

From Green Technology Development to Green Innovation

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ABSTRACT: *Technology has become an important part of human life as well as for the environment. The green technology is an application of technology which help to save the environment from several issues which affect the environment. However, our understanding of the emergence and diffusion of more sustainable innovations in green technology remains small. In this paper, authors discussed about green technology and development to green innovation. Moreover, this paper provides a detailed analysis over green technology development and how it is becoming more important in order to protect environment and make people lives more easy and healthy. Our analysis explore that technologically feasible green technology is essential but not adequate. The green technology companies must also provide regulators with legitimacy and prevent abuse that can hamper its adoption. In future, Green technology is described as the involvement of goods, facilities, or processes to minimize environmental harm and degradation while also maximizing it's use for natural resources..*

KEYWORDS: *Development, Environment, Green Growth, Green Innovation, Green Technology.*

INTRODUCTION

In the last two centuries, the industrial revolution has unleashed unprecedented economic growth, mobilizing massive sources and to improving living standards in many places worldwide. Green innovation refers to any form of innovation that contributes to the development of key goods, facilities, or methods that minimize environmental risk, effects, and degradation while also maximizing the use of environmental assets[1]. Green technology, also known as green tech, is a broad term that refers to the use of science and technology to produce environmentally friendly goods. The technological infrastructure used it to recycle garbage, purify water, generate renewable electricity, and protect natural resources are examples of green technology[2]. Figure 1 shows the green growth innovation that represents the reasons behind the green innovation.

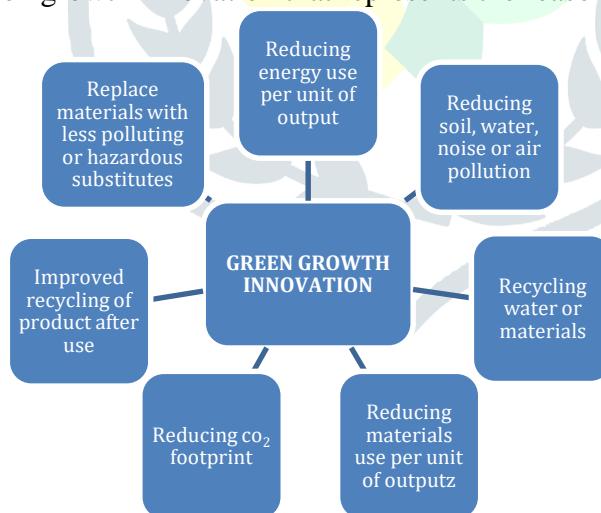


Figure 1: This Diagram Shows The Green Growth Innovation That Represent The Reasons Behind The Green Innovation.

World leader recognized the want to change insistently and indorse sustainable consumption and production patterns as an important requirement for sustainable development in the outline of "Future We Want" in the United Nation Conference on the Sustainable Development to secure the environment [3]. They also emphasized the immediate global priority of adaptation to climate change and regarded the green economy as one of its important tools for sustainable development and poverty eradication.

Green growth technologies for sustainable growth by combining ingenuity and commitment within the framework of supporting domestic and foreign policy. It seeks to address three problems simultaneously; foster growth and the elimination of poverty; build different and more dynamic economies on the basis of

renewable technologies; and safeguard an ever greener climate. Addressing issues such as climate change, access to resources, environmental pollution, hygiene and water, while meeting economic and growth targets, would, of course, take unusually innovative approaches focused on modern and profitable market models, new financial and development approaches both at US and global levels[3].

Even though it is not enough to be isolated, green growth innovation will allow for progress towards human health goals, sustainability of natural resources and social equity. Countries can also benefit as regards domestic economic policy from cultivating new green industries. Green technology innovations therefore potentially constitute a transformative approach to since some of the thorniest infrastructure and environmental issues in the world would take innovative approaches to dynamic private sector engagement to realise their potential. Figure 2 shows the green innovation in green technology.

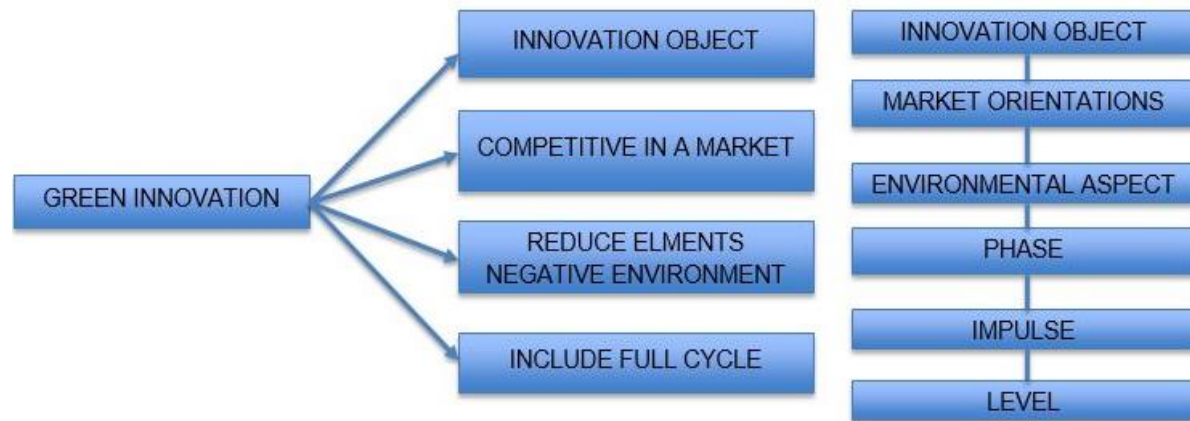


Figure 2: This Diagram Shows the Green Innovation in Green Technology.

TOWARDS SUSTAINABLE DEVELOPMENT

The 3 interdependent components social development economic development, and the environmental protection are required for sustainable development. This type of development involves sustainable natural resource consumption and high levels of the human development. The goal of a sustainable development that has broad international supports. United Nations (UN) member state governments have committed themselves since the early 1990s to environmental sustainable development and the eradication of poverty. The UN's post-2015 development agenda is expected to strengthen these commitments by global leaders[4][5]. Developing the country green development options and gaps to assuage them shown in Table 1.

Table 1: Developing the Country Green Development Options and Gaps to Assuage Them

Gap	Geography	Options
North-South collaborations	All countries	<ul style="list-style-type: none"> ● Stronger intellectual property IP systems to held vertically research collaborations, cross-border and joint ventures growth of enterprises. ● Dedicated North-South partnership funding and challenging projects. ● Opportunities international thesis awards, bourses, etc. ● Financial risk reduction tools to promote international investment.
South-South	Developing, emerging	<ul style="list-style-type: none"> ● Regional scientific foundations for identifying local

collaboration	countries	<p>needs, pooling funding and avoiding overlaps in research.</p> <ul style="list-style-type: none"> ● Strengthen high-performance networks of universities. ● Studying projects abroad of science and entrepreneurs with official support for growth.
Frontier innovation for the base of the pyramid (BOP)	New tier of emerging economy innovators	<ul style="list-style-type: none"> ● Global investment and venture capital financing by challenge/prize initiatives for developed world start-ups. ● Training for economically advanced companies in BOP understanding requirements, demonstration testing, and supply chain growth. ● Cooperative/Formal extension/ internship program for the university students.
Adaptive innovation for the BOP	All countries	<ul style="list-style-type: none"> ● Developed-country BOP progress, by government-funded R&D, incentives, advanced commitments, mandatory licences, open-source innovation, bilateral and multilateral patent pools, and application testing networks. ● Innovating BOPs in developed countries by official development support to LDCs, exploration projects, higher education networks, enhanced intellectual property protections, challenging programmes, advanced business commitments and innovative science networks.
Absorptive innovation	All countries	<ul style="list-style-type: none"> ● Early adopters and company training projects receive financial funding. ● Adoption inducements through tax credits, subsidies, feed-in tariffs.
Business advisory support	Developing, emerging countries	<ul style="list-style-type: none"> ● Market facilities like incubation centres, business education at Technical Institutions, business strategy contests, and "international research" implementation programmes for professors and university students.
IP sharing and implementation assistance	Developing countries	<ul style="list-style-type: none"> ● Financial rewards to promote patent knowledge exchange and assistance for implementation. ● Non-financial benefits in this regard (commons copyright, product pools and technical implementation advice exchange programmes).
Long-term financial support	Developing countries	<ul style="list-style-type: none"> ● Financial goods to reduce the cost of technological growth expenditure in developed countries (for example, sovereign risk, first loss fund, insurance, concessional loans).

GREENHOUSE GAS EMISSIONS AND CLIMATE CHANGE

Since the 1950s, increasing levels of air and water pollution in industrialized countries have become a major public concern. This concern has been expressed in government policies to protect public health. Since the 1970s many of these countries have been charged with developing and implementing evidence policy by environmental protection agencies or ministries with the help of various regulations and standards. This types of governmental involvement was depend on an understanding that clean water and air are good for the human health[6]. The increase in the greenhouse gas (GHG) emission and decline in biodiversity have shown that economic action continues to be unmaintainable despite initial successes of environmental policies which improve air and water quality. The majority of climate scientists agree that, unless the Earth's concentration of GHG can be stabilized, global warming, and climate change which are caused by the large amount by humans activities, that are unavoidable. Carbon dioxide is the principal greenhouse gas released by human activities (CO₂). Since the advent of the industrial revolution in the mid-18th century, carbon dioxide concentrations in the atmosphere have risen 44 percent. Global CO₂ emission are around 50% higher than in the 1990 level and according to the latest available data. The United States (16%) and European Union emit 29% of global emissions, followed by (11 per cent).

Thousands of years have been adapted to climate change, while humans behavior, technologies and the social systems have evolved in retort to its impact. The prior module outlines the current climate and adaptation challenges in the five main sectors (agriculture, energy, water, health and transport) & urban areas. This module contains a range of policy tools to inspire the cost-effectives climate change adaptations by companies, consumers and public institutions. A completion of this module: understand the optimal adjustment concept and also understand the use of cost-benefit analysis in the evaluation of policy option; Identify various policy tools for economic adjustment Understanding obstacles in transformation economies to the usage of such policy instruments; Recognizes the relevance of novel approaches to climate adaptation; Comprise the topic issues in the last section; and Answer all questions correctly in the multiple selection question.

As innovation is at least widely recognized as a key drivers of the economic growth, in which new technologies can interrupt older economic system through original destruction, the difficult and costly way of flinging the old out for the new. Further research into green technology ventures, namely business that employment sustainable business practices to grow and market technology that reduces market failures on the environment, preserves natural sources and also protects the environment, is recommended in particular. We respond by investigating the detailed cases of a potential green technology company in a form of the university spin-off, a kind of firm shaped to use university knowledge on a commercial level. The company is developing new technology for forest protection for pathogen detection based on genomics. Catastrophic effects on forests and industry relying on invasive pathogens can take place. The technology offer substantial improvement over currently used visual inspection of foreign pathogens by regulators.

While a number of studies examine how regulations shape technology dissemination, considerably less attention is given to how regulator adopt modern technologies for their individual needs. Government authorities are often favoring better known companies, which can disadvantage new university the spin-offs over recognized companies. Consequently, the keys challenges are not just about the development of green technology but the broader Green innovation process of successful marketing and diffusion. Here, are some suggest targeted action to legitimize the suggested pathogen discovery technology, which is depend more effectively than the current methods on its capacity to protect forests.

Our goal is to advance the theory about green innovation through institutional work to refine and understand how entrepreneurs take deliberate measures to disseminate more sustainable technology. Technological, commercial, organizational, and societal is an organizational frameworks that explicitly looks for key technology, business, organization, and societies and societal problems to be overwhelmed before the creation can results in successful innovations. It fluctuates from other methods by highlighting that different stakeholders can make their views and decisions with different heuristics.

Through this framework, entrepreneurs can understand how change makes the risk in assessment practices in regulators that can be induced by more effective green technology. The technological, commercial, organizational, and societal analysis found that there are also nontechnical challenges besides demonstrating technological efficiency. Our analysis thus suggests that it may not be enough while demonstration of

technological feasibility. The suggested green-tech firm should also deliver advice as to where it can be utilized and should be ready to address the stakeholder concerns in order to achieve successful green innovation. It must therefore undertake institutional works to articulate the benefits of the technology for regulators in order to legitimize and avoid abuse that may impede its adoption.

TRENDS IN GREEN GROWTH INNOVATION

Green technology innovation are very useful and it will be implemented in higher-income countries. The green technology patents of developing countries are inadequate to less than a dozen and they will share overall the green technology innovations. Green patent trend, however, show that there is an appearance of a new level of developed countries as border technology developers with Brazil, India and China. This gives the international community an opportunity to help the new level of innovative developing economies to develop BOP boundary technologies. In recent years, several industries emerged as a testing ground for innovation in green growth, with new technologies constantly developing. Figure 3 shows the green growth and Eco- innovation, it is of four types: i) business case ii) empirical data iii) policy analysis and iv) policy analysis.

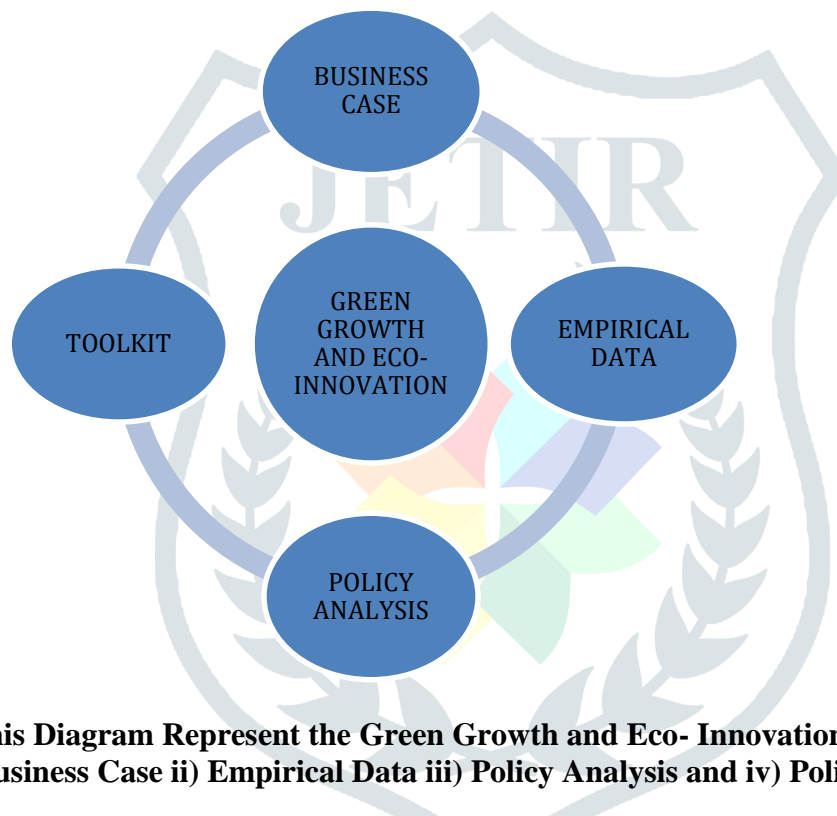


Figure 3: This Diagram Represent the Green Growth and Eco- Innovation. It is of Four Types: i) Business Case ii) Empirical Data iii) Policy Analysis and iv) Policy Analysis.

Unlike start-up devoted to a green work, it has proved challenging to diversify into green market by developing modern products depend on prevailing core competencies. Because for the most established firms, the exploration processes that match green technology & the internal competence are difficult and new. This paper provides insight into processes of exploration for the green technologies & learning modes. Furthermore the author gives details about the green growth innovation and what are the reasons behind the green growth innovation. Author also gives some information about the green technology. First of all, we found that green technologies develop without guaranteeing success are a long-term exploratory process and are likely to involve many exploratory failures. Secondly, as Exploration takes place through a number of technological trajectories, training takes place on different pathways, new routes (path-initiation), information spreading from one road to the next (on-paths). Third, companies can increase their chances to succeed by fostering an unsuitable organizational culture, by deliberately learning and deliberately experimenting about failures in order to increase its exploration efficiency.

DISCUSSION

In order to address climate changes impacts on urban areas, there will be basic approaches for adaptation that can be employed with green environment. The 'grey' approach aims at improving infrastructure climate resilience and protecting people through physical intervention and building measures. A green method aims is to improving ecosystem resilience & utilizing its services for adjustment solutions. The 'soft' approach

utilizes spatial planning, transmission of knowledge and economic inducements to decrease vulnerability and to promote adaptive behaviour. The Innovative green, grey and soft climate adaptation technologies are connected with the specific approaches. Grey adaptation measures are part of European cities.

1. Climate proofing of buildings;
2. Desalination plants
3. Innovative design of new buildings to enhance resilience;
4. Intelligent urban design to improve ventilation;
5. Maintenance and upgrades of municipal water,
6. Sewage and drainage systems;
7. Dams and flood defenses;
8. Water saving devices; Water recycling systems;
9. Rain water harvesting systems;
10. Water supply from remote areas (pipelines);

Green adaptation procedures include: Development of the green urban areas (gardens, parks, green roofs, wetlands); allowing the passageway of the fresh air into urban areas;

1. Maintaining green areas inside and outside of cities for flood retention;
2. Water storage in wetlands for later use;
3. Use of the plants adapted to drought conditions.
4. Soft measures include: General awareness raising;
5. Forecasting and early warning systems;
6. Identification of heat islands in cities;
7. Improving the preparedness of healthcare and social systems;
8. Stricter building codes to improve resilience;
9. Insurance for extreme weather events;
10. Cost-reflective pricing of municipal water services;
11. Restriction of water use.
12. Organization of emergency water supply.

In many parts of Eastern Europe, the Caucasus and Central Asia, the measures mentioned above have still to be implemented. The old energy, gas, water, sewage, heating and other utilities in the Soviet era have deteriorated significantly, and massive investment will be required soon to take the place of modern infrastructure systems reflecting current and anticipated city structures (Center for Economic Research, 2013). Figure 4 the green growth model in which it will takes four parts: i) Sustainability of natural resources, ii) Emissions Deduction, iii) Dealing with climate change and iv) Innovation towards green activities. This long overdue investment in infrastructure gives these countries the opportunity to take advantage of their existing experience in advanced industrialized countries in adapting to climate change. Figure 5 shows the green technology classified by the several fields.

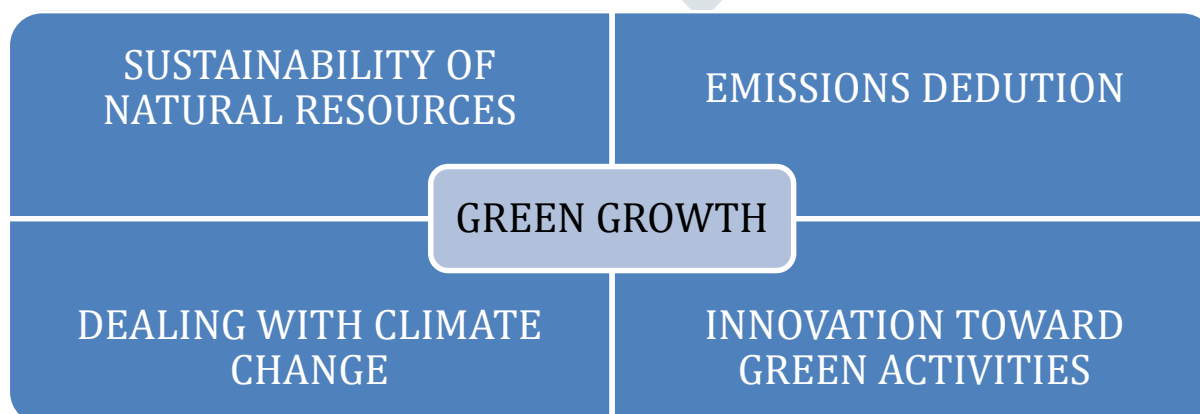


Figure 4: This Diagram Shows the Green Growth Model in Which It Will Takes Four Parts: i) Sustainability of Natural Resources, ii) Emissions Deduction, iii) Dealing With Climate Change and iv) Innovation Towards Green Activities.

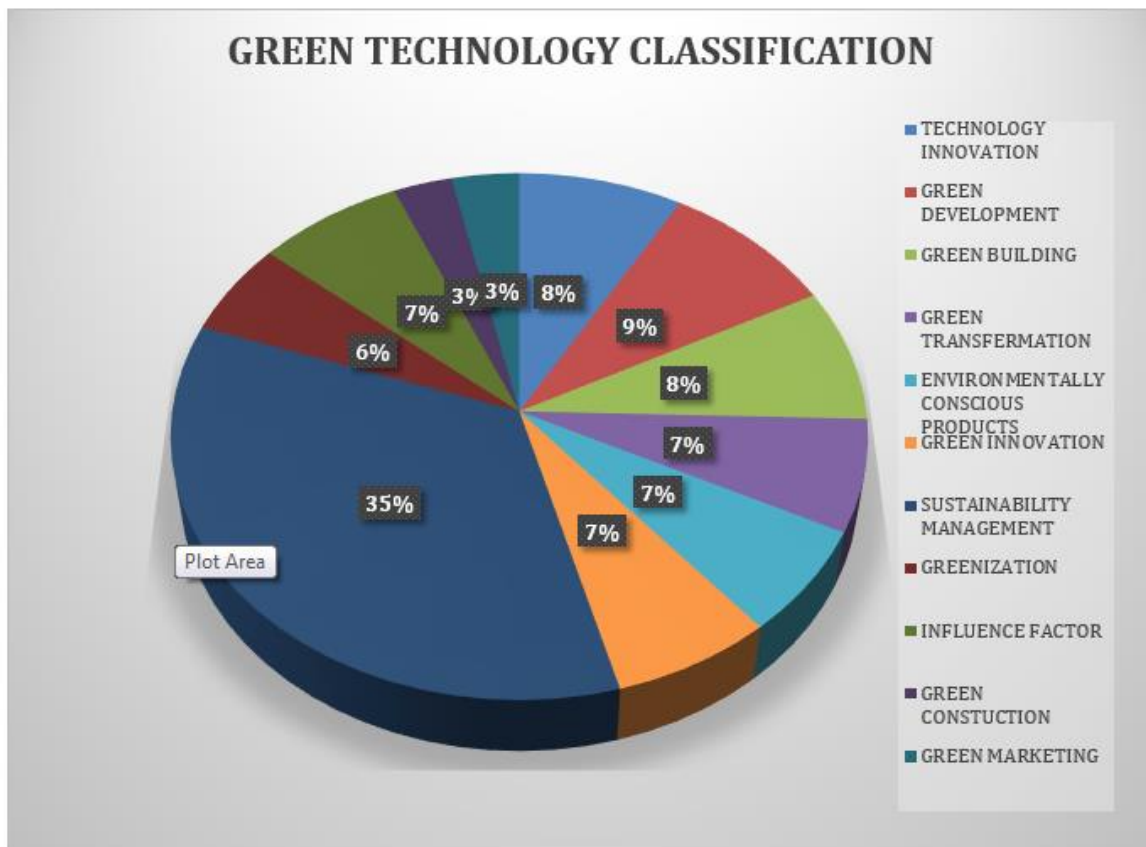


Figure 5: This Graph Shows The Green Technology Classified By The Several Fields.

Environmental technologies, green technology or renewable technology shall be used to track, model and preserve the natural environment and ecosystems and to reduce harmful effects of human involvement through one or more environmental research, Green Chemistry, environmental tracking and electronic devices. Sustainable energy developments, such as photovoltaic, wind turbines, bioreactors etc., are also included here. Environmental innovations are at the heart of sustainable sustainability. A class of electronic devices that can facilitate efficient use of resources is often used to define the term environmental technology.

CONCLUSION

Our planned environmental technology venture gave insights into the issues of green enterprise and corporate literature. For example, it should be taken into account that, at previous stages, the administrative work of green technology companies can be influenced by various economic and political processes in various jurisdictions such as first adopted individuals and other industrial sectors such as agriculture. While most literature on green entrepreneurship recognizes the importance of green innovation policy, few concentrate on forming institutions as a core function of green technology companies. Therefore, it is useful to determine the circumstances under which institutional activities are necessary and whether a passive role is enough. The development of international industry standards will likely generate additional demand for information services and can boost regulators and forestry industries' proactive behaviour. In this paper author discussed about the green technology and the rapid growth of green technology across the globe and they also provide aid to understand the reasons behind the day by day growth of green technology. In future, green technology would become the major part of the human life and it will also help to save the environment.

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