An Overview on Green Technology & Its Benefits

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ABSTRACT: ***Green technology is described as environmentally friendly technology that is created and utilized in a way that does not harm the environment and conserves natural resources. This paper discussed green technology along with benefits, drawbacks, as well as its application. Green technology's major goal is to meet society's needs in a way that does not deplete or destroy the planet's natural resources. The idea is to create items that can be completely recovered and reused. Our current behaviors are pushing the planet towards an ecological landslide, which, if it occurs, would result in the extinction of humanity. Green technologies are a method of preserving the environment. Going green, or using environmentally friendly technology, is one of several ways that countries are using to enhance economic growth and improve the lives of their citizens. Green technologies and processes make use of non-depleting renewable and natural resources. Furthermore, green technology utilizes innovative and creative ways to create energy. The future scope of green technology is to overcome the problem of electricity, save the environment, as well as conserve the renewable source of energy.***

KEYWORDS: ***Environmental, Green Technology, Pollution, Renewable Energy, Solar Energy.***

1. INTRODUCTION

Green technology is the use of environmental science and technology to create and use goods, equipment, and systems that conserve natural resources and the environment while also minimizing or mitigating the negative effect of human activities on the environment. GT is a catch-all word for all technologies and science used to create environmentally friendly products and services[1]. Many companies set aims to become more environmentally conscious by using green technologies. Individual residences do the same thing[2]. You will save money, energy, and assist the environment by switching to green technology. When you think about green technology, solar panels are probably one of the first things that spring to mind.

It totally shuts off the gadget and prevents it from consuming more energy, saving you money and protecting the environment. Successful green can only help us get out of our current predicament. Before things get out of hand, we must recognize the relevance of green technology in resolving this issue. Environmental remediation, wastewater treatment, waste treatment and management, air pollution control and energy conservation have all used traditional green technology green technology, also known as sustainable technology, takes into account a product's long- and short-term environmental impacts. The desire for more renewable energy resources has prompted the development of innovative green technologies that can help satisfy future global energy demands[3].

Figure 1: The above figure shows the Green technology as well as its classification[4].

1.1.Green technology

From energy-generation techniques to non-toxic cleaning products, the area of "green technology" protects a constantly evolving range of methods and materials. Green technology is the use of environmental science and technology to develop and apply goods, equipment, and systems that conserve natural resources and the environment while also minimizing or mitigating the negative effects of human activities on the

environment[5]. Green technology has recently gained in popularity. It is a new type of technology that uses fewer fossil fuels and causes less harm to human, animal, and plant health, as well as to the environment as shown in figure 1.

Green technology aims to reduce the amount of waste and pollution generated during production and usage. It's also known as clean technology or environmental technology. This technology should be able to address society's requirements in ways that will last endlessly without harming or depleting natural resources[6]. In a nutshell, Green technology is defined as technology that meets current requirements without compromising future generations' ability to meet their own. The following conditions are met by green technology:

- It reduces the consumption of natural resources and saves energy.
- It increases the use of renewable energy sources.
- It decreases green-house gas emission to zero, ensures that its use is safe, and, finally, promotes a healthy and enhanced environment for all living things.
- It helps to keep the ecosystem from deteriorating.

1.2. GT policies have 4 Pillars which are shown in Figure 2:

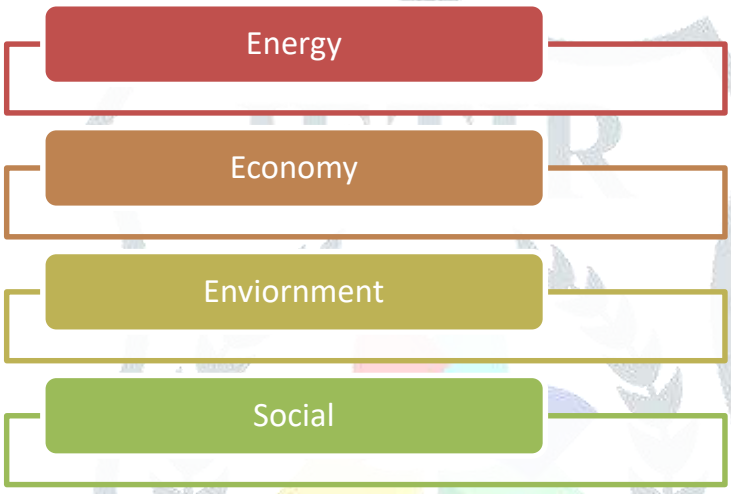

Figure 2: illustrate the above Figure shows the pillars of Green Technology policies.

1.3. Need of GT:

Green or eco-technology is a word that refers to a variety of continuously developing methods, practices, and materials, ranging from energy generating techniques to non-toxic cleaning solutions. It considers both the long-term and short-term environmental consequences of anything. Before things get out of hand, we must recognize the relevance of green technology in resolving this issue. As a result, developed and developed countries alike are turning to this type of technology to aid in the protection of the environment from harmful effects.

We have constantly attempted to come up with better solutions to lessen the overall negative impact of technology at Green Machines. This technology reduces the carbon emission, provides clean water, conserves wildlife , also offers renewable sources of energy and many more benefits of this technology[7].

1.4.Types of Green technology:

Here are some examples of green technology that you may use in your house to live a more environmentally friendly lifestyle.

1.4.1. Recycle:

The recycling bin is one of the simplest and most affordable green solutions. While the container itself isn't technically "technology," what happens after your paper, aluminum cans, or glass is. When you discard a product, it is sent to a recycling facility where it is sorted using green technology to guarantee that it is properly recycled. Green technology, such as techniques to recycle water or waste in the manufacturing process, may be included into the manufacturing process. You will be a part of the change to benefit the environment if you commit to recycling.

1.4.2. Solar panel:

When you think about green technology, solar panels are probably one of the first things that spring to mind. Modern designs are extremely efficient, and they can be installed virtually anywhere on the planet as long as the sun shines (Figure 2).

Figure3: The above Figure shows the Solar Panel which is used for generating electrical energy with the help of solar radiation.

1.4.3. Clean Water:

Green technology is being used to purify water sources all around the world. To improve the availability of clean drinking water in areas where water resources are restricted, green technology may be utilized to filter dirty water or remove salt from seawater.

1.4.4. Wind Energy:

Wind energy is a fantastic renewable energy source. The key to wind energy is to locate these energy generators at high altitudes with strong wind speeds. Wind power has a high return on investment (Figure 3). The main disadvantage is that, because to their size, they obscure the view from almost every angle.

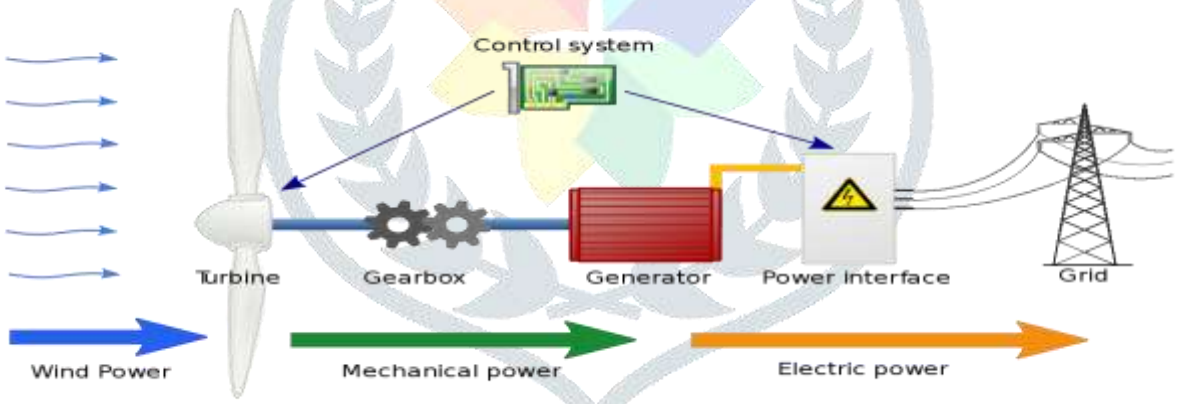

Figure 4: Illustrate the wind energy, this energy is also known as the green energy[8].

1.4.5. LED light:

For a variety of reasons, LEDs are called GREEN technology. Unlike its counterparts, high Intensity Discharge lamps, LEDs don't contain mercury. LED lights are also compatible with the Hazardous Substances Control Act. They are designed to provide more than 10 years of maintenance-free service, which means less waste because the bulb does not need to be replaced. Light Emitting Diodes is the newest and most advanced lighting technology available (Illumination). LED has gained popularity as a result of its benefits, and is currently effectively displacing previously available traditional light sources such as incandescent bulbs, CFLs, Metal Halide lamps, and so on. LEDs come in a variety of shapes and sizes, and they may be utilized for a variety of lighting projects including street or park lighting, metro station illumination, architecture, and facade lighting.

1.4.6. Smart Thermostat:

The smart thermostat is another excellent green technology investment for your house. Living in a climate that experiences all four seasons might increase your energy expenses and force you to adjust your thermostat on a regular basis. Smart thermostats automatically regulate the temperature in your house, ensuring that you

don't waste energy. You schedule your thermostat to turn on immediately before you return from work or anyplace else, so you're not heating or cooling an empty house throughout the day.

1.4.7. Biomass:

The conversion of industry by-products into power is what biomass is all about. Wood chips and pieces, residual sugar, animal dung, and anything else that can be burned are examples of by-products. Biomass can also refer to materials created particularly for energy generation. These are our major renewable energy sources (Figure 4). Renewable energy, on the other hand, must be both scalable and financially viable for investors in order to make sense. For the time being, the five sources of renewable energy listed above are the most common[9].

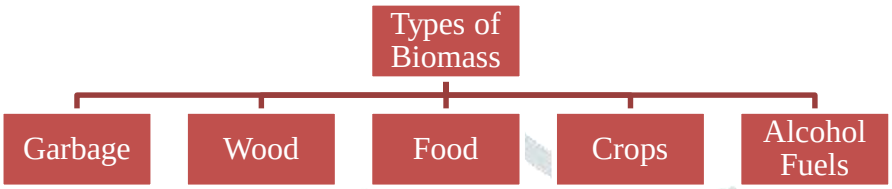

Figure 5: The above figure shows the different classification of biomass.

1.4.8. Hydropower:

Hydro-power is now the major source of renewable energy, accounting for more than 70% of total output (Figure 5). It works by placing specific underwater installations where powerful currents of water force through a mechanical device known as a penstock. After that, the "push" is transformed to electricity and supplied into the energy system. Energy may be generated by any sort of water body, including evaporation, rainfall, and tides[10]. Hydropower, as a sustainable endeavor, has a low environmental impact.

1.5.Goals of Green Technology:

Green technology's major goal is to satisfy society's requirements without harming or diminishing the planet's natural resources. The goal is to fulfill current demands without compromising on quality. The emphasis is now on creating goods that can be completely recovered or re-used. As one of the major aims of green technology, measures are being done to decrease waste and pollution by altering production and consumption habits. Environmental technology, often known as clean technology, is technology that is beneficial to the environment. It creates environmentally friendly items using creative ways. Green energy efficiency is partly location-dependent, since it is simple to develop a rapid and efficient energy solution provided you have the proper conditions, such as frequent and intense sunshine[11].

1.6.Green-nanotechnology:

The manipulation of matter at the Nano-scale, which is one billionth of a meter, is referred to as nanotechnology. Some scholars feel that mastery of this issue is imminent, and that this would transform the way by which everything in the world is created. The application of green engineering and chemistry to this sector is known as "green nanotechnology." Nanotechnology will not only usher in the next industrial revolution, but also provide technical answers as shown in figure 6. Waste management and environmental cleanup can also benefit from nanotechnology. Through innovative filtering techniques and the capacity to disinfect polluted water, it will help supply clean water to billions of people[12].

Figure 6: Illustrate the Green Nano technology for the Environment and Sustainable Development.

2. DISCUSSION

Because it compensates for the ecological costs that are expressed in many traditional industrial processes, green technology is more expensive than the technology it seeks to replace. This is a new technology, and there are many unknown aspects to it. In addition, compared to other proven technologies, the related improvement and training expenses make it even more expensive. Other variables that influence the perceived profitability of this technology include supporting infrastructure, technical readiness, human resource skills, and regional considerations. A variety of other barriers may hinder the adoption and circulation of these technologies. Some issues include institutional, such as absence of a proper supervisory framework, while others are technical, cultural, financial, political, or legal in character effects, a scarcity of human resources, and a scarcity of qualified employees. Furthermore, overcoming these obstacles is a difficult task. Promoting green growth is something that will be forced upon them in the future.

3. CONCLUSION

For sustainable growth, environmental preservation, resource conservation, and other socioeconomic issues must be addressed. Green measures for resource conservation and environmental preservation will aid in maintaining the greater economic growth rate required to meet fundamental requirements at a reasonable cost as well as the future quality of life. The greatest benefit of using green technology is that it improves people's superiority in life by making the environment more sustainable. Investigate the aims of green technology, including the introduction of sustainable living, the development of renewable energy, and the reduction of trash. It may be incorporated in machinery, computers, gadgets, and factories that can be operated by people who have no prior understanding of how they work. Moreover, green technology employs novel and creative energy generation methods. The main objective of green technology is to solve the economic challenges, save the environment, and conserve renewable energy sources.

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