India has a rich history of environmental education system implemented nationwide following independence. In the past six to seven decades post independence from the British Raj, since 1947; the nation has successfully achieved in establishing an environmental education platform across the country. The current paper is an attempt to comprehensively capture the glorious history of environmental education, the challenges and opportunities that it has created, and also focusing on the paradigm shifts in the Indian environmental education policy that makes it stand out from other global powers in developing an unique and effective environmental educational system nationwide with lessons learnt from the rich socio-cultural heritage of India integrated with modern educational approaches from a historic perspective.

INTRODUCTION

1.1. History of Environmental Education in India

People began exploiting the environment in the twenty-first century in the name of industrialization, urbanization, and development. The mistreatment of the environment has threatened man's existence on this planet. Population growth in India has become a threat to Development that is long-term (Basu et al., 2018, 2019). As a result, there is an urgent need to educate all Indian citizens about the growing threat of environmental degradation. Students can play an important role in this process. Since time immemorial; the environment has influenced and shaped our lives (Basu et al., 2016, 2017).

Today, everyone is concerned about the environment because it is deteriorating at an alarming rate, which is not good for all living things. Although the environment can degrade naturally, anthropogenic impacts on the environment hasten its degeneration. Environmental degradation is a series of actions that deteriorate or harm the natural environment, reduce biological diversity, and impair the overall health of natural infrastructure (Arya and Basu, 2016). As a result, everyone should be concerned about environmental education. The term environment education combines the words environment and education. The term "environment" refers to "the totality of all conditions and influences affecting the life and development of organisms" (Basu et al., 2016).

Education is defined as the formation of desired attitudes, values, skills, understanding, and interest in the environment. Environmental education, as opposed to traditional forms of education, is a holistic, long-term learning method aimed at developing responsible individuals who investigate and identify environmental issues, engage in problem solving, and take effective action to improve the environment (Arya and Basu, 2016). The systematic study of the
environmental structure and the status of its natural and induced changes on organisms is known as environmental education (Basu and Cetzal-Ix, 2015). It entails not only the study of the physical and biological characteristics of the environment, but also social and cultural factors, as well as the impact of men on the environment (Basu et al., 2016, 2017).

Environmental education is neither environmental advocacy nor environmental information; rather, it is a diverse field that focuses on the educational process, which must remain neutral by teaching individuals critical thinking and improving their own problem-solving and decision-making skills in a participatory approach (Basu et al., 2017).

1.1.1 Core Ideas of Environmental Education

- Environmental education’s guiding principles include awareness, familiarity, thoughts, skills, and participation.
- Environmental education refers to organized efforts to teach people how natural environments work and, more specifically, how to manage their behavior and ecosystems in order to live sustainably.
- Environmental education (EE) mentions organized efforts to teach how natural environments work, specifically how humans can manage their behavior and ecosystems to live sustainably.
- It is a multidisciplinary field that incorporates biology, chemistry, physics, ecology, earth science, atmospheric science, mathematics, and geography. The term frequently refers to education in the school system, from primary to postsecondary.
- However, it can sometimes refer to all efforts to educate the general public and other audiences, such as print materials, websites, media campaigns, and so on.
- Environmental Education (EE) is the teaching of individuals and communities to help them transition to a society that is aware of the environment and its associated problems, aware of solutions to these problems, and motivated to solve them.

1.2. The Purposes of Environmental Education in India

EE is essential for fostering in society an innate respect for nature and for raising general environmental consciousness. In order to secure future worldwide advances of societal quality of life (QOL), UNESCO emphasizes the importance of EE in eradicating poverty, reducing inequality, and ensuring sustainable development (UNESCO, 2014a). The goals of environmental education are extremely varied. Environmental education imparts the systematic information about the care that should be done in the explanation and usage of natural resources for the development and advancement of people. The main goal of environmental education is to spread information about the concepts necessary for the preservation and use of natural resources for human survival. Environmental education provides the information and experience necessary to appreciate the value of such crucial viewpoints at the primary, secondary and tertiary levels of education in India (Fig. 1.1).

Understanding the importance of preserving a cordial and balanced interaction between man and nature is a key function of environmental education.

The main purposes of Environmental education are:

i. To increase pupils’ awareness of the environment and the difficulties it faces.
ii. To assist the pupils in understanding the connections between people and the environment.
iii. To educate the students on the social norms that link environmental features to one another.
iv. To instill in students a favorable attitude about their surroundings.
v. To acquire the necessary skills for achieving the objectives of environmental education and educational assessments.
vi. To assist the pupils in understanding the significance of taking appropriate action to address environmental issues.
vii. To instill in children the necessary curiosity about environmental issues so that they would be motivated to work towards finding solutions.
viii. To set up suitable circumstances so that the kids can take part in the process of environmental decision-making.
ix. To increase one’s capacity for employing abilities to realize objectives and address environmental issues via social, political, cultural, and educational processes.
x. To educate the populace about the environment’s physical elements.
xi. To educate people on how much they rely on natural resources.
xii. To inform them about the environmental
changes over the past ten years and the effects of their current behavior.

xiii. To inform them of the effects that human behavior has on the environment, including how it may affect both people and other living things.

xiv. To arouse concern for environmental quality and conservation as well as to promote knowledge of how humans interact with the environment.

xv. To promote conservation and sanitation ethics on a personal, local, and national level.

xvi. To encourage people to use nature for enjoyment by reawakening appreciation of its attractive qualities.

Environmental education includes the knowledge we pick up from our surroundings. This involves the importance of maintaining the environment’s aesthetic value. Studying our environment to understand its makeup, functioning, and utility is a key component of environmental education. As we must learn about the environment before we can create it, this is a crucial part of environmental education. Environmental education teaches us how to protect the environment so that we can benefit as much as possible from it now and in the future. The conservation component of environmental education is this.

1.2. Components of Environmental Education
The goal of environmental education is to clearly demonstrate how interdependent the economic, social, political, and ecological systems of the modern world are, and how national decisions and actions can have global effects. The environmental education is comprises of: Elements of environmental education foundation for a new international order which will guarantee the conservation and improvement of the environment, environmental education should, in this regard, aid in the development of a sense of responsibility and solidarity among nations and regions. The major goal of grassroots environmental education is to successfully educate people and communities on the complexity of the built and natural ecosystems (Fig 1.2).

1.1. Opportunities of Environmental Education
All areas of environmental science are covered by the environmental extension services or environmental education and awareness programs. This includes the consequences of man on the environment, such as how he has destroyed it and contaminated it, but more significantly, how man may protect himself from the issues he has produced by abusing, misusing, and using excessively the resources provided by nature. Environmental education must also emphasize the understanding of the underlying causes of environmental degradation, which is crucial. The main opportunities of Environmental Education are:

- Education from the environment
- Education about the environment and
- Education for the environment.

1.1. Forms of Environmental Education From a Historical Perspective
The many levels of formal, non-formal, and informal education at all levels of society are involved in reorienting education as a whole towards sustainability.

1.1.1. Formal Environmental Education
Over the world, environmental education is becoming a more significant component of primary, intermediate, and postsecondary education. By
introducing the younger generation to the knowledge, issues, analyses, and interpretations on environment and development, the formal education sector plays a crucial role in environmental education and awareness. Environmental education has also undergone a significant transition from schools to adult and community settings (Basu 2018, 2019).

Most nations have chosen to include environmental education aims and tactics into the current curricula rather than creating a new subject, however some other nations combine the two approaches. Additionally, the emphasis on real-world application in environmental education aids schools in addressing crucial general educational goals relating to the development of values and abilities (UNESCO-PROAP 1996).

The Sustainable Development Goals (SDGs) are the worldwide priorities that must be accomplished between 2016 and 2030, a period of 15 years. The achievement of the SDGs depends heavily on education. The role of education for sustainable development (ESD) has grown in significance in this setting. In India, environmental education (EE) is a tool for ESD at the classroom level (Otto and Pensini, 2017). Two national policy documents—the National Curriculum Framework from 2005 and the Supreme Court’s order—have outlined how EE would be incorporated into the regular school curriculum. In accordance with the instruction, NCERT has created a graded EE syllabus for standards from class 1 to class 12. The infusion paradigm has been implemented for teaching EE at the secondary school level (Basu et al, 2016, 2017).

Current state of formal environmental education in India is that there are close to 200 environmental studies departments in universities and colleges across the country. Also, importance is given upon EE in higher education and Research on Environmental issues. The goal of research-based learning is to assist aspiring teachers in acquiring knowledge, skills, attitudes, and information for environmentally sustainable development. In environmental education, the implementation strategy for continuing education is crucial.

Here a list of remarkable and notable research works is given which have high utilitarian value in Environment and Sustainable Development in Indian context:

Table 1.1. List of Environment Research Areas Focused in India from a Historical Perspective Post Independence (1947-2022).

| 1. | Environment Education: History, evolution and perspective |
| 2. | Environmental education from the perspective of nature and nurture |
| 3. | Biogeographic studies of level of environmental education |
| 4. | Environmental education at the primary, secondary and tertiary levels |
| 5. | Tools and techniques of environmental education and awareness |
| 6. | Comparative analysis of success and failures of environmental education |
| 7. | Agricultural aspect of modern environmental education in India |
| 8. | Why is agriculture an important aspect of modern environmental education |
| 9. | Anthropogenic evaluation of the challenges and opportunities of environmental education |
| 10. | Environmental education as reflected in contemporary literature, philosophy |
| 11. | Perspectives of environmental law and its’ influences on modern environmental education |
| 12. | Environmental law as an important constituent of environmental education |
| 13. | Philosophical aspects of environmental education |
| 14. | History of environmental education: From the start to contemporary status |
| 15. | Status of environmental education in India |
| 16. | A global geographic perspective of the status of global environmental education |
| 17. | Comparative analysis of the current status of environmental education in India and abroad |
| 18. | Use of literary, philosophical and historical models in teaching environmental education at colleges and universities |
| 19. | Environmental education in India: Challenges and opportunities |
| 20. | Environmental education in India: Pros and cons |
| 21. | Environmental education in India: Merits and demerits |
1.1.1. Non-formal Education

In addition to the formal educational systems, there are non-formal environmental educational activities that take place at the curricular and extracurricular levels, in occupational training, and through extensive public awareness campaigns through non-formal channels like mass media and volunteer organizations (Basu and Cetzal-Ix, 2015). Various groups, organizations, and people opt for techniques and strategies that best meet their circumstances and capabilities. Countries use both strategies. Additionally, the emphasis on real-world application in environmental education aids schools in addressing crucial general educational goals relating to the development of values and abilities (UNESCO-PROAP 1996).

The main components of this curriculum are listed below.
Adult Education: By creating posters, slides, audio-visual materials, and informational images, adults may persuade society to protect the environment.

Tribes and Forest Dwellers: They are crucial sources of information for preserving the forest's resources.

Children's Activities: The National Museum of Natural History (NMNH) offers children's environmental poster design, modeling, and spot painting.

Eco-development Camps: The Department of the Environment has currently developed a set of guidelines to raise youth awareness of and familiarize them with the practice of sustainable development.

More than 200 non-governmental organizations work to protect the environment.

Executive Training: Monthly seminars should be organized for administrators to learn about environmental actions.

Research and development programs: The Department of Environment in the Biosphere and Man supports such research and development initiatives.

Foundation Courses: Foundation courses on the environment pertinent to their field of specialization should be added to the courses for probationers selected for the IAS, IFS, IPS, and cadets of the three wings of the Military Forces.

Creation of Teaching Aids and Educational Resources: Materials for the media (television, radio, movies, newspapers, etc.), audio, mobile exhibits, and audio-visual materials must be operated by qualified personnel.

World Environmental Day: Every year on June 5, World Environmental Day, all state and local governments, UTs, colleges, universities, academic institutions, and nonprofit organizations organize appropriate events. DOE provides funding for the purpose.

1.2. Educational Movements in India
The historically used terms, such as 'green politics', 'green movement' or "environmental movement" refer to a social movement that works to improve state environmental policies or to conserve the environment. The terms also refer to a social movement that works to improve state environmental policies or to conserve the environment. In other words, it is the effort to safeguard the environment by modifications to governmental practices. Here, we provide a brief overview of India's environmental movements to better inform our readers about how a widespread movement may stop crimes against the environment (Basu et al., 2016, 2017).

An environmental movement is a sort of social movement that includes a wide range of people, organisations, and coalitions that act to change environmental laws and practices and sense a shared interest in environmental conservation.

1.2.1. Causes of Environmental Movement
Unbalances in the biosphere system are a result of humanity's growing conflict with nature, which takes the shape of industrial development, the depletion of natural resources, and the occurrence of natural disasters.

The following are the main causes of the birth of environmental movements in India:

- The management of natural resources
- Right of access to forest resources Fake government development policies
- Using natural resources for non-commercial purposes
- Morality and human rights
- The socioeconomic factors
- Destruction or degradation of the environment, and
- Media and the spread of environmental consciousness

1.2.2. Major Environmental Movements in India
India has seen a large rise in environmental initiatives, particularly since the 1970s (Basu, 2019; Singh, 2007). These movements are the result of a number of separate, time- and place-specific responses to local problems.

These are a few of the most well-known environmental movements in India, briefly described:

A. Bishnoi Movement
A religious group known as the Bishnoi can be found in northern Indian states and the western Thar Desert. It was established in 1485 AD in the Marwar (Jodhpur) desert region of western Rajasthan, India, by Guru Maharaj Jambaji. It is a peaceful community of people who revere nature. Around 1700 AD, the sage Sombaji launched this movement to stop deforestation. Amrita Devi then carried the initiative forward. In the protest, 363 members of the Bishnoi community died. The moment the king of this area learned of the demonstration and killing, he hurried to the village,
apologized, and proclaimed the area a protected area. The fact that this legislation is still in effect today is notable. This movement, the first of its kind, developed the strategy of willingly hugging or embracing the trees for their protection.

B. Chipko Movement
In 1973, it was launched from Gopeshwar in the Uttarakhand district of Chamoli. A campaign was launched to stop the illicit felling of trees in the Himalayan region (Uttarakhand). The movement's founders were Chandi Prasad Bhatt and Sunderlal Bahuguna. The engagement of women was one of this movement's most significant features. The main features of Chipko Movement are:

- One of the most well-known environmental movements in India is the Chipko.
- The movement was born out of the hills' ecological instability.
- The market became a major issue for the hill dwellers as a result of the decline in the yield of the forest products.
- Exploiting forest resources was thought to be the cause of landslides and floods, among other natural disasters.
- The decision to "Chipko," or "hug," the trees that were in danger of being cut down on March 27 marked the beginning of the 'Chipko Andolan' ('andolan' means movement in Hindi and Bengali).
- This kind of protest significantly reduced the likelihood that the ash trees will be cut down by private enterprises.

C. Appiko Movement
Pandurang Hegde began what is now known in Karnataka as the Appiko Movement in 1983, modeling it after the Chipko Movement. Its primary goals included afforestation as well as the development, conservation, and best possible use of the forests. 'Appiko,' is to embrace a tree in order to show how much you care for it.

D. Silent Valley Movement
It is a region of Kerala's tropical evergreen forests. It has a huge diversity of life. The installation of the hydel power project here in 1973 was met with vehement opposition and the local populace. In 1985, the government was forced to proclaim them national reserve woods as a result of pressure.

E. Jungle Bachao Andolan
In 1982, the tribal community of the Jharkhand district of Singhbhum (formerly a division of India under the British Raj, a part of the Chota Nagpur Division of the Bengal Presidency) protested the government's forestry policy. The natural soil and woods were to be replaced by expensive teak, according to the government. This movement is sometimes referred to as 'Greed Game Political Populism' by environmentalists.

F. Narmada Bachao Movement
Since 1985, environmentalists and locals have been protesting against the construction of dams on the Narmada River for the purpose of producing hydroelectricity. This movement is known as the 'Narmada Bachao Aandolan'. The leader of this movement Medha Patkar, received help from Arundhati Roy, Baba Amte, and Aamir Khan.

G. Tehri Dam Conflict
The locals initiated this movement in the 1980s and 1990s because the dam project would be built in an area that was seismically vulnerable and they believed it would cause the submersion of the forest areas surrounding Tehri town. Despite opposition, police security is provided during the dam's construction as Sunderlal Bahuguna sits on a death-by-fast. Bahuguna's fast was broken when the government promised to examine the project, but work is still being done, albeit more slowly.

As a result, we can conclude that many grassroots environmental movements were founded in opposition to the development projects that have threatened the natural balance, changing public policy to be more environmentally friendly.

1.3. Legal Framework for Environmental Education in India
India has a complex legal system with more than 200 legislations on environmental protection (Arya and Basu, 2016). The following are some important national legislation for the prevention and management of industrial and urban pollution:

1.3.1. The Water (Prevention and Control of Pollution) Act of 1974:
It establishes penalties for non-compliance and prohibits the discharge of contaminants into water bodies above a specified standard.

To make the law more closely align with the EPA, 1986 regulations, it was revised in 1988. It established the Central Pollution Control Board (CPCB), which establishes guidelines for the prevention and management of water pollution. The CPCB and the state government oversee the operation of the SPCBs (State Pollution Control Boards) at the state level.
1.3.2. Water (Prevention and Control of Pollution) Cess Act, 1977:
It enables the imposition of a charge and cess collection on water used by local governments and businesses. It intends to increase the resources available to the national and state boards for the prevention and management of water pollution. The water (prevention and control of pollution) cess rules, which were developed in 1978, provide standards and guidelines for the types and locations of meters that each user of water must place.

1.3.3. Air (Prevention and Control of Pollution) Act, 1981:
Ambient air quality standards ban the use of harmful fuels and substances and regulate the use of equipment that contributes to air pollution. They also provide tools for controlling and reducing air pollution. The air (prevention and control of pollution) amendment act, passed in 1987, gave the central and state pollution boards the authority to handle serious emergencies. The boards were given the go-ahead to respond quickly to such events and to seek reimbursement from offenders for any costs incurred. The change to the air legislation has also placed emphasis on the authority to revoke consent for failure to comply with the requirements.

1.3.4. The Air (Prevention and Control of Pollution) Rules, 1982:
This rule provides outlines how board meetings should be run, as well as the powers of the presiding officers, the quorum requirement, and how the meeting's records should be kept.

1.3.5. The Wildlife (Protection) Act, 1972:
The WPA (Wildlife Protection Act), passed in 1972, creates a network of biologically significant protected areas and offers protection to specified species of flora and fauna. The WPA gives the federal and state governments the authority to designate any land as a national park, wildlife sanctuary, or closed area.

1.3.6. The Forest (Conservation) Act, 1980:
It restricts the state's authority to use forest land for non-forest purposes and to de-reserve forests.

1.3.7. Environment (Protection) Act, 1986 (EPA):
A law to address issues related to the environment's protection, improvement, and maintenance. The water (prevention and control) act of 1974 and the air (prevention and control) act of 1981 provide a framework for the coordination of central and state authorities, and the central government is empowered to take the necessary actions to protect and improve the quality of the environment by setting standards for emissions and discharges, regulating the location of industries, managing hazardous wastes, and safeguarding public health and welfare.

1.3.8. The National Environment Appellate Authority Act, 1997:
The creation of a national environmental appellate authority to hear appeals regarding the limitation of areas in which any industry operation or process or class of industries, operations, or processes could not carry out or would be permitted to carry out subject to certain safeguards under the environment (Protection) Act, 1986.

1.3.9. Factories Act, 1948 and its Amendment in 1987:
The Act includes a detailed list of 29 industries with hazardous processes, which are defined as processes or activities where, without special precautions, the raw materials used in them or the intermediate or finished products, by-products, wastes, or effluents would: i. Materially impair the health of those involved. ii. Cause environmental contamination in general.

1.3.10. Public Liability Insurance Act (PLIA), 1991:
In 1992, the PLIA was changed, and the federal government was given permission to create the environmental relief fund and make relief payments out of it.

1.3.11. National Environment Tribunal Act, 1995:
In order to provide relief and compensation for damages to people, property, and the environment as well as for matters connected to or incidental to such accidents, the act provided strict liability for damages resulting from any accident occurring while handling any hazardous substance and for the establishment of a national environment tribunal.

The Ministry of Environment and Forests (MOEF), the Central Pollution Control Board (CPCB), State Departments of Environment, State Pollution Control Boards (SPCBs), and Municipal Corporations are the main organizations in charge of creating and enforcing environmental laws and regulations.

1.4. National Education Policy 2020 and Environmental Education
According to the NEP 2020, "Concerted curricular and pedagogical initiatives, including the introduction of contemporary subjects, such as Artificial Intelligence, Design Thinking, Holistic Health, Organic Living, Environmental Education, Global Citizenship Education (GCED), etc. at relevant stages will be undertaken to develop these various important skills in students at all levels." The policy hopes that EE will
become an essential component of academic programs. To achieve this, it suggests that all B.Ed. programs must include the proper integration of environmental awareness and sensitivity towards its conservation and sustainable development. This new education policy has deep historical implications as discussed below.

1.5. Present Scenario of Environmental Education n India

India is urbanizing more quickly than the rest of the world. By 2018, urban areas were home to 34% of the Indian population. In the following ten years, it is anticipated that this percentage would rise to 40.76%. Due to this rapid urbanization and migration, social problems including poverty, unplanned industrialization, and other associated concerns are created. These difficulties contribute to the rapid environmental degradation. (Times of India, July 8, 2020).

At present lack of education is a major contributor to environmental degradation. To enable them to develop solutions and build a better society, we must ensure that our children are aware of the different environmental issues in their immediate environment. Children are the future, which is precisely why it is important to educate them from a young age so that they can grow up to lead a sustainable existence. Today it is our primary concern to have more environmentally literate person in our society.

A person who has environmental literacy makes informed judgments about the environment both on their own and in collaboration with others, is prepared to act on these decisions in order to promote the welfare of other people, society, and the environment at large, and engages in civic activities. Environmentally literate people have, to varying degrees, knowledge and understanding of a variety of environmental concepts, issues, and problems, as well as a range of cognitive skills and abilities, cognitive dispositions, and the necessary behavioral strategies to apply this knowledge and understanding in a variety of environmental contexts.

1.6. Mission Life and Future Perspectives

It is an India-led global mass movement. Honourable Prime Minister Narendra Modi of India announced 'Mission Life' as a broad campaign for "mindful and intentional use, instead of mindless and destructive consumption" to safeguard and preserve the environment on November 1, 2021, during COP26 in Glasgow. Mission Life aims to turn its vision into observable effects as highlighted below:

- Its goal is to inspire at least 1 billion Indians and other global citizens to take both individual and group action to preserve and conserve the environment between 2022 and 2028.
- By 2028, India's villages and urban local governments must at least be 80 percent environmentally friendly.
- It attempts to encourage people and groups to live in a way that is in harmony with nature and doesn't destroy it.
- Individuals who lead this lifestyle are known as Pro Planet People.

In its Nationally Determined Contributions, India is the first nation to mention LIFE: "India will advance and propagate a healthy and sustainable way of living based on its traditions and the values of conservation and moderation, including through a mass movement for LIFE, as a key to combating climate change."

1.11 CONCLUSIONS

India has rich history of environmental education that has taken a shape of progressive movement over the past six decades following her independence from the British Raj in 1947. The nation has moved through several challenges in dealing with the numerous local and regional environmental issues and problems, and has successfully established a well organized platform of environmental, cooperation, coordination, collaboration and communication (4C principle) between her states and union territories as well as overseas. However, since the implementation of environmental legislation at the grass root level is still a big challenge; hence, it is important to note that India needs to cover the gaps and loopholes to establish environmental education more effectively in the future. We sincerely believe based on our ground research that India is moving in the right direction with paradigm shifts in policy formulations and implementation of environmental education successfully in the country.

1.12 REFERENCES


