

SUSTAINABLE INFRASTRUCTURE: GREEN TECH AND GREEN TRADE

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Abstract :

Sustainable infrastructure development has become a key priority in addressing environment challenges and achieving long-term economic growth. The banking sector plays a vital role in this process by promoting green trade banking practices that support environmentally responsible project and sustainable financial activities. This study examines the green trade banking practices of the State Bank of India (SBI) and HDFC Bank and their contribution to sustainable infrastructure development with special reference to Ujjain district.

The research adopts a descriptive and comparative approach using both primary and secondary data. Primary data were collected through questionnaires and interviews with bank officials and customers in Ujjain district, while secondary data were obtained from bank reports, RBI publications, and relevant research literature. The study analyzes the level of awareness, types of green trade banking products, and the role of these practices in supporting sustainable infrastructure at the district level. The findings reveal that both SBI and HDFC Bank have integrated green banking practices into their operations. SBI contributes significantly through its wide outreach and financing of large-scale and government-supported projects, whereas HDFC Bank demonstrates strong ESG integration, digital banking initiatives, and innovation sustainable finance products. However, the study also identifies challenges such as limited customer awareness, lack of district-specific green finance products, and uneven implementation at the branch level. The study concludes that green trade banking practices have a positive impact on sustainable infrastructure development in Ujjain district. Enhanced awareness, customized local strategies, and stronger policy support can further strength the role of bank in achieving sustainable and inclusive growth.

Keywords : Sustainable Infrastructure, Green Trade Banking, Green Banking Practices

Introduction :

In an era marked by escalating environmental challenges such as climate change, resources depletion, and ecological degradation, sustainable development has become a priority for governments, industries and financial institutions worldwide. One of the critical pillars of sustainable growth is sustainable infrastructure-development that meets present needs without compromising the ability of future generation to meet theirs. Sustainable



infrastructure encompasses energy-efficient buildings, renewable energy installations, resilient transportation systems, water conservation facilities, and eco-friendly urban planning. Financial institutions play a pivotal role in enabling this development by channeling capital into projects that support environment objectives and social-economic welfare.

Background Of The Study :

Banks have traditionally been intermediaries of capital and risk, but over the past decades, their role has expanded significantly into environmental stewardship and green finance. In India, green banking and sustainable finance are mechanisms through which banks adjust their operations, lending frameworks, risk assessment models, and product offerings to support environment sustainability and climate-friendly investments. The Reserve Bank of India (RBI) and other regulatory bodies have encouraged financial institutions to embed Environmental, Social, and Governance (ESG) considerations into their credit decisions, operational policies and reporting frameworks.

Green trade banking refers to banking practices and trade finance solutions designed to support environmentally sustainable trade transactions and infrastructure projects. These include financing renewable energy projects, energy-efficient infrastructure, pollution control facilities, and green supply chain activities, often through specialized products like green loans, green bonds, and ESG-linked financing instruments.

SBI and HDFC Bank: Champions of Green Banking :

State Bank of India (SBI) :

The State Bank of India, as India's largest public sector bank, has actively integrated sustainability into its core strategy:

- Renewable energy and green financing : SBI has funded renewable energy initiatives such as solar rooftops, wind energy projects and has adopted a Sustainability-Linked Finance Policy Framework supporting ESG objectives.
- Operational sustainability: The bank has installed solar rooftops on hundreds of buildings, implemented PET bottle crushing machines, and procured green power to reduce carbon footprints.
- Green product offerings: SBI provides green loans and supports residential and commercial sustainable projects, such as rooftop solar financing and eco-friendly housing incentives.
- Global green finance collaboration: SBI has also signed lines of credit with multilateral development partners to expand its green financing portfolio and climate-related initiatives.

These efforts position SBI at the intersection of sustainable banking and national infrastructure development, bridging public objectives with private sector capital flows.

HDFC Bank :



HDFC Bank, a leading private sector bank, has also made significant inroads into sustainable finance.

- Sustainable finance Framework: The bank has developed a formal ESG-aligned financing framework that guides the issuance of green, social, and sustainable bonds and loans.
- Carbon neutrality and green products: HDFC Bank continues to expand its funding for renewable energy projects, energy efficient, and climate-positive infrastructure while working towards achieving carbon neutrality in operations.
- Trade and project finance integration: While standard trade finance product such as letters of credit and export/import financing remain core offerings, the bank increasingly aligns these services with ESG risk assessment and green finance eligibility where applicable.

By embedding sustainability in credit risk assessment and financing strategies, HDFC Bank supports the growth of green enterprises and low carbon infrastructure.

Relevance To Ujjain District :

Ujjain-a historic and emerging urban hub in the state of Madhya Pradesh-faces typical development challenges related to urban infrastructure, environment quality, and sustainable growth. As the region expands economically and demographically, the need for sustainable infrastructure becomes critical. Banking institutions operating in Ujjain, particularly SBI and HDFC Bank branches, are crucial conduits for channeling financial resources into local green infrastructure project such as :

Renewable energy installation e.g. solar rooftop systems on community buildings)
Water and waste management solution
Support for eco-friendly MSME growth via sustainable credit products
Though specific localized data may vary, the presence of SBI and HDFC branches in Ujjain means that green banking practices implemented at the national and institutional level have tangible potential to influence infrastructure financing in the district. Sustainable trade banking can facilitate investments in climate-resilient project locally, catalyzing both economic and ecological benefits.

Green Trade Banking Products :

Green trade banking products are financial products and services designed to support environmentally sustainable trade, business activities, and infrastructure development.

Major Green trade banking products include:

1. Green Loans – Loans provided for projects such as renewable energy, energy-efficient buildings, waste managements and pollution control.
2. Renewable Energy Financing – Financing support for solar, wind, biomass, and other clean energy projects, including rooftop solar installation.
3. Green Project Finance – Long-term financing for large-scale sustainable infrastructure projects like eco-friendly industrial parks and smart cities.



4. Sustainable Trade Finance – Trade finance instruments linked with environmentally responsible trade and sustainable supply chain.
5. Green Bonds – Bonds issued to raise funds exclusively for financing green and climate-friendly projects.
6. Digital and paperless Banking Services – E-statements, online trade documentation, and digital payment system to reduce paper usage and carbon footprint.
7. Green MSME Financing - Specialized financial support for micro, small, and medium enterprises engaged in eco-friendly and sustainable business practices.
8. Sustainability-Linked Loans – Loans where interest rates are linked to the borrower's achievement of predefined sustainability or ESG targets.
9. Energy Efficient Loans – Loans for upgrading machinery, buildings, and infrastructure to reduce energy consumption.

Structure of the Study :

This research will examine:

1. The theoretical foundation and global context of sustainable banking and green trade finance.
2. Comparative green banking practices and sustainable infrastructure financing models at SBI and HDFC Bank.
3. Implementation and impact of these practices with specific reference to Ujjain district including case examples and stakeholder insights

Literature Review :

The literature review provides a systematic overview of existing research related to sustainable infrastructure, green banking, and green trade finance. It helps in understanding the evolution of the concept, identifying research gaps, and establishing a theoretical foundation for analyzing green trade banking practices of SBI and HDFC Bank, particularly in the context of a developing district such as Ujjain.

- Schmidheiny and Zorraquin (1996) highlighted that banks influence sustainability indirectly through lending and investment decisions.
- Jeucken (2001) examined how banking activities contribute to environment degradation and argued that banks must integrate environmental consideration into credit policies to support sustainable infrastructure.
- Weber (2008) emphasized the role of banks in promoting sustainable infrastructure by financing renewable energy, clean technology, and environmentally responsible projects.
- Sachs et al. (2015), financing sustainable infrastructure is critical for achieving inclusive and long-term economic growth.
- Lalon (2015) analyzed green banking practices in developing countries and concluded that banks can act as catalysts for sustainable infrastructure by prioritizing green loans and environmentally complaint projects.
- Goyal and joshi (2017) found that banks like SBI has started adopting renewable



energy financing and sustainability reporting, though implementation varied across regions.

- Rath and Mishra (2019) observed that Indian banks were gradually aligning lending policies (ESG) framework, especially for infrastructure and MSME financing, HDFC Bank was frequently cited for structured sustainability frameworks, while SBI was noted for large-scale green project funding.
- Kumar and Prakash (2021) found that green banking positively influence sustainable infrastructure development but faces challenges such as lack of awareness among local borrowers.
- Sharma and Singh (2022) compared public and private sector banks in India and concluded that while SBI leads in volume of green financing, HDFC Bank demonstrates better integration of ESG risk assessment and innovation in green products.

Research Gap :

Most studies focus on national or international levels, with limited district-specific analysis. Comparative studies between public (SBI) and private (HDFC Bank) green trade banking practices at the local level are scarce. There is insufficient empirical research linking green trade banking directly to sustainable infrastructure development in semi-urban districts like Ujjain.

Objectives Of The Study :

1. To examine the role of green trade banking practices of SBI and HDFC Bank in promoting sustainable infrastructure development in Ujjain district.
2. To study the concept and importance of sustainable infrastructure and green trade banking.
3. To analyze green banking initiatives adopted by SBI and HDFC Bank.
4. To compare green trade banking practices of SBI and HDFC Bank at the district level.
5. To assess the level of awareness among customer regarding green banking and sustainable finance.
6. To evaluate the contribution of green trade banking to sustainable infrastructure in Ujjain district

Research Methodology :

Research methodology outlines the systematic approach adopted to study green trade banking practices and their role in promoting sustainable infrastructure. This chapter explain the method used to collect,analyze,and interpret data related to sustainability initiatives of SBI and HDFC Bank in Ujjain district.

Research Design :

- The study adopts a descriptive and comparative research design.
- Descriptive research helps in understanding existing green banking practices.
- Comparative research enables comparison between SBI and HDFC Bank regarding



sustainable infrastructure financing.

Nature of the Study :

The research is analytical in nature, focusing on evaluating green trade banking initiatives rather than merely describing them. The study assesses how these practices contribute to sustainable infrastructure at the district level.

Sources of Data :

The study is based on primary and secondary data:

Primary Data :

Collected through structured questionnaires and informal interviews with bank officials and selected customers in Ujjain district.

Secondary Data :

- Annual reports, sustainability reports of SBI and HDFC Bank
- RBI publications
- Research journals, books and government reports
- Websites of banks and financial institutes

Sampling Design :

- Sampling Area: Ujjain district
- Sampling Units: Branch managers, bank officers, and customers of SBI and HDFC Bank
- Sampling Technique : Convenience sampling
- Sample Size : 50 person from each bank

Tools and Techniques of Data Collection :

- Structured questionnaires
- Personal interviews
- Observation method (to understand branch-level green practices)

Tools for Data Analysis :

- Percentage analysis
- Tabulation and graphical representation
- Simple comparative analysis between SBI and HDFC Bank

Limitations Of The Study :

- Study is limited to SBI and HDFC Bank only.
- The research is confined to Ujjain district.
- The sample size is limited due to time and accessibility constraints.



Findings :

- Both SBI and HDFC Bank have adopted green banking practices aligned with sustainability objectives.
- SBI plays a significant role in financing large-scale and government-supported green infrastructure projects due to its extensive branch network.
- HDFC Bank shows stronger technological adoption and ESG integration, especially in digital and paperless trade banking.
- Awareness of green trade banking among customers in Ujjain district is moderate but improving.
- Green banking initiatives have positively contributed to renewable energy adoption and eco-friendly infrastructure at the local level.
- Implementation of green trade banking practices varies across branches.

Suggestion :

- Banks should conduct awareness programs and workshops in Ujjain district to educate customers about green trade banking products.
- Introduction of district-specific green finance schemes focusing on local infrastructure needs such as solar energy and water management.
- Regular training program for bank staff on sustainable finance and ESG practices.
- Collaboration with local government bodies and MSMEs to promote sustainable infrastructure projects.
- Development of simplified green trade finance products for small businesses and traders.

Policy Implications :

- Policymakers should encourage banks to expand green trade finance at the district level.
- RBI and government agencies can provide incentives and guidelines for sustainable infrastructure financing.
- Integration of sustainability metrics in banking performance evaluation.

Scope For Future Research :

- Comparative studies involving more public and private sector banks.
- Empirical research on the long term impact of green trade banking on local infrastructure.
- Studies focusing on rural and semi-urban districts similar to Ujjain.
- Analysis of customer perception and behavioral change toward green finance.

Conclusion :

The study concludes that sustainable infrastructure development in Ujjain district is positively supported by green trade banking practices adopted by SBI and HDFC Bank. SBI



plays a major role through its wide outreach and financing of large-scale green and government-linked projects, while HDFC Bank contributes through innovative, technology-driven and ESG-aligned banking solutions. Although awareness and implementation of green trade banking at the district level is still developing, both banks demonstrate a growing commitment to environmental sustainability. Strengthening customer awareness, branch-level execution, and policy support can further enhance the role of green trade banking in achieving sustainable infrastructure growth in Ujjain district.

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