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ADVANTAGES OF GREEN TECHNOLOGY

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ABSTRACT

Technology is application of knowledge to practical requirements. Green technologies encompass various aspects of technology which help us reduce the human impact on the environment and create ways of sustainable development. Social equitability, economic feasibility and sustainability are the key parameters for green technologies. Today the environment is racing towards the tipping point at which we would have done permanent irreversible damage to the planet earth. Our current actions are pulling the world towards an ecological landslide which if happens would make destruction simply inevitable. Green technologies are an approach towards saving earth. Thus both its positives and negatives need to be investigated. Green technology uses renewable natural resources that never depletes. Green technology uses new and innovative energy generation techniques. Green nanotechnology that uses green engineering and green chemistry is one of the latest in green technologies. One of the important factors for environmental pollution is the disposal of waste. Green technology has answers to that as well. It can effectively change waste pattern and production in a way that it does not harm the planet and we can go green. Among the possible areas where these creations and growth are expected to come from include green energy, organic agriculture, eco-friendly textiles, green building constructions, and manufacturing of related products and materials to support green business. Because this is but new to the industry, it is also expected to attract new customers who will see the many advantages of using green technologies in their homes and others. Besides other forms of green technology in field of generation of energy are done by solar power and fossil fuel. These have no adverse effect on the planet and it won't replenish. So future generation can also benefit from them without harming the planet. This paper focuses on the advantages of green technology and the benefits that can be accrued out of it.

Keywords:

Green technology, Environmental pollution, Renewable energy, green chemistry, eco-friendly technology, organic Farming.

INTRODUCTION

As the name implies green technology is one that has a "green" purpose. By green we do not mean the color. Green inventions are environmentally friendly inventions that often involve - energy efficiency, recycling, safety and health concerns, renewable resources, and more. The world has a fixed amount of natural resources, some of which are already depleted or ruined. For example - household batteries and electronics often contain dangerous chemicals that can pollute the groundwater after disposal, contaminating our soil and water with chemicals that cannot be

removed from the drinking water supply and the food crops grown on contaminated soil. The risks to human health are great. Therefore, the need of the hour is that every investor should think green. They should know that green inventions and clean technologies are good business. These are fast growing markets with growing profits. From the view point of consumers they should also know that buying green inventions can reduce their energy bill and that green inventions are often safer and healthier products.

DIFFERENT TYPES OF GREEN TECHNOLOGY

Green technology covers a broad area of production and consumption technologies. The adoption and use of green technologies involves the use of environmental technologies for monitoring and assessment, pollution prevention and control, and remediation and restoration. Monitoring and assessment technologies are used to measure and track the condition of the environment, including the release of natural or anthropogenic materials of a harmful nature. Prevention technologies avoid the production of environmentally hazardous substances or alter human activities in ways that minimize damage to the environment; it encompasses product substitution or the redesign of an entire production process rather than using new pieces of equipment. Control technology renders hazardous substances harmless before they enter the environment. Remediation and restoration technologies embody methods designed to improve the condition of ecosystems, degraded through naturally induced or anthropogenic effects.

DIFFERENT TYPES OF GREEN TECHNOLOGY PRODUCTS

Green technology products are items which factor environmental awareness into their design and use. Green technologies products aim to reduce waste, cut pollution, and even diminish fossil fuel use. Some of the major types of green technology products include energy creation products, green chemicals, sustainable or recyclable products, and technology that run on alternative energy. Products that help create alternative energy, such as solar panels and thermal heating discs, are some of the most important green technology products used in everyday life. Solar panels, which can be installed on homes, apartments, and commercial buildings, use the sustainable heat of the sun to charge solar batteries, which can be used for electricity instead of traditional, non-sustainable sources like gas. Thermal heating discs, which are used in swimming pools, suck the sun's rays in and radiate them over the pool's surface, providing an alternative means of heating that avoids fossil fuel use. Green chemicals are important in many green technology products. These products aim to create the same effects as toxic, polluting chemicals, while reducing risk of poisoning and environmental harm. Green chemical products include home cleaning agents made out of coconut and glycerin, insecticides that use orange or peppermint oil instead of toxic chemicals, and even green laundry detergent that can reduce water pollution. Sustainable and recyclable green technology products help increase the life cycle of consumer material. These products may include cell phones made from plastic water bottles, appliances rebuilt from scrap metal, and even recyclable laptops. Green technology products that use sustainable and recyclable materials often advertise their involvement in recycling initiatives; consumers shopping for a new cell phone or laptop may wish to inquire about specific models that use recycled materials. Solar powered charging devices for phones, laptops, and portable appliances are also popular green technology products. By converting everyday products to alternative energy power sources, green technology can help reduce fossil fuel use and help users cut energy bills.

APPLICATIONS OF GREEN TECHNOLOGY IN OUR LIFE

SOLAR ARRAY

One of the best known examples of green technology would be the solar cell. A solar cell directly converts the energy in light into electrical energy through the process of photovoltaics. Generating electricity from solar energy means less consumption of fossil fuels, reducing pollution and greenhouse gas emissions.

REUSABLE WATER BOTTLE

Another simple invention that can be considered green is the reusable water bottle. Drinking lots of water is healthy. Reducing plastic waste is great for the environment. Hence, trendy reusable water bottles that you can refill yourself are health-promoting, eco-friendly, and green.

SOLAR WATER HEATER

Installing a solar water heater can be a great way to cut down on energy costs at a much lower initial expense. The costs associated with the installation of a solar water heater are actually recouped much faster than the costs associated with photovoltaic technology for power generation. This is due to the increased efficiency of solar water heating systems, as well as their reduced expense when compared to the large solar array required for powering a home.

WIND GENERATOR

The costs of a home wind generator vary greatly. Some have built their own wind generators with off-the-shelf parts from their local hardware stores. Others have purchased kits or paid for professional installation to supplement the power purchased from their local electrical grid. The power production capability of a home wind generator varies about as much as the initial expense. Many kit based generators will produce only enough power to offset 10-15% of your home energy costs.

RAINWATER HARVESTING SYSTEM

Rain collector systems are extremely simple mechanical systems that connect to a gutter system or other rooftop water collection network and store rain water in a barrel or cistern for later non-potable use (like watering plants, flushing toilets, and irrigation). These systems are extremely inexpensive.

INSULATE OUR HOUSE

Based on EPA estimates, 10% of household energy usage a year is due to energy loss from poor insulation. We will get an excellent return on investment from sealing our home to prevent energy escape.

BUILDING WITH GREEN TECHNOLOGY

Green buildings use a variety of environmentally friendly techniques to reduce their impact on the environment. Reclaimed materials, passive solar design, natural ventilation and green roofing technology can allow builders to produce a structure with a considerably smaller carbon footprint than normal construction. These techniques not only benefit the environment, but they can produce economically attractive buildings that are healthier for the occupants as well. The chief benefit of building green is reducing a building's impact on the environment. Using green building techniques can also reduce the costs associated with construction and operation of a building. Green ventilation techniques involve open spaces and natural airflow, reducing the need for traditional air conditioning and preventing many of these problems.

NATIONAL BENEFITS FOR ENERGY GENERATION

Power generation is another sector where green technology might create wonders. 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. Live examples exist in India where people have used alternative green power generation technologies and have not only fulfilled their own energy needs but have also sold their energy to the grid thereby making significant income. Same is in countries like Germany, where 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! In this way a person not only helps himself or herself but also helps the nation by actually contributing to the national power generation and thus proves to be an asset rather than a liability to the society.

BENEFITS TO THE RURAL AREAS

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 and has increased their productivity. Same has been the case with distribution of solar lanterns through certain programs. It is clear that people have benefited from it by not only using the outputs personally but also by trading it. Initiatives such as the barefoot college in Rajasthan empower villagers by teaching them how to use eco-friendly technologies like solar cookers, mud refrigerators, and sustainable farming practices. Villagers have built their own water storage and rainwater harvesting techniques and are not dependent on outside help. This has raised the standard of living in the participating villages.

BENEFIT TO THE URBAN AREAS

Cities which actively pursued their environmental concerns in the last ten years are showing a marked improvement in their environment quality parameters. For example Delhi launched CNG fuelled public transport in a phased manner. This was done as measures to improve air quality of Delhi where the toxic gas levels were off the charts, sometimes exceeding 5-12 times the normal values. Since then Delhi has shown steady improvement in the air quality.

GREEN CHEMISTRY

Green chemistry, also called sustainable chemistry, is a philosophy of chemical research and engineering that encourages the design of products and processes that minimize the use and generation of hazardous substances. In 1990 the Pollution Prevention Act was passed in the United States. This act helped create a modus operandi for dealing with pollution in an original and innovative way. It aims to avoid problems before they happen. As a chemical philosophy, green chemistry applies to organic chemistry, inorganic chemistry, biochemistry, analytical chemistry, and even physical chemistry. While green chemistry seems to focus on industrial applications, it does apply to any chemistry choice. Click chemistry is often cited as a style of chemical synthesis that is consistent with the goals of green chemistry.

GREEN NANOTECHNOLOGY

Nanotechnology involves the manipulation of materials at the scale of the nanometer, one billionth of a meter. Some scientists believe that mastery of this subject is forthcoming that will transform the way that everything in the world is manufactured. "Green nanotechnology" is the application of green chemistry and green engineering principles to this field.

CHALLENGES TO GREEN TECHNOLOGY ADOPTION

Generally, green technology is more expensive than the technology it aims to replace, because it accounts for the environmental costs that are externalized in many conventional production processes. Because it is relatively new, the associated development and training costs can make it even more costly in comparison with established technologies. The perceived benefits are also dependent on other factors such as supporting infrastructure, technology readiness, human

resources capabilities and geographic elements. Adoption and circulation of these technologies can be constrained by a number of other barriers. Some may be institutional, such as the lack of an appropriate regulatory framework; others may be technological, financial, political, cultural or legal in nature. From a company's perspective, the barriers to adopting green technologies are - High implementing costs, Lack of information, No known alternative chemical or raw material inputs, Uncertainty about performance impacts, Lack of human resources and skills. Overcoming these barriers is a complex process. Promoting green growth requires identifying and removing these barriers that hinder the large-scale dissemination of clean technology to developing countries.

CONCLUSIONS

Consumer demand for green technology products is on the rise. Government customers are increasingly mandated to purchase green where available, and the spectrum of products covered by such provisions is growing. As for business customers, if they demonstrate a return on investment in green products, then demand will materialize. Here, the greatest opportunities are in products that reduce energy consumption. Even so, a growing number of business buyers can be expected to be motivated by nothing more than the desire to be perceived as supporting environmental sustainability. So change is coming. The green in technology products is being installed in the R&D phase. Products are being reconfigured to use fewer hazardous substances, require less shipping material, operate on less energy and promote end-of-life recycling. So in terms of environmental sustainability, the technology industries are embracing change. They are changing to avoid negative consequences or to meet green demand or to achieve both. Whatever their motivation, they are incontrovertibly shifting toward green.

REFERENCES

1. Nadia El-Hage Scialabba and Maria Müller-Lindenlauf "Organic agriculture and climate change", *Renewable Agriculture and Food Systems*, vol. 25, No. 2, pp. 158-169, 2010.
2. R. Luken and F. Van Rompaey "Drivers for any barriers to environmentally sound technology adoption by manufacturing plants in nine developing countries", *Journal of Cleaner Production*, vol.16, No.1, pp. 67-77, 2008.
3. *A Smarter Shade of Green: How Innovative Technologies Are Saving Energy, Time and Money*, Technology CEO Council, 2008.
4. Acemoglu, D., Aghion, P., Bursztyn, L., Hemous, D. , *The environment and directed technical change* , *American Economic Review* 102, 131- 166, 2012.
5. Tsur, Y., Zemel, A., *On the dynamics of competing energy sources. Automatica* 47, 1357- 1365, 2011.