



# JOURNAL OF RESPONSIBLE FINANCE

Knowledge Series on Emerging Trends



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# JOURNAL OF RESPONSIBLE FINANCE

Knowledge Series on Emerging Trends

Sustainable Financing in India: Needs and Options  
in Key Sectors of Growth

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# MESSAGE FROM GIZ

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This journal has argued that finance-as-usual, that is, finance blind to the ESG risks and opportunities, will not only expose itself to reducing its competitive edge in the market but also adversely affect the economy at large.

The two grave challenges facing India are jobless and environmentally unsustainable growth, the consequences of which for the society could range from divisive social differences to a significantly low quality of life. These costs are bound to become increasingly difficult to bear unless capital is well allocated.

A fundamental re-alteration of the financial system that creates real incentives to mobilise sustainable investments is important for future-friendly capital allocation. This implies that financial business models will need to be re-calibrated to integrate sustainability concerns in public and private investment plans and financial terms.

This volume continues with the theme of mobilising and deploying finance effectively to help India transition into a climate resilient and stable economy. It does so by analysing sustainable financing needs and options in key sectors of growth such as agriculture, MSME sector and urban development. It also looks into the potential of green bonds and impact investment to unlock the capital needed to fund the mammoth requirements. The volume argues that there does exist a window of opportunity but it is narrow if the climate and jobs targets have to be managed. The pieces present the challenges in detail and provide recommendations both for policy and market actors.

We hope that this volume will evoke your interest and draw your attention to opportunities that ESG linked investment and allocation have started to unfold.

Happy reading!



**Wolfgang Leidig**

Director

Private Sector Development, GIZ



# MESSAGE FROM IBA

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Financing for sustainability is a multi-trillion dollar business opportunity globally but it faces a plethora of challenges, both structural and behavioural.

After the exit of the United States from the Paris Climate Accord, China, India and the EU are required to provide a new leadership on climate as their economies face the challenge to grow sustainably.

G20 has laid unequivocal focus on green finance, exhorted its members to generate appropriate policy signals to direct the finance required from public and private sources to low carbon economy. India has exhibited that a positive policy push, for example in solar, can contribute significantly to making the market compete and tap such opportunities.

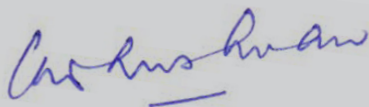
Financing needs are, however, not confined to the renewable energy sector alone. Greening of infrastructure on the whole is a necessity that can be ignored at its own peril. Sustainable cities, transport, water conservation, agriculture, buildings and roads, MSMEs are sectors that are critical to spur India's development. Entrepreneurial and financial innovation is required for this to happen. That said, green must also ensure that social cost of this transition is not lost sight of.

The Indian Banks' Association, with the involvement of financial institutions, has developed and endorsed the National Voluntary Guidelines for Responsible Financing. These not only contain principles of action on green risks and opportunities but also address social and governance issues of financing. IBA's interactions with banks show that even though they are engaged on a variety of such Environmental, Social and Governance (ESG) issues, organisational (business) and ESG strategies are still some way off from getting fully fused with each other. This calls for a more effective communication of the business case for ESG.

Notably, the Reserve Bank of India is also working for a commonly understood and practicable outlook for green finance in India. These developments are sure to trigger a new way of thinking and delivering finance for India's future.

This volume on the sustainable finance opportunity in India brings out the importance of developing innovative financing models in different sectors; tapping the bonds market, impact investing, linking up with a much wider set of stakeholders, greater policy coordination, transparency on activities and measuring the impact to attract a wider set of investors.

We wish you a happy and engaged reading!



**V G Kannan**  
*Chief Executive*  
IBA, Mumbai





# 1

## Shared Responsibility: The Role of Impact Investing in Sustainable Development



### » Abhilash Mudaliar and Aliana Pineiro

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### Introduction

In reference to the future for sustainable development, former Secretary-General of the United Nations Ban Ki-moon has said that solutions to one problem must be solutions for all. It is also becoming clearer that in order to develop solutions for all problems we must also call on solutions from all stakeholders. In 2015, the 193 Member States of the United Nations unanimously committed to adopting the Sustainable Development Goals (SDGs), “a global agenda to end poverty, protect the planet, and ensure all people enjoy peace and prosperity”<sup>1</sup>. The SDGs are the embodiment of a global approach to sustainable development that calls on a variety of stakeholders to participate in reaching these goals. In fact, as part of this exciting and aspirational agenda, the UN

called for the private sector to play an active and fundamental role in achieving these goals.

Responsible investing is already playing an increasingly important role in global sustainable development. An umbrella approach, responsible investing encapsulates practices that consider the effects of investment capital on society and the planet. One such practice is environmental, social, and governance (ESG) investing, which mitigates environmental and social risks by screening for business models that do less harm than others. Another practice is impact investing, which *intentionally* seeks out positive social and/or environmental impact alongside a financial return.

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This article was produced with support from Hannah Dithrich and Kimberly Moynihan from the GIIN.

## SUSTAINABLE DEVELOPMENT GOALS



In other words, impact investing is about actively investing in solutions for pressing global issues—and it is this core function that specifically positions impact investing to be a powerful tool for the global community to access much-needed capital for sustainable development.

The SDGs are helping to focus this capital. These ambitious goals will require an estimated USD 3.9 trillion of capital investment annually into developing countries alone, a figure far exceeding the USD 1.4 trillion in existing official annual development aid<sup>ii</sup>. To fill this financing gap, the 15-year plan will require collaboration across the private, public, and philanthropic sectors in order to achieve the targets. Impact investing has the potential to provide some of this capital and drive new collaboration efforts to address this funding gap for sustainable development. The GIIN's 2016 Annual Impact Investing Survey reported that the impact investments of 156 investors totaled USD 77.4 billion<sup>iii</sup>. This is, of course, just a sample of the overall industry. Further, investment activity is growing at a robust pace. From 2013 to 2015, there was 18 per cent growth per annum in impact investing assets under management among a sample of 61 impact investors<sup>iv</sup>. Overall, the impact investing market is currently just a fraction of the amount needed to cover the SDG financing gap, but it is a growing and renewable source of capital that should be leveraged for this purpose, complementing public and philanthropic monies.

As this young industry has grown, impact investing has emerged as a noteworthy counterpart to development aid and philanthropic capital, and has captured the imagination of many different investors, including fund managers, foundations, family offices, banks, pension funds, and development finance institutions (DFIs). DFIs have historically provided development aid, however in recent years have recognised that solving social and environmental problems requires a variety of tools, and impact investing can complement traditional development aid. All of the aforementioned investors are challenging traditional paradigms by creatively investing across a range of asset classes, sectors, geographies, and impact themes to support businesses and projects that have positive effects on society and the environment. Many of these investors are also actively collaborating in a number of ways, including through unique deal structures, via knowledge sharing, and by being active members of field-building memberships groups such as the Global Impact Investing Network (GIIN).

The GIIN is dedicated to increasing the scale and effectiveness of impact investing. As the world's largest network of asset owners, asset managers, and others involved in impact investing, we are hugely excited and inspired by the unique role that the impact investing industry will play in achieving the SDGs and building a sustainable future. In the last



year, an increasing number of impact investors have begun to actively align their investments to these goals. In recent research<sup>v</sup>, we found that impact investors are using the goals in several key ways, including:

- **Communications:** Impact investors are using the SDGs to articulate the connection between their investments and their impact goals. This has streamlined communications with a range of stakeholders, including clients, investees, and other investors.
- **Strategy and goals:** Impact investors see the SDGs as a global declaration that sustainable development is a significant investment opportunity for the private sector. These goals help impact investors identify and develop targeted impact investment strategies.
- **New capital:** The SDGs offer a simple and attractive entry point for investors not yet engaged in impact investing to begin to build an impact investing portfolio, hopefully driving more private capital towards achieving the SDGs.

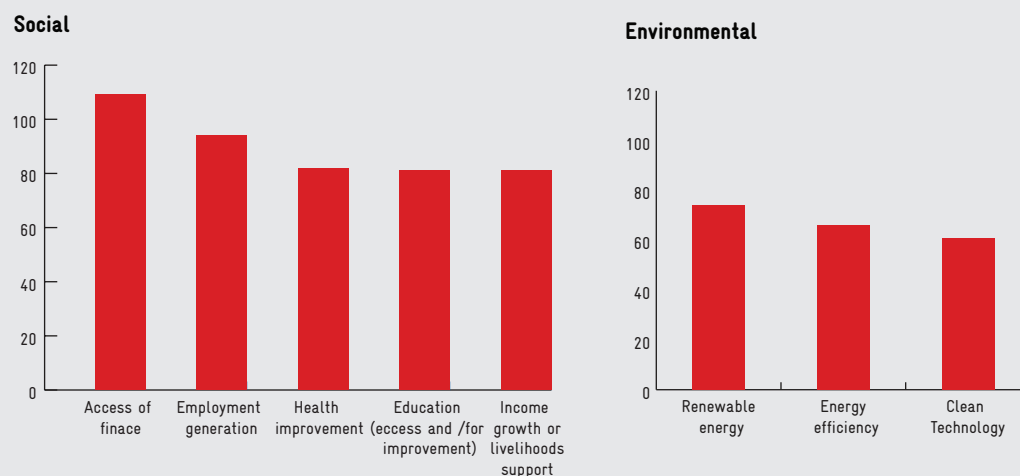
This alignment of impact investments to the SDGs will be an integral part in the collective effort to achieve the goals. Still, even for those impact investors not yet formally aligning their portfolios to the SDGs, the link is naturally quite clear.

The GIIN's 2016 Annual Impact Investor Survey analysed the activities of over 150 impact investing organisations worldwide and found that the top social impact themes pursued include access to finance, employment generation, health improvement, and education access and/or improvement, and the top environmental themes are energy and clean technology (see Figure 1)<sup>vi</sup>. These objectives echo the SDGs themselves, linking to goals such as:

- **SDG 8:** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
- **SDG 3:** Ensure healthy lives and promote well-being for all at all ages;
- **SDG 7:** Ensure access to affordable, reliable, sustainable and modern energy for all;
- **SDG 4:** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all; and
- **SDG 12:** Ensure sustainable consumption and production patterns.

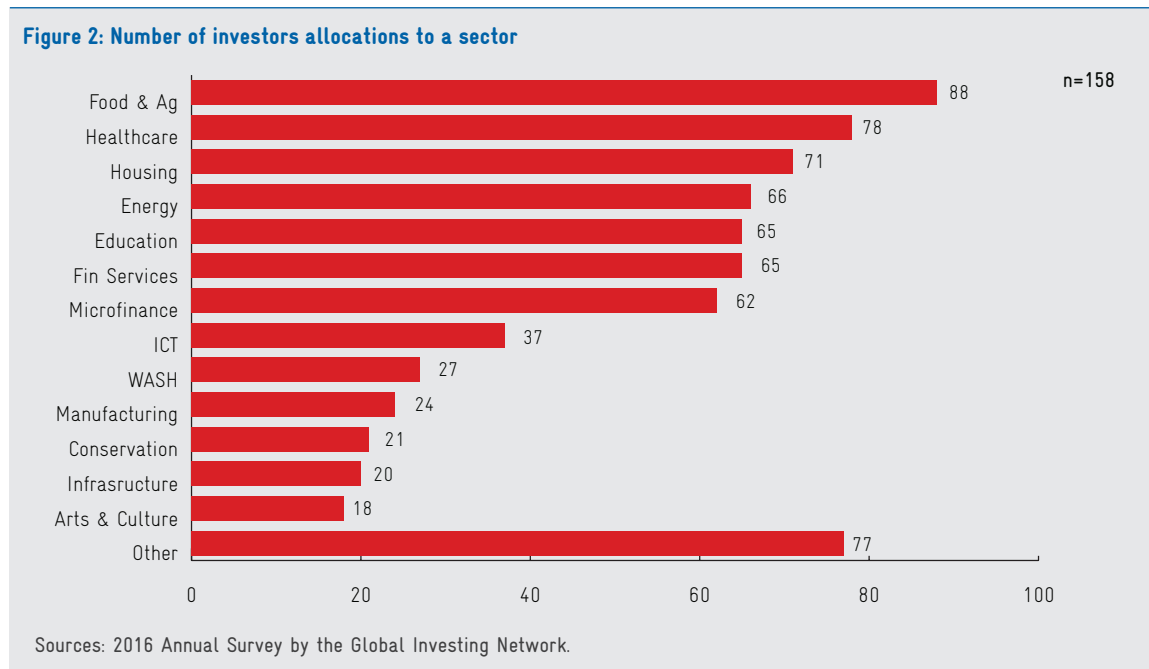
Impact investors pursue these themes through investments in a wide range of sectors, including food and agriculture, healthcare, housing, energy, education, and financial services and microfinance (see Figure 2).

**Figure 1: Top impact themes targeted by impact investors**



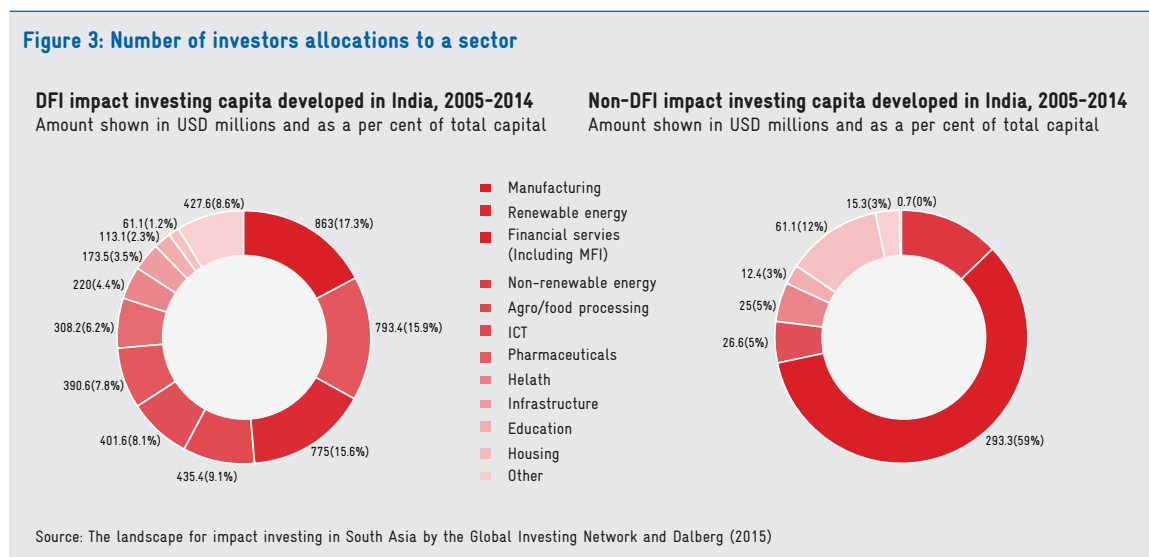
Note: Number of respondents that selected each option shown above each bar.

Sources: 2016 Annual Survey by the Global Investing Network.



Impact investments are made around the world; it is a global practice that can address sustainable development in a multitude of settings. Impact investors investing in India are particularly well-positioned to advance sustainable development, as evidenced by their sector allocations. According to the GIIN’s landscape study published in 2015<sup>vii</sup>, DFIs direct most of their capital in India to manufacturing, renewable energy, and financial services, while non-DFI impact investors direct most capital in India to renewable energy, financial services, and agri-business (see Figure 3). These impact sectors reflect three of the top sectors from the Annual Survey, with the addition of manufacturing.

In India, DFIs and non-DFI impact investors have often taken different approaches to direct investments in positive socioeconomic development; however, it is easy to see how investments in these popular sectors map to various SDG objectives (see Table 1). For example, the impact objectives of DFI and non-DFI investors in financial services might be quite similar, i.e. to enhance financial inclusion, yet the approaches may vary – with DFIs often investing in conventional banks to encourage downstreaming, and other impact investors investing in start-up financial service providers that directly target the base of the pyramid, such as microfinance institutions.



**Table 1: DFI and non-DFI impact investments**

Top Sectors	Types of projects funded	SDGs
<b>DFI</b>		
<b>Manufacturing</b>	<ul style="list-style-type: none"> <li>Conventional and sustainable construction materials</li> <li>Sustainable paper products</li> <li>Conventional and electric vehicles</li> <li>Recycling machines</li> </ul>	<ul style="list-style-type: none"> <li>SDG 8: Decent Work and Economic Growth</li> <li>SDG 9: Industry, Innovation and Infrastructure</li> </ul>
<b>Renewable Energy</b>	<ul style="list-style-type: none"> <li>Solar on-and off-grid energy</li> <li>Hydroelectric power</li> </ul>	<ul style="list-style-type: none"> <li>SDG 7: Affordable and Clean Energy</li> </ul>
<b>Financial Services</b>	<ul style="list-style-type: none"> <li>Conventional banks</li> <li>Conventional lending companies</li> <li>Risk management companies</li> <li>Microfinance institutions</li> </ul>	<ul style="list-style-type: none"> <li>SDG 8: Decent Work and Economic Growth</li> <li>SDG 10: Reduced Inequalities</li> </ul>
<b>Non-DFI</b>		
<b>Renewable Energy</b>	<ul style="list-style-type: none"> <li>Off-grid energy</li> </ul>	<ul style="list-style-type: none"> <li>SDG 7: Affordable and Clean Energy</li> </ul>
<b>Financial Services</b>	<ul style="list-style-type: none"> <li>SME finance and Microfinance institutions</li> <li>Payments and banking for BoP</li> </ul>	<ul style="list-style-type: none"> <li>SDG 1: No Poverty</li> <li>SDG 5: Gender Equality</li> <li>SDG 10: Reduced Inequalities</li> </ul>
<b>Agri-business</b>	<ul style="list-style-type: none"> <li>Agricultural equipment</li> <li>Food processing</li> </ul>	<ul style="list-style-type: none"> <li>SDG 2: Zero Hunger</li> </ul>

Another sector that receives significant investment from DFIs is non-renewable energy. The impact objectives of investors in non-renewable energy reflect aspects of SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all, since investments in this sector improve access to energy and efficiency via the traditional electric grid.

As the Indian government has stated a firm commitment to the SDGs and has begun to align the activities of government ministries to the SDGs,<sup>viii</sup> so too have impact investors investing in India. Although most impact investments can be informally mapped to SDGs at the sector level or by the targeted impact themes, there are several impact investors investing in India that have actively aligned their activities with the SDGs. This process of alignment takes time, and so although we discuss just a few examples below, it is a growing practice and we expect more impact investors, including DFIs, to align in the near future; for instance, FMO, the Netherlands-based DFI has publicly aligned with the SDGs.<sup>ix</sup> Some examples of SDG aligned investors are:

- **Encourage capital**, a U.S.-based fund manager is launching a private equity strategy focused

on financial inclusion in emerging markets, including India. This strategy focuses on companies that contribute to the development of financial systems of emerging market economies in order to enable poor and marginalised groups to generate income, build assets, protect against shocks, and sustain livelihoods. Encourage examines the impact of its investments on three levels: *direct impact* on people and ecosystems, *systemic impact* on the landscape of financial inclusion in the country of investment, and the impact that Encourage has on the *investee's effective operation*. Encourage Capital maps its impact to 11 SDGs.

- **PGGM**, a Netherlands-based pension fund, invests in four impact areas: climate change mitigation, water, food, and health in emerging markets and Europe. Through its investments that address water scarcity, PGGM tackles quantity, quality, and access to water in several countries, including India. PGGM is using the SDGs to strengthen communication with clients, investees and the wider investment community about its impact investment

strategy, impact measurement and reporting. Its impact objectives map to six SDGs.

- **Cordaid investment management**, an asset manager that is part of the Netherlands-based development aid organisation by the same name, is investing in financial services and health clinics in fragile countries and populations through its three investment funds. The Rural and Agricultural Fund makes investments in sustainable financial models in rural Asia, Africa, and Latin America, with India being one of the largest country-recipients of investment capital.<sup>x</sup> Cordaid Investment Management is using the SDGs in its impact measurement practice, mapping its theory of change for each fund and its impact metrics to the related SDGs. Its impact objectives map to 13 SDGs.

These examples highlight some of the many ways impact investors can map their activities in India to the SDGs. In doing so, they demonstrate the power of impact investing specifically—and responsible investing more broadly—to further the sustainable development framework set out by the global community. The private, philanthropic, and public sectors must collectively and thoughtfully utilise their resources to further the sustainable development goals, which are critical to ensuring a healthy planet and society for future generations. Yes, solutions to one problem must be solutions for all. We urge the financial community to deepen its engagement with impact investing as a crucial part of these solutions. There is no industry better placed to respond to the U.N.'s call to help make the SDGs a reality.

*This article was produced with support from Hannah Dithrich and Kimberly Moynihan from the GIIN.*

#### Interview with Anil Sinha, Advisor South Asia, GIIN

##### **Q1. Is impact investing shaping up in India as an emerging new asset class, on the lines of venture capital and private equity?**

Impact investing is an approach to investing that can be applied across asset classes, rather than being an asset class in its own right. As matters stand today, the process of building this into a separate asset class is under progress. As per draft findings of the Impact Investors Council (of India) about USD 5.2 billion has been invested by impact investors over last seven years or so and the annual funding amount is about USD 1 billion growing at about 15 per cent per annum. IIC estimates average returns of about 10 per cent in USD terms which is very encouraging and above the global average. Research suggests that the majority of impact investing fund managers in India invest through private equity and venture capital. Development Finance Institutions (DFIs) have predominantly invested through debt or mix of debt and equity. However, venture/impact debt funds such as Villigro are now on the rise.

##### **Q2. With such early-stage investors supporting social enterprises, more investor interest can be generated and in many cases, PE and VC funds do support subsequent expansion, but institutional debt (bank loans) has been limited. How can this be strengthened?**

Domestic development banks—such as SIDBI and NABARD—do have in place various programmes to support small and medium enterprises. Also there is a special focus by the Government on start-ups. However, our (GIIN's) research suggests that awareness of such programmes is low and organisations believe that they are hard to access. The India Aspiration Fund is an important initiative which can and is supporting domestic impact funds and fund managers. The Government of India launched the Rs 100 billion India Aspiration Fund in 2015 to provide equity capital for MSMEs-based start-ups. This is a fund of funds that would invest in venture capital funds for meeting the equity requirement of such start-ups. There is, however, a need to deepen the domestic impact fund market, as about 90 per cent of the impact investment comes from overseas. In this context, the trend of Indian companies and HNIs investing in impact funds is encouraging. For example Godrej Agrovet, the Godrej Group's agribusiness arm, was anchor investor for Omnivore Partners, which funds startups from India developing breakthrough technologies for food, agriculture, and the rural economy. Omnivore has already invested half the INR 2.6 billion funding it had raised initially and plans to raise a second round of funds, targeting about INR 3.2 billion, as recent news reports suggest. Another good example is the INR 1 billion investment by Sunil Munjal-led Hero Enterprise in Aavishkaar Bharat Fund, the sixth fund by Aavishkaar Venture Management, a firm that

supports enterprises working in rural areas and those targeting the poor. Aavishkar, which is expanding into other markets in East Asia and Africa as well, is a good example but we need many more such. It would be crucial to promote more local fund managers for India and develop their capacity. Globally, total assets under management by impact investors is estimated to be about USD 70 billion.

**Q3. Can social enterprises raise venture debt, by leveraging the impact equity investment that they manage to get? Can foreign investors invest in such enterprises beyond the equity route—are they allowed to take the debt route, say bonds that could be issued by social enterprises? How can banks and FIs support this segment?**

SEBI (Securities and Exchange Board of India) regulations do not allow foreign investors to engage in debt transactions unless they are registered as a Foreign Portfolio Investor (FPI), a designation for which not all funds qualify. (DFIs are regulated as “internationally recognised sources” and thus are able to also use debt instruments e.g. IFC). The teaming of equity from impact funds and debt from local banks could help address this issue.

## About the Global Impact Investing Network

*The Global Impact Investing Network (GIIN) is a nonprofit organization dedicated to increasing the scale and effectiveness of impact investing around the world. Impact investments are investments made into companies, organisations, and funds with the intention to generate social and environmental impact alongside a financial return. Impact investments can be made in both emerging and developed markets, and target a range of returns from below market to market rate, depending upon investors’ objectives. The GIIN builds critical infrastructure and supports activities, education, and research that help accelerate the development of a coherent impact investing industry. For more information, please visit [www.thegiin.org](http://www.thegiin.org).*



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# 2

## Financing the Rising Indian Urban Tiger



### >> Aarsi Sagar and Rajat Kathuria

Aarsi Sagar has recently joined the Green Cities team at Global Green Growth Institute (GGGI). Prior to this, she was consulting with the Indian Council for Research on International Economic Relations (ICRIER). Her work focuses on urban, climate change and environment policy. She has also consulted with the World Bank on air quality issues in India. She has an undergraduate degree in Political Science from Bryn Mawr College, USA, a Master's degree in Energy and Environmental Analysis from Boston University and another Master's degree in Environmental Management from Harvard University.



Rajat Kathuria is Director and Chief Executive at ICRIER, New Delhi. His research interests cover a range of issues relating to regulation and competition policy. He is on leave from the International Management Institute (IMI), New Delhi where he teaches Managerial Economics and International Trade. He has consulted for a number of international organisations, including ILO, UNCTAD, LinneAsia, World Bank and ADB. He is member of several government committees and the research advisory council of State Bank of India (SBI). He has a Masters from Delhi School of Economics and a PhD degree from the University of Maryland, College Park.

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### Introduction

With India currently 30 per cent urbanised<sup>i</sup>, and expected to be 50 per cent urbanised in the next two decades, a majority of the country's population is living in rapidly growing cities. Some reports estimate that the actual urbanisation rate is higher than is presented in the census, and has already crossed the 50 per cent mark<sup>ii</sup>. Both central and state governments have highlighted the critical need for investment in urban infrastructure to sustain and to contribute to India's fast-paced economic growth at a predicted 7.5 per cent. Various city level initiatives launched by the government are testimony to this emphasis. However, despite numerous central and state government urban programmes, the required investment will fall short of the amount needed to

develop well-built smart cities as envisioned by the citizens and as required for such a rapidly growing country. Cities and municipal governments will have to look at other innovative means to finance the large gap. This current wave of urban focus is not only on the metropolitan and mega cities of India, as has been in the past, but also increasingly on the Tier 1 and Tier 2 cities, which are becoming centres of both manufacturing and service industries.

Although the case for the backlog in infrastructure investment is quite evident, the need for environmentally sustainable infrastructure is just as vital. Business-as-usual (BAU), unplanned urban development has proved to be quite expensive, and when accounting for environment and social costs, the figures increase significantly.

Traditional infrastructure investment frameworks and instruments have excluded the associated environmental and social costs of providing basic urban services. Once the negative externalities are internalised in the cost structure, the case to consider environmentally sustainable investments becomes quite compelling<sup>iii</sup>.

## Evolution of infrastructure policy and institutions in India

Historically, infrastructure has been financed through a mixture of government grants and soft loans in the country. Prior to the 1991 liberalisation, urban infrastructure in Indian cities was financed largely by government grants and plan funds of central and state governments, specifically, government budgetary allocations. Decisions on local infrastructure investments were made by central and state governments, with inadequate understanding of local needs. In the absence of crucial inputs on both the nature and extent of local requirements, the infrastructure built at the time was unplanned, of poor quality and often unrelated to the needs of the citizens. During the 11<sup>th</sup> five-year plan (2007-08 to 2011-12), the need for cost-effective and quality infrastructure was recognised as a prerequisite for rapid and sustained growth; and investment in the sector was increased to USD 500 billion. This was doubled to USD 1 trillion during the 12<sup>th</sup> five-year plan. The scale of the requirement made it both necessary and inevitable for the government's role to evolve from producer to enabler as well. Consequently, the 12<sup>th</sup> plan sought to increase the share of private sector funding in infrastructure investment to 50 per cent, from 30 per cent in the 11<sup>th</sup> plan period—both through direct investment and public private partnerships (PPP). With the current government's most recent move towards implementation of the goods and services tax (GST) and the several initiatives to widen the tax base, there is a possibility that increased government revenue could potentially be used to finance urban infrastructure.

However, as the gap in infrastructure investment is still sizeable, certain challenges in the current financing structure would need to be addressed for efficient utilisation of funds.

Despite India's large pool of domestic savings (about 30 per cent of GDP), there has been a persisting challenge in matching supply of finance with projects worth investing in. More than 50 per cent of household savings are in physical assets such as real estate and gold and therefore, not subject to financial intermediation. Of the total household financial savings, about 55 per cent are in the form of bank deposits which are relatively short-term in nature. Infrastructure on the other hand needs high upfront capital expenditure, involves higher risk and returns are available after a long gestation period. This implies that financing by rolling over short-term debt exposes the projects to rollover or refinancing risk. Traditionally, commercial banks and non-banking financial companies (NBFCs) have been the two major sources of non-budgetary debt financing for infrastructure projects, comprising about 40 per cent of the total infrastructure finance and 80 per cent of the total debt infrastructure finance in India. In the light of current banking troubles, this source is likely to be severely constrained in the future<sup>iv</sup>.

Even so, in principle, banks face an asset-liability mismatch (ALM) when they finance long-term infrastructure loans through deposits of shorter maturity. The imminent BASEL III bank liquidity norms such as Liquidity Coverage Ratio will further constrain long-term financing. The growing trend of stressed assets from infrastructure also adds to the challenge. The gross Non Performing Loans (NPL) and restructured standard advances to the infrastructure sector together as a percentage of total advances to the sector, reached 19.3 per cent as of March 2016<sup>v</sup>, significantly higher than 5.1 per cent in March 2010. Further, the outstanding bank credit to the infrastructure sector has increased rapidly to INR 8,597 billion in April 2017<sup>vi</sup> from INR 95 billion in March 2001. Since banks have a maximum sector exposure limit of 15 per cent to infrastructure, this will highly constrain additional bank financing.

Implementing the recently introduced Insolvency and Bankruptcy Code, 2016<sup>vii</sup> should be prioritised. In the past, willful defaulters were often protected by the judicial process in India because of the premium placed on protecting assets and jobs in the country. Essentially, the courts prevented banks from recovering bad loans. With the implementation of

this new Code, banks will try and recover some of these bad loans, but more importantly, if the Code is successfully implemented, it has the potential to significantly reduce the moral hazard that has plagued such transactions. In addition, banks might be able to channelise, even if marginally, increased cash flows to infrastructure investments.

Unlike banks, Infrastructure Finance Companies<sup>1</sup> (IFCs) do not face the asset-liability mismatch problem since they mobilise long-term funds. After banks, these are the second most important source of debt financing for the sector. They include Power Finance Corporation (PFC), Infrastructure Development Finance Company (IDFC), Indian Infrastructure Finance Corporation Limited (IIFCL), and Larsen & Toubro Infra, amongst others. The IFCs have funded INR 6.6 trillion of infrastructure loans as on March 31, 2015 and are expected to contribute another INR 2.0 trillion over the remaining period of 12<sup>th</sup> plan ending in financial year 2017<sup>viii</sup>.

The RBI has recently allowed IDF-NBFCs to invest in non-PPP projects. These investment vehicles can be sponsored by commercial banks and NBFCs in India in which domestic/offshore institutional investors, especially insurance and pension funds, can invest through units and bonds issued by the IDFs. They essentially act as vehicles for refinancing existing debt of infrastructure companies, thereby creating headroom for banks to lend to fresh infrastructure projects. With a lower withholding tax of 5 per cent for all interest income accruing to foreign institutional and qualified investors, IDFs are expected to attract foreign investment.

While commercial banks and NBFCs account for about 80 per cent of the financing to this sector, there is a huge gap between the available resources and investment requirements. The deficit can be partially met by mobilising the vast resource base of insurance and pension funds through the bond market. In developed economies, infrastructure projects are financed through capital markets, insurance and

pension funds. Life insurance and pension funds have diversified assets of varying maturities to match the long-term liabilities and are best sources of long-term finance. However, statutory requirements by Indian regulators, IRDA and PFRDA in consumer interest, allow insurance and pension funds to invest only in assets rated AA or above<sup>ix</sup>, while infrastructure assets are usually rated BBB- or at best, A. It is difficult for infrastructure assets to get a higher rating particularly in the initial construction phase, because of the inherent risks. Moreover, foreign investors have been discouraged in the past from investing in a rupee-denominated municipal bond market, and these guidelines have been recently revised by the Securities and Exchange Board of India. There are several restrictions including caps on the total investment as well as limits by investor class.

Economic liberalisation brought increased competition that has forced more efficient allocation of capital by financial institutions and therefore compelled embrace of efficient financing mechanisms. State government finances have been under pressure and they have been unable to continue with a programme for subsidising municipal debt. All these pressures have culminated in attempts to develop new mechanisms for financing urban infrastructure with private participation. However, in order to be able to tap into private commercial financing sources, it is essential that cities put their internal sources of funding in order. Urban Local Bodies (ULBs), therefore, need to be strengthened in financial management to enable own-source revenue generation accompanied by autonomy in decision-making.

Various recommendations for enabling ULBs to raise their own resources have been made at various points in time<sup>2</sup>. These include (a) reform in property tax, (b) levying of user charges, (c) increasing non-tax revenues, (d) controlling establishment costs, (e) better utilisation of municipal assets and (f) overhauling of the municipal accounting systems. Any central assistance to ULBs faces the problem of moral hazard, and therefore ought to be conditional

1 IFCs are non-deposit taking loan companies for infrastructure financing. The Indian government created these as a special category of NBFCs for providing long-term sources for infrastructure financing, along with Infrastructure Debt Funds (IDF). The broad sectors financed by such entities include transportation, energy, water and sanitation, communication infrastructure and social and commercial infrastructure.

2 A major landmark in the decentralisation process of urban local bodies (ULBs) was the 74th Constitutional Amendment Act in 1992. It sought to decentralise decision making in cities and towns through the creation of elected ULBs as institutions of democratic self-governance and devolution of essential functions related to city planning and service provision to these bodies.

upon states and ULBs carrying out sectoral reforms, particularly those related to better standard of services and levying of user charges. The experience of the *Jawaharlal Nehru National Urban Renewal Mission (JNNURM)* is instructive. It was essentially a reform-linked incentive scheme for providing assistance to state governments and urban local bodies (ULBs) in selected 65 cities. In April 2015, the scheme was further extended to 2017 for the unfinished projects.

Beyond the financial limitations, the institutional set up currently lacks capacity to manage investments to this scale. The municipal corporations do not have the capacity to raise finances. The officials need to be trained to be able to assess their own financial capacities and strengthen their revenue resources to become self-sustaining. The JNNURM initiative did begin to address this issue, but capacity building is a long-term solution. Historically, cities have also been unable to implement public private partnerships (PPP). Most ULBs are able to manage contractors, but do not have the technical capacity to develop and implement PPP projects. One of the few relevant examples of a successful PPP in India is that of the Nanded Municipality in Maharashtra. This municipality had an annual budget of about

INR 300 million, against which its annual capital expenditure was about INR 80 million. Under the JNNURM programme, it was able to implement urban infrastructure projects worth INR 5 billion over a 3-4 year period, with capacity building support from IL&FS<sup>x</sup>.

### How has urban infrastructure been funded?

Financing of urban infrastructure and services has predominantly been a public sector activity. Resources that cities accessed from Housing and Urban Development Corporation (HUDCO), a public sector enterprise, suffered from poor incentives since such loans were more often than not guaranteed by the state government. City infrastructure projects such as water supply, roads and bridges and sanitation therefore lacked the discipline associated with commercial lending and delivered poor quality and coverage.

Moreover, as plan outlay allocations have historically focused on the rural sector, development of the urban infrastructure did not receive the deserved attention in the past. Table 1 presents the gaps in service delivery in the water and sanitation sectors in urban

**Table 1: Service level gaps in water & sanitation sector in urban India**

Service Indicators	National Benchmark	India Status
<b>Water Supply</b>		
Per Capita supply of water	135 lpcd	69 lpcd
Extent of metering of water connections	100%	13%
Extent of non-revenue water (NRW)	15%	32%
Cost recovery in water supply services	100%	39%
<b>Sewerage</b>		
Coverage of toilets	100%	70%
Collection efficiency of the sewage network	100%	10%
<b>Solid Waste Management</b>		
Household level coverage	100%	35%
Extent of scientific disposal of municipal solid waste	100%	10%
<b>Storm Water Drainage</b>		
Coverage of storm water drainage network	100%	46%

Source: *Service Levels in Urban Water and Sanitation Sector: Status Report 2010-11, Ministry of Urban Development, India*

India, which clearly indicates that development of such infrastructure, cannot be deferred any longer. The supply falls short, in part due to inadequate financing and in part due to suboptimal governance structures.

Several studies, both by the government and by research institutions have identified the urgent need to augment the scale and quality of India's urban infrastructure that is needed to exploit the vast potential of its cities. The government's High Powered Expert Committee (HPEC) Report on Indian Urban Infrastructure and Services estimated infrastructure capital investments of INR 39.2 trillion in the 20-year period to 2031-32<sup>3</sup>. Another study by McKinsey Global Institute arrived at higher estimates for India's overall urban infrastructure capital investment needs of INR 53.1 trillion<sup>4</sup> over the 20 years to 2030<sup>5</sup>. These estimates account for urban population growth and more importantly, the need to meet the minimum service level benchmarks for service delivery.

**Table 2: Estimate Urban Infrastructure Expenditure Requirements<sup>6</sup>**

Study	Estimated Urban Infrastructure Expenditure
McKinsey	USD 1.2 trillion (2008 prices)
High Powered Executive Committee (HPEC)	USD 0.83 trillion (2009/10 prices)

Against this background, it is imperative that cities cater to the rising demand for services through their own resource generation. For example, the municipal bond market for financing urban infrastructure can be exploited much more than it has been. Municipal bonds in India fund just 1 per cent of total ULB contribution, as against about 10 per cent in the United States. The primary reason for the failure has been the inability of municipal finances to repay the capital amount of the bond issuance. To allow municipalities to issue bonds, ULBs need to strengthen their financial health and build in accountability frameworks, thereby shoring

up their creditworthiness. Setting up dedicated repayment channels or escrow accounts will enhance their ability to repay. In the past, domestic investors have not found municipal markets to be attractive because of the lack of exit opportunities for investors due to an illiquid secondary securities market.

To allow municipalities to issue bonds, ULBs need to strengthen their financial health and build in accountability frameworks, thereby shoring up their creditworthiness

For the limited bond issues by municipalities, the central government has had to step in as a safety net in the past to repay the money borrowed. The only successful municipal bond issue in India has been the Ahmedabad Municipal Corporation bond that identified and set aside revenues from the Octroi tax for the repayment of the money borrowed<sup>xii</sup>. At the same time, the municipal bond market in India needs to be strengthened by taking steps such as altering the regulatory and legal conditions that currently hinder municipal borrowing, introducing flexibility in setting interest rate cap for issuance of municipal bonds by linking it to a benchmark market rate, treating tax free municipal bonds in the same way as other tax free instruments<sup>xiii</sup>.

The government's flagship mission on Smart Cities in collaboration with states and Union Territories (UT) recognises the challenges of India's massive urbanisation, which is occurring on a scale second only to China. Between 2000 and 2014, India added nearly 127 million new residents to its towns and cities; over the next 15 years, its urban population is projected to grow by a further 177 million. Between 2001 and 2015, the number of cities in excess of a million people grew from 35 to 53. By 2031, 75 per cent of India's national income is expected to come from cities and the majority of new jobs will be created in urban areas. The drive for economic prosperity and a better quality of life is

3 In 2009-10 prices and around USD830 billion using 2009-10 exchange rates

4 Or USD 1.2 trillion in 2008 prices

5 Investment for urban infrastructure over the 20 year period – INR 39.2 lakh crore at 2009-10 prices (HPEC); McKinsey Report (2010) has estimated an investment requirement of INR 53.1 trillion

6 Both studies the McKinsey and HPEC study estimate these figures for a 30-year time period.

therefore inextricably linked to how cities perform. In addition, an emerging neo middle class with aspirations of better living standards is also putting pressure on governance and delivery of services. With these challenges, the centre of attention is the citizen. In theory, a smart city is one which works towards ensuring the best for all people, regardless of social status, age, income levels and gender, and in which citizens actively participate in governance and reforms. The focus on core infrastructure<sup>7</sup> is necessary but the Smart Cities Mission also requires involvement of smart people in the process of making decisions on deploying smart solutions, and doing more with less.

To encourage cities to be self-reliant, the Smart City Mission will be operated as a centrally sponsored scheme and the central government proposes to give cities financial support to the extent of INR 48 billion over five years, that is, on an average, INR1 billion per city per year. An equal amount, on a matching basis, will have to be contributed by the state or ULB. Accordingly nearly INR 1 trillion of government/ULB funds will be available for smart cities development. Rather than the city depending on central funds, the governance structure has been changed to preclude the moral hazard that plagued funding in the past. For example, successful issue of 'Smart City Bonds' that some cities are contemplating will require financial strengthening of the ULBs, greater transparency and accountability and, hopefully, improved service delivery. In the first phase of implementation, 20 cities have been shortlisted to roll out the programme.

By encouraging private sector consulting and investment, local governments can generate capacity around incremental financing. There are several such examples in cities in the United States, Canada<sup>xiv</sup> and Western Europe, as also in Africa and Asia. Additionally, multilateral development banks are also an option for providing infrastructure funding. Of late, traditional multilateral institutions have reduced lending in India, but given the large gap,

new institutions such as the Asian Infrastructure Investment Bank and the New Development Bank, that have a focus on infrastructure investment, could fill this gap.

The massive investment requirements for urban infrastructure represent a daunting challenge but also present an unprecedented opportunity. Mistakes of the past such as investments in unplanned expansion of cities and in high carbon infrastructure that is damaging to the environment can be eschewed in favour of sustainable and inclusive systems. The evidence in favour of compact, coordinated and connected cities is overwhelming<sup>xv</sup>. Unplanned and uncoordinated urban growth, for example, imposes higher capital costs for infrastructure and services, more traffic congestion and longer commute times as well as more accidents, local air pollution, and greenhouse gas emissions. Of the 30 cities with the worst particulate matter (PM) outdoor air pollution, 14 are in India. As India develops more infrastructure there is an opportunity to make it inclusive and sustainable by inter alia exploiting new technology. For instance, countries have been able to lay 'green' roads that are all weather proof and can withstand natural disasters as well. In India the government does spend significant time and money repairing existing roads, which can be avoided. With the recent Paris agreement, four Indian institutes<sup>8</sup> have become members of the Green Infrastructure Investment Coalition.

As India develops more infrastructure there is an opportunity to make it inclusive and sustainable by inter alia exploiting new technology. For instance, countries have been able to lay 'green' roads that are all weather proof and can withstand natural disasters as well.

7 Core infrastructure includes adequate water supply; assured electricity supply; sanitation, including solid waste management; efficient urban mobility and public transport; affordable housing, especially for the poor; robust IT connectivity and digitalization; good governance, especially e-Governance and citizen participation; sustainable environment; safety and security of citizens, particularly women, children and the elderly; and health and education

8 Federation of Indian Chambers of Commerce and Industry (FICCI), IDBI Bank, India Export Import Bank, and National Institute of Public Finance and Policy India; <https://www.unpri.org/news/green-infrastructure-investment-coalition-launched-at-COP21>

## Other complementary initiatives for financing infrastructure

The primary responsibility for development of urban areas lies with the state governments and the ULBs. However fragmentation of authority is a proximate cause for the infrastructure (and governance) deficits that Indian cities suffer from. While some changes have been initiated, these need to be fortified with best practices. For example, the 74<sup>th</sup> Constitutional Amendment Act of 1992 provides for the ULBs as the third tier of government and recommends devolution of functional and financial powers to them. According to the Economic Survey 2017, the level of ULB per capita expenditure as compared with state per capita expenditure is low--either states are not devolving adequate financial resources to ULBs or ULBs are not raising these resources on their own. In order to make cities creditworthy, their financial health needs to improve.

Strengthening of bond markets and mobilising domestic savings for infrastructure investment through a vibrant domestic corporate bond market is unavoidable. Long-term bonds form a major share of infrastructure finance in developed nations. Presently, the Indian corporate bond market is less than 5 per cent of GDP. The 12<sup>th</sup> five-year plan report states that *'the market for infrastructure debt generically belongs to the corporate bond market and without the latter, movement in the former is unlikely'*. Bond financing of infrastructure requires availability of long-term savings with pension and insurance funds and the presence of specialised financial intermediaries. There is a need to mobilise household savings to infrastructure directly through differential and favourable tax treatment for infrastructure investments. The Infrastructure Investment Trust (InvIT) proposed in the Union budget 2014-15 is expected to mobilise domestic household savings through capital market and reduce pressure on the banking system<sup>xvi</sup>.

Besides, insurance penetration is anticipated to rise with insurance premium expected to reach 6.4 per cent of GDP by 2016-17<sup>xvii</sup>. In order to achieve higher investment by life insurance companies in the infrastructure sector it is suggested that the IRDA regulation that stipulates "not less than 75 per cent

of debt instruments excluding government and other approved securities shall have a rating of AA or equivalent for long term instruments", should be modified to 50 per cent. Further, enhancing credit to infrastructure will improve the credit rating of operational investment grade infrastructure projects and pave the way for pension funds and insurance companies to invest in the country. Credit enhancement of bonds issued by infrastructure companies will also attract foreign debt financing. FIIs, which are allowed to investment in bonds of infrastructure companies, have been constrained by the lack of investment grade instruments. Credit enhancement of bonds issued by infrastructure companies would accelerate flow of foreign debt in financing infrastructure projects. NBFCs such as IIFCL can play an instrumental role in providing such credit enhancement. IIFCL presently lends up to 20 per cent of the approved project cost. Instead, IIFCL can use the same exposure for guaranteeing the bonds of infrastructure companies and raise their credit rating.

Commercial banks are the major source of debt finance in infrastructure. However, as mentioned earlier, they are typically deficient in long-term deposits that are a pre-requisite for financing infrastructure projects. A financing model in this case could be that banks provide finance for the medium term and then undertake refinancing for longer tenures from other sources. It ensures that banks that are well suited for bearing project implementation risks are able to finance the construction as well as the initial operations period, while risk averse insurance and pension funds can refinance the loan on long-term basis. The Second Report of the High Level Committee on Financing Infrastructure (2014) has suggested that RBI should issue guidelines along the above lines.

Enhancing credit to infrastructure will improve the credit rating of operational investment grade infrastructure projects and pave the way for pension funds and insurance companies to invest in the country

The government promotes various public sector enterprises to issue tax-free bonds to boost investment in infrastructure. In the budget for 2015-16, the government allowed seven central public sector enterprises (CPSEs), all engaged in infrastructure activities, to raise INR 400 billion through the issuance of tax-free bonds. The advantage of these bonds is that they provide tax exemption, have scope of capital appreciation and enjoy a fair amount of liquidity because they can be traded in the secondary market and have a high credit rating. Since these bonds are of minimum 10 years maturity, they provide long-term financing options. However, considering the vast financing requirement, the scope of issuance of such bonds can be increased and more IFCs and IDFs should be allowed to participate in the market.

Last, but not the least, the Paris agreement in 2015, and with India's nationally determined contributions now ratified, the country needs to meet its set targets over the next few years. According to the Intended Nationally Determined Contributions (INDC) document, the government has estimated the required investment for energy, adaptation and mitigation at USD 2 trillion. Of this figure, the India Energy Outlook states that India requires a cumulative USD 2.8 trillion investment in energy supply, three quarters of which will be for the power sector and a further USD 0.8 trillion to improve energy efficiency. To meet the ambitious 175 Giga Watts (GW) of solar, wind and other renewable energy target by 2022, the government has identified at least 40 Mega Watts (MW) through rooftop solar installations for generating electricity, which is likely to be primarily in urban areas. As a first step in achieving this target, national banks in India have partnered with multilateral development banks to encourage personal loans for setting up rooftop solar in urban homes. In this case, the onus lies on the consumer rather than the government or a third party to invest in solar rooftops.

## Conclusion

There is a growing recognition that India's economic future is inextricably linked to its cities. Cities in India will hold 600 million people by 2031<sup>xviii</sup>, in part due to organic growth and in part due to the looming migration from rural to

urban areas in search of economic opportunities. The economic opportunity will fundamentally depend upon cities being able to provide quality public services to residents. If cities are to become the real engines of India's growth, they need to be empowered and to be made accountable. Thus managing the transition to urbanisation will need multiple interventions, a combination of increased investment, strengthening of the framework for governance and a comprehensive capacity-building programme at all levels of government, including ULBs.

Traditional financing methods are starting to wear down and the market needs some rejuvenation to boost infrastructure investment. The 74<sup>th</sup> Amendment to the Constitution Act for the first time in 1992 gave municipal bodies a constitutional status as a third tier of government, although funding of the mandate was not explicitly provided for. ULBs have found it difficult to mobilise their own taxes and user fees, while transfers from central and state governments have been inadequate.

Own revenues of India's local governments were only 0.5 per cent of GDP in 2007-08 (compared with 2-3 per cent in Brazil), while intergovernmental transfers were only 0.4 per cent of GDP<sup>xix</sup>. Property taxes are the primary own revenue source available to local governments but have suffered from poor realisation due to poor assessment rate, weak collection efficiency, flawed methods for property valuation, loss on account of exemptions, and poor enforcement<sup>xx</sup>.

With regard to transfers, the Constitution requires states to institute State Finance Commissions to determine allocation of state revenues to local governments. These Finance Commissions, however, have either not been created or where they have, their recommendations receive only lip service. Thus transfers to local governments are inadequate. It is inevitable that cities and municipal governments will need to look at innovative means to finance the large gap in their investment needs. There is evidence to suggest a strong correlation between the capacities (financial and human resources) of ULBs and their service delivery. Empowering cities to raise more revenue, fortifying them with functional



independence in decision making and helping build capacity among their staff will be essential ingredients in the quest of cities serving as the quintessential engine of India's march to prosperity.

Managing the transition to urbanisation will need a combination of increase in investment, strengthening of the framework for governance and a comprehensive capacity-building programme at all levels of government, including ULBs



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# 3

## Agricultural Value Chain Finance in India: Issues and Implications



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### Introduction

Agriculture is a source of livelihood for about half of the Indian population. Landholdings, however, are small; two-third of the farm households cultivate tiny pieces of land measuring less than or equal to one hectare. Further, owing to increasing intensity of several biotic and abiotic pressures and continuously declining size of landholding, agriculture-based livelihoods are now facing serious challenges in production. Farmers' inaccessibility to product and financial markets are important barriers to sustainable intensification and commercialisation of agriculture.

Though the financial requirements of smallholder farmers and small-scale entrepreneurs are not big, yet commercial banks and other financial institutions

hesitate financing them due to higher transaction costs, higher production risks and lack of collateral to secure loans. Limited access to capital restricts smallholders' capacity to adopt income-enhancing, market-driven cropping pattern and technologies, and invest in land improvements, irrigation, mechanisation and storage.

Smallholders are at a disadvantage in the market place also because of scale limitations. As higher transaction costs restrict them to participate in remunerative markets (Birthal et al. 2005<sup>1</sup>), a majority of small farmers depends on local traders to buy the produce. They face higher price risks. Food prices have become volatile, and are likely to remain

so because of rising frequency of extreme climatic events such as droughts, floods and heat waves. Since the activities of production, procurement, transportation, storage and distribution are interconnected; any shock to production can pass through the value chain, affecting performance of the entire chain. Small farmers, who lack resources to improve their technological capabilities in order to cope with climatic risks and adjust to emerging market challenges, are likely to be more affected by it.

For financial institutions, a value chain can be an entry point to improve their outreach to chain actors. Actors in the chain have information about the business activities of one another, which financial institutions can access without costs

It is now increasingly recognised that some of the constraints that farmers face in their transition towards commercial agriculture can be alleviated through the value chain approach that brings together different chain actors (including farmers, aggregators, traders, processors and financial institutions) to gain control over the processes of production, marketing, processing and distribution in order to realise scale economies, reduce transaction costs, and minimise uncertainties in supplies and quality of inputs, outputs and services (Meyer 2007<sup>ii</sup>, Trienekens 2011<sup>iii</sup>).

The rapidly growing demand for food, especially for high-value food commodities (Joshi and Kumar, 2016<sup>iv</sup>) together with a spurt in demand for more varieties of food, more choices per food product and safe and hygienic food (Minten et al. 2012<sup>v</sup>), is creating an opportunity for downstream chain actors to expand their businesses integrating 'front end' activities of wholesaling, processing, logistics and retailing to the 'back end' activities of production through institutional arrangements such as contract farming, producers' associations, etc.

For financial institutions, a value chain can be an entry point to improve their outreach to chain actors. Actors in the chain have information about the business activities of one another, which financial

institutions can access without costs (Meyer 2007, Casuga et al. 2008<sup>vi</sup>, Miller and Jones 2010) and utilise to better evaluate credit worthiness of the potential borrowers in the chain, to identify risks, and to assess competitiveness of the entire chain. A value chain approach with its product market orientation can serve as a guarantee or collateral to reduce lending risks.

Chain-based financing is gaining ground in India. In this paper, we review some important value chain models and their financing mechanisms so as to draw lessons for strengthening the interface between product and financial markets.

## Agricultural value chains and their financing

### Status of agricultural markets

India's agricultural marketing system has not kept pace with the changing prospects of agriculture. Production and marketable surplus have grown faster than the growth in agricultural markets, making these crowded (Chand 2012<sup>vii</sup>). Their spread is highly uneven across regions and commodities. Agricultural markets are fragmented—characterised by a long chain of intermediaries, high market costs and margins, low value addition and low share of the farmers in the final price that consumers pay. The product changes hand at least four times before it reaches the final consumer, and without any real value addition at any point (Chand 2012). Value chains are yet to develop.

Farmers lack awareness of 'grades and standards' for agricultural produce. Barely 7 per cent of the produce is graded at farm level before it is transferred to the next actor in the value chain (Chand 2012). There is acute shortage of scientific storage capacity—the existing storage capacity can handle only 30 per cent of the marketed surplus of grains, and the cold storage facilities are sufficient only to handle 10 per cent of the fruits and vegetables produced.

### Status of agricultural finance

India's rural financial system is a mix of formal (cooperatives, commercial banks, regional rural banks and non-banking financial institutions) and informal (moneylenders, traders, landlords,

relatives and friends) lending agencies. Formal financial institutions account for 57.1 per cent of the outstanding loans, and the rest is accounted for informal lenders—moneylenders (29.6 per cent), relatives and friends (7.1 per cent) and traders and commission agents (2.6 per cent) (GoI, 2014<sup>viii</sup>). Traders and commission agents often extend credit to farmers against their commitment of sale of produce to them.

Financial institutions often discriminate against smallholder farmers in their lending—the small farmers cultivating less than or equal to 2 hectares land comprise about 85 per cent of total farmers but share only about 42 per cent of direct institutional advances to agriculture (Kumar *et al.* 2017<sup>ix</sup>). Their low share is due to higher cost of lending in relation to the size of loan; and greater lending risk in the absence of collateral to secure institutional loans.

Processing is an important activity on the value chain. India's food processing industry has been growing faster, and accordingly the supply of institutional credit to food processing industry. The loan advances to food processing have increased from INR 37 billion in 1996-97 to INR 1500 billion in 2015-16 (GoI, 2016<sup>x</sup>).

Financial institutions also provide financial support for development of warehouses, cold storages, refrigerated transport and slaughterhouses in addition to food credit to the Food Corporation of India for procurement, storage and distribution of food grains. India's apex agricultural bank, National Bank for Agriculture and Rural Development (NABARD) provides financial support to farmer producers' organisations (FPOs) for production, processing and marketing of agricultural commodities as to strengthen agricultural value chains.

### Need for value chain finance

From genetics to end use, chain actors need finance for production, procurement, processing, storage and distribution. Input suppliers need credit for manufacturing, bulk buying, stocking and distribution of seeds, agro-chemicals, equipment and machines. Farmers need credit for purchase of

inputs and for investment in land improvements, irrigation, storage, machines and equipment. Traders need finance for purchasing, bulking and stocking of the produce before it is sold; and also for purchase of vehicles, to construct a warehouse, or pay for equipment to weigh or grade products. Small-scale processors require financial support for investment in processing infrastructure. Wholesalers and exporters need credit not only for buying, bulking and stocking but also for their retail chains.

### Value chains enable financial institutions to better evaluate credit worthiness of entities in the chain

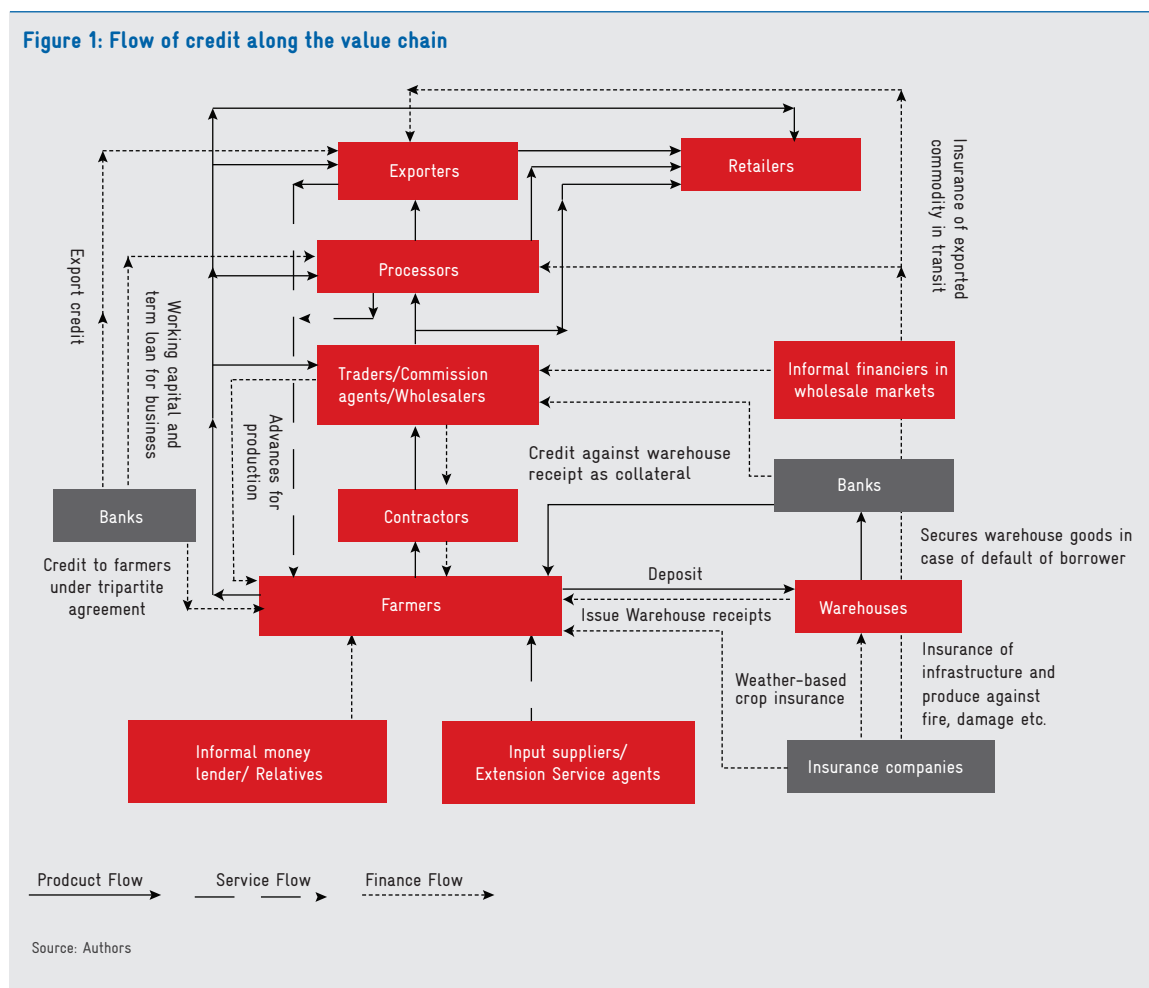
As opposed to conventional financing of a particular segment of the marketing system, value chain finance represents “a flow of funds to different links of the value chain, or among these links, in order to improve efficiency and competitiveness, to reduce risk within the chain and also to promote and develop the chain” (Shwedel, 2010<sup>xi</sup>). Miller (2012<sup>xii</sup>) defines value chain finance as “the flows of funds to and among the various links within a value chain”. The approach allows chain actors an increased access to finance with product market without much emphasis on collateral. Transactions are intertwined to allow automatic repayments of loans via transaction proceeds in the product market. And, because of scale economies in product as well as financial markets, it reduces lending costs and risks (Miller and Jones 2010<sup>xiii</sup>). Figure 1 shows integration of financial products and services along the value chain.

A value chain, thus, can be an entry point for financial institutions to improve their outreach to chain actors. The actors have knowledge about activities and relationships of one another other, which the financial institutions cannot access without cost. This enables financial institutions to better evaluate credit worthiness of individuals or firms on the chain; reduce transaction costs; identify risks; analyse competitiveness of the entire chain; and design financial products and services accordingly (Miller 2012).

Value chain activities can be financed using funds either from participants of the chain or from sources outside the chain. In case of internal financing, the lender may be a trader, a processor or an institution that assumes a dual role of a buyer of produce and a provider of funds for production and processing. Financial support may be in the form of cash or kind and without collateral but generally against hypothecation of crop/commodity or a commitment of sale of the produce. External financing refers to the financing of chain activities by the financial institutions with or without facilitation by the chain sponsor. Internal financing has a greater role in the initial phases of the development of value chains. But, as the value chain consolidates to improve its efficiency and market position, the financial institutions face lower transaction costs and lending risks; external financing overtakes internal financing (Casuga *et al.* 2008).

### Value chain models and their financing

Financing of a value chain depends on its organisation or governance structure that serves as a basis for integration of the financial products and services with product markets or value chains. Miller (2012) argues that as the market moves from uncontrolled buyer-seller relationships towards full vertical integration, it enhances prospects for financing the value chain both from within and outside the chain. Value chains can be developed by producers to gain access to remunerative markets; by buyers to control production process for minimising supply uncertainty; and by intermediaries to make markets work for small-scale producers. In this section we provide a brief overview of some successful value agri-food value chains in India and their financing mechanisms. Table 1 presents key features of these value chains.



## Producer-driven value chains

A producer-driven value chain refers to the way the chain actors at its upstream (i.e. producers) are organised to gain access to remunerative or niche markets, to reduce marketing costs, and to improve

their bargaining power vis-à-vis buyers. It may take form of a cooperative society, a producer association or a self-help group (SHG).

**Table 1: Value chain models and their financing mechanisms**

Value chain	Type	Main features	Location	Financing	Source
AMUL Dairy Cooperatives	Producer-driven	Initially producer-driven, later supported by government to develop market	All India	Internal External	Gandhi and Jain (2011) <sup>xiv</sup> <a href="http://www.amul.com">http://www.amul.com</a> ; <a href="http://www.nddb.org">http://www.nddb.org</a> .
Mahagrapes	Facilitator-driven	Aims mainly at exporting grapes, facilitates food safety compliance	Maharashtra	Internal	Roy and Thorat (2008) <sup>xv</sup>
Mother Dairy Fruits and Vegetable Ltd.	Facilitator-driven	Informal producer organisations, provides technical guidance on crop planning, standards	Northern India	Internal	Birthal et al. (2005)
Kesla Poultry Cooperative	Facilitator-driven	Promoted by NGO to scale up subsistence poultry	Madhya Pradesh	Internal	SA PPLPP (2009) <sup>xvi</sup> <a href="http://mpwpc.org/kesla.htm">http://mpwpc.org/kesla.htm</a>
Koutla-B Mutually Aided Cooperative Society (MACS)	Facilitator-driven	Promoted by micro-finance company to reduce farmers' exploitation in input and output markets	Andhra Pradesh	External	Amarnath (2007) Anon.(2013)
Agrocel Pure & Fair Cotton Growers' Association	Facilitator-driven	Promoted by the lead firm to produce organic cotton for export markets	Gujarat	Internal	Nelson and Smith (2011) <sup>xvii</sup> , <a href="http://www.fairtrade.org.uk">http://www.fairtrade.org.uk</a>
Sunstar Organic Basmati Rice Growers' Association	Facilitator-driven	Promoted by the lead firm to produce organic Basmati rice for export	Uttarakhand	Internal	<a href="http://www.sunstaroverseas.com">http://www.sunstaroverseas.com</a>
Farmer Producer Organisation (FPO)	Facilitator-driven	A holistic approach to develop backward and forward linkages followed by the government of India	All India	External	Gol (2013, 2014); <a href="http://www.sfacindia.com">www.sfacindia.com</a>
Contract farming in broilers	Buyer-driven	A number of firms are engaged in contract farming of broilers	Southern and Western India	Internal	Birthal et al. (2005), Ramaswami et al. (2006) <a href="http://www.venkys.com">http://www.venkys.com</a> . <a href="http://www.sugunapoultry.com">http://www.sugunapoultry.com</a>
Contract farming of milk by Nestle India Ltd.	Buyer-driven	Promoted by lead firm to source milk from small producers through village collection centres.	Punjab, Haryana	Internal, External	Birthal et al. (2005), Gandhi and Jain (2011)
Contract farming of milk by Heritage Foods (India) Ltd.	Buyer-driven	Promoted by lead firm to source milk from small producers through village collection centres. Provides loans	Andhra Pradesh, Karnataka, Maharashtra	Internal, External	Gandhi and Jain (2011) <a href="http://www.heritagefoods.co.in">http://www.heritagefoods.co.in</a> .

Value chain	Type	Main features	Location	Financing	Source
Dairy lease model of Samridhi Agri Products Pvt. Ltd.	Buyer-driven	Unique model to improve asset base of farmers	Uttar Pradesh	External	www.samridhiindia.com.
Contract farming of potatoes by PepsiCo	Buyer-driven	Third-party facilitated contract with small producers with provision of finance, insurance and services	Jharkhand	Internal	Amarnath (2007) and Bajaj and Bhullar (2011)
Contract farming of seaweed by PepsiCo.	Buyer-driven	Third-party facilitated contract with small producers with provision of finance, insurance and services	Tamil Nadu	Internal External	Casuga et al. (2008)

Source: adapted from Chen et al. 2015<sup>xviii</sup>

India's value chain system of dairy cooperatives is globally acclaimed for effectively linking producers to markets, and enhancing milk production. This value chain has three layers of governance—village-level dairy cooperatives at the bottom, federated into a milk union at district level, and a federation of milk unions at state level. Integration of financial products/services along the value chain has been an important factor in its scaling up. Financial support for scaling up came from the World Bank under three consecutive projects called 'Operation Flood' implemented by National Dairy Development Board (NDDB) from 1970 to 1996. The Bank recently provided financial support to NDDB for developing an integrated value chain. Village dairy cooperatives facilitate farmers' access to credit from financial institutions and also from rural development and poverty alleviation programs for purchase of dairy animals. They also provide inputs and services to farmers. Financing risks are managed by linking credit with insurance. Typically, the transaction is financed as a quad-partite agreement involving farmer, dairy cooperative, and commercial bank and insurance provider.

### Buyer-driven value chains

Traders, processors, exporters and retailers develop value chains in order to have a quantitative and qualitative control over the production process to optimally utilise their processing capacity and manpower, to consolidate their market shares, to meet consumer preferences, and to reduce transaction costs of aggregation.

Contract farming is a common form of buyer-driven value chain for broilers In India. The firm or integrator contracts farmers who own essential infrastructure for production, and provides day-old chicks, feeds and medicines that account for 80-90 per cent of the cost of production. The integrator shares mortality risk to a limited extent. Farmers in lieu of their contributions (infrastructure and labour) receive fixed growing charges on bodyweight basis of broilers. Contract farming thus assumes banking (provision of inputs) and insurance against market risks (fixed growing charges). Ramaswami *et al.* (2006<sup>xix</sup>) estimated that through contracts, farmers could shift as much as 88 per cent of the risk to integrators. Some integrators also facilitate financing of their back-end activities related to production (sheds, equipment, etc.) from the commercial banks and, if necessary, enter into tripartite agreements with bankers and farmers.

Most dairy processors (e.g. Nestle India Limited in Punjab, Heritage Foods Ltd. in Andhra Pradesh) procure milk through contract farming that is different from that for broilers. Processors follow two types of contracts: (i) direct contracts with large producers, and (ii) contracts with local commission agents to collect milk from small producers as to reduce its cost of contracting with a large number of them (Birthal *et al.* 2005). Processors provide cattle feed and veterinary services. Some of them also provide financial support to farmers and their milk collection agents for purchase of animals, milking machines and milk coolers, and others e.g. Heritage



Foods facilitate financing from financial institutions through a tripartite agreement.

Smallholder farmers often lack access to credit from financial institutions. The model of integration of financial products with dairy value chain of 'Samridhi Agri Products Pvt Ltd' (Uttar Pradesh) is unique. It harnesses reproductive power of animal to help marginalised people escape poverty<sup>xx</sup>. The firm purchases dairy animals, gets these insured and leases these to the poor households against their commitment for sale of milk, proper maintenance of animals and transfer of these after lease retaining the offspring. The firm also provides cattle feed, health and breeding services to the farmers.

### Facilitator-driven value chains

To enhance participation of small farmers in remunerative markets, improve their bargaining power and minimise transaction costs, development organisations, including non-government organisations (NGOs) and government agencies, facilitate smallholders to organise into cooperatives, producer associations and self-help groups (SHGs). Institutional buyers also engage facilitators to develop value chains for them.

Backyard poultry is common among the marginalised people in the backward regions of India. It provides them nutritional benefits but not income. The tribal-dominated Kesla block of Hoshangabad district in Madhya Pradesh is typical of such a situation. Beginning 1988, the NGO PRADAN (Professional Assistance for Development Action) started making efforts to transform backyard broiler farming into a market-oriented activity by organising producers into SHGs to enable them to access finances from commercial banks and government-run rural development programmes<sup>xxi</sup>. Further, it facilitated producers' linkages to commercial hatcheries and feed manufacturers. In 1997, the SHGs were federated as a cooperative society, now known as 'Kesla Poultry Cooperative Society'. Initially, the Society sold most of the produce in nearby towns and rural markets. But with scaling up it has set up its own outlets known as 'Sukhtawa Chicken' in Bhopal, the capital city of Madhya Pradesh. It maintains a surplus fund to protect farmers from production and price risks. Several such cooperative societies have joined to

form a producer company called 'Madhya Pradesh Women Poultry Producers Company Pvt. Ltd.'

Cotton is an important rainfed crop in rainfed areas of Andhra Pradesh and is highly prone to climatic and pest risks. Farmers used to apply heavy doses of pesticides bought on credit from input dealers-cum-commission agents against a commitment of sale of the produce. These interlinked transactions were exploitative of farmers in both input and output markets, and created a vicious cycle of indebtedness. BASIX, a microfinance and livelihood promotion institution, saw an opportunity in such unscrupulous practices to expand their lending base (and also reduce farmers' dependence on input-dealers and commission agents) and started extending crop loans to farmers in Koutla-B village in Adilabad district organising them into joint liability groups that could bulk inputs in bulk at wholesale prices (Amarnath 2007<sup>xxii</sup>). Note that joint liability creates peer pressure to abide the terms and conditions of the loan. Encouraged with the success, BASIX facilitated formation of a mutually-aided cooperative society called Koutla-B MACS in 2003, which was subsequently linked to spinning mills to sell produce, and to National Commodity Derivatives Exchange (NCDEX) to install a price display terminal in the village.

Following the joint liability approach, BASIX also facilitated contract farming of potatoes for PepsiCo in Bihar and Jharkhand (Amarnath 2007). PepsiCo provided quality seed and package of practices, and BASIX provided credit for purchase of fertilisers and pesticides and training in good production practices. Likewise, PepsiCo itself promoted contract farming of seaweeds in Tamil Nadu. It encouraged farmers to form SHGs to avail financial support from commercial banks (Casuga *et al.* 2008).

Some export-oriented firms e.g. Agrocel Industries Ltd and Sunstar Overseas Ltd. promote growers' associations for organic farming of certain commodities for international consumers. Note that for individual farmers, the cost of organic certification is very high. Agrocel promotes organic cotton in Gujarat, while Sunstar Overseas Ltd. promotes organic rice in Uttarakhand conforming to Fairtrade standards. They provide inputs and

extension services for farmers and also provide interest-free loans for farmers to meet their operating capital requirements, besides facilitating their access to credit from commercial banks. They also offer premium price. Fairtrade pays an additional premium of 5-10 per cent, a part of which is shared among the farmers and the rest is invested in projects that enhance social, economic and environmental development of the communities.

Recently, the Government of India has started an ambitious programme, 'Farmer Producer Organisation (FPO)', a blend of cooperative spirit and business professionalism to build capacity of small farmers in accessing markets (GoI 2013<sup>xxiii</sup>). Farmers' interest groups are formed at village level, and are federated into a producer organisation. FPOs facilitate linkages between farmers, processors, traders, and retailers to coordinate supply and demand, and to facilitate supplies of inputs, technologies and financial services to farmers. Funding support to FPOs comes from NABARD.

## Impacts

Most studies report a positive impact of the association of farmers with value chains. Kumar (2006<sup>xxiv</sup>) has estimated net revenue from contract farming of important crops almost twice of that from independent farming. Similar evidence has been provided by Birthal et al. (2005), Gupta and Roy (2011<sup>xxv</sup>), and Vandeplass et al., (2012<sup>xxvi</sup>).

Reduction in marketing and transaction costs was the most important source of increased incomes for value chain participants. Birthal et al. (2005) have estimated that in wet markets these costs guzzle 15-20 per cent of the prices realised by farmers. However, for value chain participants these are less—to the extent of 90 per cent. Singh and Singla (2011<sup>xxvii</sup>) also provide similar evidence. Provision of inputs, technology, information and services to the chain actors contributes to production efficiency in terms of increased yield and reduction in cost (Birthal et al., 2005).

Risk transfer from farmers to firms is an important feature of contract farming of broilers (Birthal et al., 2005; Ramaswami et al., 2006). In case of dairy contracts, quality risks arising due to machine failure

(at collection centres) are borne by the firms, while the risks due to non-compliance of quality standards are borne by farmers (Birthal et al., 2005). Some cooperative societies retain their surplus incomes as reserves to protect farmers from market and production risks rather sharing these with their members.

## Lessons learnt

Value chain finance, even though in a nascent stage in India, is gaining ground with increasing commercial-orientation of agriculture. In this paper, we have reviewed some successful models of value chains and their financing mechanisms; and found that value chain approach has considerable potential to (i) improve small farmers' access to markets and financial resources (ii) reduce transaction costs, (iii) mitigate supply and market risks, (iv) build up human and social capital. We have also found that most value chains are practiced in commodities that have higher income potential and strong market demand, but have remained localised.

Developing value chains and their financing is important and not an insurmountable challenge if downstream chain actors, financial institutions and policymakers follow innovative and directed approaches. A few lessons that can be drawn from this review are highlighted here.

Collective action is important to overcome scale limitations in aggregation of dispersed farm production and distribution of inputs and financial and non-financial services. Such action may not happen on its own; it requires intermediation or facilitation.

For smallholders, the scale of produce is the main barrier for their participation in value chains. Hence, 'collective action is important to overcome scale limitations in aggregation of dispersed production and distribution of inputs and financial and non-financial services.' A related issue is that 'the collective action may not happen on its own; it requires

intermediation or facilitation. An important lesson for agribusiness firms is that they should base their pricing strategy on open market prices allowing for some premium as incentive for sellers to overcome problem of extra-contractual sales. In case of inputs, the lead firms that buy in bulk should transfer a part of their price margin to farmers. Such innovations also help in cementing buyer-seller relationships.

Financial institutions must recognise product market orientation of value chains as a substitute for physical collateral, i.e. they should use contract agreements as collateral and guarantees by buyers or intermediaries or governments for lending to chain participants. Group lending enhances poor farmers' access to finance, and reduces lending costs and risks associated with small loans as the group serves as a substitute for physical collateral and creates peer pressure for repayment. The government can facilitate chain actors' access to finance from commercial banks and other financial institutions by building alliances among financial institutions, lead firms and farmers in order to strengthen value chain finance. In the absence of external financing, it is important for chain participants to mobilise surplus funds from within the chain for their lending or leasing to those who need financial assistance.

Management of value chain risks serves as reassurance to financial institutions to integrate their products in the value chain. This can be done through provision of inputs and technical services by the lead firms or facilitators. Price risks are rarely targeted in most cases. Producer organisations (e.g. cooperatives) can use surpluses and savings to protect farmers from production and price risks. This and the following section are largely drawn from Chen et al 2015.

### **Policy implications**

Most value chains are context-, location-, and commodity-specific, and these have not been evaluated systematically for their potential for replication elsewhere, nor have the policies for their promotion

been comprehensively reviewed. Some important areas for policy intervention are highlighted here.

A generic implication is that investment in public infrastructure is crucial to attract private investment in value chains. The government may identify niche areas and commodities for value chain development and accordingly develop public infrastructure (roads, electricity, communication, etc.) in order to attract private investment in storage, processing and cold chains. A stable policy environment is important for sustained interest of private sector in agribusiness. Value chains, e.g. contract farming, may suffer from low compliance rates probably due to poor governance and enforcement mechanisms. Informal contracts also limit their use as collateral. Hence, institutional mechanisms, legal or otherwise, must be in place to facilitate the formalisation of contracts and resolution of conflicts/disputes.

To enable smallholders take advantage of value addition, the government should encourage producer organisations for aggregation of outputs for marketing, and for sourcing and distribution of inputs and financial and non-financial services. Such organisations should be empowered in identification of market opportunities as well as development of linkages upstream and downstream within the chain, in agricultural laws, food safety compliance procedures, financial systems and conflict management.

Financial institutions should recognise product market orientation of the value chains with due consideration of their competitiveness and sustainability in lending decisions. Towards this end, financial institutions need to improve their capacity to better understand agriculture and agricultural risks, market opportunities and challenges for identifying bankable projects and developing financial products and services. The policies aiming at improving value chain finance need to be accompanied by policies that reduce lending risks.

FIs should recognise product market orientation of value chains with due consideration of their competitiveness and sustainability while making lending decisions.



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# 4

## Green Bonds: Neither a Silver Bullet nor a Red Herring



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India's renewable energy story has played out in phases. The first phase, centred around “technology demonstration” and information exchange, stretched from the early 1970s until the late 1990s. Since then, the next phase witnessed a “surge in wind energy” investments. The third phase began in 2010 when the National Solar Mission kicked off. This phase—the “dawn of solar”—evolved from a very low level of capacity installation to a significant change in ambition. India now has 8.6 gigawatts (GW) of solar capacity and 28 GW of wind capacity. But it has set itself an ambitious target of 175 gigawatts (GW) of solar, wind and other renewable energy by 2022.

These targets, in fact, summon the next phase of growth. This current phase can be called “financing renewables”. India is at a critical juncture in scaling up its renewable energy capacity and financing remains the principal barrier to rapid expansion.

The financial needs are mammoth: the solar sector alone would require USD 100 billion in debt to reach the 100 GW target.<sup>i</sup> International debt markets, estimated to be around of USD 95 trillion,<sup>ii</sup> are the largest pool of capital in the world and need to be made accessible to Indian corporate houses and developers in a cost-effective way. The policy

environment is evolving in India and incentive structures are being designed. But new financial instruments are needed for renewable energy investments to keep pace with the annual capacity addition targets. Green bonds have proved to be successful internationally. Can they be a vehicle to propel India's renewable energy sector forward? Can they trigger the next phase of renewables growth in India?

### The need for new sources of renewables financing

In February 2015, at the RE-Invest Meet & Expo, the Government of India invited green energy commitments from renewable energy developers, manufacturers and financiers. This resulted in solar and wind developers committing to nearly 240 GW of capacity addition by 2022. But financiers submitted commitment certificates to finance only a fraction of that capacity, as highlighted in Table 1 below.<sup>iii</sup>

The appetite for investing in renewable energy projects continues to fall short of the optimism displayed by the government and developers alike. Despite the government's commitment to scaling solar power, it has yet to implement policies that mobilise debt from outside the banking system. The financial architecture in India groups all power sector projects and places a sectoral lending cap of ~15% for banks.<sup>v</sup> The large sums loaned out to conventional power projects crowd out credit for solar projects. Conventional power projects continue

to receive loans thanks to relatively greater investor confidence in them (notwithstanding the massive non-performing assets in that sector). The Indian banking system is already close to its sectoral ceiling of ~15% for the power sector. So, every additional unit of investment for solar projects is hard to come by (as per data from the financial year 2015-16).<sup>vi</sup> There is, therefore, an imminent need to diversify the sources of debt.

### The promise of green bonds

Given the need to reduce the reliance on bank debt, which is in short supply, green bonds offer a new source of debt financing. Green bonds are standard, fixed income financial instruments for raising funds through the debt capital market for projects with environmental benefits. The green bond issuer raises capital from investors for a defined time period. The issuer, like with any other bond instrument, pays a fixed interest rate to the investor, returning the entire capital amount upon maturity. The financial risks and return on green bonds are the same as that of regular bonds.<sup>vii</sup>

In India, green bonds could provide financial benefits beyond merely offering additional capital. They are particularly attractive since they could be a source of low-cost and long-term capital. Green bonds can provide low-cost financing by offering marginally lower interest rates than typical domestic clean energy project financing. A second advantage is the promise of longer tenures of loans, which reduces the refinancing risks for the issuers. Banks are usually

**Table 1: Green certificate commitments for renewable energy at RE-Invest, 2015**

		Commitment in GW
Solar Power Producers	Private developers	156.00
	Public sector/government companies	34.26
	Total	190.26
Wind Power Producers	Private Developers	48.00
	Public sector/government companies	0.23
	Total	48.23
Solar Manufacturers		16.25
Wind Manufacturers		37.35
Financiers		70.26

Source: RE Invest, MNRE<sup>iv</sup>

limited from investing in long-term projects, which creates a maturity mismatch between traditional bank loans and the longer payback period typical for most renewable energy and sustainable development projects.<sup>viii</sup> Further, green bonds offer a competitive risk-return profile, comparable to traditional bonds, with longer tenures and stable funding opportunities for renewable energy projects. Additionally, green bonds have a high potential to mobilise international finance for renewable energy project developers by enabling access to scalable, long-term and low-cost debt capital from more established bond markets and foreign institutional investors.<sup>ix</sup>

Green bonds offer a competitive risk-return profile, comparable to traditional bonds, with longer tenures and stable funding opportunities for renewable energy projects

Following the Paris Agreement on climate change, which came into effect in November 2016, the scale of the financing needs is becoming clearer. An estimated USD 1 trillion per year is needed to achieve the climate commitments submitted by all countries.<sup>x</sup> In climate negotiations, developing countries have consistently demanded climate finance in the form of public funds from developed countries, allocated through multilateral funding channels. The public sector has also been the primary engine for financing clean energy and climate projects in many countries, in the form of direct financial transfers, viability gap funding, feed-in tariffs, tax benefits, etc. But it is estimated that, in order to meet low-carbon development goals, 84 per cent of total finance globally would have to flow from private sources.<sup>xi</sup> Innovative financing mechanisms such as green bonds can tap into private sources of capital and have other advantages, making them an attractive financing instrument to deploy more broadly.

Globally, green bonds worth USD 46 billion were sold in 2015.<sup>xii</sup> In 2016 alone, green bonds worth USD 64.3 billion<sup>xiii</sup> have already been issued, with greater diversification in bond issuances. The competitive risk-return profile of green bonds is attractive to the international investor community,

which can also use green bonds to meet the growing demand to support climate-friendly investments. Investors are increasingly focused on integrating environment, social and governance (ESG) factors into their investment processes. Green bonds can help meet these investors' ESG objectives.

India is just beginning to catch up with the green bond wave, as seen in other parts of the world. In India, the green bond market has seen a spurt in activity of late. Although issuances so far have been relative small in size—USD 100-200 million—they have a high potential of scaling up. By October 2016, labelled green bonds worth USD 2.7 billion had been issued.<sup>xiv</sup> As it happens with any new security in any new geography, green bonds have only been issued by highly-rated issuers in India, but it is expected to percolate to lower rated securities as the market for green bonds deepens. Government-owned entities, such as the National Thermal Power Corporation (NTPC) and the Indian Renewable Energy Development Agency (IREDA), and promoters with strong balance sheets, such as Hero Future Energies, have issued green bonds in the recent past.

### The role of regulation, certification and transparency

However, it is important to note that the state of the bond market in India is not robust. Investors typically invest in highly secure bonds (government bonds or AAA-rated bonds) or other low risk investment options. Most renewable energy developers in India are not yet at the level of securitisation where they can successfully raise an independent bond issue. Notable exceptions include CLP India (INR 6 billion), Hero Future Energy (INR 3 billion) and ReNew Power (INR 4.5 billion).

In order to better understand how green bonds finance activities, take the case of CLP Wind Farms. It is India's largest wind power developer with 1,000 MW of wind energy assets in the pipeline across six states.<sup>xv</sup> CLP India was the first Indian corporate (non-bank) issuer of green bonds in September 2015. CLP Wind Farms raised INR 600 crore (USD 90.3 million), receiving an AA-rating and attracting primarily Indian mutual funds as investors. The bonds have been offered at a coupon of 9.15 per cent per annum, significantly cheaper than bank

debt, in three equal tranches of INR 200 crore and will mature every April in 2018, 2019 and 2020. The proceeds are meant to be used both for capital expenditures and refinancing of wind assets. Green bonds could be project-specific, such that the debt is used for project financing only. Or, as was observed in the CLP case, the debt raised could be used for the overall operations of the issuer's company.

For developers that cannot directly tap the bond market, an alternative is to secure the capital raised from the bond market through a green bond issued by a bank or a non-bank financial company (NBFC). The same is then disbursed in the form of loans to green projects. Bank-issued green bonds are more successful at raising money from the market as the risk of non-performance of the green project lies with the bank, instead of the investor having to bear the risk directly.<sup>xvi</sup>

Policy and regulation could also play an important role in deepening the domestic market for green bonds to have a fighting chance of attracting investors in India. In an attempt to do so, the Reserve Bank of India (RBI) recently issued guidelines<sup>xvii</sup> for banks to manage their exposures to big borrowers and increase the liquidity in the secondary market for the corporate bonds segment. RBI intends to scale down banks' exposure to single large borrowers drastically to USD 1.5 billion by 2020. This could nudge the large borrowers or groups to raise fresh debt via the bonds (or, green bonds) route<sup>xviii</sup>.

Similarly, the market regulator, Securities Exchange Board of India (SEBI), in January 2016 released norms on the issuance and listing of green bonds in the stock exchange. Green bonds are governed by SEBI regulations for debt securities, with the issuers required to make incremental disclosures. These would include details on the use of proceeds and the list of projects to which green bond proceeds have been allocated, etc. to be reported in the annual report and periodical filings made to the stock exchange. India is also increasingly seeing the issuance of the certified green bonds to overcome the barrier posed by lack of clarity of what comprises as 'green'. In its guidelines, SEBI also took responsibility for setting the standard for a green qualification, enabling a level of standardisation on the definition of 'green'. The norms also allow for an optional certification

of the norms to validate the pre-issuance and post-issuance process.<sup>xix</sup>

A new environmentally conscious category of investors is the primary audience for green bonds. For them, in particular, transparency measures are essential to ensure that the bonds proceeds are not used for non-green purposes (called "green-washing"). However, the costs incurred to track, monitor and report on whether the investments meet green criteria could become a barrier to scaling up the green bonds market. The adoption of standard procedures to assess whether a bond fulfils its green objectives could reduce the issuance costs. Therefore, a robust certification and standardisation (C&S) scheme is an important component of green bond-supported projects. The certification specifies sectors in which green bond proceeds could be invested, such as renewable energy, energy efficiency, clean transportation, sustainable land use, and climate adaptation projects. Standards would also enhance investor confidence and increase the long-term credibility of the Indian green bonds market by providing evidence to issuers and investors that the selected green projects are indeed achieving environmental benefits.

The adoption of standard procedures to assess whether a bond fulfils its green objectives could reduce the issuance costs associated with green bonds

### Deepening the green bond market

It is easy to dismiss the promise of green bonds. And critics could find many reasons in India. One criticism is that the volume of investment secured through green bond issuances in India is still too small to make a significant dent on the financing needs for renewable energy. This is true but, as described above, a function of the kinds of institutions that have had strong enough balance sheets to issue the bonds. Another criticism is that it is difficult to establish the value of potential gains in loan tenure or interest rates, if other challenges remain unaddressed. Investors identify several risks in the Indian market. And the overall bond market itself is at nascent stage of development. In short,



policy-makers have tended to often question the value of green bonds unless they fulfil at least one of three conditions: increase the quantum of investment; or reduce the interest rates; or offer longer tenure debt. These criticism and conditions of success are caught in a vicious cycle where other market risks limit the growth of the bond market; and the bond market's immaturity, in turn, makes it harder to overcome some of the systemic risks.

However, it is also important to identify and dismiss the red herrings among these criticisms. The current scale or size of bond issues should not become a predictor of future growth in the market. Or for that matter, the inability to observe a definite pattern in increased investments or lower interest rates is also a matter of limited deal flow so far. If the pattern of market development in other developing countries were to emerge, then the growing number and size of deals would trigger a virtuous cycle of more issuances. That said, the systemic financial risks are not merely red herrings; they are real challenges in the Indian renewable energy sector. But the resilience of the nascent bond market would also depend on the kind of transparency and regulatory oversight employed to mitigate some of the risks.

For green bonds to have a truly transformative impact on economy, climate considerations need to percolate down to the level of every major financial transaction. This could be spurred by mandates on state-owned financial institutions, such as nationalised banks, the Life Insurance Corporation (LIC), other public insurers and pension funds, etc., which command a huge market share of Indian investment markets, to invest in green bonds.<sup>xx</sup> Establishing green investment guidelines and setting portfolio-level mandates such as sub-categories within the priority sector lending targets for banks, and social and infrastructure investments by insurers could ensure a robust demand for clean energy assets.

For green bonds to have a truly transformative impact on economy, climate considerations need to percolate down to the level of every major financial transaction

Another approach is regulatory change to enable insurance and pension funds as institutional investors in green bonds. Green bonds are a good fit for long-term investors, such as insurance and pension funds. As India and the rest of the world pursues low-carbon development, fossil fuel-based investment is turning riskier and less attractive. Clean energy projects, on the other hand, provide a stable long-term investment potential.<sup>xxi</sup>

Investing in clean energy development makes sound economic sense and reaps generous returns for the economy. Renewable energy reduces import dependence and has enormous job creation potential. In India, achieving the 100 GW solar target would create 1.1 million jobs and another 183,000 for the 60 GW wind target.<sup>xxii</sup> Further, energy efficiency is a low-cost resource to meet rising energy demand, which obviates the need for costly new power generation capacity. Additionally, clean energy reduces carbon emissions and other pollutants, thus reducing the healthcare costs and improving productivity. Considering the beneficial social, economic, and environmental impacts, providing tax incentives for clean energy investments are a strong policy opportunity. Tax incentives, especially for retail investors, could go a long way in creating a demand for green bonds and enable citizens to invest in India's clean energy future. A time-bound sunset clause could make such tax incentives more attractive as a policy option.<sup>xxiii</sup>

Beyond policy incentives, industry experts (investors and issuers), in collaboration with clean energy knowledge leaders and standards institutions, could use collaborative platforms that represent diverse stakeholders to aggregate performance data and energy demand, highlight best practices, and bring markets together to develop a strong clean energy bond market internationally. Potential collaborative platforms such as Green Bond Market Development Committees and the International Solar Alliance could provide the needed institutional support mechanisms to grow the green bonds market in India and internationally. They could also support measures to make the green bond market in India more inclusive and diverse beyond just the large well-established issuers.<sup>xxiv</sup> These support mechanisms would include:

- a. Providing training and awareness building to attract prospective investors unfamiliar with green bonds;
- b. Simplifying and standardising the issuance and compliance process to increase transparency and reach new investors in India and abroad;
- c. Access to currency risk hedging products, such as 10-years-plus options and contracts, to lower the risk of issuances and make Indian green bonds more attractive;
- d. Developing an issuers' manual to make the process of bond issue easier for first-time issuers of green bonds.

One of the principal reasons for financial flows in the renewable energy sector in India being constrained is the prevalence of several risks. These range from the risks on receivables (off taker risk), which are a function of the financial health of distribution companies, to the risks attached to foreign exchange fluctuations, availability of land, grid infrastructure, etc.<sup>xxv</sup> Green bonds, while offering a new source of debt, do not address these risks and are unable to attract institutional finance due to their inadequate credit rating. Sovereign ratings are a function of many macroeconomic indicators and there are no shortcuts to improve credit rating of any country in a short timeframe. A strong sovereign rating needs long-term fiscal discipline, policy predictability, contract enforceability, strong rule of the law, etc. Improving sovereign ratings could take considerable long time<sup>xxvi</sup>. However, credit enhancement mechanisms such as payment insurance or guarantees for specific risks could improve the credit rating for a project.

An example of such an instrument to mitigate risks is a foreign exchange hedging facility. The cost of borrowing from international markets can be fraught with uncertainty due to the unknown and volatile impact of future exchange rates on interest rates, especially for bonds with long-term maturities (longer than 10 years). International investors have to factor in the cost of volatility of the Indian rupee

vis-à-vis their home currency when making investment decisions. Currency risk hedging products could be used to raise the rating of a BBB-rated project to AA or above, at a cost, which in turn would allow institutional investors such as pension funds, sovereign wealth funds, etc. to invest in green bonds.<sup>xxvii</sup> Insurance regulation in India does not allow investment in assets below AA credit rating, thus making credit enhancement crucial for issuers<sup>xxviii</sup>. As the domestic renewable energy market grows, the associated risk perception is expected to go down, allowing insurance and pension funds to invest a certain percentage of their fixed income portfolio in green bonds. This would open up a huge market for clean energy investment in India. Structural support in the form of credit enhancement and guarantees could further alleviate the risk perception of institutional investors.

## Conclusion

Green bonds are not the silver bullet for India's stage of "financing renewables". They have immense promise, at least in theory, to offer long tenure, low-cost and larger volumes of finance. They have been very successful outside India and the market in India is testing the waters and the investment appetite. So far, a few creditworthy institutions have been able to issue bonds of relatively small sizes. These are initial forays in market testing and development. But for green bonds to be successful, it would be equally necessary to avoid falling into a trap, which measures the success or otherwise of green bonds by the volumes and interest differentials observed so far. A robust green bond market itself depends on other renewables financing instruments and policies, such as to reduce currency risk, the creation of green banks, and other credit enhancement facilities. A combination of developing new instruments, standardising procedures, independently certifying the 'green' quotient of bonds, improving transparency, and building awareness could unleash a new set of large institutional investors. The present is not the predictor of the future.

A robust green bond market itself depends on other renewables financing instruments and policies, such as to reduce currency risk, the creation of green banks, and other credit enhancement facilities



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# 5

## Financing Sustainable Consumption and Production for SMEs in India



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### Introduction

By the mid of this century, India is projected to be the most populated country in the world, which, in turn would require commensurate economic growth to feed, employ and ensure a decent standard of living for the additional hundreds of millions of people. At the same time, to minimise adverse impacts of the growth process, such as pollution, non-viable overcrowding of cities, excess depletion of natural resources, the adoption of sustainable consumption and production (SCP) practices would be critical.

SCP is also one of the Sustainable Development Goals that came into force on 1 January 2016 and that will influence political agendas in all countries around the world. The term is defined by the United

Nations (UN) as “promoting resource and energy efficiency, sustainable infrastructure, and providing access to basic services, green and decent jobs and a better quality of life for all.”<sup>1</sup> In short it is defined as “doing more and better with less”.

Micro, small and medium-sized enterprises (MSMEs), in particular, need to be encouraged and supported in adopting SCP practices as they form the backbone of India's economy. The sector contributes about 8 per cent of India's GDP and accounts for 45 per cent of its industrial output and 40 per cent of exports. There are approximately 46 million such enterprises, employing about 106 million people. By making their production and consumption sustainable, MSMEs can significantly contribute to

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This article is based on a series of country studies conducted by adelphi on the access to finance by SMEs with a focus on green finance options. The countries covered in the studies are Cambodia, China, India, Myanmar, and Vietnam. The studies were conducted on behalf of the SWITCH-Asia Network Facility.

increasing SCP patterns in an economy, especially, given their prominent role in many countries<sup>ii</sup>. Aspects of SCP most relevant for MSMEs are the reduction of energy and material intensity of goods and services production; reduction of waste and emissions from raw material extraction, production, consumption, and disposal; and the application of life-cycle thinking in all stages of product life<sup>iii</sup>.

Sustainable production means that companies are reducing their consumption of energy, water and input material to the extent possible. Sustainable consumption is also about minimising waste and waste water as well as phasing out hazardous substances in the production process. MSMEs in India face challenges in the area of energy efficiency and pollution control. This sector uses 48 per cent of the total energy consumption in the industrial sector<sup>iv</sup>. It is estimated that their energy consumption can be reduced by more than 25 per cent through energy conservation and efficiency measures<sup>v</sup>. An assessment conducted by the Central Pollution Control Board in 88 industrial areas found that 43 of these clusters were critically polluted<sup>vi</sup>.

Sustainable consumption is relevant wherever enterprises act as consumers. Most MSMEs purchase input materials for their production. Sustainable consumption practices entail that they should consider the properties of the product or service they are purchasing and assess if it is the most sustainable option available. An example could be that electricity from renewable sources is better than from fossil sources. MSMEs could also assess whether substitutes are available for hazardous substances in their production process.

It would be crucial to acknowledge that SCP is not only good for the environment, but also good for business. There actually is a business case behind SCP. Most important in this regard is that resource efficiency measures reduce costs. When less energy, water or other input materials are used per amount of product output, the company saves money and becomes more cost-efficient.

There are further benefits for business. With products or services produced following SCP principles, companies can create additional value for their

customers. Customers increasingly make conscious consumption decisions. This becomes obvious from the increase in market share of all types of organic and fair trade products. Rapid economic growth in many emerging economies, like India, has led to the creation of a class of consumers who actively seek 'green' products. By transparently communicating their SCP measures in production and by deploying suitable marketing campaigns, companies can make their products more attractive for responsible customers.

Applying SCP measures can also give companies a first mover advantage with regard to the implementation of legislation. Environmental legislation is becoming stricter across the world. Hazardous chemicals are being phased out. There are limits for energy and water consumption. Waste management is also becoming more regulated. If a company anticipates regulation by implementing SCP measures, it can gain an advantage over other companies that may face difficulties in achieving certain thresholds once regulation is put in place.

By transparently communicating their SCP measures in production and by deploying suitable marketing campaigns, companies can make their products more attractive for responsible customers

Finally, SCP is also beneficial for workers and communities. It reduces the exposure to hazardous substances at the work place. Neighbouring communities also benefit from less pollution originating from industrial areas.

Finance is needed to invest in SCP measures in companies. Although many measures that reduce resource consumption are actually low- or no-cost measures, some measures with high savings potential actually require some upfront investment.

Finally, there are companies that produce products or services that helps *other businesses* to reduce their resource consumption. These companies supply clean technology products and services.

Companies that offer such SCP products or services also require finance: they need finance for expansion of operation, working capital, or research and development. Funding available for such companies can by a broader definition also be considered as SCP. If this sector of the economy is to be strengthened relevant amounts of financing for its expansion need to be provided. SCP finance is thus defined as all capital from public and private sources enabling MSMEs to achieve or contribute to these SCP goals.

SCP finance from financial institutions' perspective usually comprises financial products and services to promote environmentally responsible investments and stimulate low-carbon technologies, projects, industries and businesses. Conventional MSME financing products are also relevant since financial products dedicated at SCP investments are often more difficult to access.

### Availability and yet inadequacy of access to SCP finance

The Indian financial system is well developed with several tiers and types of financial institutions and actors. There are dedicated SCP financing options for MSMEs but given the overall needs and potential of the sector, the financing available is inadequate. This inadequacy is most critically felt in two areas: in the overall lack of working capital and in early technology development.

Let us first consider the options available. The apex financial institutions have played an important role

in offering green finance to MSMEs. The role of the Small Industries Development Bank of India (SIDBI), the principal financial institution for the sector is particularly significant (see Box 1). SIDBI lends both directly as well as via on-lending to eligible Primary Lending Institutions (PLIs) such as banks, State Financial Corporations (SFCs), State Industrial Development Corporations (SIDCs), Micro Finance Institutions (MFIs) and Non-Banking Finance Corporations (NBFCs). SIDBI is also a key investor in MSME focused venture capital funds<sup>vii</sup>.

For companies supplying clean technology products and services, the SIDBI-KfW Innovation Finance Programme (2013-2016) is a unique product. It is a EUR 53 million line of credit providing assistance to innovative projects and MSMEs that supply innovative clean technologies (products, processes and services). The sectors targeted include energy efficiency, renewable energy, green buildings, water and wastewater treatment, waste management, industrial pollution control technologies, sustainable transport solutions and sustainable agribusinesses. As of September 2015, INR 2,646 million (EUR 36 million) of the line have been committed to 28 innovative clean technology MSMEs.

Though SIDBI has been a pioneer in SCP finance, it is, however, often difficult for apex institutions to do small ticket direct lending for MSMEs. SCP lending can be increased by apex institutions playing a more active role in providing refinance and risk-sharing mechanisms with commercial banks, mainly banks in the public sector. The bulk of MSME financing is

#### Box 1

SIDBI has had several lending schemes aimed at helping MSMEs increase energy efficiency and reduce pollution. The prominent schemes are:

- SIDBI-JICA Energy Saving Line Phase I, II and III (2008-ongoing): The programme provides financial assistance to MSMEs through SIDBI and refinance to banks and other financial institutions. In phase I, EUR 220 million financed investments in more than 2,900 MSMEs. In phase II, the same amount was spent for 1,880 MSMEs. In the currently ongoing phase III, EUR 220 million has been sanctioned.
- SIDBI KfW Environmental Credit Line (2009-2014): The available funding of EUR 38.5 million provided assistance to about 282 MSMEs.
- SIDBI-KfW Energy Efficiency Credit Line (2009- 2014): The funding of EUR 50 million covered investments in 275 MSMEs.
- SIDBI-AfD Energy Efficiency Credit Line (2010-2012): In total, EUR 50 million were invested covering 650 MSMEs.

provided by commercial banks. Yet, very few banks have ongoing schemes to finance energy efficiency projects specifically for such enterprises. Only two banks have specific loans schemes for technology upgrade and investing in energy efficient equipment: Canara Bank's Energy Saving Loan Scheme<sup>viii</sup> and Bank of Baroda's Energy Efficiency Financing Scheme<sup>ix</sup>. RBL bank has funded a few companies offering solar solutions, including Claro Pumps and Shakti Pumps, companies supplying solar pumping solutions.

On the equity side, India has a vibrant venture capital industry. Most of this capital has been targeted to sectors such as information technology, consumer internet and e-commerce. Yet there are 21 venture capital firms that have invested in green technologies. Of these, INFUSE, Global Environment Fund and Green India Venture fund are the three venture funds focused solely on the clean technology sector. Our interviews with venture capital fund managers indicate that companies providing SCP solutions have relatively large working capital requirements and the companies have difficulty meeting these needs. This has depressed equity returns.

Apart from working capital, the other major challenge that MSMEs face is at the early stage technology and product development stage. India does have a wide network of incubators supported by the Department of Science and Technology (DST), the National Science and Technology Development Board (NSTDB) and the Technology Development Board (TDB). Investments from incubators are grants in the range of INR 2-5 million from various government schemes; convertible debt or equity in the range of INR 2.5-5 million from Technology Incubation and Development of Entrepreneurs (TIDE), NSTDB or TDB; as well as equity or quasi-equity of INR 5 million. In our view, the amount of funds required to develop a SCP company tends to be much larger and the small amount of funding available discourages technology innovation in the green sector.

In conclusion, the challenges that MSMEs generally face in accessing SCP finance are to a great extent, those that they have already been facing for decades in accessing funds. These enterprises lack financial

literacy and financial track-records, they have low awareness and knowledge of funding opportunities and, are in many cases, not formally registered. Many enterprises also lack the necessary capacity and time for preparing convincing business development plans to persuade banks to lend them money. One of the most crucial factors hampering access to finance is the requirement for collateral which such enterprises cannot provide in many cases. MSMEs face the challenge of providing collateral not just in India, but in other countries covered in our series of studies as well.

The combination of the above barriers—lack of prerequisites for receiving bank funding, lack of awareness on investment options, lack of awareness on funding options—effectively stops MSMEs from applying for available funding options. In some countries, well-designed SCP financing programmes sometimes do not work because of a lack of eligible borrowers. This, in turn, discourages financial institutions to offer such financing products.

Bank officers often lack knowledge of SCP business models as well as risk assessment tools for SCP finance products

Yet it is not only the MSMEs who are responsible for the problems in the SCP finance market. Lack of knowledge on SCP investment concepts and relevant technologies makes financial institutions hesitant to make more SCP finance available for them. Bank officers often lack knowledge of SCP business models as well as risk assessment tools for SCP finance products. In addition, high transaction costs for establishing business relations and trust make MSMEs and SCP investments less profitable and attractive for financing institutions. Consequently, profit margins from loans to MSMEs, and especially SCP loans, are often too low for many commercial banks. They prefer working with larger enterprises with conventional financing products. This is a major problem of funds dedicated to SCP investments—especially in the renewable energy sector. It is very often geared towards large projects. SCP financing is simply not a priority of most financing institutions.



## Innovative approaches for enabling finance

Are there any innovative ways in which finance can be made available? We believe that to solve the problem of working capital there are several products that should be vigorously tried. The Indian financial community has the knowledge of these products and what it needs is the necessary focus to apply them to SCP financing in the MSME sector.

To solve the problem of working capital, two products that should be immediately useful are bill discounting and factoring. Both work to provide short-term trade finance. In the case of bill discounting, the enterprise trades in the bill before the due date at a discount to its face value. In the case of factoring, the enterprise sells its book debts to the financial institution at a discount. In India, several banks (IDBI, SIDBI among them) offer bill discounting and the State Bank of India has a subsidiary, SBI Global Factors, which offers factoring services. Banks need to extend these products vigorously in the SCP sector. Equally important, because these products are typically designed to support transactions between a large company and its supplier MSMEs, the large organisations should actively help in collaborating with their vendor base and financial institutions to alleviate the working capital challenges of MSMEs. The other product that provides short-term trade finance is forfaiting which is more applicable in international trade and can support export of SCP goods and services. Exim bank of India does have a forfaiting product and again we emphasise the need to focus the product on the SCP sector.

We also believe that two off-balance sheet financing options can contribute to making SCP financing available to the MSME sector. We have already seen that resource efficiency measures reduce costs and that some of these measures require upfront investment. It is possible that resource efficiency equipment be made available to MSMEs on a “lease” basis with the lease rentals being met from the reduction in costs. Leasing as a source of financing for Indian MSMEs was very popular in the 1990s and was offered by Non-Banking Finance Companies (NBFCs). It has since, fallen into disuse. One main reason has been that the issue of whether the lessor can claim income

tax benefit on depreciation has been contentious. However, in 2013, India’s Supreme Court allowed depreciation benefits to an NBFC, which leased vehicles to its clients\*. This opens up an option for NBFCs to offer leasing for SCP financing.

Bill discounting, factoring and forfaiting are approaches that can immediately help raise working capital for SCP

One sector which should see immediate benefit is the emerging solar rooftop sector but we think it is possible that leasing as a product can be applicable to a wide range of resource efficiency and pollution control initiatives. In sectors such as solar rooftops, securitisation (where the cash flows of companies using solar rooftops are pooled together and sold as securities to investors) can also be a viable financing option.

Finally, banks need to develop more expertise around project finance. Larger SCP projects (for example, a common effluent treatment plant) can be built on a Build-Own-Operate-Transfer (BOOT) basis. In such instances, banks must adequately secure their lending against the project assets and cash flows and not seek any additional collateral. To do so, banks need to develop the necessary technical expertise, familiarity with the sector and the ability to develop the necessary legal covenants.

What lessons can be learned from other countries that could be applicable to the Indian context?

There are several measures that support the growth of the SCP financing market generally and are not restricted to specific local conditions. These measures do not address the general SME financing issues but specifically those related to SCP financing.

**The lack of trust between SMEs and formal financial institutions could be reduced by installing “trust brokers”.** An independent actor could help both sides in bridging the gap between financing supply and demand. Consultants, research organisations and technology suppliers could act as such trust-brokers. They could, on one hand,

demonstrate to financing institutions that the investments lead to economic and environmental savings and; they could, on the other hand, support SMEs in preparing suitable financial statements and loan requests. This would increase the demand for SCP financing products from MSMEs.

**More pilots for SCP finance schemes should be developed.** A project on SCP business models in Cambodia which the authors have assessed, indicates that the approach of piloting a SCP finance scheme may be an avenue to success. It allows showcasing to other financial institutions that SCP financing works and that there is a demand for this type of financing. In a market like India where some institutions (such as SIDBI or RBL) have experience in SCP lending for MSMEs, there exists a strong case for other financial institutions to participate in pilots with some support of these more pioneering organisations.

**More capacity-building is required for financial institutions to increase their understanding of SCP technologies and SCP business models.** Usually, financial institutions sanction funding for investments in measures and technologies they are familiar with. They may not be familiar with new energy efficient and resource efficient technologies and are thus reluctant to grant funding for such investments. Therefore, loan officers in financial institutions should be made especially familiar with the concept of SCP and key technologies and innovations. In addition, financial institutions should successively build up dedicated teams catering to the SCP financing needs of MSMEs.

**A general (policy) framework on how SCP finance and SCP investments are defined needs to be developed.** Such a framework would provide guidance to banks as to which of their activities classify as SCP. This framework should also support the development of stringent and comprehensive monitoring guidelines for SCP financing products. Guidance for financial institutions would also include the training of its staff in issues related to SCP finance. If deemed necessary, a legal SCP financing framework could also comprise mandatory targets for SCP MSME financing that financing institutions have to meet.

How is the issue of SCP finance for MSMEs dealt with in other countries? The following overview presents some experiences from two other countries in Asia:

**China:** Compared with international standards, many of the “medium-sized” Chinese enterprises are actually quite large. Their access to finance is not that big of a challenge. When discussing access to finance problems, China’s leaders mostly refer to small and micro-sized enterprises, rather than medium-sized firms. While MSMEs as a whole remain credit-constrained, it is the MSEs that have greatest difficulty in obtaining funding. During interviews it was learnt that this situation is not expected to change significantly in the coming years as policy-makers and banks hope to achieve their SCP (credit) targets primarily through the transformation of large polluting enterprises and through the implementation of broad renewable energy projects. For providing finance to MSEs, the transaction costs are much higher for banks. Although a dedicated SCP Credit Policy and SCP Credit as well as MSME Guidelines exist to encourage banks to lend more to energy efficient and climate-friendly projects as well as MSMEs, they are not fully complied with. Owing to a lack of implementation and monitoring capacity leads to the MSME and SCP Lending Guidelines for financial institutions not being strictly followed.

**Vietnam:** One of the main strategies to push SCP growth in Vietnam is the country’s National SCP Growth Strategy. Along with the provisions of this strategy, the topic of SCP finance has also received increased attention in Vietnam. An important milestone was the promulgation of guidelines to enhance SCP credit growth and environmental-social risk management by the State Bank of Vietnam in March 2015. On the national and provincial levels, various funds have been set up to support industry, agriculture, environmental protection, technology innovation and other relevant topics. However, many of these funds are not fully operational yet or are currently not active in financing.

The SCP Investment Facility (GIF) is one of the most interesting projects with regard to MSMEs’ access to SCP finance in Vietnam. Supported by the

Danish Government, the GIF aims at promoting uptake of energy efficiency measures by MSMEs in the brick, ceramic and food processing sectors. Another financing scheme similar to this facility is the Vietnam SCP Credit Trust Fund (VGCTF). This fund supports medium and long-term investments of Vietnamese MSMEs in cleaner production technology. It is financed by the Swiss Secretariat for Economic Affairs and coordinated by the Vietnam Cleaner Production Centre.

## Recommendations

To manage a transition towards integrating SCP practices among its MSMEs, India needs to tackle various challenges: address the rising costs and, decreasing availability of energy, water and other natural resources, combat increasing pollution of natural resources and decreasing soil fertility and; ensure the survival of fragile ecosystems. The sector needs to be an integral part of any approach to tackle these problems. If these enterprises are to change the production and consumption patterns that contribute to these problems, they need access to funding to finance such changes.

What would enable better availability and uptake of SCP finance in the Indian market? We discuss a few salient points here.

**Financing institutions need to move away from a collateral-based funding approach to project finance:** Project finance would significantly help MSMEs in raising finance for BOOT projects which are becoming the norm in the green business area. Project finance which addresses risks by securitisation of cash flows and “bankable” contracts between the various parties involved would be a key solution to unlock green financing. The acceptance of project finance would take time. It is therefore recommended to start working with financing institutions which have experience in the area of green investments and to develop standard processes and templates in specific green areas (for example solar rooftop and water treatment). It would also be necessary to collect data on the performance of project finance compared with conventional financing.

**Financing institutions need to extend trade finance:** Trade finance would also help in providing MSMEs with liquidity without the need to extend their balance sheets or physical assets. Trade finance products are available in India but need to be far more accessible. This would not only promote SCP practices within the sector but will, in general, contribute to the critical issue of working capital availability.

**The conditions for leasing schemes should be improved:** Leasing laws and accounting standards should be reviewed to provide NBFCs with the ability to set up green leasing businesses. Asset finance can unlock financing for many green investment projects (such as a solar rooftop plant and energy efficiency equipment). Clear clarification and stability with respect to income tax laws and service tax laws for lease structures is necessary.

**The infrastructure to support clean technology companies needs to be strengthened:** India needs to develop climate innovation centres where companies developing clean technology can test their products, develop their plans and also obtain seed funding. The amount of seed funding that is required is higher than what is currently available. Such innovation centres could be modelled to comprise several participating organisations. They would then be providing support to MSMEs in different regions and sectors. Additionally, the government or international development institutions should consider a corpus to invest in clean technology venture funds. This would allow fund managers to establish a track record and help “crowd-in” private investment. The next critical step would be a thrust on increasing awareness of environmental challenges and on the potential for SCP in addressing these. At the same time, it is important that clear and transparent regulation on environmental protection and resource efficiency is defined and adequately implemented. MSMEs would need to be supported in terms of finance, technology and knowledge to enable them to comply with such regulatory requirements. This would increase the demand for green products, for SCP practices and thereby also for all sorts of green financing.

**A reform of the credit guarantee scheme system is necessary:** The experience of operating the CGTMSE (Credit Guarantee Fund Scheme for Micro and Small Industries) has shown that it needs to be marketed across the branch network of each bank to support bank officers in actually applying the scheme. It is also very important to make clear to branch officers and MSMEs what the operating procedures are if the guarantee has to be revoked. With regard to dedicated green investments, it should be considered to establish a specific green guarantee fund. This fund could be operated by an institution with experience in green technologies. This would make it easier for banks and NBFCs to provide financing for green investments. The Indian banking sector currently has a high level of liquidity and the provision of a “green guarantee” with clear and transparent guidelines will help in unlocking this excess liquidity for green investments.

**Banks need a more streamlined loan application process and a shared due diligence process:** This would significantly ease the process of accessing finance for MSMEs. It would reduce the time required until a loan is actually sanctioned and it would also make it easier for companies to submit loan applications at several financing institutions. It is recommended that, in consultation with a few participating financing institutions, application forms and key documents are standardised. These standard documents can then be made available through an internet portal which would also provide information about schemes and programmes of the banks. Technical assistance should be provided to financing institutions to support them in achieving this task.

**Lesson learnt from successful green financing schemes must be taken up by other financing institutions and successful schemes need to be replicated:** There is an urgent need for financial actors to be encouraged to learn from best practices and adopt them to evolve better assessment tools, while capacity building programmes for policy makers and banks could help in better dissemination of information. In terms of financial actors, SIDBI has emerged as a green development bank and has offered several innovative green financing instruments to promote the consumption and production of green products and services. However, there has been no other bank which has tried to provide a range of green financing options to the sector, based on the learnings and lessons from SIDBI. An exception may be Yes Bank which has positioned itself as a “green bank” but its impact on the MSME sector has not been strong to this day.

**Environmental laws and regulations should be enforced more strictly for contributing to the creation of a green investment project pipeline:** Currently, many environmental regulations are not strictly enforced. This means that MSMEs do not sense the need to implement SCP measures. With a stricter enforcement, the authorities could contribute to generating more green investments and thus a demand for green financing products. In addition to stricter enforcement, more awareness on environmental standards needs to be created among MSMEs and support in terms of capacity building should be provided to the industries to comply with regulations.

There is an urgent need to encourage financial institutions to learn from best practices in green financing and adopt them to evolve better assessment tools



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# 6

## Green Financing can be a Win-Win Proposition for Bankers and Business



### » Mr. Ajay Kapur

Deputy Managing Director, SIDBI, in conversation with JRF editors

Mr. Ajay Kumar Kapur is a graduate in Industrial Engineering from Indian Institute of Technology, Roorkee and currently holds the post of Deputy Managing Director, overseeing the entire affairs of Small Industries Development Bank of India [SIDBI]. He started his career in 1980 in the private sector, switched over to development banking by joining Industrial Development Bank of India in 1985 and then moved to SIDBI in 1990. Mr. Kapur has rich expertise and deep understanding in SME Financing. Keeping in view the Bank's vision, he has played a pivotal role in introducing innovative programmes in fields of venture capital, sustainable finance, energy efficiency, receivable finance, guarantees to fill the financial and development gaps in the MSME eco-system in India.

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**Q1. SIDBI has emerged as a green development bank and has offered several innovative green financing instruments to promote the consumption and production of green products and services. Few other banks have tried to provide a similar set of options to the MSME sector. How can successful innovations in green financing products by SIDBI be adopted and scaled up across banks and other FIs?**

**DMD:** SIDBI's mandate is for promotion, financing and development of Micro, Small and Medium Enterprises (MSMEs) and for co-ordination of functions of the institutions engaged in similar activities in India. Empowering MSMEs and stakeholders with access to financial and non-financial services has been SIDBI's focus. In line with the Government of India's thrust on combating climate change and a strong commitment on sustainability development goals as well as to reduce Green House Gas (GHG) emissions by 33-35 per cent in the next 15 years, SIDBI has identified green financing as one of the key niche areas to prioritise. We have also observed that there is a significant potential for improvement and upgradation in MSMEs. Hence, green financing not only makes commercial sense to MSMEs but also to bankers, as

it leads to a better asset portfolio. Accordingly, our schemes and programmes on green financing aim to enhance competitiveness, improve the bottom line, reduce wastage leading to better resource efficiency through our 4E Programme, JICA and other lines of credit and World Bank-GEF and Partial Risk Sharing Facility (PRSF) Projects.

While we are working with MSMEs in various clusters, at the same time we are also working with the banking sector to showcase that green financing can be a win-win proposition for all the stakeholders including MSMEs, bankers as well as the large manufacturers through greening of their supply chains.

The officials of SIDBI as well as banks require continuous capacity building on energy-efficiency (EE) financing and the energy savings performance-contracting business model, in which loans are backed by shared benefits from future cost savings rather than traditional collateral and plans to increase revenue. Further, they also need to be trained on the Environment and Social Management Framework (ESMF). Thus to promote the ESCO (Energy

Service Company) market in India, our special product “Partial Risk Sharing Facility for Energy Efficiency (PRSF) project” is in place and we have already started guaranteeing ESCO-implemented EE projects. This may demonstrate the success of ESCO projects in India and infuse confidence for commercial banks and other financial institutions on EE projects in India.

SIDBI is working with MSMEs in various clusters and also with the banking sector to showcase that green financing can be a win-win proposition for all stakeholders

SIDBI is playing a dual role in this context, both complementing banks and catalysing private sector players. SIDBI along with GIZ, JICA, KfW, etc., has conducted training programmes to enhance the knowledge base of in-house credit officers of SIDBI on sustainable financing and climate change initiatives. SIDBI under its WB-GEF project has also trained more than 1200 Banking/FI/NBFC/CA professionals on energy efficiency project appraisal and impact of EE projects implementation on sustainability of MSME units and the environment. Participants in these training programmes represented 75 different FIs, including nationalised banks, private banks, Regional Rural Banks (RRBs) and Cooperative Banks. SIDBI’s continual knowledge dissemination of various success stories and best practices on green financing during such training has helped motivating others.

In order to promote green financing in India, a strong institutional mechanism is required and SIDBI is engaged with Indian Banks’ Association (IBA) for building the capacity of various FIs on this front and we expect IBA to play a more proactive role to enthuse banks and FIs to formulate more financial products and incentivise their customers for green financing.

**Q2. It is often difficult for apex institutions to do small-ticket direct lending for MSMEs and the bulk of financing is provided by commercial banks. Yet, very few banks have ongoing schemes to finance energy efficiency projects specifically for MSMEs. Can SCP lending to such enterprises be increased by apex institutions playing a more**

**active role in providing refinance and risk-sharing mechanisms with commercial banks especially in the public sector?**

**DMD:** Yes. We have now decided to adopt the resource efficiency approach which includes not only energy efficiency but also renewable energy, lean manufacturing and cleaner production options. Further, under our 4E pilot programme, we are also linking green financing with the loan event. We are of the strong opinion that SCP lending to SMEs can be increased significantly once this is mainstreamed in the banking sector. SIDBI would continue to engage with the banking sector for building their capacities and mainstreaming the green financing or SCP lending. We are already open to consider refinancing such projects. Further, under our PRSF project, we have set a risk-sharing facility. I am happy to share that already a number of banks and NBFCs have signed up for PRSF coverage and we have started issuing guarantees for ESCO projects.

Several banks and NBFCs have signed up for our Partial Risk Sharing Facility coverage and we have started issuing guarantees for ESCO projects

**Q3. Usually, FIs sanction funding for investments in measures and technologies they are familiar with. They may not be familiar with new energy-efficient and resource-efficient technologies and are thus reluctant to grant funding for such investments. How can this be addressed? How can FIs’ capacity be built to increase their understanding of SCP technologies and SCP business models?**

**DMD:** To overcome these challenges, SIDBI has set up an Energy Efficiency Centre (EEC) at New Delhi wherein technical experts including Certified Energy Auditors, environmental experts, etc. are housed. Under a World Bank project, SIDBI along with Bureau of Energy Efficiency (BEE) has been instrumental in implementation of energy efficiency measures in around 600 MSMEs across 10 clusters in India. This is the first time wherein such large scale-actual implementations have been done by MSMEs. BEE is creating a knowledge portal for disseminating the success case studies generated under the Project. SIDBI, through its associate concern India



SME Technology Services Limited (ISTSL), has empanelled more than 65 energy auditing firms (some of them are ESCOs) on pan-India basis and providing End-to-End-Energy-Efficiency Solutions (4E Solutions) at a reasonable cost with assurance on the quality of services and assured savings. Under the PRSF Project, SIDBI is extending technical support to banks through ISTSL during appraisal of ESCO projects.

SIDBI started by developing an exhaustive list of energy-efficient machineries for financing Energy Efficiency (EE) equipment for replacing or retrofitting with conventional machines or to technologically upgrade the MSME operations. We have conducted capacity building workshops and created awareness to the wide spectrum of MSME stakeholders on green financing in more than 100 MSME clusters. Presently, SIDBI has a bouquet of success stories in green financing and various credit schemes and guarantee products to promote green lending. These initiatives are resulting in reduction of GHGs and contributing to the global goal for combating climate change.

**Q4. What kind of institutional platforms or mechanisms are needed to support FIs' confidence in financing green projects and technologies? For example, a green guarantee fund for the MSME sector that is operated by an institution with expertise in such projects? Or a multi-stakeholder innovation centre where companies can test products, build plans and get adequate seed funding at the early technology stage?**

**DMD:** SIDBI is actively involved in development of MSME sectors through innovative financing products, extending technical support and handholding in implementing EE projects through various programmes and schemes such as 4E solutions, multilateral lines of credit for EE projects, promoting ESCOs by way of providing financial assistance and risk-sharing mechanism (a guarantee product).

Yes, the concept of a proposed green guarantee fund for MSME sector appears to be a good idea. However, at the same time, suitable policy push is required so that there is an adequate pipeline of such projects. The Indian government has already announced various initiatives in this regard such as

Make in India, ZED (Zero Defect – Zero Effect), Smart Cities, Intended Nationally Determined Contributions, et al.

**Q5. How can the large business sector enable finance for sustainability in their supply chain MSMEs?**

**DMD:** One of the commitments of large scale business sectors is also towards attaining sustainable development goals. To support the overall sustainable development goals, companies need to raise awareness and motivate their MSME supply chains to adopt green and cleaner production options in their day-to-day industrial operations. They can also incentivise suppliers and support them in accessing commercial finance for their green projects.

SIDBI is partnering with Confederation of Indian Industries (CII) for greening supply chains of several large manufacturers through its 4E solutions product and its PRSF project.

The concept of a proposed green guarantee fund for the MSME sector appears to be a good idea. However, at the same time, suitable policy push is required so that there is an adequate pipeline of such projects

**Q6. Given the special needs of this sector, how can development and commercial financing be made to work together? Could you indicate a good approach to help promote access to sustainable financing for MSME sector in India?**

**DMD:** Sustainable and green financing by SIDBI has a two-pronged approach. The first is, providing concessional financial assistance through focused Lines of Credit for acquisition of energy-efficient equipment and sustainable development projects in the MSME sector. The second is to support development activities at the cluster level to build awareness and create an ecosystem for facilitating adoption of energy-efficiency measures by MSMEs. This is being done by various capacity building programmes for MSME entities, industry

associations, banks and other stakeholders and also by extending technical support for energy audits and their implementations, institutionalisation of technology management needs and engagement with international partners to draw on their global experiences.

SIDBI has entered into financing arrangements with various international partners such as JICA, Japan, KfW (Germany), AFD (France), and the World Bank for dedicated Lines of Credit (LoCs) focused at energy efficiency and cleaner production technologies. Lending under these LoCs for acquisition of energy efficient machinery and equipment has resulted in reduction of GHGs (especially CO<sub>2</sub>) emissions, reduction in energy consumption, energy efficiency, waste reduction and improvement in quality, in the longer run.

Under these LoCs, SIDBI has channelised green financing investments to the tune of around INR 65 billion benefiting more than 7,000 MSME units. This has resulted in an estimated annual electricity saving of 1,100 million electricity units, thermal energy savings of 65,000 TOE and reduction of 1 million tonne of CO<sub>2</sub> annually.

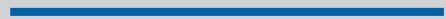
Based on our experience, only a proper mix of regulatory and development push along with incentives such as concessional lending schemes, performance grants and subsidies will help promote access to sustainable financing for Indian MSMEs.

**Q7. The recently launched National Voluntary Guidelines for Responsible Financing developed by the Indian Banks' Association in consultation with FIs provide a systematic structure, aims to curb ad-hocism and offers strategic and operational clarity required for integrating sustainability within FIs. What measures are being taken by SIDBI for wide-spread adoption of these guidelines? What kind of impact on SIDBI's business and its leadership role could you expect from this?**

**DMD:** SIDBI as a responsible financing institution is very much aligned with the Government of India's policies and guidelines to combat climate change. To address the issue of sustainability in the MSME sector, SIDBI through its specialised financial products and various developmental initiatives has promoted investments in energy efficiency, cleaner production and environment protection for more than a decade. SIDBI has also integrated Environmental, Social and Governance (ESG) aspects into its credit risk rating and due diligence process and has developed and pilot-tested an Integrated Credit Rating Model embedded with green parameters under its WB-GEF project, with the objective of avoiding and minimising adverse environmental and social impacts due to projects assisted by SIDBI. This was part of the process of developing an organisation-specific Environmental and Social Safeguard Framework. Implementation of this framework would benefit SIDBI in curbing its credit and reputation risk and contribute in building a greener and cleaner environment.

SIDBI has integrated ESG aspects into its own credit risk rating and due diligence process through an organisation-specific safeguards framework. Implementation of this would benefit SIDBI in curbing its credit and reputation risk

## **SPECIAL SECTION**





# 7

## Special Section

### Why Should ESG Matter to Banks?

#### An Analysis of Loan Repayment Behaviour and ESG Risk Profiles of SMEs

### Introduction

Businesses try to avoid, avert, mitigate or transfer financial risks that threaten their existence in the market. However, apart from estimating sales, profits and other monetary aspects, companies, irrespective of size and expanse, have remained oblivious to the adverse effects caused by them on the environmental and social front. After the Second World War, in the race towards generating productivity and boosting economic growth, countries had neglected the catastrophic footprints on the environment. It is only in the last few decades that awareness about responsible business has dawned upon both investors and nation states. Ever since this realisation, the definition of risk in business has started to embrace non-financial aspects which arise from environmental, social and governance (ESG) violations. Non-financial (ESG) factors are increasingly recognised as having a potential impact on financial performance of companies.

The United Nations Environment Programme's Financial Asset Management Working Group had commissioned a study into the links between ESG issues, financial value, and company profitability.<sup>i</sup>

The role of this study is to statistically analyse whether a relationship exists between ESG practices of firms and their loan repayment behavior. This analysis is based on actual bank data gathered from multiple banks across different geographies. This study is expected to help in understanding the effects of sustainable practices on financial performance of firms as well as on that of lending institutions. By analysing the impacts of ESG practices directly to the loan repayment pattern of firms, financial institutions and banks would be able to take

corrective action to control for risk of defaults due to unsustainable practices *ex-ante*. They might also be able to charge an additional premium to firms that are known to be inherently risky in context of their ESG practices and reward those firms that disclose their compliance with ESG practices.

This study lays emphasis on going beyond using the traditional creditworthiness checks as the only yardstick for sanctioning loans. Financial institutions can benefit from the inclusion of ESG disclosures if it reduces the probability of default. Additionally, it can nudge firms to include these principles with a view of improving their financial performance in the long run.

### Financial health of lending institutions

Loan repayment performance has emerged as a key indicator to measure if loans are settled as per the loan contract or not.<sup>ii</sup> Lending institutions across the world are focusing on mechanisms to systematically monitor the loan repayment performance of borrowers and to assess their ability to fully repay the loan amount within the stipulated time.

In India, the banking sector gross NPA (Non-Performing Assets) is at 9.6 per cent, the highest in 12 years, and the Reserve Bank of India predicted it to rise to 10.2 per cent by March 2018.<sup>iii</sup> This sharp surge in bad debts has eroded profitability in the recent quarters, especially of state-owned banks. The huge amount of money and drastic rise in bad loans has prompted many researchers to study the factors responsible and the methods to curb the same. The increasing need to prevent the rise of bad loans has also been on the agenda of many central banks.

Non-financial factors are relevant in investigating the underlying reason behind NPAs and there is a growing body of literature to demonstrate that financial institutions, which earlier focused on the profitability, have started to focus more on responsible lending and investment.<sup>iv</sup>

### Link between ESG violations of MSMEs and their financial performance

This study builds on an earlier study carried out on behalf of GIZ and SIDBI to quantify the impact of violations of ESG norms upon firms, particularly focusing on the impact on Micro, Small and Medium Enterprises (MSMEs) and linking their financial performance to those violations. In quantifying the link between financial performance and the probability of loan default, data of 25,000 firms for over a decade were studied (using automated text analytics on publically available data).

The findings of the previous study are as follows: Environmental violations by MSMEs were found to have a statistically significant negative impact on their revenue growth. Violation of Environmental norms reduces an enterprise's relative revenue growth rate by nearly 1.3 percentage points in comparison with an enterprise violating either Social or Governance norms. In absolute numbers, it implies a direct notional loss in revenues amounting to nearly INR 2 million for a median MSME and an additional INR 600 billion for the sector.

Violating social norms reduced the revenue growth by approximately 1.13 percentage points for MSMEs when compared to those violating either Environmental or Governance norms. Thus, a median MSME faced a direct revenue loss of nearly INR 1.7 million each due to a violation of social norms, implying a loss of nearly INR 500 billion for the entire sector. These results were significant amongst MSMEs, though it did not have a considerable impact on larger firms.

As a group, governance violations did not have a significant impact on the financial performance of firms based on the analysis. Violations of governance norms were found to reduce revenue growth by 0.25

percentage points. Within governance violations, corruption and bribery scandals were found to hurt MSMEs disproportionately more than larger firms.

### Methodology adopted in this study

Conventional economic theory emphasises the role of financial performance in explaining loan repayment behaviour. The study expands on this theory with an aim to show the implications of non-financial factors on loan repayment behaviour. In this model, loan repayment behaviour of firms is assumed to be affected by three factors: Financial performance, which is the primary financial risk indicator; Non-financial risks (E, S and G) derived from multiple simulations carried out using Monte Carlo method; and Geographical and sector-wise macroeconomic conditions included in the model using indicators such as the GDP growth rate. The sector in which each firm operates is also assumed to affect loan repayment behaviour of the borrowers.<sup>v</sup> The following is the null hypothesis of this study:

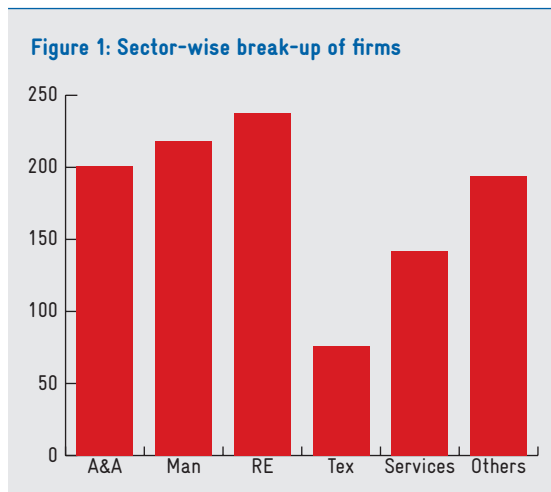
Hypothesis 0 (null hypothesis): Environmental, social and governance risks are irrelevant in explaining loan repayment behaviour of firms

Loan repayment behaviour =  $\alpha + \beta_1 E.risk + \beta_2 S.risk + \beta_3 G.risk + \beta_4 \text{ loan repayment (time lagged)} + \beta_5 \text{ financial risk} + \beta_6 \text{ macroeconomic indicators}$

Loan repayment behaviour (dependent variable) is initially explained using explanatory (independent) variables excluding non-financial risk aspects. The firm's past loan repayment category is used along with its financial risks, which are calculated using the interest rate charged (time-lagged condition). Macroeconomic factors are also included in the model to control for any shift in the macroeconomic indicators, such as GDP, inflation, unemployment and others, which could possibly explain the repayment behaviour. Finally, non-financial risk aspects are included in the model along with the other explanatory variables. The model thus, tries to investigate whether non-financial risks (E, S, and G) have a statistically significant explanatory power in interpreting loan repayment behaviour of firms when factored in with other explanatory variables.

## Data description

A key differentiator for this study is the use of actual bank data for analysis. This section uses descriptive statistics to summarise the data. Loan repayment data was gathered from districts across Maharashtra. These districts are representative of contrasting semi-rural areas and fully-fledged urban cities. This diversity has allowed the study to cover business loans of varied sectors ranging from heavy manufacturing industries to small-scale agricultural loans. There are 1069 firms (across sectors) in the dataset along with their corresponding ESG risk profiles. Of these, 215 firms are classified as standard loans, 207 firms as sub-standard loans and 647 firms as doubtful loans.



Source: author's calculation, based on bank data

## ESG profile of firms categorised under three levels of risks

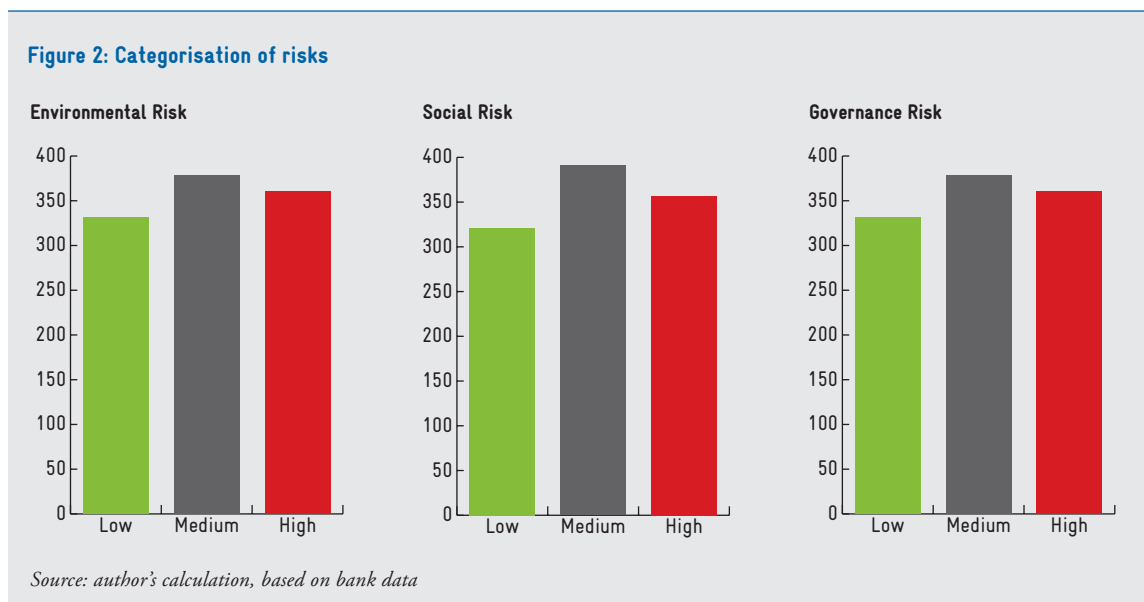
ESG profile of 1069 firms in the data set shows that roughly about 68-70 per cent of firms have a medium and high environmental risk.

When it comes to social risk, ESG profile of firms displays a more balanced distribution ranging from low to high-risk levels. The high incidence of low governance risks firms does not necessarily mean that the firms are doing well in controlling governance related violations. The predominant majority of low-risk firms could also be explained by the nature of violation itself. Generally, such governance violations are difficult to prove in the court of law as it is extremely time-consuming.

## Results

This model allows us to reject the null hypothesis (*'Environmental, social and governance risks do not matter in explaining loan repayment behaviour of firms'*) convincingly. This means that environmental, social and governance risks do play a statistically significant role in explaining why certain firms delay or default on their loans.

With an increase in social risk (from low to medium, or from medium to high), there is an increase in probability for a firm to move from standard to



Source: author's calculation, based on bank data

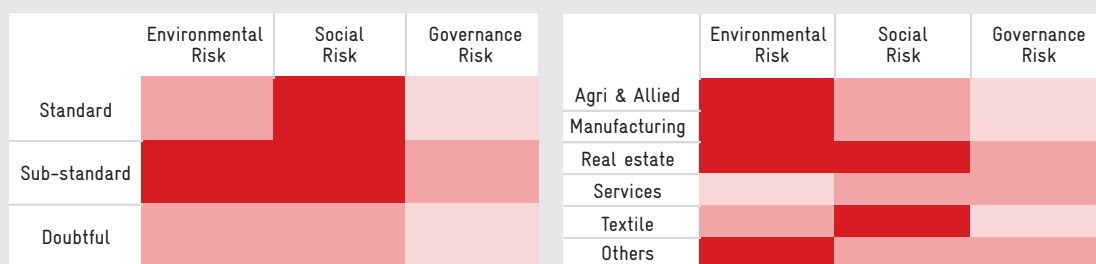
sub-standard category or from sub-standard to the doubtful category. This is a very significant increase of 10 per cent *ceteris paribus*. In the case of environmental risk, this increase is approximately 2 per cent. Whereas the regression analysis indicates that any given governance violation does not essentially have to translate into bad loan performance as the coefficients are statistically insignificant, though there is an indication of the same. Another insightful finding of this model is that a firm already categorised as substandard is hit the most, amongst the three categories as seen in figure 3.

This study demonstrates that sub-standard loans are impacted the most by high levels of environmental and social risks (darker areas in the heat map) as compared to governance risks.

different types of risks reveals that for an increase in social and environment risk from low to medium or medium to high, there is a 10 per cent chance of the firm becoming a loan defaulter. There is a direct positive correlation between increasing social and environment risk and the reduction in loan repayment performance of the firms.

The study does not find any statistically significant result to establish a correlation between governance risk and bad loan performance of firms but the absence of such a correlation is due to the nature of governance risk itself. Unlike social and environment violations, which are relatively easy to observe and prove, governance violations are generally difficult to prove in a legal setting (as it takes years for a case of governance violation to reach its conclusion). Amongst the three categories of loans, empirical

**Figure 3: Heat map of loan categories and sector- wise ESG risk levels**



*\*darker areas represent high levels of risk while the lighter areas show low levels of risk*

This model shows that from among the explanatory variables used, macroeconomic factors do play a statistically significant role in determining the loan repayment behaviour of a firm. There is also a sector-wise difference in the results; where the manufacturing and real-estate sectors are most prone to non-financial risks compared with the other sectors considered for this study, as seen in figure 3.

### Conclusion and recommendations

The study has shown that there is a statistically significant impact of ESG violations on the loan repayment probabilities. Results demonstrate that among the set of firms included in the analysis, firms face high environment and social risks as compared to the governance risks. Those firms that pose high risks have a significant probability of becoming loan defaulters. Regression analysis controlling for the

analysis shows that sub-standard loans are statistically most affected by ESG factors as compared with other loan categories.

Banks that incorporate environmental disclosures of firms to extend lending are highly wary of the enterprises whose disclosures do not match up to the set standards.<sup>vi</sup> There is an increasing concern in the banking world over environmental issues that pose a risk to their loans and the related potential lender liability.<sup>vii</sup> Banks which currently do not integrate ESG norms in lending should consider doing so to improve the risk profile of their portfolios. Conducting an ESG risk assessment with a regular credit appraisal will inform the bank of the severity of risks faced and should result in agreement with the borrower for steps that need to be taken to mitigate the critical risks. Banks can also look to a dynamic



interest rate calculator, which considers the varying ESG risk profile of firms under consideration for the loan. This can incentivize borrowers to improve their ESG standards. It also calls for relationship officers of the banks to be empowered with a tool highlighting potential non-financial risks in the borrower's portfolio. Such a tool at their disposal would better equip such officers in screening for ESG factors and analysing the risks involved. It will result in more responsible and sustainable lending by banks.

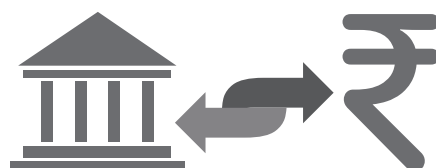
### Limitations of the study

As the data used in this study is limited to the manufacturing-intensive state of Maharashtra alone,

the findings cannot be directly extrapolated to other states. Also, the quantum of data used is limited due to the confidential nature of information, which most banks were reluctant to share. The process of automated risk calculation using Monte Carlo method was cautiously adopted as it is only a predictive tool and there might not be an exact match with the experience of loan officials who interact directly with firms' representatives. Despite the acknowledged limitations, this study can result in a conceivable positive impact in financial lending institutions that are striving to keep a check on the rising number of bad loans. The findings highlight the need to revise lending discretion undertaken by financial institutions.

### About the study

*GIZ India had commissioned this study under the REF project to build evidence from actual bank data about the relationship between ESG practices of clients with the quality of bank loan portfolios. The findings are expected to provide a case for banks to incorporate ESG factors in their credit assessment processes. Sabil Deo, Christian Franz & Rahul Sambathkumar of CPC Analytics, an Indo-German data-driven policy consulting firm have authored this report. CPC Analytics is thankful to the participating banks for providing the data as well as to Prof. Dr. Rajas Parchure, Director, Gokhale Institute of Politics & Economics and Manasi Phadke for an independent peer review and validation of the study.*



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# 8

## Special Section An ESG Risk Assessment Tool-Kit for SME Lending

### Why is ESG relevant to financial institutions?

To ensure global long-term financial stability and economic development, the financial institution sector needs to significantly change its attitudes and actions to promote more responsible and sustainable business practices.

These ESG challenges have particular relevance to banks and other financial institutions (FIs) in relation to their role as financial intermediaries and as capital raising agents. FIs are significant catalysts in promoting economic development. This role needs to include the promotion of sustainable business practices, failing which, FIs will end up facilitating practices that have significant negative environmental and social impacts and will miss opportunities to create new products and services that capitalise on ESG issues. FIs can do this through timely and strategic integration of ESG into

their business practices and processes. All FIs need to understand that incidents relating to negative ESG outcomes caused by their lending, client relationships and advisory decisions can affect them. These incidents may cause reputational and brand damage. In addition, they may potentially have direct financial impacts.

Introducing an ESG “mindset” into an institution and developing an ESG strategy for integration may mitigate these factors. This Toolkit is designed for financial institutions, particularly for those lending to the MSME sector in India, with the objective of incorporating ESG risk and opportunities into their investment decision and investment management. It presents a suitable framework guided by an easy-to-use excel-based Toolkit with explanations and references for better understanding of banking analysts and credit managers who may not be ESG experts. This toolkit can be integrated in existing credit appraisals systems or used in tandem.

#### Box 1: Investment Cycle

The investment process for lending by financial institutions includes:

- Pre investment screening: conducting a risk assessment of the proposed investment
- Due diligence: visiting the company's site to cross check the information provided by it and to ensure compliance with the applicable legal requirements
- Investment decision: making the final decision to go ahead with the investment or to not invest in the company.
- Investment agreement: informing the investee company about its investment decision and the requirements that the investee company has to fulfill in order to continue with loan disbursement
- Investment monitoring: continuous monitoring of the ESG performance of the investee company during the loan cycle
- Exit stage: realisation of the return on investment and closing the investment

## Integration of ESG Issues in the investment cycle

By incorporating ESG criteria, the FI can identify and potentially create opportunities while minimising its risk exposure and develop a more comprehensive approach to risk management (Figure 1). Addressing

An explicit ESG policy can facilitate the interaction between FIs and potential investees in clarifying expectations for both sides. By discussing its ESG policy at an early stage in these interactions, FIs can ensure that the company is willing and able to comply with the expected standards, or to make suitable improvements during the investment

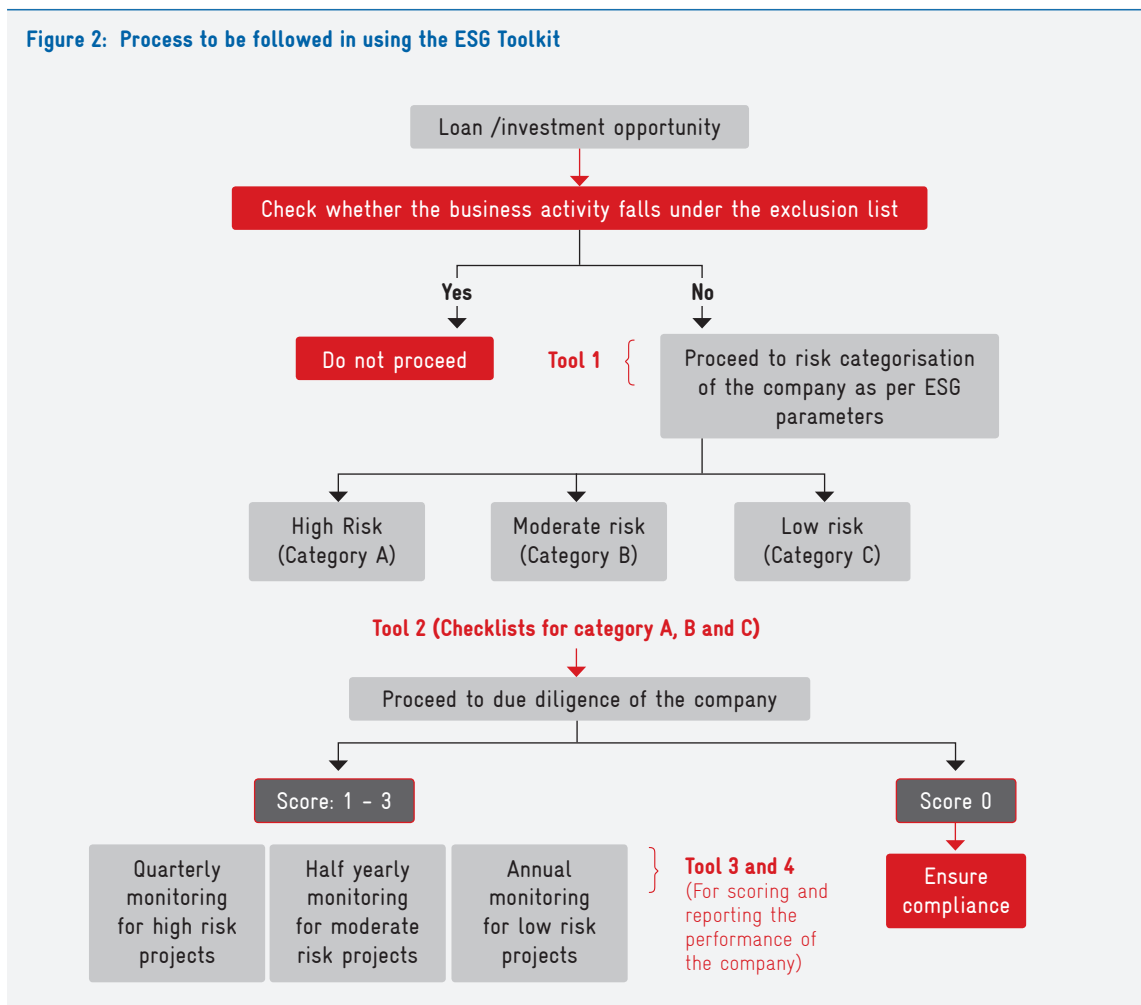
**Figure 1: ESG aspects to be considered in the investment cycle**

<b>1</b> <b>Pre- Investment Screening</b>	<p><b>Exclusion List:</b> At the first stage of pre investment screening, the FI assess whether the proposed investment covers any activities listed in the Exclusion list. If it falls in the exclusion list, the investment gets a 'no-go' from the bank (Refer Tool 1). If it does not fall in the exclusion list, the bank proceeds to the next step of screening.</p> <p><b>Risk Based Categorisation:</b> The second step of initial screening is to categorise the proposed investment into high risk, moderate risk and low risk investments (Refer Tool 1).</p>
<b>2</b> <b>Due Diligence</b>	<p>At the due diligence stage, the FI effectively assesses the ESG performance of the potential investee company and the risks involved. It involves a thorough check of the company's compliance with all relevant laws, regulations and with the international best practices as stipulated in the ESG Framework. (The standard checklist and a sector specific checklist for the identified sectors can be referred in Tool 2).</p>
<b>3</b> <b>Investment Decision</b>	<p>The investment decision will be made by the FI after considering and analysing all the aspects of ESG due diligence and the ESG score from (Refer Tool 3).</p>
<b>4</b> <b>Investment Agreement</b>	<p>During the investment negotiations, the action plan for necessary improvement should be discussed and agreed upon between the FI and the management of the potential investee company. (Refer Tool 4).</p>
<b>5</b> <b>Investment Monitoring</b>	<p>The FI needs to monitor its investment throughout the investment period from the ESG perspective to check the investee company's ESG performance with the standards stipulated in the FI's ESG policy.</p>
<b>6</b> <b>Exit</b>	<p>At the exit stage, the FI realises the return on its investment and closes the investment. It is important for the FI at this stage to present its feedback on the ESG performance of the client and recommend measures for improvement in future.</p>

and potentially lowering or mitigating ESG risks increases a bank's ability to understand the scope and significance of ESG issues and identify areas for improvement.

period. The following sections describe the key tools associated with this ESG Framework and Figure 2 provides an overview of the entire process.

Figure 2: Process to be followed in using the ESG Toolkit



### Tool 1: Pre-investment screening

#### A. Exclusion list

The aim of an initial screening is to decide whether the investment opportunity falls under a “go” or a “no-go” category. An exclusion list defines activities that should not be financed, at least not unless the

credit committee approves a special justification note. A sound exclusion list includes:

- Activities that are regulated or prohibited under international agreements and national laws
- Activities that may give rise to significant environment and/or social problems, or that lead to significantly adverse public reaction

Figure 3: An example of types of business activities that could fall in the exclusion list

Exclusion list	Definition and clarification of the terms used
Production or trade in any product or activity deemed illegal under Indian laws or regulations or international conventions and agreements	
Production or trade in weapons and munitions (Except Indian Government approved projects)	The exclusion applies to businesses majorly engaged in the sale of tobacco, alcoholic beverages or gambling and casinos. This does not apply to project sponsors who are not substantially involved in these activities. “Not substantially involved” means that the activity concerned is ancillary to a project sponsor’s primary operations.
Production or trade in alcoholic beverages	
Production or trade in tobacco	
Gambling, casinos and equivalent enterprises	

## B. Project risk categorisation

This process is a screening mechanism to determine the level of risk based on social, environmental and governance related impacts linked to that investment and to trigger a series of actions that the borrower company needs to take to manage and mitigate those risks.

A Business Information Request List (BIRL) is to be shared by the FI with the potential borrower company as part of the initial screening process. This is to act as a screening mechanism to determine the level of ESG risk and related impacts linked to an investment. On the basis of the BIRL and the parameters defined in the toolkit, each investment will be classified under the ESG categories as High risk, Medium risk and Low risk on its environment-related risks.

Figure 4: Illustration of environmental risk screening

Categories	Description	Classification
Category A	A proposed investment is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse or unprecedented.	Industries identified by Ministry of Environment Forest and Climate Change, Government of India (MoEFCC) as heavily polluting and covered under Central Action Plan, under the 'Red Category'.
Category B	A proposed investment is classified as Category B if its potential adverse impacts on environmentally important areas are less adverse than those of Category A investments but more adverse than Category C investments. These impacts are site-specific; few, if any, of them are irreversible and in most cases mitigating measures can be designed more readily than for Category A investments.	Industries identified by MoEFCC as 'Orange Category'.
Category C	A proposed investment is classified as Category C if it is likely to have minimal or no adverse environmental impacts.	Industries identified by MoEFCC as 'Green Category'.

For environmental risk categorisation, industries are classified into Category A, B or C based on the definitions by the Ministry of Environment, Forest and Climate Change. A similar process is followed for categorisation of Social and Governance Risks. The Toolkit has automated the process of risk categorization. The user need only enter the sector/industry and the risk categories will automatically be displayed.

## Tool 2: ESG due diligence

Financial Institutions (FIs) would need to conduct a due diligence on the company to evaluate their performance on Environmental, Social and Governance parameters. This may be carried out after the risk categorisation stage. The ESG Due Diligence tool (Tool 2) will automatically open the relevant checklists based on risk categorisation in Tool 1. The 3 risk categories are:

- **Category A (High Risk):** The investment is likely to have significant adverse ESG impacts that are sensitive, diverse or unprecedented.
- **Category B (Medium Risk):** The investment may result in specific ESG impacts, but these impacts are site specific and few, if any, of them are irreversible.
- **Category C:** The investment is likely to have minimal or no adverse ESG impacts.

Figure 5 is an example of a due diligence checklist. The excel toolkit has sector agnostic checklists based on risk categories as well as customised checklists for certain sectors. The tool also provides a list of compliances for reference of the bank analyst.

**Figure 5: Sample checklist**

Company name: \_\_\_\_\_ Company Address: \_\_\_\_\_  
 Date of visit: \_\_\_\_\_  
 Industry Sector: \_\_\_\_\_ Brief project description: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_  
 Reviewed by: \_\_\_\_\_  
 Signature: \_\_\_\_\_  
 Additional technical assessment involved :  Yes  No  
 If yes, please detail .....

S. No.	Questions	Yes/No	Not applicable	Validity		Comments
Environment						
				From	To	
1	Does the company comply with all relevant local environmental laws, standards and regulations?					
1.1 Pollution abatement and testing						
1.1.1						
1.1.2						
1.2 Greenhouse gas emissions reduction						
1.2.1						
1.3 Environment Policy						
1.3.1						
1.3.2						
Social						
1	Does the company have all applicable social compliances (such as labour and human rights) in place?					
1.1 Social Policy						
1.1.1						
1.1.2						
1.2 Grievance Redressal						
1.2.1						
1.2.2						
1.3 Emergency Plans						
1.3.1						
1.3.2						
1.4 Health and safety policy and training						
1.4.1						
1.4.2						

Governance						
1.1 Promote a fair and transparent way of doing business						
1.1.1						
1.1.2						
1.2 Ensure good governance practices at the company						
1.2.1						
1.2.2						
1.3 Ensure adequate internal checks for managing risks						
1.3.1						
1.3.2						

### Tool 3: Scoring system

The scoring system objectively grades ESG performance of the company. It automatically picks most of the information required from Tool 2. The resultant score rates a company on E, S & G individually and also gives a consolidated score on a scale of 0 to 3 as depicted in Table 1.

**Table 1: ESG scoring system**

Parameters	Rating Scale			
Environment	0	1	2	3
Social	0	1	2	3
Governance	0	1	2	3

*Note: 0=unsatisfactory; 1= satisfactory; 2= very good; 3 = Excellent.*

A rating of 0 indicates incomplete or no compliance with the applicable local laws and regulations, and hence points to an ESG risk and potential adverse impact of very high magnitude. A rating 1 would ideally be obtained by a company which is taking up ESG initiatives, but only to meet regulatory

requirements. Ratings 2 and 3 represent a company which has taken ESG measures beyond compliance, and reflect a sound commitment of the company towards their environmental, social and governance performance.

The methodology for the estimation of the scores is as follows: An average score of the applicable sub-parameters is to be taken. For example, Table 2 depicts the scores obtained by a company under the sub-parameters of Environment.

Scoring would need to be similarly carried out for Social and Governance parameters.

This tool will highlight specific areas where the company is weak or strong and has to be used in conjunction with Tool 2 on ESG due diligence to comprehend the reasons especially for the weak areas. An average score of the applicable parameters would be taken for a composite ESG score, after calculating the scores under each of the sub-parameters.

**Table 2: Environment score**

Environment	
Register of regulations	2
Pollution abatement and testing	3
Resource efficiency	3
Greenhouse gas emissions reduction	3
Environment policy	2
Certification of environment management system	1
Disclosure and reporting	2
Environment Management Plan (EMP)	2
Composite score for Environment	2.25 (2+3+3+3+2+1+2+2)/8



**Table 3: ESG composite score**

Environment	2.25
Social	2
Governance	2
Overall score obtained	$2.08 = 2 * (2.25+2+2)/3$

*\*The score is to be rounded to the nearest decimal*

### Tool 4: Monitoring and reporting formats

An essential component of investment management for FIs is to monitor and report the performance of their investee companies. It is critical to ensure that the ESG requirements laid out at the time of investment are being met with by the investee company, post-investment. This tool supports the process of monitoring, recording and managing the ESG performance of the investee company with appropriate formats and illustrations.

This tool supplements Tool 3 (rating and assessment process) to quantify and evaluate the ESG performance of an investee company, by providing the reporting formats. A common format for all clients would provide uniformity to the evaluation process. It would thereby help compare performances of various companies in a bank's portfolio as well as track performance of a company over time.

Investment is monitored from an ESG perspective to:

- Check the investee company's on-going compliance with the applicable laws, standards and regulations relating to ESG matters;
- Ensure timely implementation of action plans for ESG improvements;
- Encourage companies to work towards continuous improvement;
- Ensure that any new risks, issues or opportunities for improvement that may emerge are dealt with in an appropriate manner;

- Monitor and record serious incidents that result in loss of life, serious injury, material effect on the environment, or material breach of law, and promote appropriate corrective actions;
- Record and report key performance indicators to investors and the general public; and
- Review the company's strategy in the light of changes, e.g. in regulation, markets etc. over the investment period.

### Audit report

The key ESG findings and gaps need to be assessed through both, a documentation review and an on-site assessment of the investee company. An audit report would be prepared to evaluate if all aspects of the project are in accordance with the ESG Framework, or whether any other gaps or issues need to be managed during the project's life cycle.

The findings of the due diligence stage would be utilised to develop a mitigation plan for the investee company describing the extent of improvement required in order to avail loans and facilities from the FI.

Depending on the corrective action required, it is important to ensure that the given implementation timeframe and budget are appropriate. The major elements of the table are as follows:

- Key gaps identified;
- Rating provided (as per Tool 3);
- Mitigation actions or recommendations;
- Responsibility (of Investee or Associate Party or Contractor);
- Deadline for completion and implementation of the corrective actions;
- Budget for corrective actions

Table 4 is an indicative sample reporting format that can be adopted by FIs to assess the compliance status of the investee and projects.

**Table 4: Sample reporting format**

Name of Investee company

Project Risk Category

Date Of Investment(s)

Date of Assessment

S. N	Requirements as per the Framework	Key Gaps	Rating	Mitigation Action	Responsibility	Implementation Deadline	Budget
<b>Environmental Parameters (E)</b>							
1.	Environment Management Systems (EMS)						
1.1							
1.2							
1.3							
2.	Compliance, Pollution Prevention and Resource Efficiency						
2.1							
2.2							
2.3							
3.	Greenhouse Gases (GHG) Emissions Management						
<b>Additional Remarks</b>							
<b>Social Parameters (S)</b>							
1.	Working Conditions						
1.1							
1.2							
1.3							
2.	Social Impacts & Resettlement						
2.1							
2.2							
2.3							
3.	Health & Safety						
3.1							
3.2							
3.3							
<b>Additional Remarks</b>							
<b>Governance (G)</b>							
1.	Commitment to good Corporate Governance						
2.	Control Environment and Process						
3.	Transparency and Disclosure						
<b>Additional Remarks</b>							
Name of Assessor:					Signature:		

## Report for potential opportunities

In addition to the audit report, an ESG opportunity report can be prepared. It would list the scope of opportunities for improvement in the investee company's ESG performance. These could include factors such as energy efficiency, reduction in resource (water and raw material) use, technical up-gradation, etc.

**Figure 6: Sample format for preparing potential opportunities for positive impacts**

Potential opportunities	
Measures recommended	
Review period	
Timeframe for implementation	
Support required from FI	
Financial implication	
ESG impact	

## Monitoring and frequency of reporting

The frequency of monitoring and reporting depends on the ESG rating of the company. The progress on ESG performance can be monitored as follows:

- Quarterly monitoring and reporting of high risk (Category A) projects
- Half-yearly monitoring and reporting of moderate risk (Category B) projects
- Annual monitoring and reporting of low risk (Category C) projects

However, there may be specific issues that warrant an immediate site visit, notably after the occurrence of a serious incident.

The due diligence and scoring process would lead to identification of gaps against the ESG requirements. With Tool 4, a time-bound action plan that outlines the measures which the company needs to undertake in order to avail the loan from the FI should be agreed with the borrower. Post loan disbursement, regular interactive progress reviews should be undertaken to discuss and resolve any shortcomings in planned actions.

## About this toolkit

*The Toolkit has been designed by KPMG in consultation with a group of public and private sector Banks in India and GIZ. For the complete Toolkit, go to: <http://www.dwih.in/content/giz-india-launches-esg-toolkit-banks-and-financial-institutions> and <https://www.giz.de/en/worldwide/45180.html>*



# 9

## Special Section Enabling Finance for Solar Rooftop Photovoltaic (RTPV) Projects in SME Clusters

India has set up an ambitious target of 100GW of solar power installation by 2022, out of which 40GW will be contributed by rooftop solar power projects. Small and Medium Scale Enterprises (SMEs) are envisaged to contribute as much as 30-40 per cent of this ambitious target. The SME sector reflects a huge opportunity to benefit under this programme by partially replacing its costly grid dependence with rooftop PV systems, since it faces several problems in accessing reliable and cost-effective supply of electricity<sup>1</sup>.

However, despite a compelling business case, the potential for solar rooftop projects in the SME sector is not being tapped effectively. The reasons for this being a low priority include low awareness among SMEs and bankers about solar rooftop projects and the associated benefits; lack of suitable lending products for solar rooftop projects; and low capacity of SMEs and bankers to assess technical performance of such systems.

GIZ's Responsible Enterprise Finance Programme (REF), with its mandate to support increase of sustainable financing, has focused on SMEs, industry associations and bankers to increase deployment of

solar rooftop projects. Figure 1 captures the focus of GIZ activities, in context of the lacunae mentioned above.

### Business case demonstration for SMEs and banks

GIZ designed a study to assess the potential of lending to rooftop PV (RTPV) projects for SMEs and measures to encourage lenders to tap the huge investment opportunity in this segment. PwC conducted surveys in three identified SME clusters in Aurangabad, Gurgaon and Bhiwadi to identify possibly feasible rooftops and forecasted these clusters' demand potential. Figure 2 indicates the assessed potential and potential loan portfolios in these clusters.

The clusters were selected based on the following criteria:

- High solar resource availability
- Conducive and functional government policies for solar rooftop/MSME policies
- High industrial electricity tariffs, making solar a viable proposition

Figure 1: GIZ REF action areas for promotion of solar RTPV among SMEs

Establishing the business case for SMEs and Banks	<ul style="list-style-type: none"> <li>• Estimate installation potential in selected clusters based on assessment of representative units</li> <li>• Determine a potential loan portfolio for banks based on technical potential and interest from units</li> </ul>
Documenting case studies of successful installations	<ul style="list-style-type: none"> <li>• Document details of at least 5 installations in the Delhi-NCR region preferably in the SME sector to showcase benefits of solar rooftop projects</li> </ul>
Facilitating funding for interested SME units	<ul style="list-style-type: none"> <li>• Support pilot installations in proactive units through assessment, preparation of DPRs, and building capacities of banks to evaluate such proposals</li> </ul>

<sup>1</sup> Grid supply by local distribution licensees is unreliable and the increasing cost of diesel is squeezing SMEs' profit margins. The levelised cost of energy from solar is between INR 5-6 per unit

- Adequate number of units in the cluster for undertaking projects

Among the surveyed clusters, the case for Gurgaon (textile/garments) was very strong due to suitability of roof types and sizes, though the highest potential capacity was found in Aurangabad<sup>2</sup>.

outcome in terms of electricity generation and the consequent savings.

SMEs generally consume more electricity than typical residential or commercial consumers, hence the likelihood of their feeding excess energy into the grid is nearly negligible. In all the surveyed installations with one exception where the PV system

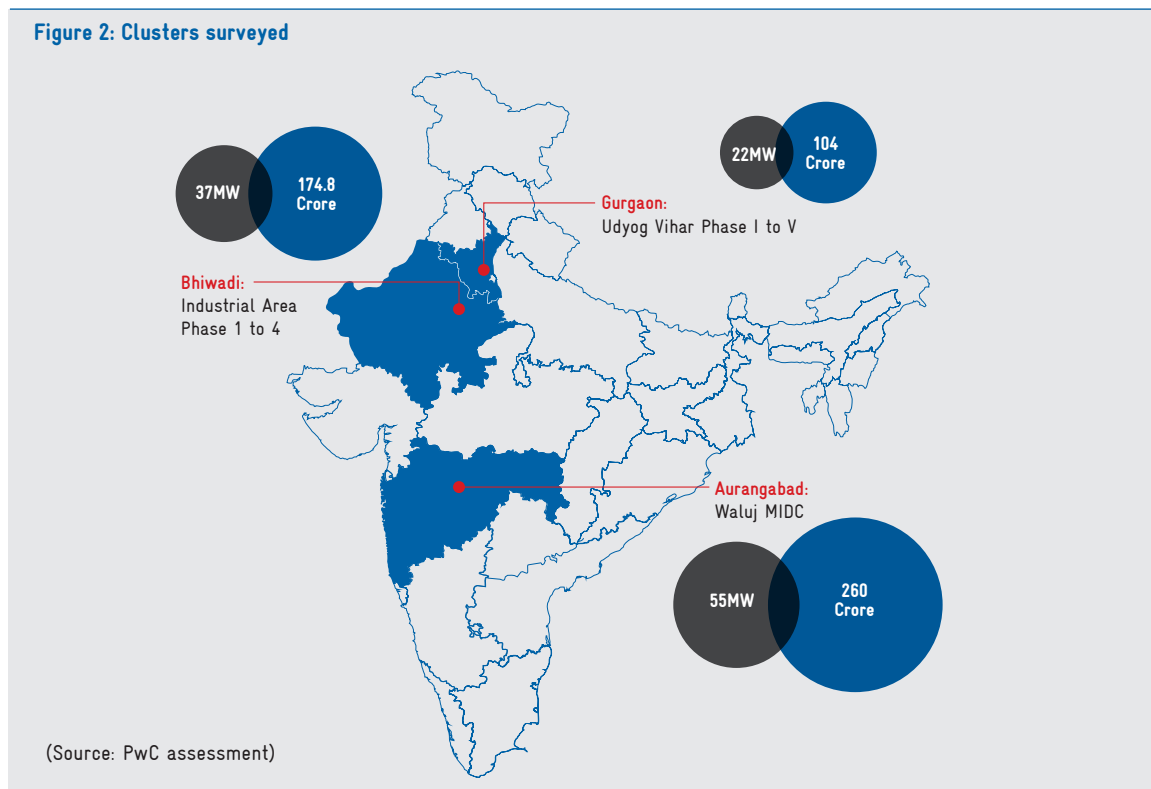


Table 1 indicates the main drivers and barriers for adoption of solar RTPV among SME clusters that were surveyed. Financing was identified to be one of the major barriers in large scale installation of rooftop solar PV in the sector. The broad aim of the assignment was to enable financing for solar rooftop projects in identified SME clusters.

A few case studies<sup>3</sup> of Solar RTPV solutions in the Delhi NCR area were documented with a focus on questions such as: what motivated the companies to set up the system; how was the EPC/system selection done; how was the system financed; and what is the

contributed 50 per cent of the connected load, the solar PV systems contributed around 10-20 per cent of connected loads<sup>4</sup>. In such a scenario, a net-metering<sup>5</sup> based system is most suitable. Moreover, most states have defined their net metering policies.

Based on the ownership pattern, two types of net-metering arrangement are possible. In the RESCO (Renewable Energy Service Company) model, the RESCO<sup>6</sup> owns the PV system installed on the rooftop of the consumer. The electricity generated from the project is consumed by the rooftop owner (consumer) at a mutually agreed tariff as per the

<sup>2</sup> The key technical findings of the study are listed in an annexure at the end of this article.

<sup>3</sup> SME units were preferred, though some cases of commercial establishments and government institutions were also captured. These cases cover grid-connected solar roof top systems set up for captive consumption, some of which are net metered. Further, they are a mix of self-owned and Renewable Energy Service Company (RESCO) models.

<sup>4</sup> An analysis of the daily generation data (per kw) shows that most of the systems generated close or above the standard daily output of ~ 4 units (per kw) thus testifying to proven technology and high standards of installations.

**Table 1: Drivers and barriers for adoption of solar RTPV among SME clusters**

Drivers	Barriers
<ul style="list-style-type: none"> <li>• High electricity tariffs</li> <li>• Irregular power supply</li> <li>• Reliance on costly and unclean diesel</li> <li>• Declining costs of solar PV</li> <li>• Clean and simple solar PV technology</li> <li>• Accelerated Depreciation and tax holidays</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of experience in techno-economical evaluation and financing of RTPV projects for SME sector</li> <li>• Lack of loan products for financing RTPV projects</li> <li>• Low awareness of existing and upcoming lending products in the market</li> <li>• Selecting reliable EPC players</li> <li>• Low priority given to RTPV projects by SME units</li> <li>• While the SME sector needs smaller projects, the focus of independent installers is on the larger projects</li> <li>• Lack of knowledge and experience of regulatory aspects of net metering frameworks of the state</li> <li>• SMEs still lack awareness on benefits of using solar PV technology and base their decisions purely on immediate cost considerations. Industry associations can play a stronger role in creating awareness and identifying cluster champions for solarisation.</li> <li>• SMEs lack information to make an informed decision while choosing a reliable system installer (EPC). They need a checklist to identify the right EPCs or a rating mechanism for the EPCs</li> </ul>

Power Purchase Agreement (PPA) signed between the consumer and the RESCO. In the self-owned model, the rooftop owner installs a solar PV plant through an EPC (Engineering Procurement Construction) mode and continues to own the system while operations and maintenance (O&M) may be outsourced. The rooftop owner contributes own equity, arranges the loan for the project and also avails benefits of accelerated depreciation.

Analysis of the financial parameters shows that the economics is quite favourable for SMEs. In case the company opts for the RESCO model, there is no capital investment and immediate benefits accrue on account of lower tariff paid for solar units. For investment in self-owned solar rooftop systems, the paybacks are between 6-7 years on average and could be even lower with the benefit of accelerated depreciation. Given that paybacks are mostly less than 7 years and system life is around 25 years, this translates into significant savings for SMEs especially in light of rising tariff costs that are paid to utilities.

However, collateral requirement for raising loans is a problem. SMEs, already challenged in having to offer collaterals for core investments, are unwilling

to do the same for solar rooftop systems. There is need to explore how financing of these systems could be partially asset-backed with the short-term risk covered through guarantees such as Credit Guarantee fund Trust for Micro and Small Enterprises (CGTMSE) and Letters of Credit. The asset-backed financing aspect could consider redeployment of major equipment such as the PV module and inverter against the repayment amount applicable each year. This is an unexplored aspect that needs to be developed.

While establishing a strong, viable business case for SMEs and bankers, the survey also identified factors that would help promote solar RTPV in the sector. First, though solar RTPV has begun to gain traction in India, there is need to build awareness about this technology among SMEs and also among financial institutions for them to understand the challenges involved in the RTPV technology implementation and maintenance. Second, industry associations have a strong role to realise economies of scale (leading to better terms for SMEs to procure and install solar rooftop systems) and a strong pipeline of bankable units for FIs to lend to.

<sup>5</sup> Net-metering is the arrangement under which power generated is first consumed internally and the excess energy, if any, is fed to the grid that can be commercially settled with the distribution utility based on local net-metering regulation.

<sup>6</sup> RESCO also takes care of EPC and O&M

## Broad strategy adopted

- Getting a few projects off the ground and documenting these as case studies to demonstrate the feasibility of solar RTPV for the SME sector would encourage more units to adopt the solution.
- At present, financing for solar rooftop projects in the SME sector is very limited and there is not much experience with banks to draw upon. Hence, it is may be premature to explore purely asset-based lending for these projects. A prudent approach would be to start with existing financially strong clients with significant project exposure with the banks to whom loans can be extended on existing security.
- Working with industry associations and banks for identification and aggregation of smaller projects across several units will help to realise economies of scale and rapid installations.

**Table 2: Stakeholder engagement and methodology**

Stakeholders	Approach for promoting adoption
<ul style="list-style-type: none"> <li>• SME Units</li> <li>• Industry Associations</li> <li>• Banks (with active engagement of SBI &amp; SIDBI)*</li> <li>• EPC Players</li> </ul> <p>* Include loan officers, bank managers, executives relationship managers &amp; branch officials</p>	<ul style="list-style-type: none"> <li>• Identification of units</li> <li>• Techno-financial evaluation</li> <li>• Matchmaking and awareness workshops</li> <li>• Proposal preparation</li> <li>• Training for bankers</li> <li>• Selection of EPC players</li> </ul>

## Lessons learnt

- There is a significant gap in awareness of RTPV basics, RTPV lending and related products at bank branch level.
- Formal classroom training for bankers needs to be supported with on-the-job training and case studies to build confidence
- Most banks do not have a proper appraisal process to evaluate RTPV projects. The existing appraisal process observed in a few banks is too complex for such low-capacity projects.

- There is a lack of RTPV-specific lending products for SMEs in market. The existing products also need to address issues such as minimum system size, asset financing for existing customers and project exposure to become viable for a larger pool of unit owners. Even when lending products exist, there is very low awareness among these banks' own branch personnel, SMEs and EPC players.
- There is a need to standardise RTPV installations packages with vendor empanelment activity to improve proposal evaluation and confidence of banks.
- Majority of unit owners are more interested in the capex model, than a third party owned RESCO model. However, technical knowhow to operate these projects seem to be lacking.
- Associations can play an important role in mobilisation of general interest for RTPV installation in the cluster.
- Due to proliferation of various new and inexperienced installers for RTPV installation, the solutions being provided are technically below par and consider aggressive numbers for system output, which dampens the overall confidence in technology
- High Monthly Minimum Charges (MMC) can negatively impact the viability of RTPV installation, especially in case of seasonal load variation

## Way forward

- Large scale training programmes for branch level officials on RTPV evaluation and streamlining the appraisal process to improve assessment.
- Aggregation of small projects across several units and collective procurement on association level to realise economies of scale.
- Strengthening of technical cells of sector associations for RTPV evaluation will also help in improving the quality of overall installation.
- Matchmaking workshops for installers and bankers would facilitate discussions on banks' requirements, financial products, mitigation of technical risks etc. EPC installers can also be



a source of identifying bankable proposals for RTPV projects.

- Innovative models such as assured system buyback by installer in case of payment default by unit owner in case of full/partial asset financing and provision of scope of efficient re-use of RTPV systems
- Capacity building of DISCOM officials for RTPV installation under the net metering framework
- Targeting financially strong units for RTPV lending in each cluster on priority basis so as to demonstrate the feasibility and encourage installation of RTPV projects.
- Policy level initiatives such as reduction in MMC charges, waiver of electricity duties and other charges for RTPV systems can positively enhance installation in industrial clusters

## Annexure

Key technical findings of the survey

- Net-metering would be a more suited mechanism as the connected load was much higher than assessed potential for RTPV (roof top solar PV) at most sites (average ratio of RTPV potential/connected load was ~16 per cent for the three clusters). Self-owned systems would have more receptiveness than the Renewable Energy Service Company (RESCO) mode because more than half the players (especially in Aurangabad and Gurgaon) have taxable income and can avail Accelerated Depreciation (AD) benefit provided to solar PV system owners.
- Since net-metering is the suitable mechanism, payment risk from power distribution company should not be considered as there will be minimal commercial adjustments between RTPV owner and power distribution company (average ratio of electricity generated from RTPV system/overall electricity consumed is ~ 24 per cent for 3 clusters)
- Textile (garment) industry has the highest share of shadow free area to overall plot area because of mostly Reinforced Concrete Cement (RCC) roofs. On this backdrop, it is recommended that policy makers evaluate the option of providing R-TUF incentives of economical lending to solar rooftop PV systems.
- A simple project payback period for investments in RTPV with 2 per cent increase in retail tariff is around 5-6 years.
- Debt Service Coverage Ratio (DSCR) risk is low in all cases (an average of 1.40 for 3 clusters) because decent savings can be achieved<sup>7</sup>. Moreover, in case an SME player is eligible to avail AD benefit, there is no risk of DSCR. Since DSCR risk (<1) exists only for first 2-3 years, beyond this initial period, RTPV can be considered as an asset to cover any default risk for remaining tenor of loan
- CGTMSE guarantee can be availed by the lenders for the tenor of low DSCR and the SME, in turn, can pay the applicable one time guarantee fee equivalent to 1.5 per cent of the loan amount and subsequent annual fee of 0.75 per cent of the loan amount during the risk period of 2-3 years.
- It is also recommended that the operation and maintenance contract or Annual Maintenance Contract (AMC) between the equipment supplier and SME player should be for a period equivalent to loan tenor. This contract can be assigned to the system installer so as to avoid any technical risk of the installed system. This is to mitigate the risk of lenders against nascent skill of SME players in maintaining the RTPV systems under the self-owned model<sup>8</sup>.

<sup>7</sup> Energy charges were INR 6.9/kwh, INR 7.96/kwh and INR 7.09/kwh respectively for Bhiwadi, Gurgaon and Aurangabad at the time of the survey

*This article draws from experiences of several interventions of GIZ's Responsible Enterprise Finance (REF) Project. This project is part of the SIDBI-GIZ cooperation supported by the German Federal Ministry for Economic Cooperation and Development (BMZ) aimed at strengthening the environment for a more responsible and sustainable financial system. The focus of REF is to facilitate wide scale dissemination of good practices, undertake advocacy and capacity building for the integration of such practices by financial institutions, facilitate additional capital flows for sustainability-oriented investments and engage in evidence-based and stakeholder-led policy dialogues. Driven by a multi-stakeholder approach, the programme has engaged with public and private sector banks, investors, credit rating agencies, the SME Exchange, industry associations, international and bilateral development agencies, experts and thought leaders.*

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8 This suggestion was provided by officials from various FIs

# 10

## Special Section Transitioning to the National Voluntary Guidelines on Responsible Finance

### Introduction

Over the past decade, environmental and social standards have become a mainstream risk-management concern for financial institutions in developed countries. They have also garnered significant interest in emerging markets such as Brazil, South Africa, China and India. Across a range of financial products and services—from project and export finance to corporate loans, private equity and institutional investments—the impact of sustainability benchmarks is becoming increasingly apparent.<sup>1</sup>

The management of external environmental and social risk factors, such as the guarantee of a sustainable energy supply, or a skilled and motivated workforce, is now considered important to achieving long-term success and contributes towards business goals. Companies have demonstrated that if these non-financial factors and their impacts are managed effectively, they can confer clear benefits in terms of risk management, cost and efficiency savings, brand management and innovation opportunities.

Responsible financial systems can contribute to the goal of sustainable economic development by promoting business innovation and strengthening responsible business behaviour. Businesses need access to capital, credit or equity to expand and grow. By incorporating suitable incentives through non-financial parameters, the financial sector can act as an ‘instigator’ of responsible business practices.

Indian FIs are still in the nascent stages of integrating ESG factors into their lending and investment

decisions. While a few have made public commitments and have developed internal policies, there is little detailing how ESG issues are woven into practices and processes, and little disclosure on ESG performance.

ESG integration would actually help FIs achieve a stable balance between risks and sustainable profits, while opening up new avenues for growth, as the most significant E&S impacts for FIs arise within their lending and investment portfolios. FIs have the unique opportunity to influence a broad range of sectors to integrate E&S considerations (beyond minimum compliance), through stipulations in their terms of lending.

### Disclosure requirements in India

India’s National Voluntary Guidelines on Social, Environmental and Economic Responsibilities of Business (NVGs, 2011) and Business Responsibility Reporting (BRR, SEBI 2012), two initiatives backed by GIZ, and other national and international developments, have evolved towards a project on Responsible Enterprise Finance in partnership with SIDBI, which works on integrating sustainability in the decision making, operations, lending and investment of financial institutions. As part of this initiative, the project has together with the Indian Banks Association, helped develop the National Voluntary Guidelines for Responsible Financing (NVGRF). Meanwhile, SEBI has also increased the coverage for mandatory reporting of BRR to 500 companies which came into effect from the FY 2016-17 reporting cycle.

<sup>1</sup> Furthermore, multilateral financial institutions such as the World Bank, International Finance Corporation (IFC) and Asian Development Bank, amongst others, have integrated Environmental, Social and Governance (ESG) safeguards through operational policies and practices in their investment strategies, seeking to avoid, minimise, or mitigate adverse environmental and social impacts, including protecting the rights of those likely to be affected or marginalised by the development process.

The current requirements of BRR are generic ESG requirements and may limit communication by financial institutions (FIs). Consultations with the financial sector in India led to the development of the NVGRF principles under the convenorship of the Indian Banks' Association in 2015. These are positive steps towards encouraging FIs to disclose information focusing on material aspects of their business. For the widespread adoption of the NVGs for Responsible Financing, a mapping of the FIs that have been filing BRRs for the last three cycles, with NVGs for Responsible Financing and their reporting requirements is expected to help improve such FIs' disclosures.

The NVGRF issued by the Indian Banks' Association offer a blueprint for integrating sustainability in the core business of FIs. The initiative supported by the bilateral cooperation project between GIZ and SIDBI built upon the global norms, Indian regulatory and voluntary frameworks and good market practices to develop the guidelines through a consultative process. These guidelines are a voluntary instrument and provide an integrated approach to understanding and implementing ESG through a systematic step-wise process catering specifically to the financial sector.

Banks have expressed the need for understanding the differences and similarities between the IBA guidelines and the ESG reporting currently required by the SEBI under BRR. The IBA guidelines include communication and disclosure to stakeholders as a principle of responsible finance. Analysis of what banks report on ESG, mandatorily under SEBI BRRs or voluntarily, under the GRI format, shows that there is a gap between implementation and disclosures.

### **Mapping linkages between NVGRF, SEBI-BRR and GRI G4**

This study sought to map the linkages with regard to the intent and disclosure requirements of NVG-SEBI-BRR and GRI G4 to those contained

in NVGRF. It serves as a ready reckoner for the reporting institutions as well as the regulators. FIs will find the principles more directly relatable and the communication parameters more granular and dynamic. This requirement has often been expressed by FIs as a means to improve ESG implementation and attract investors while proactively engaging with a wider set of stakeholders proactively.

The disclosure requirements under the NVGRF are far more pronounced and detailed as compared with those under the BRR framework. There is greater focus on systems, processes and performance. The intention is also to create a robust governance system involving direct involvement of company Boards in providing oversight to the E&S risk management practices. The NVGRF also lays equal importance on opportunities.

Our analysis shows that the requirements under NVGRF and Global Reporting Initiative's (GRI) G4 guidelines and the financial sector guidance are more or less aligned. Therefore, financial institutions which have an understanding of the GRI G4 reporting framework, will find it easier to adopt the NVGRF.

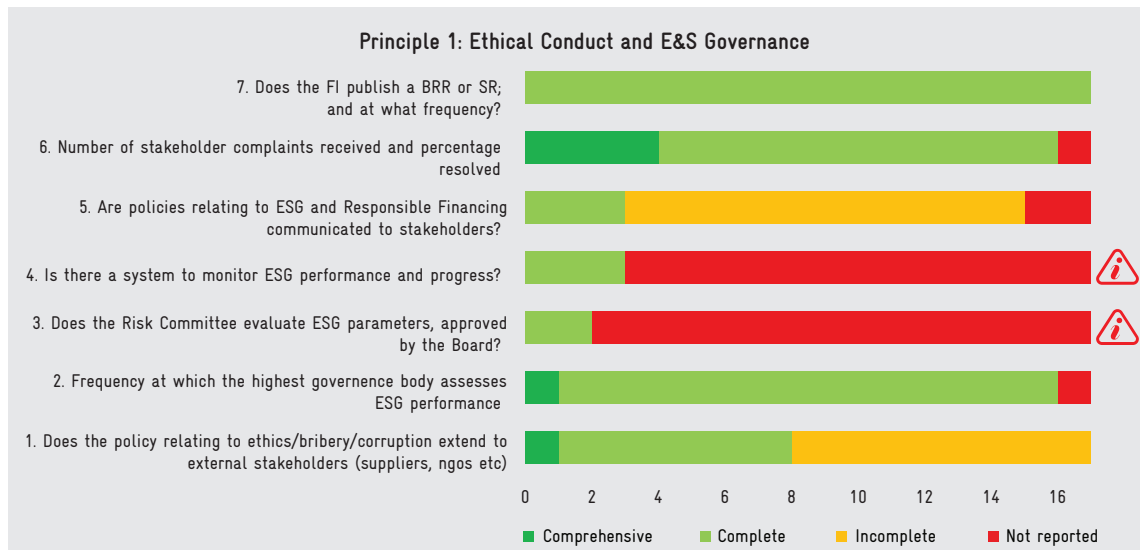
After the SEBI circular of August 2012, the top 100 listed companies on NSE and BSE started reporting on the BRR framework as part of their annual reports. SEBI's November 2015 circular extended the coverage of companies required to issue BRRs to top 500 listed companies. The 17 banks in the top 100 listed category published BRRs in 2015-16 while 39 banks in the top 500 category would publish their first BRRs for FY 2016-17.

The study looked at the existing disclosures by banks to ascertain how well they have been already reporting on the new requirements as part of their BRR disclosures. It looked at 17 listed banks (top 100) with published BRRs in 2015-16, and assessed their disclosures against the NVGRF disclosure requirements.

## The current state of disclosures: snapshot of findings from the NVGRF readiness check

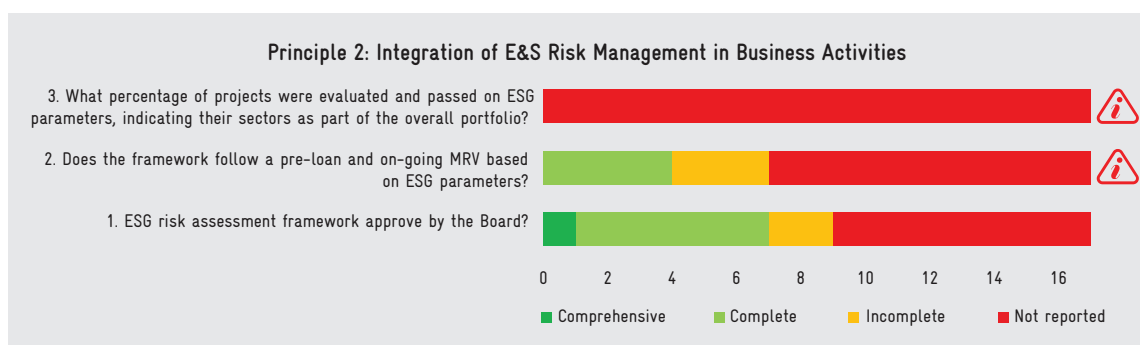
### Principle 1: Ethical conduct and E&S governance

- While compliance, ethics, anti-corruption and grievance redressal mechanisms for stakeholders are adequately addressed through institutional arrangements within most banks, E&S performance remains an outlier.
- Public sector banks do not disclose specific information on whether E&S aspects are effectively integrated into their risk management practices or monitored to improve performance.



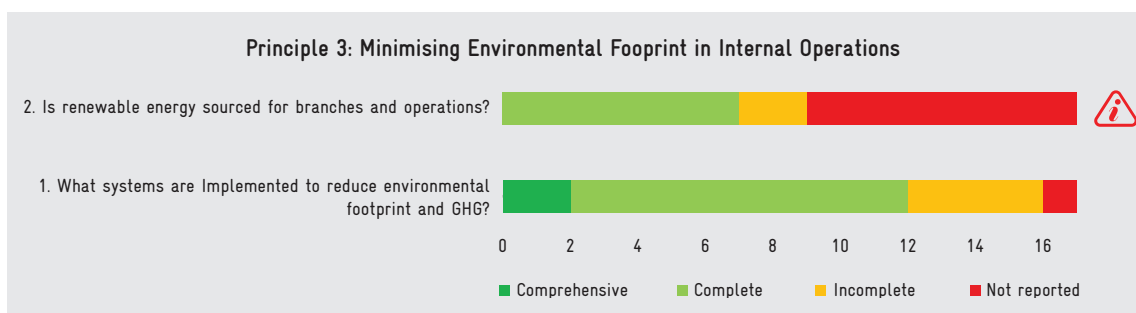
### Principle 2: Integration of E&S risk management in business activities

- While some banks have reported having integrated ESG into their lending policy in their BRRs, they have not provided sufficient details to explain their scope and boundary. At the same time, there are sustainability leaders in the banking sector with clearly-defined E&S policies that are available publically (although not necessarily disclosed in BRRs).
- Banks that have a Board-approved E&S Policy and have integrated ESG frameworks to manage their lending portfolios, do not provide specific details on implementation and monitoring.
- The current version of the BRR does not specifically require banks to report on their lending activities. None of the banks reported the results of their assessment of lending projects in terms of ESG performance. Banks have not disclosed the percentage and sectors of projects that are screened on ESG parameters as part of their overall portfolio.



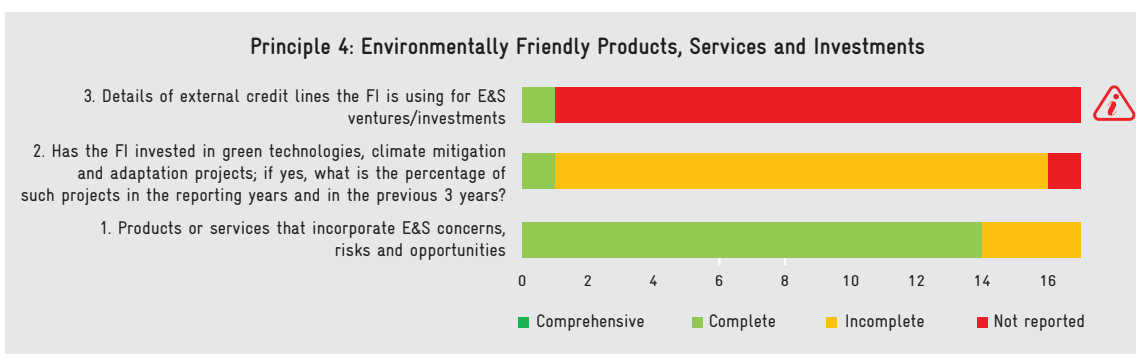
### Principle 3: Minimising environmental footprint in internal operations

- Though the environmental footprint arising from the operations of FIs is negligible, most have disclosed measures to address the impacts of their resource consumption—mainly energy, paper and transportation, which are responsible for their indirect emissions. Few (private sector) banks have also implemented systems to measure and analyse their environmental footprint and have also reported their emissions to the Carbon Disclosure Project (CDP). Most public sector banks are yet to implement systems to track, measure and systematically manage their resource footprints.
- Banks are beginning to explore renewable energy solutions for their operations, in the form of rooftop solar panels for their large office buildings, solar-powered ATMs and multi-channel delivery kiosks in rural areas where power outages are frequent.
- All banks are implementing GoI/RBI recommendations and guidelines on ‘Green Banking’ to a large extent—specifically aspects covering digital banking and paperless transactions; eg. electronic payments, core banking solutions, centralised payments systems, video conferencing and mobile banking.



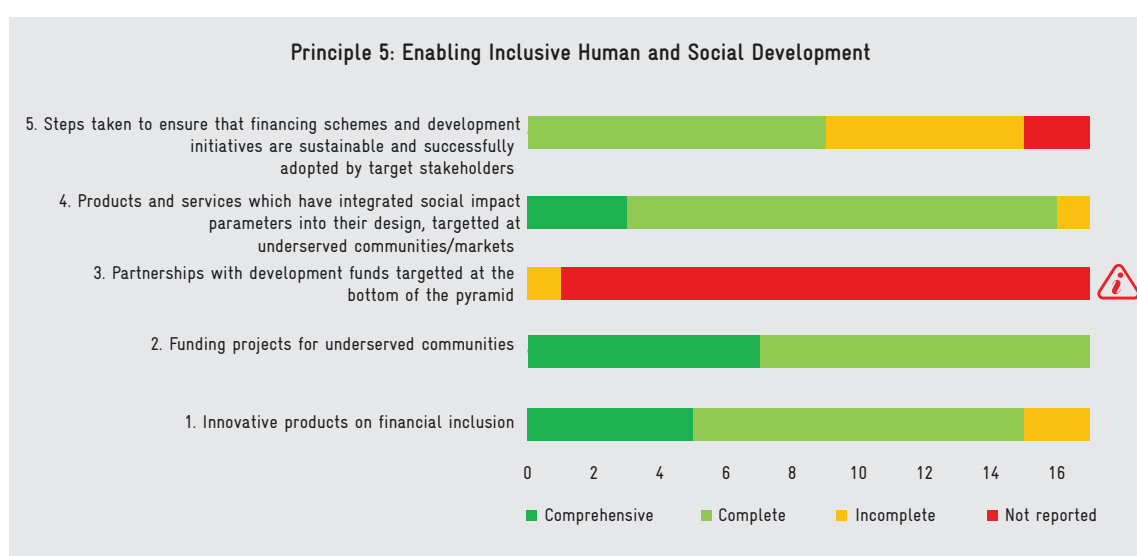
### Principle 4: Environmentally friendly products, services and investments

- BRR disclosures have been made on investments towards renewable energy projects focused on wind farms and solar power plants; followed by investments in energy-efficiency projects, micro-hydro projects and biomass energy projects.
- While investments made on renewable energy projects are disclosed, the percentage of such projects in the overall portfolio mix is rarely discussed in BRRs. Yet, many banks have committed to increasing their exposure and investments across the green sector.
- Innovative financing products/instruments such as green bonds have been developed by a few private banks and are being tested in Indian markets.



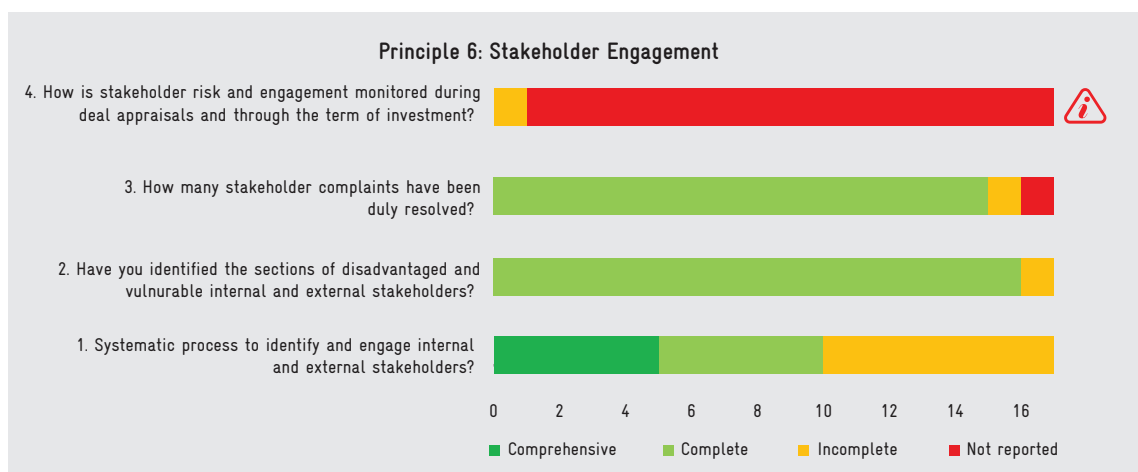
## Principle 5: Enabling inclusive human and social development

- Financial inclusion is a crucial aspect of every bank's overall strategy. The RBI has issued mandates, guidelines, directives and targets on lending to priority sectors and MSMEs. As a result, banks have developed customised products and services to ease banking for economically weaker sections of society and underserved rural markets. Detailed disclosures on inclusive banking, highlighting innovative products and initiatives are available in most banks' BRRs.
- As disclosed in the BRRs, the CSR programmes of most banks also focus on financial literacy and financial inclusion; along with other themes such education, skills development, employment, healthcare and livelihoods. CSR projects are most often delivered by implementation partners, who are also responsible for monitoring project progress and for ensuring that the schemes/initiatives are successfully adopted by target communities.



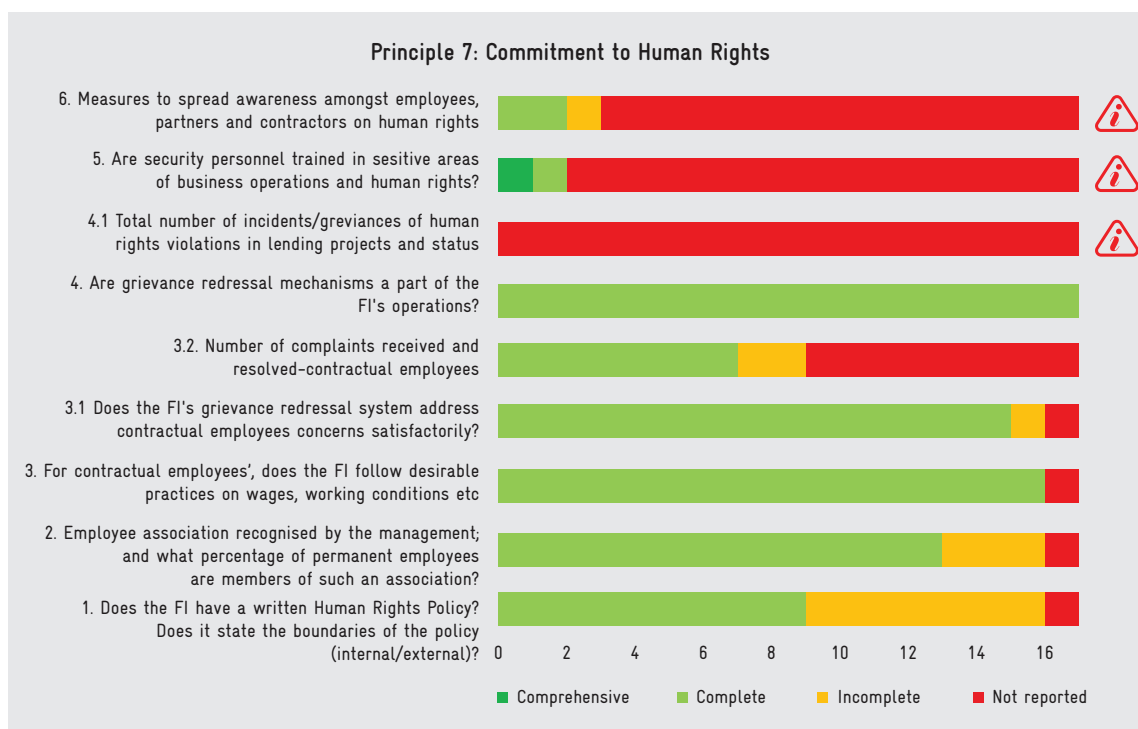
## Principle 6: Stakeholder engagement

- There is disclosure on identification of internal and external stakeholder groups, and in some cases, there are details provided on the stakeholder identification and engagement process as well. However, many public sector banks (and a few private banks) provide a minimal response that is not sufficient to assess whether they follow a systematic stakeholder identification and engagement model.
- Grievance redressal mechanisms are reported to be an intrinsic part of all banks—and often include whistle-blower policies, ethics helpines, complaints reporting channels etc—which are accessible to all stakeholders. Most banks in the study have provided data on total number of stakeholder complaints reported, pending and resolved.
- No information is available detailing how stakeholder risk and engagement is monitored during deal appraisals and throughout the term of investment (since this is specific to the financial sector, the current BRR format does not contain such a disclosure requirement).



### Principle 7: Commitment to human rights

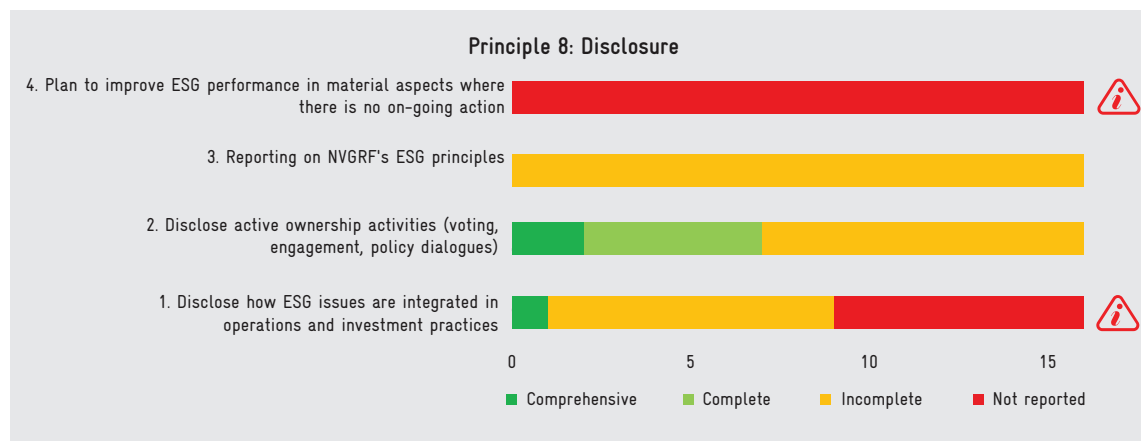
- None of the banks provided complete responses on whether they have a written Human Rights Policy or its scope or boundary.
- Data on number of complaints received and resolved by contractual employees is either unavailable or not reported.
- None of the banks provided any information on human rights aspects of their portfolio.
- Very few banks have disclosed specific measures to spread awareness on human rights aspects amongst their internal and external stakeholders.
- Human rights is not assumed to be a priority material issue for FIs as legal frameworks including the Constitution of India and specific regulations such as the Factories Act 1948 and labour laws (including wage regulations, pensions and social insurance) safeguard various aspects of human rights—making it the law of the land.





## Principle 8: Disclosure

- A few banks have provided detailed disclosures of how ESG issues are integrated into their operations and impact their investment decisions. Although as part of standard due-diligence, projects are assessed for minimum compliance on E&S aspects, this approach does not proactively screen projects to assess broader ESG risks and opportunities. Most often E&S aspects are not adequately monitored throughout the term of lending/investment.
- Based on an inference of existing BRR responses and disclosures, banks are yet to demonstrate progressive practices in publically disclosing relevant information on ESG aspects of the core pillar of their overall business of lending and investment practices.



## Way forward

The possibility can't be ruled out that ESG-relevant systems and processes exist but are not disclosed publicly. But to a certain extent, the quality of disclosure may reflect the quality of systems and processes in existence. The NVGRF requirements for FIs do entail additional requirements, which will require implementation of new systems or redesign of existing systems. This would be achieved over a period of time, based on the maturity level of prevailing ESG practices. FIs will need guidance on phased-wise implementation of NVGRF.

The requirements specified in the implementation guide for the NVGRF may be categorised as

either 'Essential' or 'Comprehensive'. The essential requirements are those that FIs are expected to either already have in place or implement in the near term. The "comprehensive" classification is for those requirements that FIs are expected to implement subsequently over a slightly longer time period.

IBA has begun collecting inputs on essential and comprehensive indicators of progress for each principle in an iterative process with FIs. These may well serve as a comparable format for non-financial reporting as advised by the RBI in its 2007 circular and/or be adopted as part of the financial sector supplement, should SEBI release one in the future.

*This article is an extract from a study, "From A to B: Transitioning to the National Voluntary Guidelines for Responsible Financing", commissioned by GIZ and conducted by PricewaterhouseCoopers India (Yasir Ahmad, Partner and Anshul Dubey, Director, Responsible Business Advisory).*







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