 3.4 trillion from 2018 to 2030, of which India alone presents a potential of USD 3.1 trillion in key sectors such as renewable energy, green buildings, transport infrastructure, transport electric vehicles, and climate smart agriculture to name a few. The country also has an opportunity to create 72 million jobs by 2030, in companies working in the sustainable development space.

**Figure 3: Climate-related investment opportunities in India**

- **Transport electric vehicles**
  - USD 322 million
- **Transport infrastructure**
  - USD 615 million
- **Green Buildings**
  - USD 390 million
- **Renewable Energy**
  - USD 403.7 billion
- **Municipal solid waste**
  - USD 11 billion
- **Climate smart agriculture**
  - USD 194 billion
- **Climate smart urban water**
  - USD 86 million
- **Large Hydro**
  - USD 44 billion

*(Source: IFC)*

India’s goal of achieving balanced, inclusive and sustainable growth requires the mobilization of additional low-cost and long-term capital. Addressing the socio-economic developmental challenges of a population of 1.36 billion, growing incomes for the nearly 66 million people living on less than USD 2 per day and creating livelihoods for 12 million people stepping into the workforce every year, while simultaneously ensuring the availability and adequacy of natural resources, would require unconventional approaches to the challenge of sustainable finance.
India has taken numerous efforts to scale up green and sustainable finance, notably to expand renewable power (175 GW), requiring USD 189 billion of investment by 2022. India has an emerging green bond market (amongst top ten in the world). India’s central bank, the Reserve Bank of India, is executing an evaluation of green finance opportunities. Institutions like Securities and Exchange Board of India (SEBI), have issued a set of green bond guidelines. Mumbai is India’s principal financial hub, which is actively capturing the green bond opportunity.

Figure 4: Global Green Bond issuance in 2017 (in USD million)

(Source: Climate Bonds Initiative)

Financing is one of the key enablers to the rapid expansion of sustainability initiatives, and for achieving the ambitious national targets of solar, wind, and other renewable energy by 2022, as well as the broader targets of the Paris Climate Agreement. Therefore plentiful, low-cost, long term capital will allow India to transition to a balanced, sustainable and inclusive growth, while enabling continued economic relevance. Closing this investment gap will require addressing systemic changes in finance, innovation and policies at a national-level, and a new mission-oriented approach that aims for transformation than just incremental change.
Innovating pathways to Sustainable Finance in India

Barriers to financing the economy of tomorrow
Sustainable finance is poised to transform India’s economy to a futuristic model rooted in sustainable development. While considerable progress has been made to mobilize both public and private finance aligned to sustainable development, it is agreed that current levels of financing is insufficient. A Brookings report highlighted that “there is a long way to go to scale up sustainable finance to desired levels”, considering the “scattered nature of individual initiatives and the long path towards creating new financing norms”. Implementing sustainable finance is an intricate process.

In this regard, there are three broad challenges for scaling sustainable finance – availability of financing, slow policy progress and lack of innovation.

**Financing challenges:**

It is estimated that India requires USD 2.5 trillion by 2030 to achieve its NDC targets and USD 960 billion annually to achieve the SDG targets. Such high quantum of financing cannot be fulfilled by public financing alone and would need contribution from private and development finance. A case in point is the financing requirement of India’s solar sector for reaching the 100 GW capacity target which is estimated to be USD 131 billion. It is notable that the Indian financial system’s current exposure to all the infrastructure sectors is saturated with investments of a comparable USD 137 billion (2017). This emphasizes the massive scale of sustainable finance required by the country and stresses the importance of addressing the challenges.
Long termism versus short termism:

✓ **Lending Perspective:** One of the prominent constraints with sustainable financing in India is that of asset liability mismatch. Sustainable finance is dominated by financing to sustainable infrastructure usually relies heavily on bank lending. Notably, bank lending in India is limited by exposure norms and capital adequacy requirements specified by RBI, which places a cap on infrastructure exposure. A key feature of infrastructure lending is that its tenors are for a longer duration typically 10-15 years whereas the capital raised by banks through deposits are for a shorter tenor, generally 1-2 years. This mismatch in tenors of assets and liabilities of banks makes it difficult for banks to finance longer-term sustainable infrastructure projects. Hence mobilizing sustainable infrastructure finance from other sources like pension funds or insurance funds which have longer tenors, are quintessential to bridge the funding gap.

✓ **Investing Perspective:** One of the reasons of sub-optimal capital allocation to sustainable finance is the tragedy of horizon. The long term risks to economy such as climate change, are not recognized by market actors due to the pervasive short-termism and profit ideology. This short-termism may result in mispricing of assets and could amount to both investor losses and enormous costs which would be borne by the society in the longer term.

**Interpreting sustainable finance:** The lack of a globally accepted definition of sustainable finance is a major stumbling block to understanding its landscape. This inconsistency adds to the complexity which gives leeway for green-washing. Moreover, the involvement of diverse stakeholders, channels and instruments with limited to no coherent strategy aggravates the situation. The architecture is further restricted by the absence of a global governing institution or universally accepted guidelines.

**Lack of proper tracking and monitoring mechanisms:** The lack of an established framework makes it difficult to efficiently track and monitor sustainable finance flows. This is a significant shortfall within the financing system, given the convoluted network of sustainable finance flows. Many countries are developing reliable accounting and monitoring frameworks to address this situation. South Africa is one such nation that has designed a national Measure, Report and Verify (MRV) system to track climate action (mitigation and adaptation) and financing, under the country’s national climate change strategy. The system also provides data for assessing effectiveness of climate finance in meeting national climate goals. Such models can be calibrated with respect to India.
Innovation challenges:

Innovation is key to design concrete solutions and to unlock new sources of funding to scale these solutions. Emerging areas such as sustainable agriculture, clean energy, efficient buildings, mass transit, smart cities, clean water and waste management have been identified as the next big contributors to India’s economy. These growth sectors require extensive investment calling for a strategic upheaval in the way finance is offered currently.

Capital markets: Capital markets in a country play a pivotal role in the growth of the economy and meeting development goals. They are an important constituent of the financial system and cannot be under-emphasized in a developing economy like India that needs a significant amount of capital for infrastructure development. Though the bond market holds huge potential, it does not present options for mobilizing long-term debt, since the domestic market is characterised by lack of both depth and volume. Firstly, capital markets need to be strengthened to scale up sustainable financing in India.

Given the role of cities and urban local bodies in ensuring development, municipal bond markets need to be deepened, by strengthening the accounting and disclosure standards. At present, these standards vary widely between Indian states and even between different tiers of government within the same jurisdiction. The solution lies in establishing India focused standards, which are currently missing.

Market instruments: It is evident that there is a dearth of innovative and transformative financial vehicles which can revolutionize sustainable financing in India. The absence of such instruments is causing less investor capital contribution towards sustainable infrastructure. Financial vehicles like blended finance and impact investing are crucial for enabling Government, organizations, investors, and philanthropists can mobilize a substantial corpus of sustainable finance.

Systems for product development must take into consideration that there is no one size fits all approach, as sustainable financing would cover multiple and diverse sectors such as renewable energy, transport and agriculture. For example, renewable energy could benefit from securitization of long term assets whereas nascent sectors like e-mobility are in need of access to mainstream financing. The perceived high risk of these sectors need to be addressed through customized solutions. Blended finance solutions have not yet been fully embraced by the Indian markets but it is expected to potentially address smaller, more local, climate adaptation, and resilience initiatives, that can drive socio-environmental benefits for local communities.

Incentives: The success of incorporating sustainability into financial decision making can be made possible through incentivization. However, such reinforcing mechanisms for sustainable finance are missing from the Indian finance landscape, and the lack of incentives exacerbate the situation. Currently there are limited successful mechanisms addressing climate change, for example, the scheme that provides guarantees to energy service companies (ESCOs). Utilizing the untapped potential of financial innovation is key to mobilizing the country’s debt and equity markets. At present, there is no impetus for onshore investors for buying labelled green bonds or making sustainable
Innovating pathways to Sustainable Finance in India

Government: Government of India launched National Action Plan on climate change (NAPCC) in 2008 with the objective to reduce the stress of climate change in India. Ten years hence, the implementation of the plan is not backed by a coherent national climate finance strategy, as currently there is limited coordination in accessing climate finance and delivering it to priority sectors. It is difficult to mainstream climate action, due to limited coordination within ministries. A systematic tracking of budgetary allocations for the NAPCC's missions is missing. Climate change planning and financing at the state level is at a very early stage of development and there is no refinement in financial regulation, particularly to correct for market limitations (such as unavailability of long-term capital for sustainable infrastructure).

The Government needs to mobilise international financial flows by establishing the right platform for sustainable investment. At present, there is no systematic and publicly available National MRV (measurement, reporting, and verification) structure for international and domestic climate finance. There has been limited engagement with the private sector to develop funding mechanisms or regulatory policies that could see greater private investment in climate-related activities in India. The Government of India has provided regulatory mechanisms and economic incentives (e.g. Perform Achieve Trade, Feed in Tariffs, Renewable Energy certificates) for engaging the private sector, but actual deployment of programmes has been slow due to enforcement and early stage implementation issues. Hence a policy level strategic alignment is required to counter such challenges.

Regulatory bodies: The Basel norms regulate Banks on the exposure to specific sectors to ensure healthy risk management in the financial system. As banks remain the primary provider of debt linked to sustainable assets, this has resulted into a debt-funding capacity trap from the supply side. In addition to exposure norms, the absence of a domestic framework for environmental and social risk management, places sustainability linked sectors at a loss. Environmental and social risk management standards and environmental accounting frameworks, that integrate environmental performance of companies and its impact on financial performance into decision-making, are not present in the current financial systems.

Policy challenges:

The UNEP inquiry on ‘designing a sustainable financial system’ has tracked the global number and range of policy measures to advance aspects of sustainable finance. At the end of 2013, 139 sub-national, national-level, and international policy and regulatory measures were in place across 44 jurisdictions globally. Most of these were first-generation efforts to improve disclosures in securities markets and by pension funds. Till last year, the number of measures have not only doubled to 300 in 54 jurisdictions but the pattern of activity has changed fundamentally, with a considerable rise in system-level initiatives, which now account for a quarter of the total.

Regulatory bodies: The Basel norms regulate Banks on the exposure to specific sectors to ensure healthy risk management in the financial system. As banks remain the primary provider of debt linked to sustainable assets, this has resulted into a debt-funding capacity trap from the supply side. In addition to exposure norms, the absence of a domestic framework for environmental and social risk management, places sustainability linked sectors at a loss. Environmental and social risk management standards and environmental accounting frameworks, that integrate environmental performance of companies and its impact on financial performance into decision-making, are not present in the current financial systems.
Securities and Exchange Board of India has taken a progressive measure by making disclosures a key component of green bond guidelines. However, a comprehensive and elaborate definition of the term ‘green’ is missing from these guidelines.

It is vital to address the present bottlenecks to make the Indian economy more amenable to sustainable finance. The solution in turn lies in developing a pathway through delivering responsible products and practices for the Indian financial system which is discussed elaborately in the next chapter.
Innovating pathways to Sustainable Finance in India

Taking the leap towards sustainable finance
The implementation of sustainable development objectives requires India to judiciously prioritise, and adapt the Global Goals and targets in accordance with current challenges, capacities and resources at disposal. Therefore, the availability and management of finance is one of the initial steps in achieving a strong, sustainable, balanced and inclusive growth. The pathway to enhance both the volume and velocity of sustainable capital generation is through delivering responsible products and practices for Indian financial system.

Table 1: Green Bond Issuances in India in 2017

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(Source: Climate Bonds Initiative)
Product-centric measures that can stimulate sustainable finance in India

Augment the purview of Green bonds: One of the most prominent financial vehicles catering to climate action is green bonds. India has an emerging green bond market, ranked amongst top ten in the world, with cumulative issuances in 2017 totaling up to USD 3.8 billion. Majority of the proceeds are directed towards renewable energy while other avenues like water, green transport, and energy efficiency receive little to no investments. About 68% of the proceeds are allocated to renewable energy, 21% to low-carbon transport, and 10% to green buildings and energy efficiency. The largest issuer in 2017 was Greenko Investment Co. with issuance worth USD 1 billion and the most frequent issuer was IREDA with 6 bond issuances under 3 deals.

To scale up the green bond market, SEBI issued national-level regulatory reforms for issuance and listing of green bonds (2017) in India, however the reforms fell short in elaborately characterizing the term ‘green’. Given this, it is pressing that regulatory bodies provide more comprehensive and elaborate outlines so as to stimulate financial flows to other green sectors as well.

A strong policy transformation for different financial actors will further percolate and expand green bond market in India. An indicative approach is mentioned below.

Figure 7: Policy push for multiple financial actors to expand Green Bond market in India

- Enhance limits under section 80 C for investments in Green Bonds/separate exemptions similar to ELSS
- Carve out specific limits for green investments & affordable housing out of existing investment limits for infrastructure and housing respectively
- Reduce risk weights on green financing
- CRR and SLR exemption on green financing
- Carve outs for green financing on the lines of PSL

(Source: YES BANK Analysis)
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Global Green Bond market

Global green bond issuance in 2017 reached USD 155.5 billion, up from USD 87.2 billion in 2016 (76% growth). As per a Climate Bonds Initiative Report, the expected issuance in 2018 could reach USD 250-300 billion. The major contribution in 2017 came from USA, China and France, accounting for 56% of total issuances. Fannie Mae topped the chart with USD 24.9 billion in Green Mortgage Backed Securities, putting USA on first spot.

China has become a growth driver in the global green bonds market. The total green bond issuance in 2017 reached USD 37.1 billion (47% of issuance from Commercial Banks and FIs). The tremendous growth in China’s green bond market is due to implementation of strong regulation and policy levers like China securities regulatory commission’s green bond guidelines for Chinese listed companies.

France has a thriving green bond market. It is the largest in Europe and the third largest globally (only after USA and China) with total issuance up to USD 22.3 billion. The market is highly diversified with respect to issuers and instruments. The healthy growth trend can be seen from the issuance coming from mid-sized companies. Non-financial corporates have contributed to the success of green bonds as they accounted for about half the market’s growth with proceeds flowing towards buildings (32%) and Energy (18%). High quality reporting is associated with this instrument as 84% of bonds (by number) had reporting in place, according to use of Proceeds.

(Source: Climate Bonds Initiative)

Bolster the municipal bond market: Municipal bonds is another asset class that caters specifically to urban infrastructure. These bonds have been in existence since 1997 but the market remains largely under-tapped, with a total of 30 municipal bond issuances to date from 14 urban local bodies, amounting to only around USD 203 million (INR 15 billion). More than 75% of total

Figure 8: Global Green Bond issuance in 2017

Renewable Energy
Low carbon buildings and Energy efficiency
Clean transport
Sustainable water management
Sustainable waste management
Sustainable landuse and forestry

The bond issuance has recently gained momentum with the Central Government’s push for raising funds in the bond market. In 2017, Pune Municipal Corporation raised USD 27 million (INR 200 Crore) by issuing 10 year municipal bonds.
Indian municipal bonds to date were issued before 2006 (Moody’s Investor Services). The bond issuance has recently gained momentum with the Central Government’s push for raising funds in the bond market. In 2017, Pune Municipal Corporation raised USD 27 million (INR 200 Crore) by issuing 10 year municipal bonds. This capital generation exercise has provided strong impetus to water infrastructure projects for the city. In February 2018, the Greater Hyderabad Municipal Corporation raised USD 27 million (INR 200 Crore) through municipal bonds to help fund the Government’s strategic road development plan.

Except the large cities that are interested in obtaining finance through capital market, other urban local bodies (ULBs) do not make their accounts public. One of the key requirements for cities and municipalities seeking to issue bonds is transparency in disclosures. Implementation of such measures would reinforce scrutiny of the financial performance of urban local bodies and improve their debt management practices, thereby helping investors overcome information barriers and strengthen their interest in Indian municipal bonds. Municipal bond markets can be deepened in India by establishing national standards, as the current standards vary widely between states and different tiers of the government within the same jurisdiction.

Municipal Bonds should also be made to align with India’s smart cities mission and AMRUT scheme targets. The Ministry of Housing and Urban affairs has already launched an incentive plan for ULBs covered under AMRUT Mission. It will provide incentive amount to 10 ULBs in FY 2018-19. This amount will be limited to USD 1.76 million (INR 13 crore) for every USD 13.53 million (INR 100 crore) of bonds issued and up to a maximum of USD 27 million (INR 200 crore) in bonds per ULB. The incentive will be awarded to concerned ULBs only after successful issuance of municipal bonds by the Ministry of Housing and Urban affairs.

The market could further be expanded through formation of a national-level body that can act as financial intermediary for issuing municipal bonds on behalf of local bodies, and easing the norms on the coupon rates would allow bonds to be issued at market rates, and revitalize the Indian municipal bond market.

**Pioneer Blended finance mechanisms:** Blended finance leverages development finance from public sources and philanthropic resources to de-risk sustainability related investments in focus areas like healthcare, education and infrastructure to attract private capital. This serves as a means to enhance private sector participation in sustainable financing to support the progress of developmental activities in achieving global goals. India can extensively benefit from this mechanism as there is a huge financing gap in sustainability sectors. India holds huge potential with respect to its philanthropic funding, where an increasing number of philanthropists are shifting towards an outcome driven approach. Hence the grant based approach of philanthropy can be conveniently transitioned towards blending instruments, thus increasing the corpus for sustainable finance in India.

Blended finance as a medium is enormously promoted by efforts from international institutions such as Multilateral Investment Guarantee Agency (MIGA) which offers political risk and credit enhancement guarantee to encourage foreign investment in developing countries. International Finance Corporation has recently managed a co-lending portfolio program for infrastructure, with a target size of USD 5 billion and private support came from three institutional investors
namely Allianz, AXA and Eastspring. The success of blended finance globally can be concluded from the World Economic Forum (WEF) survey (2016) of 74 blended finance vehicles, showcasing that every USD 1 of public capital typically attracts USD 1-20 in private investment.

As there are multiple stakeholders involved in blending finance mechanisms, monitoring and evaluation systems need to be strengthened to ensure its effective utilization. Further an appropriate tracking and monitoring system will facilitate mapping financial flows to different sectors and countries, and measuring effectiveness in mobilizing commercial finance.

**The Lake Turkana wind power project** involves construction of a 310 MW wind farm in northwestern Kenya. The aim of the project is to provide clean and affordable energy by enhancing Kenya’s national power generation capacity to approximately 17%. It is set to reduce 16 million tons of CO$_2$ emission compared to a fossil fuel power plant. The total project cost is USD 680 million and will be financed through blended finance structure, with African Development Bank (AfDB) covering a loan of USD 150 million.

(Source: African Development Bank)

**YES BANK** has worked with a local bank and a local NGO in Gujarat to enhance access of affordable finance to destitute women salt - pan farmers in Kutch region through an innovative blended finance mechanism. The Bank has utilized its grant to provide first loss default guarantee to local bank, interest subvention to farmers and to build capacity at grass root level. The unique mechanism has enabled the women salt pan farmer to migrate from diesel pumps to solar, enhancing their livelihood.

**Employ Credit enhancement:** Credit enhancement is a risk reduction technique to improve the credit profile of a structured financial product or transactions. This mechanism reduces the overall credit risk of debt, thereby boosting the overall credit rating and lowering the interest rate thereby making the project more attractive to private investors.

In India, IIFCL has launched a dedicated scheme known as “Credit Enhancement Scheme” for funding viable infrastructure projects with project bond tenors above 5 years. The guarantee provided will be up to 20% of project cost or 50% of bond issue, whichever is less. This scheme addresses the challenges currently faced by the Indian banking sector such as asset liability mismatch, capital adequacy and exposure norms and will also help infrastructure projects to reduce their cost of debt. This innovative financing solution has benefitted Renew Power and Hindustan Power for refinancing their debt through bonds. Though the scheme has produced successful outcomes it needs to be mainstreamed with banks and borrowers through involvement of Public Sector Banks.

**The clean energy arm of Hindustan Power** became the first Indian solar player to enter the credit enhanced bond market. The INR 380 crore issuance was fully underwritten by YES BANK. This Bond issuance has paved the way for towards accelerating development of a corporate bond market for the infrastructure sector and have created a new asset class of investors such as insurance companies and pension funds in the country.
Explore SDG aligned bonds: The Global Goals adopted in 2015 had a broader agenda encompassing poverty, inequality, access to health and education as well as dealing with the impact of climate change. Innovative financial instruments that can cover and support such a holistic scope will be instrumental in achieving these Global targets. The World Bank in 2017 launched first of its kind bond linked to SDGs, to support conservation and sustainable use of fresh and salt water resources. In 2017, HSBC launched first corporate SDG Bond, which raised USD 1 billion and will mature in 2023. The proceeds of this bond will support projects that benefit communities and the environment, such as building hospitals, schools, small-scale renewable power plants and public rail systems.

Currently, India’s most prominent financial vehicle which caters to environmental benefits (mostly renewable energy) is Green Bond, however it does not necessarily consider social issues. Innovative instruments such as SDG aligned bonds will mobilize financing towards sustainability agenda and will boost private sector participation at a national level.

Leverage Securitization: In most bond markets, investors seek investment opportunities for large projects, usually with an issuance size of at least USD 100 million, whereas smaller projects such as private rooftop solar or energy efficiency projects receive minimal financing. Securitization is a mechanism which aims to pool such smaller projects in order to aggregate value and promote risk diversification. A good example of this approach is securitization pioneered by Lendable in East Africa. The organization aggregates outstanding solar consumer loans / leases. It then utilizes an assessment algorithm along with data gathered from installers, to predict end consumer cash flows and validate them. This allows it to evaluate consumer payment risk and price investments. With appropriate risk assessments and a large pool of assets, it develops securities which are offered to international institutional investors. Lendable has used this mechanism to raise financing for PAYGO solar business and micro lenders.

The power sector guarantee project (PSGP) was launched in 2014 by World Bank, IFC and MIGA to address power sector deficiencies in Nigeria. The project is launched on a large scale and it utilizes innovative instruments such as credit enhancement & partial risk guarantees. The two major green-field power projects have received credit enhancement and commercial debt mobilization to widespread green energy projects into Nigeria’s growing economy. (Source: International Institute of Sustainable Development)
The process of securitization reduces the risks associated with projects thereby improving access to finance and lowering cost of capital and enhancing institutional investor participation. Strong investor interest can create competition which in turn will lead to lower debt pricing. Securitization holds massive potential to grow in India, resulting in better utilization of the domestic investor base, which has a massive corpus in pension funds, insurance companies, mutual funds and entities like non-banking financial companies.

**Innovate through Sovereign Bonds:** The world has witnessed effective utilization of Sovereign Bonds to raise funds for sustainability aligned sectors. Poland became the first ever nation to issue a green sovereign bond in 2016 (Issuance size: EUR 750 million) to finance a range of climate related projects like renewable energy, green transportation, sustainable agriculture, afforestation, and National Parks. In 2017, France issued the largest green sovereign bond (Issuance size: EUR 9.7 billion in January 2017) with the longest tenor (22 years). There is definitely a strong business case for India to employ this instrument towards achieving the Global Goals, given that the country faces a tremendous financial shortfall of infusing capital into the development sector.

**Focus on Rupee Denominated Bonds:** Sectors such as infrastructure, housing and MSMEs are important for sustainable development. In India, many infrastructure and power projects suffer from short tenor loans. Long-term Rupee denominated bond (RDB) is an efficient way to bridge this gap. RDB holds significant potential in India as these instruments avoid exchange rate risks and can stimulate private capital infusion into sustainably productive sectors. Masala bond is a sub-category of RDB placed in offshore bond market. This instrument allows global investors (who were earlier restricted by foreign exchange administrative risks, complex registration process and other capital controls) to invest in high quality emerging market assets. India can revitalize and refocus these financial vehicles and link them with SDG-aligned sectors.

**Capture Impact investing approach:** Impact investing is an effective vehicle to source, catalyze and scale approaches that can transform millions of lives. It is an asset class that directs private capital to address social challenges in fields such as education and skilling, health, poverty, agriculture and the environment. India is an emerging market for this type of investing. Cumulative investments in the period from 2010 to 2016 is USD 5.2 billion (McKinsey analysis). High demand for such investments is going to continue because of large unmet social needs. As per a McKinsey study, impact investments in India have the potential to grow at a CAGR of 20-25% till 2025. Though the contribution of impact investing in funding global goals may not be significant, it can append the acceleration of the development and enable progress on most social indicators.
One of the innovative tools that can be implemented in the Indian context is Development Impact Bond (DIB) which has seen success in ‘Educate Girls’ initiative in 2015. It is a mechanism which utilizes private risk capital so that a donor agency (a philanthropist acting as an outcome payer) is able to pay for the achievement of agreed-upon outcomes. It is a ‘payment for success’ bond. The focus in such an instrument is on outcomes and performance management, both of which are responsibilities of service provider.

Educate Girls initiative was launched in 2015 by Educate Girls NGO to improve girl’s school enrolment in India. The program was first implemented in Rajasthan, where 1 in 10 girls aged between 11-14 years were kept out of school for reasons such as contributing to the family income or caring for siblings. In 2015, this NGO became part of a DIB structure. By the end of three years, this initiative resulted in enrolment of 768 girls aged between 7-14 years, which was 92% against a set target of 79% in Rajasthan alone. Such high impact mechanism should be harnessed to address the socio-economic challenges.
Develop and implement practices that mainstream sustainable finance

The task ahead – Carbon stress testing: Climate stress testing is the evaluation of potential vulnerability of Bank’s financial / capital position to climate related risks such as droughts or extreme weather events. Currently in India, climate change is not included as a scenario in stress tests, while it is agreed that it is a plausible event which might occur in future. China is one such nation, which is on its journey to become a global leader in green finance. Industrial and Commercial Bank of China (ICBC) has developed an environmental stress test. By doing this ICBC has incorporated environmental risk into its risk management system. Such practices should be replicated in India along with creating awareness on importance and severity of climate change.

Recently ING, the Dutch bank, has proposed to assess its USD 600 billion portfolio based on climate impact, shifting the entire portfolio to align with emission reduction required by the Paris climate agreement. This in turn will influence clients to make decisions more aligned with the climate agreement. The bank has previously linked lending rates with carbon emissions, where the rate increased if emissions rose, and fell if environmental performance improved. The bank has stopped lending to coal companies and aims to have zero coal in its portfolio by 2025. The challenge with implementing climate stress testing is getting the right data, pairing it with lending products and choosing the right set of climate scenarios to develop policies aligned with the drawn conclusions. (Financial Times)

Boston common asset management survey (2017) conducted an analysis of 28 banks across Australia, Canada, Europe, Japan and USA. The findings state that over 70% of banks were undertaking environmental stress tests / carbon footprints and only 15% integrate these results into their business analysis and decision-making.

JP Morgan Chase has taken action by assessing how emerging climate change regulations will impact its global power portfolio. In 2016, the bank reviewed and updated its Environmental and Social Policy Framework and revised its coal financing policy. As a result to this, the bank has restricted financing of new coal based power plants in high income OECD countries and enhanced due diligence for other companies linked to coal production.

Enable transparency and accountability: Globally organizations are integrating non-financial parameters for effective governance and strategic business decisions. This is influenced by regulations and pressure from various stakeholders including investors. Brazil is one such nation which has made concerted efforts in developing a comprehensive roadmap focused on corporate reporting, regulatory action and investor education on ESG. The emergence of integrated reporting in South Africa has resulted in a thorough risk analysis and improved strategic resource plans for the country

In India, regulators are taking concrete steps in building competencies towards non-financial reporting. SEBI’s regulation in 2017 mandated the top 500 listed companies to disclose their performance on the National Voluntary Guidelines through Business Responsibility Reports (BRR). It is a progressive step to put issues like business operations and sustainability at the
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SEBI has also encouraged integrated reporting for top 500 listed companies on a voluntary basis. Such practices will encourage disclosures of non-financial parameters for listed companies. The mandatory CSR disclosures in India have put greater emphasis on governance and stringent monitoring and reporting requirements, but presently there is no penalty on non-disclosures. Such a penalty needs to be enforced by regulatory authorities. The main purpose of such reporting on non-financial disclosures, is to help companies identify the extent to which their business is responsible and sustainable, but this will only benefit businesses when the output of such reporting is inculcated into the organization’s decision making process and future action plans.

Regulators could also look at enhancing the transparency and accountability practices by encouraging more disclosures on non-financial parameters for listed companies, while also mandating minimum disclosures by FIs on their exposure to carbon-intensive sectors and potential impacts/ emissions they have financed. Organizations could be rated on non-financial parameters, similar to credit rating, to assess their performance on ESG standards.

**ESG risk management:** The lending practices and policies of Banks and FIs should inculcate ESG criteria into their risk assessment. Globally such practices are gaining traction. For example Brazil has designed industry specific guidelines which requires FIs to implement a continuous and integrate risk management structure to assess their activities exposure on environmental and social risks. The policies demand that FIs include E&S criteria in their risk assessment processes and that they categorize projects accordingly, in order to enable efficient monitoring. China’s green credit lending guidelines establish how banks can integrate sustainable thinking into the entire lending circle with a robust evaluation mechanism. With mandatory requirements for effective environmental and social risk management, banks can effectively identify, assess, monitor, control and mitigate environmental and social risks.

Presently there are no national level guidelines for mandating / encouraging ESG risk management in Indian banking sector. The adoption of such practices has been gradual as only a few banks have incorporated these into their lending cycle. YES Bank is one such institution which has an Environmental and Social Policy, and considers these parameters in lending decisions. The policy covers negative impact on environment due to project financing such as pollution, land water/ground water depletion, deforestation and habitat destruction.

The gap lies in the existing level of sensitization among bankers on these parameters. Hence banks should be sensitized (state run and private) on the significance of integrating ESG risks and develop capacities and train professionals to integrate ESG risks in financing. As the current guidelines do not cater to ESG risks, including such risks in National policy for Green Finance is way forward. The rating tools (used by Banks & FIs) can be modified to include non-financial performance parameters as well.

**Capacity building and knowledge sharing:** Practices such as capacity building and knowledge sharing are key to re-imagining sustainable business and driving change at scale. The missing know-how of bankers and investors in sustainable finance aligned sectors such as renewable energy and energy efficiency, has resulted in an exaggerated risk perception. By providing adequate understanding to bankers about risks in emerging sectors like water management, sustainable agriculture, forestry, fisheries will generate a long lasting impact on the availability of sustainable finance.
Promoting climate literacy: Climate education in India can have a noteworthy impact in the transformation into building environmentally sustainable societies, in line with initiatives from government, civil society and private sector. Essential change in outlook is required when it comes to outlining successful answers for handling this global menace. It is vital to think upon how production can be generated through environment friendly means. Practices such as incubating climate service start-ups or funding entrepreneurs to de-risk green products are way forward to promote the goal of protecting the environment. Startups can be highly impactful in building climate resilience and in finding business solutions to cater to climate change, renewable energy, water management, and resource efficiency.

Formation of a specialized institution: Establishing a specialized institution is necessary to mainstream sustainable finance in India. An alternative possibility of transforming existing institutions like IREDA into a green bank can also be pursued. This transformation will empower IREDA to access domestic and international capital as well as better financing terms, including lower interest rates with longer lending terms. This will bolster India in powering its urban and rural communities and furthermore in meeting the environmental targets of the investors and climate targets of the Government.
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Conclusion
## Conclusion

(Source: YES BANK Analysis)

**Leadership**
- Policy Direction
  - Government
- Regulatory Direction
  - RBI & SEBI
- Implementors
  - Private Sector & Businesses

**Actors**
- Banks and FIs
- Institutional Investors & Asset Managers
- Retail Investors / Impact Investors
- Development Finance Institutions
- Public Institutions/ Bilateral

**Facilitators**
- Sustainability Taxonomy
- Standards & labels
- Benchmarks
- Credit Rating Agencies
- Data Aggregators
- Investment Advisors
- Block chain
- Grid edge
- Crowd-sourcing
- Climate literacy
- Capacity Building & Knowledge sharing
- ESG risk management
- Climate stress-testing

**Output**
- High GDP growth rate
- Employment Generation (380 million new jobs by 2030)
- Enhanced livelihoods
- Educated, skilled & climate aware population
- Cleaner environment
- Greater resilience to weather related events
- 60 large market opportunities worth USD 12 trillion a year
- Better organizational performance on non-financial parameters (TBL)
- Greater brand value
- Risk mitigation
- Securitization of future earnings

(Figure 12: Sustainable finance ecosystem)
India is “pushing ahead” on its national endeavors to meet Sustainable Development Goals with strong political commitment and execution by major stakeholders. The country is undertaking one of the highest rates of renewable energy expansion and building 11 million homes under the world’s largest affordable housing programme. However, despite the numerous initiatives the investment gap persists in prominent sustainable development sectors, to the tune of USD 2.5 trillion annually, in developing countries alone. This requires financial institutions to play a central role in redirecting the much needed trillions in achieving Global Goals and climate targets towards sustainable investments. But a shift of capital flows towards more sustainable economic activities has to be underpinned by a shared understanding of what ‘sustainable finance’ means.

The way forward here is to initiate a real conversation and weave a narrative around sustainable finance by introducing unified sustainable finance taxonomy, green standards for financial products, low-carbon benchmarks, duties of asset managers, requirements of stock exchanges, and mandatory disclosure norms of companies. This in turn will stimulate ambitious action at the nexus of financial system and sustainable development and will support in engaging important actors, and crowd in innovations and resources.

For achievement of a successful financial eco-system, transparency of market participant’s activities across the investment chain is essential. Increased transparency, underpinned by innovative technologies, empowers citizens to compare the sustainability performance of companies and allows investors to make informed investment decisions to reorient their capital flows towards sustainable investments.

India has been a catalyst for change and now it has to shape an overarching narrative that validates its ambition to align finance with sustainable development. India can deliver this long-lasting change with the support of all its major stakeholders tied up with a collective vision, a cohesive approach and a coordinated execution strategy to innovate pathways in scaling sustainable finance to new heights.
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