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Green finance for sustainable green economic growth in India

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Abstract: Green finance is a core part of the low carbon green growth, because it connects the financial industry, environmental improvement and economic growth. The objective of this paper is to study the green finance and to validate the concept as feasible in the Indian industries for balancing the ecological depreciation due to the assimilation of carbon gases in atmosphere. Green Finance is a market-based investing or lending program that factors environmental impact into risk assessment, or utilizing environmental incentives to drive business decisions. Therefore, the paper also discusses the recent trends and the future opportunities and challenges in green finance in the emerging India. Green investing recognizes the value of the environment and its natural capital and also seeks to improve the human well-being and social equity while reducing environmental risks and improving the ecological integrity.

Keywords: green finance, financial industry, economic growth, ecological depreciation, risk assessment

Green growth means the balanced green economic growth: for sustainable growth, two sides should be maximized by the positive circulation of green and economy, which represents an economic growth pattern with the new driving power of “green”, to obtain the new eco-friendly growth opportunity and the principle of green growth is to improve the manufacturing ability continuously, reducing the environmental pollution by utilizing the green technology and knowledge, and expanding the energy and resources (Noh 2010: 9).

Green financing is a basic activity to accomplish the green growth. Green environmental management has been regarded as a corporate social responsibility (CSR) activity that the firms should try to do something for the society (Carroll 1979) and green financing is also a CSR activity of finance firms such as the banks, mutual fund companies, stock companies and so forth (Koo 2010). This means that the financial companies should make efforts on green financing, though it is not profitable right now, as a CSR activity. Green financing pursues the economic growth, the environmental improvement and the development of finance industry simultaneously and is a kind of targeted financing that induces to flow the sufficient fund into the target through the intervention of public agencies to the market process as it is estimated not to provide the sufficient fund

to the green economic activities in the autonomic mechanism of the market: Furthermore, it is the so-called typical targeted financing because it is very favourable to the green economic activity support and discriminates the constraint of non-green economic activities (Noh 2010b: 10).

The ecological imbalance is created due to the excessive emissions of the carbon dioxide in the atmosphere and thus resulting into the global warming phenomenon. This has compelled the governments all over the globe to think about it seriously for the sake of the generations to come and has initiated the process to overcome this catastrophe by following the Kyoto protocol or many other programs by the United Nations. In between these lines, there comes the thought of green funding or green investment or green technologies and many more green initiatives which all together can be integrated into one sound- Green Finance (Chopra et al. 2005). The governments should promote and regulate the green industrial markets for the green product dispersion and try to boost the green consumption. Green financing is essential in green growth as it offers the companies funds to catch the business opportunities in the market. If green financing is so weak, green industry will not be activated well, and the green products will be eliminated from the market and the consumers cannot purchase the green products. It

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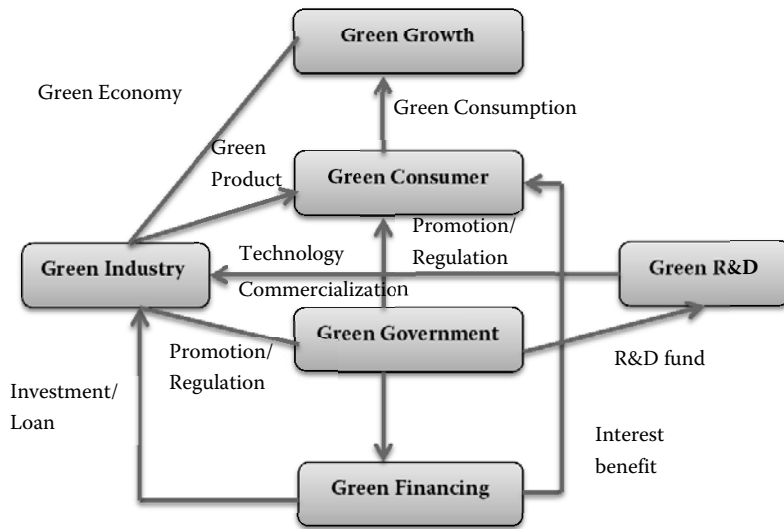


Figure 1. Relationship between the green growth and green financing

Source: Koo (2010)

will eventually cause the failure of going green on a full scale (Rutherford 1994).

economies, and in the context of the adaptation to the climate change (Figure 1).

Definition

Green Economy: Green Economy is one the growth of which in income and employment is driven by the public and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services.

Green Growth: Green Growth is a strategic approach to promote the economic growth aimed at shaping the established economic processes according to the ecological principles and creating additional opportunities for the employment and income generation while minimizing the impact on the environment.

Green Finance: Green Finance is a strategic approach to incorporate the financial sector in the transformation process towards low-carbon and resource-efficient

How does green finance works?

Green industries and technologies are all at different levels of maturity, thus requiring different levels of funding from different sources of capital (Schmidheiny et al. 1996). There are generally three sources:

- (1) Domestic public finance
- (2) International public finance
- (3) Private sector finance

Domestic public finance refers to the direct funding by a government while international public finance refers to funding from international organizations and multilateral development banks; private sector finance consists of both domestic and international funding sources. Green financing can be packaged in different ways through various investment structures (Figure 2).

Green Finance



Figure 2. Benefits of Green Finance

Source: Noh (2010a)

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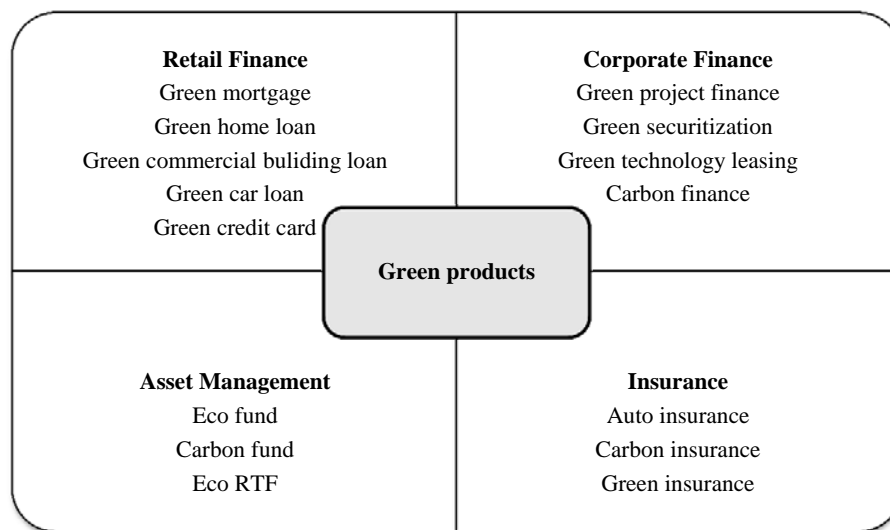


Figure 3. Green products

Source: Carroll (1979)

Green finance products

The green financial products that is essential to be studied and created is divided into four major headings (Figure 3):

- (1) Retail Finance
- (2) Asset Management
- (3) Corporate Finance
- (4) Insurance

Generally, governments pursue the following objectives through green financing measures:

- Establish and secure funding for green industries and green growth.
- Support low carbon green growth by developing new financial products.
- Attract private investments to build and sustain green infrastructure.
- Strengthen corporate disclosure of green management practices and expand financial support for those businesses that apply them.
- Set up markets for environmental goods and services, such as carbon markets featuring carbon credits.

Strengths of green finance

- *It promotes technology diffusion and eco-efficient infrastructure:* Investment in environmentally sound technologies, such as clean energy, may help bring down their costs and expedite wider technology diffusion. Developing countries can avoid the development model of “grow first, clean up later” because a great part of the green investment flows into infrastructure. This situation provides the opportunity for a country to leap ahead to the

eco-efficient infrastructure. The responsibility then falls on governments to develop the infrastructure that will result in a better long-term management of resources, which will in turn increase the country’s competitiveness and channel the private-sector capital into the domestic green markets.

- *It creates comparative advantage:* Low carbon green growth may inevitably change from the current voluntary nature to a mandatory strategy in response to the rising pressures emanating from the climate change and other environmental and economic crises. Expanding green finance today will mean a comparative advantage once the environmental standards become stricter.
- *Adds value:* Businesses, organizations and corporations can add value to their portfolio by enhancing and publicizing their engagement in green finance. Thus they can give their business a green edge and thereby attract more environmentally conscious investors and clients alike.
- *Increases economic prospects:* Governments promoting green finance help to buffer their societies against the time when resources become scarce by establishing and promoting domestic markets for the alternative resources and technologies. They increase their economic prospects further by dipping into the new markets that possess a great potential for the employment generation.

Challenges to green finance

- *Present and projected Competitiveness:* Private investment in green growth in developing countries is constrained by both the activity-specific and the

country-specific barriers that adversely affect the attractiveness of such investments, both in terms of investment returns and risk management. Increasing private investment in green growth will depend on the extent to which these investments become attractive relative to other opportunities, both domestically and internationally. Because the international investors can look across different countries for opportunities, the governments may need to implement a series of public interventions to make green investment opportunities more attractive (Thompson 1995).

- **Mispricing and no pricing of risks:** The overall investment and policy environment of a country contributes to its effectiveness in attracting private investors. The capital markets in some countries are not effective in pricing the green growth-related risks. The extent to which the market misprices these risks or refuses to price them represents a barrier. In general, these risks include those associated with new technologies or processes that are not well understood and those related to the design, stability and transparency of domestic policies.
- **Market distortions and shortcomings:** As long as the subsidies for fossil fuels and the failure to internalize environmental externalities continue to distort the market price of energy, the investment in green energy will have a hard time yielding attractive returns for investors. Adding to that is the limited number and diversity of green finance products and the respective markets in which they can be traded.
- **Competing objectives:** While private investors aim to maximize the risk-adjusted returns for their investments, the public green finance providers seek to achieve the highest possible environmental improvement and the host-country policymakers are interested in achieving the best development prospects.
- **Limited capital and limited awareness:** Many small- and medium-sized businesses are characterized by a limited liquidity and access to capital, which hinders their participation in the green financing sector. The prevailing myopic time horizon of business strategies, which ignore the benefits of green industries that lie in the far future, is another fundamental hurdle to private investments. Adding to that is the lack of experts who understand the complex relationship between environmental issues and financial markets.

- **Regulatory gaps:** Another barrier to the expansion of green finance is the gap in the adequate regulatory and technical infrastructure to measure, assess and analyse green business strategies and financing.

Implementing strategies

Although there is no single best solution for the various situations and projects that demand green financing, there exist a number of interventions and measures that may be appropriate for the common constraints and levels of development. In general, when businesses compare enabling environments for trade and investment, they look for: the macroeconomic stability, the potential for conflict and the degree of good governance, among other factors. Public interventions must address these topics and be applied in a manner that is transparent, long lasting and consistent if they want to stimulate the private investment (Jeucken 2001).

The following describes the various policy options that can improve the regulatory landscape to overcome investment challenges:

Information-building policy: Consumers, producers and investors all need to understand the positive economic and environmental effects of the low carbon green growth. It is important they realize that this strategy poses an opportunity rather than a burden and that it will most likely transform from a voluntary path to a mandatory one in the long run. To improve the transparency needed for promoting a green financial market, the impetus along the lines of corporate social responsibility needs to be expanded, such as the Carbon Disclosure Project or the UN Principles for Responsible Investment. It is also important to adopt stringent verification schemes for green technologies and green businesses to avoid confusion among consumers, to ensure that only those companies benefit from the green industry image that are truly a part of it and to provide investors with the necessary information to make prudent investment choices.

Environmental regulations: Environmental regulations include the pollution standards and controls, the public disclosure of information about environmental impacts, the elimination of the implicit subsidies for the environmentally harmful or unsustainable growth (such as the land use controls, building standards, the land use planning, the protection of natural buffer zones and the water management and pricing) and the improved sector governance and monitoring.

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Markets for green finance products and environmental goods and services: An often cited example of a green market launched and developed by governments is the carbon market. In many countries so far, an emissions trading scheme was set up first; this included usually the enacting of legislation to govern the membership, trading conditions and market surveillance for the emissions trading. To ease the transition, governments can introduce pilot projects or voluntary trading schemes first and then slowly move to a mandatory trading system, encompassing lessons learned from the pilot phase, a legal base shift to “cap and trade” and the diversification of the traded products.

Public financing: Because the cost of green investment projects, such as a renewable energy facility, is generally higher than the conventional projects, governments should subsidize a portion in order to attract investors. Financing mechanisms include the public competitive bidding, the public procurement and public loans, grants or funds, like the venture capital funds.

Government support targets only the early stages of development: Due to the risks associated with the use of new technologies and their relatively weak stance against the well-established brown technologies, which externalize environmental costs and profit from a fitting infrastructure system and well-developed supply chains, green businesses need the government support, especially in the initial stages of their development. However, the governments should aim to attract and empower other financial institutions to take over their role as active facilitators of green businesses once they enter the mature stage.

Roles of various banks in green financing

Domestic banks such as the State Bank of India, the IDBI Bank and the ICICI Bank have begun to fund renewable energy projects. Foreign banks such as the *Standard Chartered* and the *ABN Amro* are also focused on the renewable energy financing. The *Barclays* launched some of the first investment vehicles to meet the needs of the investors’ growing appetite for the exposure to GHG prices. The *Barclays* launched the BGCI, the first global carbon index of its kind, giving investors the access to the global carbon markets. As a leading provider of the financial and commodity risk management solutions to the industry, funds and investors, the *Barclays* has been ideally placed to help its clients to understand

and manage their carbon risk exposure through their various schemes: the EU Emissions Trading Scheme (ETS), the Clean Development Mechanism (CDM), the Joint implementation (JI) and the Regional Greenhouse Gas Initiative (RGGI).

The Bank of Baroda has launched a scheme for financing the SMEs for the acquisition of equipment, services and adopting measures for the enhancement of the efficient conservation of energy. *The State Bank of India* has entered into a MOU with a consortium of leading the Clean Development Mechanism (CDM) consultants to provide finance to implement the CDM projects, advisory services as well as value added products in the area of the carbon credit finance (such as the securitization of carbon credit receivables, the carbon credit delivery guarantees and the escrow mechanism for carbon credits). The SBI also has a new Green Home Loan scheme to support the environmentally-friendly residential projects. The scheme offers concessions such as 5% concession in margins, 0.25% concession in interest rate, and zero processing fee for projects rated by the Indian Green Building Council (IGBC). The State Bank of India owns wind farms for the generation of green power to partly substitute the consumption of the thermal power by its offices in Tamil Nadu, Maharashtra and Gujarat.

The IndusInd Bank has initiated its Green Office Project under which it has installed solar powered ATMs in different cities; these will result in energy saving as well as the reduced CO₂ emissions. The *ICICI Bank* has been assisting various organizations to undertake clean energy and environmentally sustainable projects/initiatives. It has provided the financial assistance to projects that specifically promote the energy efficiency, the renewable energy, the biomass co-generation, the biomass gasification, the waste heat recovery, etc. The bank has been funding projects that contribute to the mitigation of the GHG emissions and financing clean technologies. The *Yes Bank’s* portfolio has projects in the areas of the alternative energy and clean technologies as well as investments in the South Asia Clean Energy Fund and the Tatva Investment Program. The *Canara Bank* has devised a scheme for the SMEs for acquiring/adopting the energy conservation/savings equipment/measures. They sanction a Maximum of Rs 100 lakhs in the form of Term loan.

The Bank of Maharashtra promoted the adoption of renewable energy practices and the use of the Solar Home Systems. To install the renewable energy equip-

ment viz. the Solar Energy – Solar Home Systems, the Solar Water Pumps with photovoltaic cells and the Equipment run on Photovoltaic Cells, the. Bio Energy – Biomass Power Cogeneration Products, the Equipment Converting Waste to Energy and the Bio Diesel, the Clean Energy Programmes – Equipment promoting Clean Energy. The equipment should be manufactured by the companies approved by the Bureau of Indian Standards (BIS), as well as the UNEP. The users are the farmers, rural artisans, salaried, business or self-employed persons. The minimum net income of the applicant should be Rs. 50 000/annum. They are providing consumer loans in general to the borrowers for the purchase of the consumer durables and the interest rate charged is at the BPLR. The equipment/items that will be purchased under the scheme will be helpful in supporting ecological balance. The interest concession of 50 basis points for the borrowers under the scheme will be available. The interest rate accordingly will be at the BPLR – 0.50% i.e. at present 10.75%.

The IDBI bank has undertaken the pioneering role in the Indian banking sector in the area of environmental banking and has been active in this area for over 17 years. The IDBI Bank has created an exclusive group working on the climate change and more specifically on the carbon credits advisory services to the clients to deal with the Clean Development Mechanism (CDM)/Carbon Credits of the Kyoto Protocol and the Voluntary Emission Reductions (VERs) authorities. This group has devised a structured product for providing upfront finance against the carbon credit receivables. The product is well accepted by the Indian project developers.

The carbon credit group is closely associated with the World Bank in providing an End-To-End solution for the chiller users of India in switching over from a high carbon chiller to the energy efficient low carbon chiller. The IDBI Bank also publishes a monthly newsletter called the “IDBI Carbon Developments”. The magazine covers the analysis of the pricing of the European Union Allowances (EUAs), the Certified Emission Reductions (CERs), the progress in the CDM project registration and various other developments happening in the carbon market.

The India Chiller Energy Efficiency Project (ICEEP) is being implemented from August 2009 by the World Bank in association with the Ministry of Environment and Forest (MoEF), the GoI and the IDBI Bank Ltd (Project Implementing Entity). The project is funded by the Global Environment Facility (GEF) – US\$ 6.30

million and the Ozone Trust Fund (OTF) – US\$ 1.00 million aggregating US\$ 7.3 million grant.

The objectives of the ICEEP are to support the phase-out of use of the Chlorofluoro Carbon (CFC), an Ozone Depleting Substance (ODS), under the Montreal Protocol and achieve energy efficiency in the Refrigeration and Air-conditioning (RAC) Sector. The ICEEP will achieve this by stimulating the acceleration of the replacement of old the CFC chillers with the energy efficient non-CFC chillers. The project would provide financial incentives directly to the chiller owners to encourage them to overcome the barriers such as the up-front capital costs and the perceived technology risks. The ICEEP is expected to demonstrate the viability for implementing other low-cost and/ or no-cost energy conservation measures in large buildings.

The ICEEP will primarily target the replacement of all existing CFC-based (R11 and R12) Centrifugal/Screw/Reciprocating/Scroll type chillers /system irrespective of age (the date of installation) and the capacity of chillers/ system with new centrifugal/screw/reciprocating/scroll type chillers with a specific energy consumption being equal or lower than 0.63 kW/TR. The up-front grant subsidy of 20% of the cost of new efficient chillers would be available, based on the normative price of US\$ 400/TR i.e. Rs.20 000/TR (@fixed exchange rate of Rs.50/USD). Under the project, taking into account the expected energy savings up to 30% on the replacement of the existing inefficient CFC-chillers by new efficient non-CFC chillers, the beneficiaries are likely to recover the initial investment within a simple payback period of less than two years.

Roles of SIDBI in creating the Green MSMEs

The global emphasis on the green and clean environment encompasses the MSMEs also. In India, also the green growth is an adopted agenda. There has been an increasing concern on the environmental degradation caused by the industrialisation and realisation of the need to take corrective measures to protect the environment. Apart from revising the manufacturing processes and technologies being used by the MSMEs, the focus has shifted to adopting the appropriate (alternate technologies) production processes to maximise the energy conservation. Now Reduce (waste), Reuse and Recycle are emerging as the thrust areas of various activities. The lack of in-

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formation about the availability of alternative clean technologies, the lack of awareness of the advantages of investing in such technologies and the low skills of the existing workforce to adapt to the new technologies are the major reasons for the MSMEs lagging behind in the upgradation and modernisation of their facilities. The sector has to be provided with the technological support services along with the credit facility on softer terms to invest in the Cleaner Production (CP) options. As a principal & responsible development financial institution engaged in the promotion, financing & development of the Indian MSMEs, the SIDBI has acted proactively in the area of sustainable development of the MSME sector. Whether it involved the cluster level intervention for a furthering modernisation/quality improvisations or evolving the technology mission for the MSMEs with the vision 2010 or institutionalising technology needs through a technology bank or acting as a key nodal agency for the government schemes aimed at developing niche in certain sectors through the technology upgradation, the SIDBI has always been in forefront.

(A) Financing for Energy Efficiency

The SIDBI has taken several initiatives to promote lending for the green and energy efficient technologies in the MSME sector. The SIDBI has been operating focused on the lending schemes for promoting the investment in the clean production and the energy efficient technologies/production process under the bilateral Lines of credit from the KfW, Germany and the JICA, Japan. These focused schemes have a two-pronged approach, i.e. the concessional lending to encourage the investment in green or energy efficient technologies and launching of the cluster specific information dissemination.

Green Financing – the SIDBI has so far provided the assistance under the JICA scheme to more than 2000 MSMEs with the aggregate assistance of more than Rs.800 crore for the cleaner production and energy saving investments. Some of the major initiatives of the SIDBI for achieving the energy efficiency which has benefited a large number of the MSMEs in clusters are as follows:

– *Electronic Waste recycling facility in Bangalore* – the SIDBI assisted the E- Parisara Pvt. Ltd., Bangalore for the electronic waste recycling project. The project caters to wastes generated by the IT, the Telecom & Electronic industries in and around Bangalore. The advantages accruing from the project includes

helping more than 100 MSMEs to become compliant with the regulatory requirements/environment audit, the reduction in the waste treatment cost and the reuse & recycling of treated metals/materials.

– *Common Effluent Treatment Plant (CETP)*

(a) *MSME textile dyeing & printing units in and around Surat* – the Gujarat Environ Protection & Infrastructure Ltd. has been assisted to set up the Treatment Storage and Disposal Facilities (TSDF) in Surat to help the MSME textile dyeing and printing units in proper waste disposal. The majority of 300 MSME member units have been able to become compliant with pollution control norms.

(b) *CETP, Bangalore* – Eco Green Solution Systems (P) Ltd. has been assisted for setting up of a Treatment Storage and Disposal Facilities (TSDF), the facility for toxic waste generated from the electroplating, powder coating, and the metal finishing industries in and around Bangalore. It has helped more than 300 MSMEs in the reuse and recycling of the treated effluent, reduction in the waste treatment cost per unit etc.

– *Mumbai Taxi Financing Scheme* – the SIDBI has entered into arrangements with the Mumbai Taxmen’s Association/Union and Maruti Suzuki Ltd. for providing the assistance to taxi drivers (micro entrepreneurs) to phase out their old taxis. Under the Scheme, the taxi drivers have been provided assistance to buy new taxis without any collateral security under the CGTMSE coverage. More than 700 micro-entrepreneurs have so far been provided finance under this arrangement. The initiative has helped in promoting the clean technology thus controlling pollution.

– *Auto Rickshaw Financing* – 600 CNG fitted auto-rickshaws were provided the assistance in Chandigarh by the Delhi Finance Corporation (DFC). The SIDBI provided the refinance to the DFC for this clean energy initiative.

– *Solar Lanterns* – the Friends of Women’s World Banking (FWWB), a MFI was sanctioned the assistance of Rs. 10 crore for providing the assistance to micro entrepreneurs for acquiring solar lanterns of 2 watts each. 50 000 micro entrepreneurs are proposed to be covered under the assistance.

– *Rickshaw Sangh Programme* – the SIDBI and the American India Foundation (AIF) have recently signed a MoU to provide the livelihood support to the low-income groups through a joint initiative called the “Rickshaw Sangh Programme”, under which the SIDBI has sanctioned the financial as-

sistance of Rs. 50 lakh to the Bhartiya Micro Credit (BMC) under its Micro Credit Scheme for the microfinance as well as for financing the livelihood of programmes of the BMC. Under the programme, the BMC has provided 500 rickshaws to poor people residing in and around Lucknow with the credit support from the SIDBI and the technical support from the AIF. Under the programme, the beneficiaries would also be provided the license and the municipal permit, the uniform, the life insurance for the client and his spouse, the accident insurance etc.

– **Information dissemination** – the SIDBI has organised several awareness campaigns for propagating the JICA supported scheme for achieving the energy efficiency in the high energy intensive MSME clusters to create awareness about the environment friendly and energy efficient technologies suitable for the respective clusters. The campaigns have received good response. In such seminars, the MSMEs were given information on green technologies, better production processes, the investment required and the cost benefit analysis of each investment. So far 18 awareness campaigns have been organised in the MSME clusters across the country.

(B) Furthering Green Growth with Developmental Support

Under the multi-activity-multi agency the MSME Financing and Development Project (MSMEFDP) being implemented by the SIDBI, various initiatives are being undertaken to enable the emergence of the competitive MSMEs with the provision of financial and non - financial services. The Credit Facility (CF) has been channelized to over 2050 MSMEs spread across the major cluster centres all over the country. The project has adopted the international best practice of the Environment and Social Risk Assessment framework (E&S) in its appraisal process. More than 100 credit officials have been trained on the E&S. In its cluster development initiative aimed at the soft infrastructure development, the project has adopted a long term intervention strategy. Starting with the value chain mapping of a cluster, an action plan is devised, in consultation with the stakeholders and is pursued with the sustainability angle. Instilling the Energy Efficiency (EE) in these adopted clusters has emerged as one of the cross cutting issues. The following major initiatives have been attended in the EE area under the MSMEFDP:

– **Energy efficiency initiative with Bureau of Energy Efficiency** – the SIDBI has entered into a Memo-

randum of Understanding (MoU) with the Bureau for Energy Efficiency (BEE) for creation of a shelf of energy efficient technologies for 25 MSME clusters, awareness creation and capacity building of the local Business Development Services (BDS) providers for implementing the energy efficient technologies. This shall be integrated with the financial support to eligible proposals for adopting the energy efficient technologies & measures.

– **Knowledge Series** – in order to attend to the challenges of information asymmetry, the project has brought out the knowledge series publications on the energy efficiency in the Fruit & Vegetable Processing, Ceramics, Foundry and Engineering clusters. These along with a ‘Tip Sheet on Energy Efficiency’ (providing a simple housekeeping tips to the MSMEs) have been widely disseminated among the MSMEs. The project has supported the India SME Technology Services Ltd (promoted by the SIDBI and the leading public sector banks) to prepare the Carbon Credit Guidebook for the MSMEs, to update its existing basket of 800 technologies and to flag them as carbon free, clean, energy efficient technologies. The project has initiated steps, in association with the DSIR, the Ministry of Science and Technology, to evolve the policy document on the ‘Technology Vision for Indian MSMEs-2020’. It is expected to be a tool, providing the boost to the innovative traits of the Indian MSMEs.

– **Green Ratings** – with support under the MSMEFDP, the SME Rating Agency (SMERA) – an associate of the SIDBI, is gradually introducing rating variants and the latest is “Green Rating” model. This initiative is aimed to encourage the MSMEs engaged in the industrial activity to adopt better technologies and processes to prevent the non-mitigated environmental damage. It will act as a risk mitigation tool for the MSMEs to effectively face the business continuity risks associated with rapidly changing regulatory prescriptions on the environment governance & compliances.

Policy alignment across levels of government

(1) *National policies are the key.* The greener is the national framework, the easier it will be to address the city-specific challenges and to ensure coherence and consistency between the national and local policies. The national framework is particularly important with respect to pricing signals for non-localised environmental externalities, such as

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the GHG emissions. Moreover, in many countries, the reform of the urban revenue sources requires a central government action.

(2) *Remove barriers to the local government action.* While the national governments may face challenges to immediately implementing holistic reforms, they can start by eliminating the current regulations that impair the potential for the local governments to act.

(3) *A holistic approach is necessary.* Efforts to green the urban revenue sources may have undesirable distributional consequences. These concerns should be addressed in the context of the entire tax and benefit system, rather than trying to ensure that each individual policy measure serves both the environmental and equity objectives.

(4) *Keep the policy package simple.* While the design of specific instruments will in many cases need to be quite sophisticated, it is important to keep the overall policy package as simple as possible. An overly complex system of environmental taxes, charges and fees makes the impact assessment harder and raises the risk of unintended interaction effects or perverse incentives.

Making existing revenue sources greener

(5) *The overriding aim is to internalise externalities.* To the extent possible, the taxes, charges and fees should be designed to confront the agents with the full marginal social cost of actions affecting the environment. At the minimum, this means eliminating the anti-green bias of some existing local tax provisions and the perverse incentives created by many environmentally harmful subsidies.

(6) *Road-pricing policies can help to reduce traffic and pollution.* Road-pricing policies like the congestion charges are likely to be most effective at reducing the traffic and emissions when differentiated according to the level of congestion, the peak hours or both. Linking pricing structures to the vehicle type as well may strengthen the incentives to switch to the greener forms of transport.

(7) *Transport-related revenue sources require a coherent planning.* The use of the congestion charges to achieve green objectives will be more effective and less costly to users when alternative mobility solutions are available; the governments might consider earmarking such revenues to finance the public transportation.

(8) *Fees for water and waste services should be more responsive to the actual resource use.* Fees and prices

should be used to signal the scarcity of the resources being consumed, as well as covering the costs of the infrastructure investment and service provision.

(9) *Where appropriate, intergovernmental grants should take into account environmental objectives.* This will help to compensate cities for the opportunity costs of green behaviour (e.g., the loss of development charges if an area is designated as a public park). Specific or matching grants can compensate the local governments for the spill-overs generated by green policies that incur the localised costs but generate broad benefits.

Tapping new sources of finance

(10) *Carbon finance should be more accessible to cities.* Cities and central governments can work together to make a better use of the carbon-off-setting programmes (e.g., the Clean Development Mechanism and the Joint Implementation) and to ensure that these (and other) resources may come directly to cities. One of the conditions of the carbon finance should be use of a harmonised emission inventory for cities.

(11) *Infrastructure needs related to new development should be internalised in the financing of development projects.* The costs of the sprawl, for example, may be recovered from the developers through the development charges or other financial contributions. In a similar fashion, new developments should also, where appropriate, incorporate the cost of investment into the alternative water sources.

(12) *National-local co-operation is essential to developing access to new forms of green finance.* There are a number of potential instruments for tapping the private finance in support of the urban greening and aligning the private investment with policy priorities. These include the private-public partnerships, green bonds and green infrastructure banks. However, they each raise potential problems of insufficient size, moral hazard and opportunism. Cities thus need to co-operate with one another and with the central governments to build the capacity and to ensure that they possess the requisite financial, technical and legal expertise, as well as the sufficient bargaining power when negotiating the private-sector financing. (e.g., the loss of development charges if an area is designated as a public park). Specific or matching grants can compensate the local governments for the spill-overs generated by green policies that incur the localised costs but generate broad benefits.

CONCLUSION

Green finance is the infrastructure of green growth (Doh 2009: 2). Finally, green growth is an orchestra composed of the technology development company, the financial company, the government, and the consumer. The constituents should be harmonized together, not to cause the cacophony. India today has the opportunity to grow in a manner that moderates the costs of the environmental degradation, and this, in turn, presents a vast range of opportunities for India's financial sector. Banks not only need to make direct investments in sustainable development, they also need to leverage their indirect control over the investment and management decisions to influence the business into fulfilling broader social and environmental goals (Hart and Ahuja 1996). There is a plethora of opportunities in the area of environmentally responsible finance, which banks can profitably exploit. Considering the SIDBI's apex role in the promotion, financing and development of the MSME sector, the bank would continue to play an active role of a change agent and to engage in the activities aligned to the government's national priorities and the Millennium Development Goals with the overall emphasis on three Ps of People, Planet and Profit. Indian banks have a mammoth task ahead of them. But they have no choice in the matter: sustainable finance is the future and more so for Indian banks desirous of becoming the global players.

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