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NATURAL RESOURCE MANAGEMENT BY USING GREEN ECONOMY INITIATIVE

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ABSTRACT
Green Economy Initiative (GEI) is a better tool in 'greening' economies by reshaping and refocusing policies, investments towards a range of sectors, such as clean technologies, renewable energies, water services, green transportation, waste management, green buildings and sustainable agriculture and forests. GEI activities promote economic growth in countries and regions which implement GEI activities.
Keywords: Green Economy, Sustainable agriculture, Green Buildings, Waste Management.

1. Introduction

Today, developed countries are consuming up to 50 percent more natural resources than developing countries and they are producing more than 75 percent of global waste and greenhouse gases. Due to the continuous increase in population, demand for natural resources has also increased. Overexploitation of resources will not only lead to economic imbalance between developed and developing countries, but also to environmental and ecological imbalance between nature and population growth.

With population explosion and the advancement of science and technology, the demand for more crops form the same land leads to excessive use of fertilizers and pesticides. Excessive use of chemical fertilizers results in accumulation of nitrogen, phosphorous and water on land. These are washed off the land with water through rainfall and irrigation into water bodies such as streams and rivers. Excessive storage of potassium and phosphorous enhances and luxuriant growth of algae in water bodies which goes on to decrease the dissolved oxygen content there by leading to eutrophication. Pesticides are used to kill and control harmful pests especially those which severely effect crops. But these chemicals not only kill the targeted pests but they also affect the untargeted helpful organisms.

2.Measures and Methods

2.1 Green Building/Sustainable building

Green building design involves finding the balance between home building and the sustainable environment. The common objective of green buildings is to reduce the overall impact of the built environment on human health and the natural environment. This can be achieved by (i) Efficiently using energy, water and other resources (ii) Protecting inhabitant's health and improving employee productivity (iii) Reducing waste, pollution and environmental degradation.

Reducing impact of pollution globally, buildings are responsible for consuming a huge share of energy, electricity, water and other materials. Building sector accounts for 18% of global emissions today or the equivalent of 9 billion tonnes of CO_2 annually. If new technologies in construction are not adopted during this time of rapid growth, emissions could double by 2050.

Life Cycle Assessment (LCA) LCA can help avoid a natural outlook on environmental, social and economic concerns by assessing a full range of impacts associated with all cradle-to-grave stages of a process: from extraction of raw materials through materials processing, manufacturing, distribution, use, repair and maintenance, and disposal or recycling. Impacts taken into account include (among others) embodied energy, global warming potential, resource use, air pollution, water pollution, and waste.

Siting and Structure Design Efficiency the foundation of any construction project is rooted in the concept and design stages. The concept stage, in fact, is one of the major steps in a project life cycle, as it has the largest impact on cost and performance. In designing environmentally optimal buildings, the objective is to minimize the total environmental impact associated with all life-cycle stages of the building project. However, building as a process is not as streamlined as an industrial process, and varies from one building to the other, never repeating itself identically. In addition, buildings are much more complex products, composed of a multitude of materials and components each constituting various design variables to be decided at the design stage. A variation of every design variable may affect the environment during all the building's relevant life-cycle stages.

Energy efficiency Green buildings often include measures to reduce energy consumption – both the embodied energy required to extract, process, transport and install building materials and operating energy to provide services such as heating and power for equipment. As high-performance buildings use less operating energy, embodied energy has assumed much greater importance – and may make up as much as 30% of the overall life cycle energy consumption.

Water efficiency Reducing water consumption and protecting water quality are key objectives in sustainable building. The protection and conservation of water throughout the life of a building may be accomplished by designing for dual plumbing that recycles water in toilet flushing or by using water for washing of the cars. Waste-water may be minimized by utilizing water conserving fixtures such as ultra-low flush toilets and low-flow shower heads.

Materials efficiency Building materials typically considered to be 'green' include lumber from forests that have been certified to a third-party forest standard, rapidly renewable plant materials like bamboo and straw, dimension stone, recycled stone, recycled metal and other products that are non-toxic, reusable, renewable, and/or recyclable.

Indoor environmental quality enhancement Indoor air quality seeks to reduce Volatile organic compounds, or VOCs, and other air impurities such as microbial contaminants. Buildings rely on a properly designed ventilation system (passively/naturally or mechanically powered) to provide adequate ventilation of cleaner air from outdoors or recirculates, filtered air as well as isolated operations (kitchens, dry cleaners, etc.) from other occupancies. During the design and construction process choosing construction materials and interior finish products with zero or low VOC emissions will improve IAQ. Most building materials and cleaning/maintenance products emit gases, some of them toxic, such as many VOCs including formaldehyde. These gases can have a detrimental impact on occupants' health, comfort, and productivity. Avoiding these products will increase a building's IEQ.

2.2 Sustainable Agriculture

"Agriculture is central to sustainable development. About 70% of the poor in developing countries live in rural areas and depends in one way or another on agriculture for their survival." Some key issues are (i) Address serious soil fertility problems (ii) Diversification of crops (iii) Increase water- use productivity (iv) Apply R&D to increase productivity in crops and livestock.

Sustainable agriculture is a "Management of resources for agriculture to satisfy the changing human needs, while maintaining or enhancing the quality of environment and conserving the natural resources."

Sustainable agriculture systems are designed to use (i) existing soil nutrients (ii) water cycle (iii) naturally occurring energy flows for food production.

Crop Rotation: Crop rotation is the sustainable practice of growing a series of different types of crops in the same area in sequential seasons. It gives various nutrients to the soil. It provides the replenishment of nitrogen through the use of green manure in sequence with cereals and other crops. Crop rotation also mitigates the build-up of pathogens and pests that often occurs when one species is continuously cropped, and can also improve soil structure and fertility. Crop rotation is one component of polyculture.

Use of organic fertilizers: Organic fertilizers are derived from animal matter or vegetable matter. The use of organic fertilizer is sustainable gardens and farms is quickly gaining in popularity-the number of acres of organic agriculture increased from 59 million on 2004 to nearly 81 million in 2009 especially as their mitigating effects on the environment are demonstrated through more and more studies.

Conservation Tillage: Tillage is any method of soil cultivation that leaves the previous year's crop residue (such as corn stalks or wheat stubble) on fields before and after planting the next crop. Conservation tillage management can reduce soil erosion, enhance soil productivity, decrease dependency on fossil fuels and minimize wheat, nutrient, and pesticide runoff. It is an important technique of sustainable farming.

3.Results and Analysis:

3.1 Green Building

Better to use Light shelves which are fixed reflective devices and are located at or near an aperture. This device reflects and penetrates sunlight off the ceiling and walls to evenly disperse the natural light deeper into a room. It minimizes bright natural light near the window, enhances daylight quality, conserves energy, and also enhances occupant comfort and productivity. Advantages of light shelves are cuts down on glare and heat, admits natural light.

Better to use Double glazed windows which are made from two panes of glass that are separated by a layer of air or gas and then sealed. They are designed to provide a better barrier against outside temperatures than single paned windows because the two layers of glass and the buffer layer act as insulators. The glass used features a specially-coated surface that re-radiates heat in cold months and prevents heat from entering during hot weather. Originally created for extreme climates, double-glazing is now widely used in nearly all locations, both for new construction and as replacement windows.

Building materials, components, and systems found locally or regionally saving energy and resources in transportation to the project site.Select materials that can be easily dismantled and reused or recycled at the end of their useful life.Outlet of overhead water tank, sprouts of roof-top should be arranged in such a way the water flows through the garden.

Case Study on Building a Sustainable Corporation

Ray Anderson is the chairman and founder of Interface, the world's largest commercial carpet manufacturer. The company has 26 factories in 6 countries. In 1994, Anderson realized that, as the head of a company, he was 'plundering'the natural resources of the world. He decided to convert interface into a totally sustainable green corporation. Anderson came up with Eco sense, a vision for 2020. He wanted Interface to become totally sustainable. He planned the steps: (i) Reduce, reuse, reclaim, redesign (ii) Adopt best practices, share them (iii) Develop sustainable technologies (iv) Challenge suppliers to follow.

Since his change of heart, Anderson has implemented hundreds of projects in the company with these objectives in mind: (i) Zero waste generation (ii) Minimum energy use (iii) Eventual zero use of fossil fuels. Interface now leases out carpets instead of selling them. For a monthly change, the company installs, cleans, and maintains the carpets. It repairs worn-out tiles and recycles old carpets into new ones. The company has developed a new carpet material called Solenium, which can be completely recycled. It requires 40% less raw material and energy, generates very little waste, and lasts much longer.

By 2009, Interface had reached a sound position: (i) It was halfway towards the goal of total sustainability (ii) It has sharply reduced energy use and waste generation and saved millions of dollars (iii) The products were the best they have ever been (iv) Its people were galvanized around a shared higher purpose (v) The company's goodwill in the marketplace was far better than what any amount of advertisement could have brought. Interface was ranked number one in the sustainability survey, a survey of global sustainability thought leaders conducted by Globe Scan [1].

3.2 Sustainable Agriculture

Sustainable agriculture systems are designed to use (i) existing soil nutrients (ii) water cycle (iii) naturally occurring energy flows for food production. Furthermore, such systems aim to produce food that is both nutritious and without products that harm human health. In practice, such systems have tended to avoid as far as possible the use of chemical fertilizers, pesticides, growth regulators, and livestock feed additives, instead relying upon crop rotations, crop residues, animals manures, legumes, green manures, off-farm organic wastes, mechanical cultivation and mineral bearing rocks to maintain soil fertility and productivity, and on natural, biological and cultural controls for insects, weeds and other pests.

4.Conclusion

There are various attempts in different parts of the world by different groups to move towards a more sustainable 'green' economy. Green building techniques, if implemented effectively in every phase of development increases the life span of people as well as the building. Don't get bogged down, look for opportunities to improve traditional practices. Sustainable agriculture has several benefits over modern agriculture as it is cheap, conserves water, soil and environment. By shifting from traditional to modern methods of agriculture like crop rotation, conservation tillage, using bio-fertilizers, rain harvesting, better water management practices, we can bring green revolution. We have to adopt 3R's concept like Reduce, Reuse, and Recycle for a better and ecofriendly environment. I conclude my seminar that by adopting the above said methods we can definitely make this planet a safer place for our future generations.

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