

## GREEN TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT: INDIA AND GLOBAL LEVEL

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### ABSTRACT

*This conceptual paper highlights on global environment crisis and green technologies. Everyone is now scared and feared that this planet is going to be vanished on some day if the pollution levels are continue to grow as is now. The much interesting innovation is to develop green technologies as alternatives in order to meet needs of the people not by compromising. The green technology is far from reach to the people of India due to lack of awareness unlike western countries. An attempt has been in the direction to deeply understand the concept of green technology, their goals in the present scenario. The author also tried to explain the existing types of green technologies with relevant example from the literature reviewed in the relevant field were also discussed in the next section of the paper. Later, advantages and limitation of green technology were illustrated. Upon moving forward, policy requirements regarding green technology in India and abroad have also been discussed.*

**KEYWORDS:** *Green Technology, Environment, Sustainable development, Global level, Planet*

### INTRODUCTION

Green technology is often known as clean technology which is a one of the branches of environmental science aimed to create or develop products to environment friendly. In general, Human being has the tendency to overuse or exploit the environment more than what they needed. During the process, somewhere down the lane, we are causing the environment to degrade and even destroy. To minimize these unwanted effects on the environment, green technology said to be one of the best alternative we may adapt on. The purpose of green technology is to reduce the damage to the environment we are living in and to promote healthy and safely environment to human beings. It also tries to minimize the global warming and greenhouse effect. Green technology includes solar energy, wind energy, tidal energy, water treatment, green buildings and so on. All these technologies are adopted to protect the environment and conserve resources and to transfer to the next generation. One should not forget the role of green technologies while discussing about renewable energy as well. Through the rapid industrial expansion, pollution is becoming a global threat for earth planet. With the help of green technologies, pollution may be brought down up to some extent and people can be saved from hazardous environment.

### Defining Green Technology

Monu Bhardwaj et al., (2015) defined Clean or green technology as the improvement and application of equipment, systems and products utilized to save the natural environment and resources which minimize and decrease the adverse effect of human activities

Green technology should fulfill the following criteria:

- Reduction of the deterioration of the natural environment;
- Minimizing greenhouse gases (GHG) emission to zero.
- Enhancement of safety, healthy environment of all sorts of life
- Protection of natural environment and energy.

### **Goals of Green Technology**

The main goals of green technology are

- To develop those products which can be fully recycled and reused.
- To make environment sustainable.
- To fulfill requirements of society in ways without destroying or polluting natural environment of the planet
- To develop technological alternatives which prevent damage to the health and environment.
- To develop those techno products which truly protect the planet.

### **MAJOR TYPES OF GREEN TECHNOLOGIES**

- **Construction:** Now a day, green buildings are very popular in the civil constructions. With the help of existing green technologies, eco-friendly and energy efficient buildings can be built. In India, government has taken the initiation of smart cities. This is going to be more advancing technology in the world as well.
- **Energy:** Green technology is offering many benefits in renewable and nonrenewable energy as well. For instance, wind energy gaining attention gradually. If India could make it count, it would be the best energy saver in near future as it has got many coastal corridors in and on the country. Apart from wind energy, hydro-electric energy, tidal energy also come into play in order to protect environment.
- **Water and Waste Management:** One more aspect of Green Technology is management of water and use of water resources by recycling them by cooling the plants and industrial purposes. It could even offer many advantages beyond also.
- **Transport:** This is believed to be the major cause of pollution in India. Green transportation though available, still far away from reach as most of the people in the country is using petrol and diesel. Many alternates have come to replace the use of petrol such as PNG, Electric cars, CNG etc...

### **ADVANTAGES FROM GREEN TECHNOLOGY ADOPTION**

- 3R Benefits- Recyclable, Reusable and Reducible
- Green Technology does not account for harmful pollutants
- Green Technology guarantees environment protection
- Carbon emissions may be avoided

- Maintenance and other costs may be minimized

## **CHALLENGES IN ADAPTING GREEN TECHNOLOGY**

- The consumers are still not much aware of green technologies and they have to be made aware of.
- The initial capital investment and the implementation costs are highly expensive and demand is low while making particular product.
- It is a time taking process to adapt to green lifestyle.
- Proper training is required to implement green technology.
- Lack of information and communication regarding innovative technologies.

Some classic examples of Green Technologies

- Tubeless rubber tyres with extra fuel efficiency
- Eco-friendly and green buildings in India
- Energy saving ecofriendly electric bulbs and LEDs.
- Paper less communications in ATMs through e-messages
- Green crematorium technology in India initiated by ONGC
- Eco-friendly electronic gadgets

## **POLICIES OF GREEN TECHNOLOGIES: EU**

In this section, one of the best policies of green technology in the present times is discussed below. This policy is known as Green Deal which is belongs to European countries. The focus will be on aim and purpose of Green Deal, Commitment and implement of the policy, context of globalization and examines the internal challenges in quest for the EU's objectives.

### **The European Green Deal (EGD)**

The European Green Deal was initiated by EU in December, 2019 aiming to sustain economy. The purpose of Green Deal was to achieve net-zero carbon emission of the EU as a continent by 2050. The Green Deal is said to be one of the green technology to implement the UN 2030 Agenda and Sustainable Development Goals (SDGs). The SDGs include clean, reliable and affordable energy, climate neutrality; circular economy; sustainable transport; and so on. EU's diverse economic plans including trade, development, and diplomatic policies are putting sustainability as the core of all domains European Commission. (2020). As the COVID-19 crisis is brutally affecting on the Ursula von der Leyen's Commission endeavor to the Green Deal, and moves on for recovery plans. The European Commission's (2020) President von der Leyen spoke at the European Parliament Plenary and expressing that the COVID-19 has led to global economic recession but the differences are visible among the EU states in the levels of economic slowdown. The CEPS Policy Insight (2020) said that concerns against Green ambition of the Commission were already raised by three Eastern European Countries in early March. Hale and Held (2017) have issued the earlier signs for another gridlock and national interests highly prioritized over the regions by restricting decisions at the EU level. The EU continued to take sustainable climate actions though there were internal challenges. The

EU, by being as a global regulator and got the ability to regularize its appealing market forces. At the same time, it can also convert the EU's standards into global standards as shown in Brussels effect. Bradford, A. (2015) said that regulator's role of the EU is considered as essential in global trade, where economic liberalization go down to the bottom in order to improve the advantages of global market by lowering their regulatory standards. Tonelson, A. (2002) viewed that the EU's role likely to have positive impacts on businesses and other socio-economic aspects by establishing a mechanism that requires to take better options. As there is no alternative regulatory power in the rest of the world, EU is leading the way of such regulations.

### **SOME NOTICEABLE CHALLENGES: GLOBAL CONTEXT**

It can be noticed that EU's high standards detrimental to European companies for global competition. In few cases like solar panel industries where Chinese companies are edging over European companies. Yu Chen (2015) opined that the Commission's pursuit of carbon-neutral Europe is something to welcome but not sure of whether maintaining the high standards internally is beneficial to European corporations. By doing so, EU member state countries may come under realpolitik because of international competition of all industrial sectors are raising and we do not know how long they will be kept united. These countries may fall behind unpredictable, individual sudden impacts on globalization. Richard Baldwin. (2018) expressed concerns over EU member states to take their national interests over regional ones, and often prompt internal gridlock and may be impaired to have a common external action. The EU's have other extra burdens to play its roles and are not like other superpowers, the US or China, which can solely seek for their own national interests for their national companies, organizations and their people. It is so difficult to the EU to satisfy 28 member states on a challenging mission following the EU's principles. Having rule based multi-nationalism at one hand, harmonizing global interest on the next hand the EU has a huge role to play in global economic crisis in tough times. European Commission (2019) is also trying to convince other countries to follow Green Deal, the inclusive approach by showing passion towards third party states into account to achieve climate neutral continent by 2050. Manners, I. (2002) observed that the EU strive for the appropriateness and the normal which are enshrined in its founding principles molds not only the EU's foreign policy and but also affect the rest of the world to perceive the EU as a normative power.

### **POLICY REQUIREMENTS IN INDIA**

Some of the efforts are being made at international levels such as EU Green Deal which was discussed in the previous section. However, it can be easily observed that no such green policies are visible in Indian subcontinent. Government of India should initiate all the green approaches or committees to make the natural environment neutral and sustainable. Proper road maps should be prepared by Government of India. Government of India should immediately identify highly polluted zones across the county and set up Green technologies through which countermeasures will be provided for up growing pollution. At the same time, Universities, HEIs in the country should be motivated financially for promoting researches in developing cutting edge green technologies. Various environment policies may be chalked out on awareness campaigns, programs in order to develop the understanding about green technology, green transport, waste water management techniques, green buildings and other green energies and so on. Apart from establishing all those green technologies to save the earth, the government should also monitor the progress from time to time and bring in recent advancements into the green systems. The Government of India and all the states in country should immediately start the courses on green technology at UG, PG and Research Degree level even at school level also. The students may be provided various scholarships and funding facilities to pursue courses on Green Technology.

## CONCLUSION

From the long discussion above, it was understood that green technology is an advancement and application of technological inventions that will help us to fulfill present needs without compromising and protecting the natural environment we are living in by reducing the damage to it and transfer to the next generation. In this paper, an effort was made to understand the green technology, their benefits and limitations in establishment and implementation. Some of the global efforts were highlighted in the form of policies that are in place for sustainable developing by discussing EU Green Deal Policy. At the same time, challenges raising in the context of globalization in accordance with the fundamental principles of European Union and it's membering countries during implementing Green Deal policy. At last, the focus was shifted to policy requirements in India in promoting various green technologies across the country.

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