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Original Article

Environmental Sustainable Development and Knowledge Systems

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Abstract

Environmentally sustainable development means responsible management of natural resources without compromising the ability to meet the needs of future generations. Knowledge systems include the knowledge, skills, and values necessary for sustainable development, which help people make informed decisions and take responsible actions while caring for the environment. Traditional practices, such as ancient Indian knowledge systems, also contain important sources of sustainable solutions, which are useful for managing natural resources and conserving the environment. Taking care of the environment, making proper use of natural resources and maintaining their availability for future generations. Striking a balance between the three elements of environment, economy and society, so that development is sustainable and beneficial to all. Knowledge systems—comprising education, ethics, and environmental awareness—enable individuals to make informed, responsible decisions for the protection and judicious use of natural resources. The research, based on descriptive and analytical methods, examines various dimensions of sustainability such as natural resource management, renewable and non-renewable resource utilization, environmental management systems, and human capital development. Findings indicate that the integration of traditional ecological knowledge with modern environmental management practices fosters both environmental preservation and socio-economic growth. The study concludes that sustainable progress can only be achieved through the responsible application of knowledge, ethical leadership, and community participation that ensures a harmonious balance between the environment, economy, and society.

Keywords: *Environmental, Sustainable Development, Natural Resources, Knowledge systems, Ability, Decisions etc.*

Introduction

Education provides people with the knowledge, skills, and attitudes necessary for sustainable development. This knowledge enables individuals to be aware of their environmental impacts and make informed decisions. The Indian knowledge system has a long-standing tradition of living in harmony with nature, which is an important source for sustainable development. This system seeks natural and ethical solutions for environmental management, which are consistent with the concept of sustainable living. Environmentally sustainable development is the process of development with respect to nature, and the knowledge system is an important tool enabling that process, helping humans become responsible citizens. Environmental sustainability is the responsible management of natural resources to meet the needs of the present without compromising the ability of future generations to meet their own needs. Sustainable development meets the needs of future generations by balancing economic, social and environmental needs, while knowledge systems provide the knowledge, skills, attitudes and values necessary for this development. The knowledge system includes various elements such as education, ancient Indian knowledge systems, etc., which empower individuals to address global challenges such as climate change, poverty, and inequality. The main purpose of the knowledge system is to provide individuals and communities with knowledge, skills, and attitudes for sustainable development using education, ancient traditions, and moral values. Knowledge systems are essential to finding solutions to problems such as climate change, environmental degradation, poverty and inequality. This helps people make informed decisions and bring about change in society.

Problems of the Study:

Knowledge systems offer a holistic approach to understanding the interrelationships between human and natural systems, which is important for the needs of sustainable development.

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It is an education that equips students with the knowledge, skills, and perspectives to face global challenges. Rooted in ancient philosophical traditions, this system provides a holistic framework for sustainable development, which promotes harmony with the environment and ethical leadership. The knowledge system covers key issues related to the Sustainable Development Goals, such as climate change, poverty reduction, biodiversity, and sustainable consumption. Global knowledge organizations and universities, such as the Sustainable Development Solutions Network, are coming together to use knowledge systems to find practical solutions to these challenges.

Objectives of the Study:

The main objective of this research is to enhance the knowledge system through environmentally sustainable development and sustainable development of a developing nation like India, and some specific objectives have been given by the researchers as follows.

1. To Study environmentally sustainable development in detail.
2. To Study the factors affecting environmentally sustainable development.
3. To Study environmentally sustainable development and knowledge systems in depth.

Significance of the Study:

Enables people to develop the knowledge, values and skills to participate in decisions about the way we do things, both individually and collectively, locally and globally, It enables people to develop knowledge, values and skills to participate in decisions about it, which will improve the quality of life now without harming the planet for the future. The importance of sustainable development is to meet the needs of the present generation without compromising the needs of future generations, protect the environment, promote social equality, and achieve long-term economic growth.

Scope of the Study:

Environment is the natural conditions surrounding us, which includes all living and non-living elements such as land, water, air, plants, animals, and microorganisms, as well as the interactions between them. The importance of the environment is invaluable, as it provides us with the food, water, and air we need to live, as well as maintaining the balance of living things on Earth. The environment is the foundation of life, made up of biotic and abiotic components such as air, water, land, plants and animals. Protecting it, preventing pollution and maintaining the balance of nature are essential for sustaining life on earth. Biodiversity is the variety of life on Earth, including the different species and the genetic diversity between them, as well as the different ecosystems.

Limitation of the Study:

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It brings together the three pillars of economic development, social equity, and environmental protection. Its main goals are poverty eradication, health, quality education, equal opportunities, and protecting the planet. No compromise is made for the needs of future generations while meeting our current needs. Striking a balance between economic, social and environmental factors, so that development can be sustainable in the long term. Providing a healthy economy, employment opportunities and the resources necessary for people's livelihoods. Ensuring equality, education, healthcare and quality of life for all. Using natural resources responsibly and protecting the environment.

Period of the Study:

This research has been conducted by reviewing the information in 2025 to study in depth the ecological sustainable development and modern knowledge system and to study the influencing factors from an ecological perspective.

Research Methodology:

Researchers have used a variety of secondary resources to study the knowledge system in environmentally sustainable development and the expected development in a developing nation like India. To study in detail the sustainable development of India through the knowledge system and its environmental impact, research papers, articles, journals, newspapers, audio videos, reference books, serial books, annual reports and books.

Research Method:

This research has been conducted using descriptive analysis method to study in depth the knowledge system in ecological sustainable development and innovative environmental improvement in modern India.

Results and Discussion:

Water supply and its use are directly linked to sustainability. Water is an important factor in the production and use process. Water is essential for domestic, agricultural, industrial and many other uses. Unfortunately, even after seventy years of independence, the people of India do not have access to safe, fresh and pure drinking water. Millions of urban and rural people wander here and there in search of drinking water. Clean and pure air the availability of clean and pure air for the present and future generations is an important indicator of sustainability. Because clean air supports the life of humans, animals and other living beings. Air is a gift from God and is a free commodity. Although clean air is a godsend in the current situation, humans pollute it and turn it into a rare commodity. Because clean and fresh air seems to be a rarity, most industries and cities.

Sustainable Development:

Human capital is essential to transform the processes of economic development. Human capital is essential to the process of development. Human capital development is identified by some theories. Education and training, nutritious food, energy, health, research and development, standard of living, etc. are the main indicators of human development. Energy is also a key factor in all development processes. Changes in the demand and supply of energy have a significant impact on sustainable development. In this regard, energy intensity is of utmost importance in total production. Material intensity is also an

important factor for sustainability. If the means of production are scarce, they are used sparingly. This is the fundamental economic problem and is therefore a major topic of mainstream economics.

Natural Resources:

The density of production for various basic materials and various sectors is the basis for sustainability. The processes used to reuse materials are also very important here. Natural resources are the natural elements available in nature and useful to humans, such as air, water, land, minerals, plants, animals, sunlight, and fossil fuels. These resources are essential for the survival of life and the improvement of human life. When the excess consumption of the displayed material is accelerated, and the rate of consumption of the renewable material is greater than its regeneration capacity. The problems that arise from this are not only for the present but also in the future stage. The idea of sustainable development explains the relationship between development and the environment. Many scientists have discussed this issue.

Future Generations:

Real development is the sustainable and fruitful use of economic resources. True development is understood as sustainable production and consumption. The concept of sustainable development is the sustainable use of resources and sustainable production and consumption for the welfare of present and future generations. is a basic natural resource required for respiration. Water is a valuable natural resource required for drinking, agriculture, and industry. Land is used for many purposes such as human settlement, agriculture, and mining. Minerals like iron, gold, and silver obtained from the earth's interior are used in various industries. Forests, trees, and wildlife are part of natural resources and maintain the balance of the environment. Overuse and misuse of natural resources can lead to serious environmental problems such as climate change, floods, and droughts. Sustainable or continuous development is that which meets the needs of the present without compromising the ability of future generations to meet their own needs. It has three main pillars.

Ecosystem:

An ecosystem is a system in which organisms interact with abiotic components such as the atmosphere, hydrosphere, and lithosphere, and includes the storage, transfer, and use of energy. Economic development not only meets the needs of the present but also creates economic opportunities for future generations. To create an inclusive society that respects all people, cultures and human rights and provides equal opportunities for all. To use natural resources judiciously and to protect the environment in such a way that future generations can also use them and maintain the balance of nature.

Environmental Management System:

An environmental management system is a framework designed to help organizations monitor, control and continuously improve their environmental performance. If we do not use these resources wisely, it can create an imbalance in the environment. Global warming, floods, climate change, droughts and famines are some of the consequences we will have in the future. Therefore, conservation of natural resources has become the need of the hour.

Renewable Resources:

Resources that can be naturally regenerated are called renewable resources. These include solar energy, wind energy, etc. These resources are available in abundance and continuously. Resources whose production rate is very slow, and which are not produced naturally are called non-renewable resources. From a human perspective, non-renewable resources are those whose consumption rate is high, and their regeneration rate is correspondingly slow, Fossil fuels take millions of years to form, making them non-renewable resources. Metallic minerals can be recycled. However, coal and petroleum cannot be recycled. Non-renewable natural resources are limited in availability and cannot be regenerated or reused on a large scale. Once such resources are depleted, they cannot be regenerated.

Conclusion:

The natural resources available on Earth are limited. Given the rate at which they are being used, many resources could be depleted in the next few decades. Overuse causes immense damage to nature. It also results in pollution, loss of biodiversity, reduction in the availability of renewable resources, etc. Only if natural resources are used appropriately can the balance of the environment be maintained. Substances or objects that are used to obtain energy for domestic use or industrial purposes are called energy resources. Advances in science and technology have made it possible for humans to obtain energy, convert it into useful forms, and use it for various purposes. The level of progress of a nation is determined by its ability to use energy.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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