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"A STUDY OF CONCEPTUAL UNDERSTANDING AND FUTURE TRENDS OF GREEN FINANCE IN INDIA"

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Abstract:
The main objective of this paper is to study the concept of green finance and authenticate whether this concept is workable in India for balancing the ecological depreciation due to assimilation of carbon gases in atmosphere. Concept of green finance can be regarded as innovative in the field of finance. Green finance is considered as the financial provision for green growth which decreases greenhouse gas emissions and air pollutant. Green finance in agriculture, green buildings and other green projects should add to the economic development of the country. In this paper sincere attempt has been made to describe green financing in a broader sense.

Keywords: Green Finance, Financial Industry, Environmental Improvement, Economic Growth, Green Projects

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Meaning:

Green finance refers to the financial support for green growth. It is a phenomenon that combines the word of finance and business with environmentally friendly behavior. Green finance can be conveyed differently depending on the participant, it is about avoiding the promotion of any business or activity that could be damaging to the environment now or for future generations. Green finance may be lead by financial incentives, a desire to preserve the planet, or a combination of both.

Definition:

There is no standard definition of green finance. Green growth is defined as a growth generated through the harmony between the economy and the environment. It strategically promotes green industry, as well as environmental pollution avoidance projects and renewable energy development projects. It aims to reach the goal of a low-carbon economy. Green growth is the solution to three current threats to the global economy; they are Climate change, Energy constraint, and financial crisis. Green finance defines as financial backing for green growth which decreases greenhouse gases and air pollutant emissions significantly. Finance in industrial and economic advancements with the reduction of greenhouse gas emissions and other environment pollutions are green finance.

Objectives of the Study:

1. To study the concept of green finance.
2. To give inputs to establish green financing in grass root levels of the country.
3. To highlight the Green Projects, Green Finance in different sectors, challenges at present and future.

Research Methodology:

Sr. No.	Particulars	Details
1	Type of Data	Primary and Secondary Data
2	Population	Citizens of India
3	Sampling Area	Maharashtra
4	Nature of Source of Data	Quantitative

5	Sampling Methodology	Random Sampling
6	Sample Size	530
7	Nature of Data Collection Instrument	Non – disguised structured Questionnaire
8	Types of Questions	Closed ended
9	Structure of Questionnaire	Questionnaire is divided into two parts
10	Section I of Questionnaire (includes)	Personal information of Respondents
11	Section II of Questionnaire (includes)	Questions regarding Green Finance and its implementation in India
12	Data Collection Methodology	Personal Interview and discussions

How it Works?

Green industry and technologies are all at different phases of development thus, requiring different levels of finance from different sources of capital. There are commonly three sources: Domestic public finance, International public finance and 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 wrapped in different ways through numerous investment arrangements. Green finance is a main portion of low carbon green growth because it attaches the financial industry, environmental improvement and economic growth. “One missing link among ‘knowing’ and ‘doing’ in the transition to green industry is ‘green finance’. All green industrial propositions charge money, and many green industry business models are more often than not unconventional. Therefore, traditional finance may find it hard or commercially unattractive to finance these green trade schemes.

Generally, governments follow the following objectives over green financing measures.

a) Establish and safe funding for green industries and green growth.

b) Support low carbon green growth by emerging new financial products.

c) Attract private investments to build and withstand green infrastructure.

d) Make stronger corporate disclosure of green management practices and enlarge financial support for those businesses that apply them.

e) Set up markets for ecological goods and services, such as carbon markets featuring carbon credits.

f) If past styles can be taken as an indicator, green investments possess great potential for growth in the future, especially for promoting clean energies

Green Projects:

1. Digital Green – Multimedia Solutions for Rural Education:

Digital Green is a 'not-for-profit' organization which brings together technology and social organizations to improve agriculture, health and nutrition. They build ground-breaking platforms to enable rural communities to generate and share videos for broader adoption of locally relevant practices. They partner with local public, private and civil society organizations to share knowledge on better-quality agricultural practices, livelihoods, health, and nutrition using locally produced videos.

2. Waste Ventures – Waste Management:

Waste Ventures India averts up to 90% of waste from dumpsites and produces nutrient-rich organic compost. They sign multi-year contracts with local municipalities and employ waste pickers at their processing units to separate waste. It is a Delhi-based startup, launched in 2011, has 44 projects lined up this year. Two of these have been kick-started in Andhra Pradesh villages.

3. The Living Greens – Rooftop Farming:

Founded by Pratik Tiwari, an Agriculture Engineer and an MBA from Indian Institute of Foreign Trade, Living Greens Organics is a Jaipur based startup that helps to set up rooftop farms and kitchen gardens. Their goal is to grow organic vegetables on each and every roof and to convert every building into a living green building, thus making the largest number of urban carbon credits in the world.

4. D&D Ecotech – Rainwater Harvesting:

Extreme cities in India face a water disaster today the reason is irregular rainfall, due to a growing population and hasty urban development. Extreme groundwater usage has led to a sharp drop in the groundwater levels across India prompting the government to pass strict rules against the usage of the same. D&D Ecotech, a startup that helps households and organizations adopt rainwater harvesting. D&D Ecotech also designs its own rainwater harvesting recharge structures based on clients' needs and specifications.

5. Green Ventures – Sustainable Energy Solutions:

Green Ventures makes green technologies and innovative business models to create maintainable energy solutions. Their solutions include large-scale renewable energy generation projects, improved energy competence schemes, and rural social energy initiatives

6. Green Housing/ Habitat: Rain water harvesting, waste management, renewable/ solar energized, sanitation, ecofriendly material.

7. Upgraded Jute retting technology.

8. Fuel efficient equipments.

Green Finance in Different Sectors:

Green Finance in Banking Sector:

- The banks will prepare a policy and a strategic plan to finance green projects, awareness creation and capacity building of staff about green finance,
- Disseminate information about green projects, project profiles, unit costs etc.,
- Create awareness among potential entrepreneurs,
- Identify suitable projects.
- Facilitate preparation of project and consider End to End solutions/ advisory role,
- Finance green projects.
- Set up bio carbon funds.
- Transfer proceeds to entrepreneur/share proceeds

- Earn themselves cash-credit by funding green projects

Green Finance in Agriculture:

Global warming and climate change has created uncertainties in the bumper production in agriculture. Increase of finance in irrigation during the dry season the production of crops can be increased. Farmers would be trained in modern farming practices to adopt improved package and practices. Government, various Non-Government Organizations (NGOs) and microfinance institutions can provide loan facilities with low interest rate in agriculture sector and can contribute in the development of the country.

Green Financing in Renewable Energy:

Due to global warming the use of renewable energy is growing day by day. In the last decade renewable energy market achievement has been driven by policy support. At least ten countries of the world now have sizeable domestic markets of solar energy. Wind power energy growth increased over the last decade; global installed capacity at the end of 2010 was around 194 Giga watts (GW), up from 17 GW at the end of the year 2000. But worldwide renewable electricity generation since 1990 raised an average of 2.7% per year. About 19.5% of global electricity in 1990 was produced from renewable sources; which fell to 18.5% in 2008, due to slow growth of the core renewable source, hydroelectric power, in the Organization for Economic Co-operation and Development (OECD) countries (IEA 2011).

By 2011, at least 118 countries had policies to support renewable energy investment but implementation is very low (REN 21, 2011). Failures of attempts of implementation of renewable energy are as follows (The Clean Energy Finance Corporation, CEFC 2011):

- Political regulatory hazards,
- Commercial lending limits,
- Confidence gaps, and
- The cost of carbon pollution not yet being measured by energy companies among others.

Importance of Green Finance:

1) Green finance provides fast path for cleaner future.

2) It helps in Sustainable Development Goals.
3) It also helps in for balancing the ecological depreciation.
4) It provides as financial backing for green growth.
5) It helps in overall development of the country.

Uses of Green Finance:

1) Green finance helps in controlling the natural resources.
2) It helps for the development of the different sectors.
3) It contributes for maintaining the environmental balance.
4) It is useful for the country.

Emerging Trends in Green Finance:

1) Government and companies should issue the ‘Green Bonds’ for promoting green finance concept.
2) Companies should actively involved in promotion of green finance activities as a part of their Corporate Social Responsibility.
3) Government and Companies should come together for overall development of the country through green finance under ‘PPP” Public Private Partnership.
4) Use of technology for Rain Water Harvesting, Waste Management, Renewable Energy, Sanitation etc.
5) Waste Heat Utilization Projects

Challenges for Green Finance:

Green projects or programmes face a range of barriers and challenges in accessing finance. These may relate both to the fact that, as mostly relatively new technologies, they present new and uncertain risks to investors, as well as to the underlying investment framework or lack of a supportive enabling environment. Generally, barriers and risks for investors will also vary depending on the structure of the sector, e.g. private investment in renewable energy generation will likely involve higher risks for investors than investment in transmission and distribution systems, which are often treated as a regulated asset base, whereby returns on investment are guaranteed and subsequently less risky.

1) **Technology risks**: Green technologies often have higher upfront capital costs which can deter investors. In these, it may also include operational or performance-related risks, for example interruptions due to lack of or poor supporting grid infrastructure systems which result in lower than expected revenue.5 Physical risks leading to financial losses due to adverse weather events can also be significant for many green technologies.

2) **Policy and regulatory risks**: Policy and structural barriers affect the viability and economic attractiveness of low carbon options. The threat of policy and regulatory changes, for example to feed-in tariffs or renewable portfolio standards, is a fundamental risk that can deter investors. In addition, fossil fuel subsidies still exist in many countries and most countries lack a carbon price that would incentivize green investment.

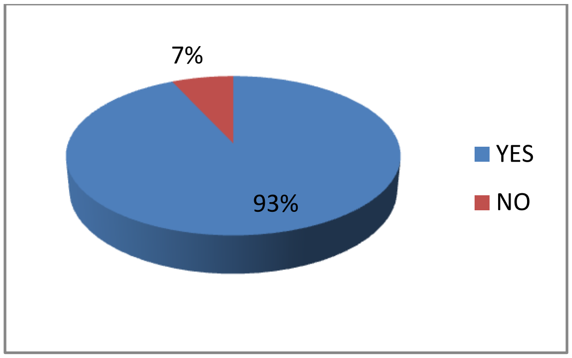
3) **Market risks**: In addition to general market risks, such as country or currency risk, green investments carry additional risks relating to the immaturity of the market. These may include high first-mover costs and risks related to unproven commercial application of a new technology.6 For example, deal flow problems may result from an insufficient number of commercially attractive deals, making diversification in investment portfolios difficult.

4) **Scale of Investment Barriers**: In addition to project specific barriers, a further challenge, particularly for investment in green infrastructure, is delivering the necessary scale of investment at the pace that may be required to meet green policy targets and objectives. On the opposite end of the spectrum, for small-scale green investments other barriers are more common, for example uncertainty of the credit-worthiness of local service providers making it impossible to raise equity, as well as end-users that have poor or non-existent credit profiles. These lead to high transactions costs making the cost of the investment high relative to the benefits provided.

5) **Capacity constraints**: For most developing and emerging countries there is a lack of awareness and capacity of green technologies and activities across the policy and investment spectrum. A lack of understanding of the technologies by policy-makers, project developers and financiers may lead to inappropriate measures of support and/or high levels of perceived risk. However, often entities that are best positioned to assume risks such as energy service companies (ESCOs) do not have access to affordable capital.

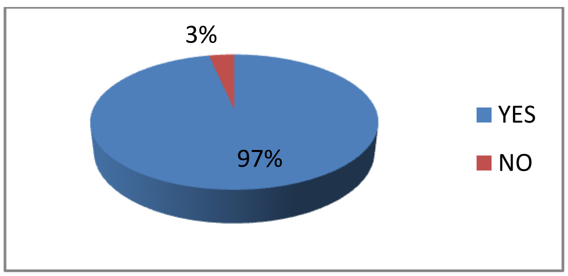
Analysis of Secondary Data:

1) Is Green Finance concept workable in India?



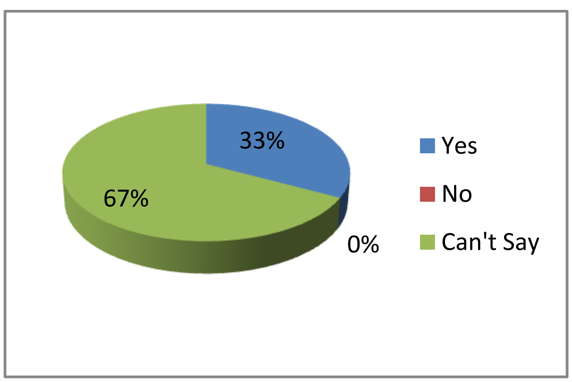
According to 93% of the respondents, Green Finance concept is workable in India.

2) Will Green Finance help to control the problems of environment like pollution, climate change, Energy constraint etc.?



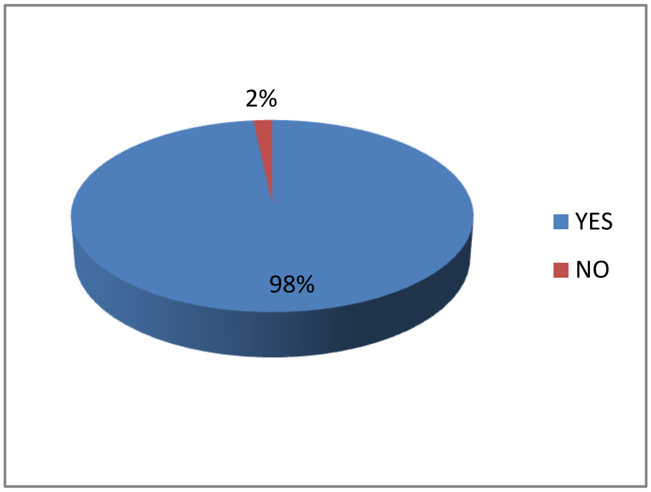
97% of the respondents agreed that Green Finance will help to control the problems of environment like pollution, climate change, Energy constraint etc.

3) Can we implement the Green Finance concept under Public Private Partnership (PPP)?



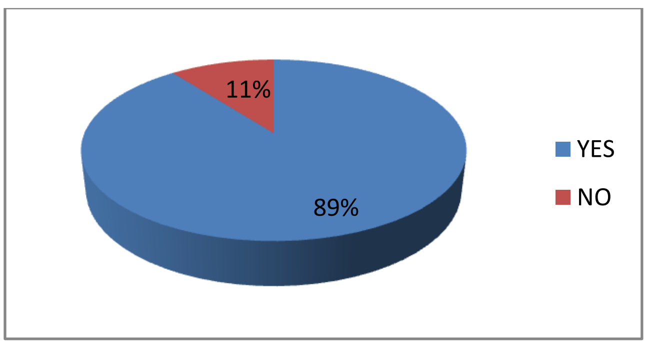
Only 67% of the respondents mentioned that Green Finance concept should implement under Public Private Partnership (PPP).

4) Do you agree that the Green Finance can be a part of Corporate Social Responsibility?



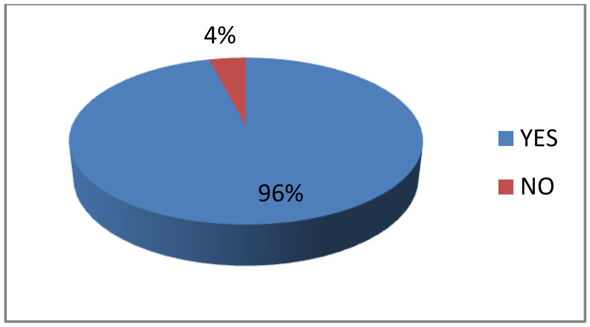
98% of the respondents are agreed on Green Finance must be a part of Corporate Social Responsibility.

5) Do you agree that the Green Finance concept should incorporate in Companies Act, 2015 as a part of Corporate Social Responsibility?



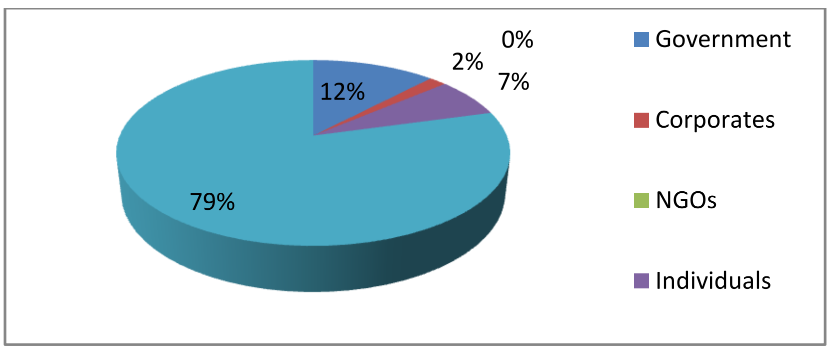
89% of the respondents are agreed on Green Finance concept should incorporate in Companies Act, 2015 as a part of Corporate Social Responsibility.

6) Do you agree for increasing the Green Projects for the economic development of the country?



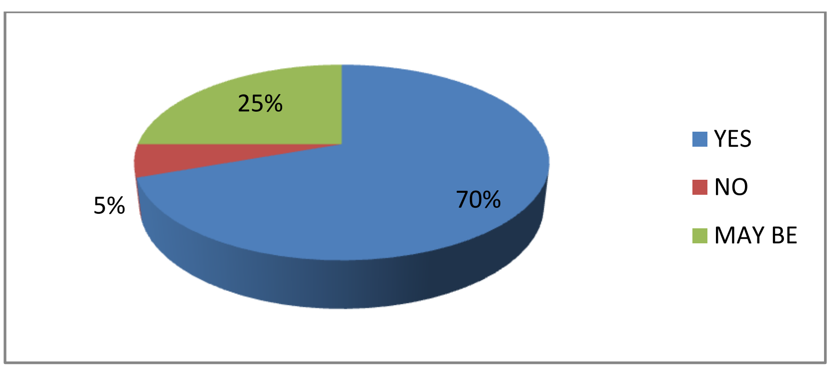
96% of the respondents are agreed for increasing the Green Projects for the economic development of the country.

7) Who should take a lead for implementation of Green Finance?



79% of the respondents told that all should take a lead for implementation of Green Finance.

8) Will you support for passing a separate Act on Green Finance?



70% of the respondents are in favour of passing a separate Act on Green Finance.

Recommendations:

In the 21st century, for the maintainable economic and financial development, green finance becomes a global concern. All the nations are concerned about variation of environment and environment pollutions.

For green financing we need to

- Identify the possible green projects and verify them whether they are green financing or not,
- Finance to generate less waste, recycle waste into composts or other articles projects,
- Increase finance in all green projects,
- Awareness creation at grassroots level among rural populace is necessary,
- Set up of green projects and facilitate replication,
- Motivate the marginal and small holder farmers to green farming,
- Plant trees where ever possible,
- Encourage developers to build green buildings,
- Finance in eco-friendly products,
- Microfinance to be increased to prudence green products with very low interest rate,
- Finance in rain water harvesting and solar lights and other renewable energy sources.

Conclusion:

In this paper researchers have discussed green financing and try to show that it is vital for the development of our country. Global warming is creating numerous problems in the economy. Scientists and environment experts believe that it is due to Green House gas emissions. We have stressed that green financing will reduce Green House gas emissions significantly. We have provided the usefulness of Green Finance in Various sectors i.e. Banking, Agriculture, Renewable Energy etc. which save energy and keep healthy environment and shrink illness of the persons. We have emphasized to invest in renewable energy projects and other eco-friendly projects. We hope in near future green finance will be popular in all societies of the globe.

India's energy supply is not able to keep pace with the high economic growth rates in the country. This results in persistent power shortages and frequent power cuts. In order to minimize import dependency in the conventional energy sector, the Indian Government is increasingly focusing on strategies for enhancing energy efficiency and utilizing renewable source.

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3) file:///F:/Green%20Finance/E3G_Designing_smart_green_finance_incentive_scheme