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GREEN TECHNOLOGY: A NASCENT CONCEPT

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ABSTRACT

Green technology is continuously evolving group of methods and materials, for generating energy to non-toxic products. Green technologies cover various aspects of technology which help us reduce the impact of ill habits of human on the environment and create ways for sustainable development. Social equitability, economic feasibility and sustainability are the key parameters for green technologies. Green technologies are an approach towards saving our planet. Green technologies are our way out of destruction. Today green technologies are the need of the hour as they are most appropriate to the current needs of the world. It is an innovative and environmental technology. Green technologies have upsides and downsides but they are a necessary approach towards human survival. Sooner or later they have been proven to be beneficial to the society but their true effects can be observed only in the future which we can hope to be good for the society and the precious planet. This paper throws light on both its positive and negative aspects of green technology.

Keywords- Green technology, sustainable development, non-toxic products, environmental technology.

I. INTRODUCTION

Dream of a clean, climatically stable planet has been envisioned since the commencement of industrial revolution. The need for power and energy to steer human life in the most natural and environment friendly way, is best achievable using green technology based resources. Green Technology (GT) is an environmental healing technology that reduces environmental damages, which contributes to both poverty reduction and sustainable development. The boundless demand of energy to cater to human needs and the abundant availability of green resources on the earth combine to make 'Green tech' an evergreen technology. Green technology or Clean Technology is the most excellent and most efficient form of energy around the globe. Progressively many people are attracted to it and are using it for the welfare of the whole human race. It is easily available, long-lasting, non perilous, thwarts waste, capitalizes on efficiency by curtailing energy utilization and usage of materials. Green technology is all set to take quantum leaps.

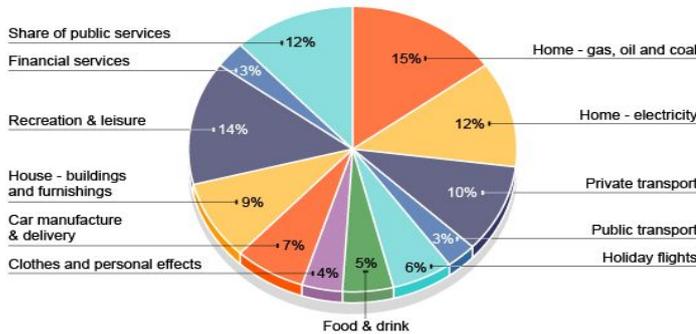
An overview of green technologies:-

1. Water treatment
2. Wastewater treatment
3. Air pollution control
4. Waste treatment and management
5. Environmental remediation
6. Energy conservation
7. Emerging green technologies
8. Hydrogen and fuel cells
9. Renewable energy
10. Battery storage technologies
11. Green buildings
12. Sustainable urban planning
13. Cleaner Conventional Energy
14. Electric Power Infrastructure
15. Cleaner Transportation
16. Cleaner Industry
17. Cleaner water
18. Carbon Capture and Storage

One of the most hunted goals of major world economies is to reduce carbon emissions and control mounting temperature. This can be addressed by the use of green technologies such as sustainable manufacturing, green buildings, fuel efficient transportation, energy efficiency measures, waste recycling etc.

The demand for cereals in the developing countries is expected to increase by 59% in the next 25 years but the growth rate in cereal yields has declined alarmingly. An alternative cultivation technology is therefore realized to increase the yield and meet the demand.

The advances in solar, wind, bio-energy and energy efficiency design has accelerated the development of technology-driven energy mechanism. Solar photovoltaic, wind energy, bio-fuel, biogas, micro & small hydropower, biomass, solar thermal, geothermal energy, organic farming, integrated pest management (IPM), agro forestry are some of the most feasible technologies under the umbrella of GT.



Green technologies like green buildings, energy efficiency measures, green manufacturing etc have qualified as energy and resource savers. Usage of efficient lighting, air-conditioning etc. not only saves money at the consumer's end but it also results in significant savings at the power production end. One unit of electricity saved at user's end results in about four and a half units saved at the production end.

Manufacturing firms can also achieve significant benefits by green manufacturing.

National benefits for Energy Generation: Power generation is a sector where green technology might create wonderful results. Distributed generation technologies e.g. solar PV, biogas production, wind power etc. have practically proven that they can provide more employment opportunities to people and can be applied to provide energy solutions to communities in remote areas successfully. In India distributed generation holds a lot of potential. Small scale hydro-electric power and the PV sector have already achieved significant private sector involvement which is a major indicator of growth. Companies like Moserbaer, TATA BP solar, and Signet Solar have entered into the PV market by making huge investments. Equations

In Germany, people sell the electricity generated by their household Photovoltaic panels to the national grid and in rare cases may end up charging money from the utility instead of paying!

Green technologies have had great impact on communities of the areas where they have been implemented. Provision of bio-gas plants to rural households has empowered communities. Same has been the case with distribution of solar lanterns through certain programs e.g. TERI's Lighting a Billion Lives Campaign.

Green technologies have the potential to give birth to sectors which were previously not thought of. An interesting example can be taken of carbon auditing companies which have come up. Due to a cap on carbon emission and enforcing of environmental friendly trade practices ventures like carbon auditing, many start-ups have been found to do this activity. This has expanded the employment opportunities for people and has created a completely new avenue of wealth generation, whereby flow of cash from developed nations to developing nations has opened up. It is certainly a positive aspect of green technology.

Places where organic (Green) farming is practiced instead of inorganic farming are showing the signs that it is a superior approach in due course.

Green construction technologies are also coming up. Green buildings can recover their cost over an acceptable time frame as they have the ability to generate energy. Green technologies can be a boon to the economy of a country. There is an international call for all types and sizes of enterprises- government, non-government to not-for-profits to promote sustainable and environmentally responsible business practices. These enterprises can collectively jump on the "green" bandwagon. Green energy practices may also perk up profits, the companies are obligated to thank numerous of contemporary shoppers who are particularly faithful to brands which are environment-friendly. For example, the Carbon Trust initiative from United Kingdom has encouraged organizations like the Levi Strauss, Walkers Crisps, and PepsiCo to insert a carbon reduction label to wrapping that tells the consumer about the quantity of GHG release related to distributing and also in manufacturing.

M/s. Coke has invested heavily in a culture of sustainable innovation and is reaping the sweet fruits. The company has presently initiated the Plant Bottle, a moderately bio-plastic bottle that is 100% recyclable with up to 30% plant material.

MIT researchers also unveiled a system this year to help India's villages create solar-powered microgrids. They built a device, smaller than a shoebox, that regulates how much power from solar panels goes to immediate uses—such as phone charging—or to batteries for later use.

High-altitude wind technology got a boost in August when M/s. Altaeros Energies has developed a Buoyant Airborne Turbine that looks like a huge balloon and uses a helium-filled shell to lift turbines 2,000 feet off the ground. Since wind gains strength at higher heights and blows faster across the blades, high-altitude wind turbines or kites can generate much more electricity than even the tallest tower-mounted ones.

This year only Harvard researchers unveiled a flow battery made with cheap, non-toxic, high-performance materials that they say won't catch fire.

The founders of Microsoft, Amazon and Facebook launch a new group to tackle climate change. Their ideas include delivery drones, advanced nuclear reactors, and solar paint.

Keeping the permanence of the planet in mind, the WEFO committee on Engineering and Environment states the following principles.

II. TO ALL ENGINEERS

When you develop any professional activity:

Try to obtain a superior technical achievement, which will contribute to and promote a healthy and agreeable surrounding for all men, in open spaces as well as indoors.

Strive to accomplish your work with the lowest possible consumption of raw materials and energy and the lowest of wastes and any kind of pollution.

Select the best alternative for an environmentally sound and sustainable development.

Promote actions to improve the environment in your proposals.

Reject such a commitment that involves unfair damages for human surroundings and nature.

Do not exceed the principles of ecosystem interdependence, diversity maintenance, resource recovery and inter-relational harmony.

Downside of Green Energy: Along with benefits, there are conspicuous downsides to green energy too. The disposal of solar panels is still in the R&D stage. Many solar panels contain toxic matter which can be dangerous; Viz. in India upper limit of installation cost of a 1 MW photovoltaic solar power plant is roughly Rs 300-350 million (discounting the government grants). On the other hand the installation cost of subcritical coal power plant (Ultra mega power plant 4000MW) is roughly Rs 184,736 million. i.e. Rs 46.184 million per MW.

Green buildings, solar power plants all are currently very expensive; how justified is their implementation when it is more necessary to feed a hungry population? Can a poor person be forced to purchase new fuel efficient kitchen equipment when he barely makes his ends meet?

III. CONCLUSION

It can be concluded that all of us need to understand and apply the concept of appropriate technologies to reduce overall human footprint on the environment. Appropriate technologies hold multiple benefits for us and call for the spirit of enquiry, innovation and invention. Green technologies have upsides and downsides but they are a necessary approach towards human survival. In the long run they have been proven to be beneficial to the society but their true effects can be observed only in the future which we can safely hope to be good for the society.

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