



Natural resource management in Indian education system

Dr. Pawar Gopal Ramrao

Principal

SVSPM, Swami Vivekanand College of Education, Udgir., Dist. Latur

Mr. Hatte Sanjay Sangram

Assistant Professor

SVSPM, Swami Vivekanand College of Education, Udgir., Dist. Latur

Mr. Honkalas Mahadeo Nivruti

Assistant Professor

SVSPM, Swami Vivekanand College of Education, Udgir., Dist. Latur

Abstract:

In 2020, India passed the National Education Policy (NEP), finally addressing the pressing need for environmental education in schools. Through the policy, the government has successfully incorporated initiatives to ensure that students receive a comprehensive education that increases environmental awareness and encourages practical action. By suggesting a shift from content-based learning to skill-based learning, the policy acknowledges the transformative force of an experiential approach in all subject areas, including EE. It actively encourages educators to integrate hands-on pedagogy that enables students to actively engage with real-world environmental challenges. The policy enriches school curricula with ecological principles, resource management, and sustainable practices with the aim to equip students with the knowledge and skills to become conscientious guardians of the planet, laying the foundation for an environmentally conscious and sustainable future.

Keywords: *natural resource management, strategies, collaborative approaches*

Introduction

Environmental education in India has gained importance over the years due to growing concerns about environmental degradation and climate change. The Indian government, along with various non-governmental organizations (NGOs) and educational institutions, has taken several steps to promote environmental education in the country.

Natural resource management issues are inherently complex as they involve the ecological cycles, hydrological cycles, climate, animals, plants and geography etc. All these are dynamic and inter-related. A change in one of them may have far reaching and/or long term impacts which may even be irreversible. In addition to the natural systems, natural resource management also has to manage various stakeholders and their interests, policies, politics, geographical boundaries, economic implications and the list goes on. It is very difficult to satisfy all aspects at the same time. This results in conflicting situations.

Planning and managing the use of natural resources is a complex process which requires taking decisions that inevitably involve several objectives of an economic, environmental and social nature. Natural resources management typically requires prediction of environmental changes over large areas or long time periods. In the case of forest management, for example, decisions can affect timber production, water catchment properties, recreational values, aesthetic values, energy usage, or employment opportunities.

Collaborative approaches to natural resource management are being promoted as promising ways to deal with complex and contentious natural resource issues. The National Park Service and the National Conservation and Park Association have recently adopted collaboration as a strategy for promoting racial and ethnic diversity in park planning, outdoor recreation, and environmental conservation education.

After the United Nations Conference for the Environment and Development (UNCED) held in Rio de Janeiro in 1992, most nations subscribed to new principles for the integrated management of land, water, and forests. Although program names vary from nation to nation, all express similar aims.

Education system

In India, environmental education is included in the curriculum of primary, secondary, and higher education levels. The National Curriculum Framework for School Education has emphasized the need for incorporating environmental education across different subjects, including science, social science, and languages.

Ministry of Environment

The Ministry of Environment, Forests and Climate Change has launched several initiatives to promote environmental education in the country. These include the National Green Corps (NGC)

program, which aims to create a network of young environmentalists in schools, colleges, and communities.

Another initiative is the National Environmental Awareness Campaign (NEAC), which seeks to raise awareness among the public about environmental issues and encourage them to take action to protect the environment.. The NEAC was launched by the Ministry of Environment, Forests and Climate Change in India.

The NEAC program focuses on promoting environmental awareness among school children, college students, and the general public. The campaign uses various methods such as workshops, seminars, rallies, competitions, and cultural programs to spread awareness about environmental issues and their solutions.

The NEAC program also aims to involve the public in environmental conservation activities such as tree planting, waste management, and water conservation. The program provides training to volunteers and provides them with resources and tools to implement environmental conservation activities in their communities.

One of the key objectives of the NEAC program is to create a network of environmental volunteers across the country who can work towards creating a sustainable future for India. The program has been successful in creating awareness about environmental issues and has encouraged people to take action to protect the environment.

The National Environmental Awareness Campaign is an important initiative in India's efforts towards environmental conservation. The program has been successful in creating awareness among people and encouraging them to take action to protect the environment.

The Crucial Role of Educators in Developing a Positive Connection with Nature

The onus to establish a positive relationship between students and the environment lies largely with educators, who have the power and reach to imbibe environmental consciousness through observation, experimentation, and example.

As the first step, teachers are encouraged to integrate EE into their learning modules. The idea is for them to be well-versed in the curriculum they, to be able to carry the legacy ahead and ignite the minds of learners. The NEP also recognizes the pivotal role of educators and teachers in

training and capacity building in EE. By equipping teachers with professional development opportunities to enhance their understanding of environmental issues, teaching methodologies, and the integration of sustainability principles into the curriculum, the policy lays the foundation for an efficient delivery of EE to learners of all ages.

Researchers noted that “[c]urriculum developers ... must have a thorough grasp of their role in the integration of [EE] into educational curricula so they can effectively bridge the gap that hinders youth environmental empowerment,” adding that the “strategic integration” of EE in daily activities could “fulfill the role of education in environment awareness and action.”

Integrating environmental consciousness into the school curriculum becomes the guiding thread throughout. This integrative approach proves highly effective, surpassing the impact of introducing environmental education as a separate subject. EE can be infused in various disciplines including the Arts, English, Guidance and Career Education, Interdisciplinary Studies, Mathematics, Native Studies, Science, Social Sciences, Humanities, and Technological Education.

Strategies for Learning Institutes

- **Using the school as a lab:** Let the children get their hands on the job. Transforming learning into a hands-on experience enhances students’ grasp of environmental and sustainability concepts, making it three-dimensional and tactile and therefore gets ingrained into their memories. As Confucius said: “I hear and I forget. I see and I remember. I do and I understand.”
- **Language, Arts and Communication:** Creating environmental awareness and outreach campaigns for the community is a great way to kickstart the journey of environmental enlightenment. It also provides an opportunity to learn language skills for communication and various forms of art, fostering creativity.
- **Science, Technology, Engineering and Maths (STEM).** There are a vast number of projects related to the environment that can be incorporated with the STEM curriculum at every stage of schooling. For example, statistics can be taught using graphs created by students based on a survey they do of their neighbourhood. Environmental consciousness can easily be amalgamated with Chemistry and Biology via the analysis of various processes in nature. Social Sciences can encompass the study of the local flora and fauna at elementary levels, progressing

to higher grades where students can analyse the long-term impact of climate shifts on landscapes across the globe.

- **Field Trips:** Practical experience is irreplaceable when it comes to learning. Whether exploring a local vegetable market or visiting a town or city with a different culture, this hands-on approach is the most effective way to raise awareness among children about their environment and understand both challenges and successes.

An ideal curriculum for education should be interdisciplinary, holistic, value-driven, locally rooted, and globally relevant, seamlessly integrating sustainability concepts at all levels. This approach ensures a well-rounded and meaningful educational experience, connecting learners to both their immediate surroundings and broader global contexts.

There is transformative power in education to shape a future where ecological stewardship is not merely a choice but an inherent part of our societal fabric. From primary schools to institutions of higher learning, the journey towards a sustainable future begins in the classroom.

NGOs for Environmental Education in India

Various NGOs in India are also working towards promoting environmental education. The Centre for Science and Environment, WWF-India, and the Indian National Trust for Art and Cultural Heritage are some of the organizations that are involved in environmental education activities in the country.

The Centre for Science and Environment is an important organization in India's efforts towards environmental conservation and sustainable development. The organization has undertaken several initiatives to promote environmental awareness and action and has played a crucial role in creating a sustainable future for India. The Centre for Science and Environment (CSE) is a non-profit organization based in New Delhi, India, that works on environmental issues. The organization was established in 1980 by Anil Agarwal, an Indian environmentalist.

The CSE focuses on research, advocacy, and capacity-building on various environmental issues, including air and water pollution, climate change, sustainable agriculture, and renewable energy. The organization works towards promoting sustainable development and creating a sustainable future for India.

The CSE has undertaken several initiatives to promote environmental awareness and action. Some of these initiatives include:

1. **Pollution Monitoring:** CSE has set up a pollution monitoring laboratory that monitors air, water, and soil pollution levels in various parts of the country.
2. **Sustainable Agriculture:** CSE promotes sustainable agriculture practices by working with farmers to implement organic farming, crop diversification, and water conservation techniques.
3. **Renewable Energy:** CSE works towards promoting renewable energy sources such as solar, wind, and biomass energy in India.
4. **Environmental Education:** CSE conducts training programs, workshops, and courses on environmental issues for students, professionals, and the general public.
5. **Advocacy:** CSE advocates for policies and regulations that promote sustainable development and protect the environment. The organization also provides technical inputs to government agencies on environmental issues.

Other Organisations

The Environmental Education Centre in India runs a variety of educational programmes for schools, in mainstream and the non-formal sector. Training is provided for teachers, environmental education resources and school materials are developed and various strategies and approaches are used in collaborations with other agencies and sectors. The curriculum is reviewed and adapted to make way for new approaches and hands-on, field-based, dimensions such as eco-clubs, camping, education in and around protected areas is promoted.

Environmental Education in India is making definite and tangible progress in many ways, with various initiatives being taken at the government, NGO, and educational institution levels. However, more is needed for environmental education in India to make a full impact on the sustainable future for the country.

What exactly are Natural Resources?

- Natural resources are those that are **present on the earth** but are **not influenced by human activity**.
- Oil, coal, natural gas, metals, stone, and sand are some **examples** of natural resources.

- **Allocating natural resources** may be a major source of economic and political conflict within nations as well as between them.
- This is especially true when there are growing shortages and scarcities (depletion and overconsumption of resources).
- **Environmental damage and human rights** violations are frequently caused by natural resource extraction.

Types of Natural Resources

There are two types of natural resources, depending on their availability:

- **Renewable Resources:** Renewable resources are those that are continuously available and can be utilized in a variety of ways. Examples: Air, Water, Sunlight, Forest, etc.
- **Non-renewable Resources:** Non-renewable resources are those whose supply is limited because of their non-renewable nature and whose availability might reduce in the future. Minerals and fossil fuels are a few examples.

Natural Resources as Economic Factors in Economic Growth

Natural Resources as Economic Factors in Economic Growth

- Natural resources are the most important factor influencing the development of an economy.
- Natural resources include **land area and soil quality, forest wealth, a good river system, minerals and oil resources, a favorable climate**, and so on.
- The abundance of natural resources is critical for economic growth. A country lacking in natural resources may be unable to develop rapidly.
- However, the availability of abundant natural resources is a necessity but not a sufficient condition for economic growth.
- Natural resources are **unutilised, underutilised, or misutilised** in developing countries. One of the reasons for their backwardness is this only.
- Countries such as **Japan, Singapore**, and others, on the other hand, are not endowed with abundant natural resources, but they are among the world's developed nations.
- These countries have demonstrated a commitment to preserving available resources, putting forth their best efforts to manage resources, and minimising the waste of resources.

Measures Taken to Ensure Economic Growth

- The efficient utilization or exploitation of **natural resources** is dependent on human resource skills and abilities, the technology used, and the availability of funds.
- A country with a **skilled and educated workforce** along with abundant natural resources propels its economy forward.
- Natural resources have limited direct economic use in meeting human needs, but transforming them into goods and services increases their societal economic value.
- The conversion of natural resources into usable goods and services occurs as a result of the mix of productive activities carried out by different sectors of the economy, propelling the overall economy to achieve sustainable growth. This serves as the foundation for sustainable development.
- The transition from government to **governance** has emphasized the importance of involving multiple stakeholders in decision-making, knowledge creation, and natural resource and environmental policy implementation.
- **Sustaining renewable resources** is primarily concerned with preserving resource stocks and quality, as well as maintaining a number of consistent flows over an indefinite period of time.
- Despite the fact that non-renewable resources cannot be sustained due to their finite stocks, countries that use them can achieve sustainability by investing the revenues generated by them in other forms of capital.
- Natural resource **valuation and accounting** are essential for sound development planning. Transparent institutions and good governance are also required.
- Internalizing the environmental costs of natural resource extraction and use in resource prices is a powerful mechanism for incentivizing sustainable natural resource management and consumption.
- To maximise the value of natural resources for long-term growth and development while avoiding the resource curse, policies that formalise and codify revenue management procedures are required.

Conclusion:

Natural resources, because of their fundamental importance, must be managed in a sustainable manner. Government plays a critical role in enacting policies that ensure that resources contrib-

ute to the long-term economic development of nations rather than just short-term revenue generation.

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