



INITIATIVES OF ENVIRONMENTAL EDUCATION AND GREEN GOVERNANCE: A REVIEW ON INDIAN SCENARIO

GADDEYYA GANDIPILLI*¹ | RANGANATHAN R² | SUBHASHINI K³

¹ DOCTORAL RESEARCH FELLOW, DEPARTMENT OF EDUCATION, ANDHRA UNIVERSITY, VISAKHAPATNAM-530003, ANDHRA PRADESH, INDIA.

² PROFESSOR, DEPARTMENT OF EDUCATION, ANDHRA UNIVERSITY, VISAKHAPATNAM-530003, ANDHRA PRADESH, INDIA.

³ DOCTORAL RESEARCH FELLOW, DEPARTMENT OF BOTANY, ANDHRA UNIVERSITY, VISAKHAPATNAM-530003, ANDHRA PRADESH, INDIA.

ABSTRACT:

Environment Education (EE) denotes a study of environment and its dynamics. The main concept of EE is to prepare suitable strategies for saving our environment. Environmental education is a process to promote the awareness and understanding of the environment, its relationship with man and his activities. The most important landmark for environmental education at an international level was without a doubt the International Conference on Environmental Education organized by UNESCO and UNEP at Tbilisi in former USSR in 1977. The United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, and the World Summit on Sustainable Development at Johannesburg in 2002 have drawn the attention of people around the globe on our environment. After these two intergovernmental summits, the international community focused on many environmental issues like the loss of forests, solid waste disposal and environmental pollution, degradation of habitats, global warming, the depletion of ozone layer and the loss of biodiversity. India adopted the infusion approach to create awareness on environmental education and green governance by the formal, informal and non-formal education system. The Ministry of Environment, Forests and Climate Change (MoEFCC) is the principal nodal agency and chief administrative body of India for the planning, promotion, coordination and the implementation of environmental and forestry programmes. The Ministry also act as a Nodal agency in the country for the United Nations Environment Programme (UNEP). The goals of environmental education were defined as creating environmental awareness, impart general knowledge for a basic understanding of environment, acquiring environmental friendly attitudes and values and to generate new patterns of behavior towards environment. Keeping in mind, the authors briefly reviewed the importance and initiatives of Environmental Education and Green Governance in India.

KEYWORDS:

ENVIRONMENTAL EDUCATION, GREEN GOVERNANCE, NATIONAL EDUCATION POLICY, TBILISI DECLARATION, MOEFCC, UNEP.

INTRODUCTION

“Environmental Education (EE) is a process to promote the awareness and understanding of the environment, its relationship with man and his activities. The main goal of Environmental Education is to create an awareness and understanding of the physical environment in the sense of conservation and protection of natural resources. A good environmental sense has been one of the fundamental features of India's ancient philosophy. However, during the last few decades global circumstances such as deprivation of ecosystems, global warming, depletion of natural resources, environmental pollution etc., forced our country to protect environmental resources through environmental education and green governance. Green governance is an emerging field, attracting more and more attention of the scholars, educationists and scientists and gradually becoming focus

of policy making of governments in different organizations including schools, colleges and universities. Studies on green governance have also emerged and become an international frontier issue because environmental issues have become a global concern (Weian et al., 2008). The concept of ‘environmental governance’ has been come into existence since the mid-1990s. Green governance is a long-term economic, social and environmental sustainability (Post et al., 2011). Various organizations and social groups are involved in green governance, including the enterprises, government, social organizations and the public. These stakeholders influence green governance through the relationship of equality, voluntariness, coordination and cooperation.

Indian concern for the environment is as old as our origin of civilisation. Ancestors did understand the meaning of environment as "the environment is sum total

of water, air and land, inter-relationships among themselves and also with the human beings, other living organisms and property" (Sarkar, 2014). Moreover, there is a great need to create public awareness about conservation of the environment and to ensure the full participation of society in the mitigation of environmental problems. Environment and sustainable development are interlinked and should be regarded as national priorities. The Government, environmental monitoring agencies, NGOs, academic and research institutions and the media must work synergistically to combat pollution and thus create a healthy environment (Prabhu, 2018). India has a strong tradition of incorporating environmental issues within official documentation in the form of National Education Policy (NEP). Supreme Court ruling (1991) making environmental education compulsory at all levels of education and national curriculum framework (Ravindranath, 2007). Environmental education is now being seen as an instrument and a process that enables participation and learning by people of all ages towards sustainable environment and development.

MEANING OF ENVIRONMENTAL EDUCATION:

The term environment is derived from French word "*environs*" meaning around, encircle or encompass.. Environment can also be referred as the totality of all the externalities (surrounding) that affect human life. In broader perspective the environment consists of human, social, political, economic and physical environment. In nutshell the environment comprises of all the biotic, abiotic, natural and human components defining the form and survival of each in a given system at a given time or over a period of time.

Human behaviours, including social, political, and economic actions, have an impact on the natural environment, and are responsible for causing many of the current environmental challenges and issues. This raises the importance of education, particularly environmental education (EE), as a necessary tool to equip people to address environmental issues and move towards environmental sustainability. The IUCN (International Union for Conservation of Nature and Natural Resources) Commission of Education (1970) stated that "*Environmental Education is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate the interrelatedness among man, his culture and his bio-physical surroundings*".

MILESTONES IN ENVIRONMENTAL EDUCATION

The organized global efforts on Environmental Education started with the first United Nations Conference on Human Environment held at Stockholm in June 1972. Consequently, United Nations Environmental Programme (UNEP) was formed and International Programme in Environmental Education (IEEP) was launched by UNESCO and UNEP in January 1975. Environmental Education became centre of focus of environmental and educational movement after the Inter-Governmental Conference on

Environmental Education held at Tbilis in 1977. The Report of Brundtland, 1987 had great impact on Environmental Education globally. The Agenda 21, the report of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil (1992) raise public awareness on environment protection. India also incorporated environmental concern in the constitution through 42nd Amendment in 1976 and further established the Ministry of Environment and forests (the ministry of Environment, Forest and Climate Change - MoEF) as a nodal agency for environmental issues.

TBILISI DECLARATION ON ENVIRONMENTAL EDUCATION

The world's first intergovernmental conference on Environmental Education was organized by the United Nations- Education, Scientific, and Cultural Organization (UNESCO) in cooperation with the United Nations Environment Programme (UNEP) and was convened in Tbilisi, Georgia (USSR) from October 14-26, 1977. The Conference adopted a frame work for the goals, objectives and guiding principles for the environmental education:

THE GOALS OF ENVIRONMENTAL EDUCATION:

- To foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas;
- To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment;
- To create new patterns of behavior of individuals, groups, and society as a whole towards the environment.

THE OBJECTIVES OF ENVIRONMENTAL EDUCATION:

- *Awareness*—to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.
- *Knowledge*—to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.
- *Attitudes*—to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.
- *Skills*—to help social groups and individuals acquire the skills for identifying and solving environmental problems.
- *Participation*—to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

GUIDING PRINCIPLES OF ENVIRONMENTAL EDUCATION:

1. Consider the environment in its totality—natural and built, technological and social (economic, political, cultural-historical, ethical, and esthetical).
2. Be a continuous lifelong process, beginning at the preschool level and continuing through all formal and non-formal stages.
3. Be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective.
4. Examine major environmental issues from local, national, regional, and international points of view so that students receive insights into environmental conditions in other geographical areas.
5. Focus on current and potential environmental situations while taking into account the historical perspective.
6. Promote the value and necessity of local, national, and international cooperation in the prevention and solution of environmental problems.
7. Explicitly consider environmental aspects in plans for development and growth.
8. Enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences.
9. Relate environmental sensitivity, knowledge, problem-solving skills, and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years.
10. Help learners discover the symptoms and real causes of environmental problems.
11. Emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills.
12. Utilize diverse learning environments and a broad array of educational approaches to teaching, learning about and from the environment with due stress on practical activities and first-hand experience.

STAKEHOLDERS AS PARTNERS OF ENVIRONMENTAL EDUCATION

The environmental degradation has been recognised as common problem by the world community. Since 1970, the environmental awareness gained importance in India after the UN-sponsored conference on the environment held at Stockholm (1972). India is emerging as a leader of developing countries due to its national and international environmental initiatives. There are multiple stakeholders as the partners and appreciates

of the environmental education include women, children and youth, indigenous peoples, Central and State government parties, Educational and Research Institutions, Non-Governmental Organizations(NGO's), Local Authorities, Workers and Trade Unions, Business and Industry sector people, Scientific and Technological Community and Farmers.

SOME OF THE INSTITUTIONS WITH DIRECT INPUTS TO FORMAL AND INFORMAL EE

- School Education Department
- Forest Department
- Environmental Planning & Coordination Organization
- Ecotourism Development Board
- State Biodiversity Board
- Regional Museum of Natural History
- National Afforestation Ecodevelopment Board,
- Regional Centre Indian Institute of Forest Management, Bhopal
- World Wide Fund for Nature
- Bhopal Birds
- Centre for Environment & Education

THE CONCEPT OF ENVIRONMENTAL GOVERNANCE

Environmental protection means consciously protecting and reasonably making use of natural resources and preventing natural environment from pollution and destruction. It includes all kinds of actions taken by human in order to solve the practical or potential environmental issues, coordinate the relationship between human and environment, and ensure a sustainable economic and social development (**Kulsum & Shankarappa,2018**). In recent decades, the environmental problems caused by human behaviour have become serious threat to environmental resources include soil, air, water, forests etc. Therefore, the global green governance or environmental governance or environmental administration becomes an important research agenda to all over the world. The proper design and mechanism of green governance can effectively coordinate the relationship between human and environment. Environmental governance is synonymous with interventions aiming at changes in environment-related incentives, knowledge, institutions, decision making and behaviours. Effective environmental governance at all levels is critical for finding solutions to these challenges. Environmental Governance comprises the rules, practices, policies and institutions for the sustainable environment. International Environmental Governance is the continuing process of interactive decision making in international environmental matters. It includes institutions and organizations as well as binding agreements, policy instruments and procedures that regulate environmental

protection at the international level. Environmental Governance focuses on strengthening global, regional, national and local environmental governance to address agreed environmental priorities. The concept of good governance also covers the sustainable use of natural resources and the protection of the environment.

KEY GOALS OF ENVIRONMENTAL GOVERNANCE OR GREEN GOVERNANCE:

- Sound science for decision-making
- International cooperation
- National development planning
- Policy setting and technical assistance

ENVIRONMENTAL MONITORING AND GOVERNANCE

(I). THE MINISTRY OF ENVIRONMENT & FORESTS

The Ministry of Environment & Forests is the nodal agency in the administrative structure of the Central Government, for the planning, promotion, co-ordination and overseeing the implementation of environmental and forestry programmes. The Ministry is also the Nodal agency in the country for the United Nations Environment Programme (UNEP). The principal activities undertaken by Ministry of Environment & Forests consist of conservation and survey of flora, fauna, forests and Wildlife, prevention and control of pollution, afforestation and regeneration of degraded areas and protection of environment, in the frame work of legislations.

(II).THE CENTRAL POLLUTION CONTROL BOARD (CPCB)

The Central Pollution Control Board (CPCB) is a statutory organisation, constituted in September 1974 under the Water (Prevention and Control of Pollution) Act, 1974. Further, CPCB was entrusted with the powers and functions under the Air (Prevention and Control of Pollution) Act, 1981. It serves as a field formation and also provides technical services to the Ministry of Environment and Forests of the provisions of the Environment (Protection) Act, 1986. Principal Functions of the CPCB are (i) to promote cleanliness of streams and wells in different areas of the States by prevention, control and abatement of water pollution, and (ii) to improve the quality of air and to prevent, control or abate air pollution in the country.

(III).ENVIRONMENTAL POLICY MAKING IN INDIA

The United Nations Conference on the Human Environment held in Stockholm(1972) and Rio de Janerio (1992) have influenced environmental policies in India. A number of policy and legislative initiatives were taken by the Indian Government through concern Ministries and departments.

Recent Policy Developments and Initiatives for environmental protection

- ✓ Prime Minister's Council on Climate Change
- ✓ India's National Action Plan on Climate Change

- ✓ National Biodiversity Action Plan
- ✓ Notification on Hazardous Waste
- ✓ River Conservation Strategy
- ✓ National Green Tribunal (NGT)
- ✓ National Environment Protection Authority (NEPA)
- ✓ The National State of Environment Report
- ✓ Integrated Development of Wildlife Habitats (IDWH) scheme
- ✓ The Biological Diversity Act, 2002.

(IV). GREEN GOVERNANCE THROUGH EDUCATIONAL INSTITUTIONS/SCHOOLS

Curriculum for Environmental Education:

Environmental Education (EE) is a tool for the sustainable environment. The Government of India announced a National Policy on Education in 1986 and adopted Environment Education as a part of national curriculum to develop the knowledge, attitudes, commitments and skills to mitigate the Environmental issues and problems. To achieve these goals, the national curriculum focused on the learning about the environment, learning through the environment, and learning for the environment to development environmentally literate citizens in India. Environmental knowledge contributes to an understanding and appreciation of the society, technology and productivity towards the conservation of natural and cultural resources of environment.

The National Curriculum frame work is an educational policy incorporated certain aspects of environment by Central and State programmes. The Kothari commission (1964-66) suggested that the basic education should promote environmental awareness among students of various levels. Now the Environmental education is an essential part of every pupil's learning to determine environmental problems. In this direction, NCERT has published a book entitled "*Joy of learning*" in collaboration with the Center for Environmental Education, Ahmadabad with lot of environmental activities.

Principles of Environmental Education in school curriculum

- To consider environment in its totality
- To focus on current, potential environmental situations.
- To emphasize active participation in prevention and control of pollution.
- To examine root cause of environmental degradation.
- To provide an opportunity for making decisions and accepting their consequences.

Environmental awareness programmes and initiatives at school level:

1. Environment Education, Awareness And Training (EEAT):

THE MAJOR COMPONENTS:

(i). National Green Corps (NGC) or Eco-club Programme

(ii). National Nature Camping Programme (NNCP)

(iii). Capacity Building Activities.

2. Paryavaran Mitra (PM) (Friend of the Environment):

This programme focuses on five main themes:

(i). Waste Management,

(ii). Water Conservation and Sanitation,

(iii). Energy Conservation,

(iv). Biodiversity,

(v). Culture and Heritage.

3. Green School Programme:

4. Global Learning and Observation to Benefit the Environment (GLOBE)

5. National Environment Awareness Campaign (NEAC),

6. Environmental Orientation to School Education (EOSE)

7. National Environmental Education Programme for Schools (NEEPS).

8. Environmental Education in Schools of Andhra Pradesh (EESAP)

9. Green Skill Development Programme

10. National Bal Swachhta Mission (NBSM):

The Union Minister of Women and Child Development Smt. Maneka Gandhi launched National Bal Swachhta Mission (NBSM) in Delhi. The Bal Swachhta Mission is a part of the nationwide sanitation initiative of 'Swachh Bharat Mission (Clean India Campaign) launched by the Prime Minister on 2nd October, 2014. The main objective of Bal Swachhta Mission is to provide hygienic and clean environment, food, drinking water, toilets, schools and other surroundings to the children. The National Bal Swachhta Mission have the following six themes: (i). Clean Anganwadis, (ii). Clean Surroundings like Playgrounds, (iii). Clean Self (Personal Hygiene/Child Health), (iv). Clean Food, (v). Clean Drinking Water and (vi). Clean Toilets

Agencies supporting Environmental Education programmes

1. MoEFCC-Ministry of Environment, Forest and Climate Change

2. MoE - Ministry of Education

(i) Department of School Education & Literacy

(ii) Department of higher Education

3. MST-Ministry of Science and Technology

4. CEE-Centre for Environmental Education

5. UGC- University Grants Commission

6. CPCB- Central Pollution Control Board

7. DST-Department of Science and Technology

8. ICAR - Indian Council of Agricultural Research

9. CSIR- Council of Scientific & Industrial Research

10. DAE-Department of Atomic Energy

11. NCERT- National Council of Educational Research and Training

12. UNEP - *United Nations Environment Programme*

13. UNCF-United Nations Children's Fund

14. IUCN - *International Union for Conservation of Nature*

15. UNESCO- *United Nations Educational, Scientific and Cultural Organization*

16. IPCC- *Intergovernmental Panel on Climate Change*

17. WWF- *World Wide Fund for Nature*

THE GLOBAL NEED OF ENVIRONMENTAL EDUCATION

One of the major concerns of this millennium is the environmental threat by mankind. Hence the immediate need of the day is bringing about an awareness of the environment and its problems at all levels. Sincere efforts are needed to re-establish our links with the environment. Education is humanity's best hope and most effective means in the quest to achieve Sustainable Development (UNESCO, 1997). As the potential instrument of social change, the National Policy on Education (1986) made the Environmental Education as the core curriculum at all educational standards. The significance and urgency of creating environmental awareness in school children has also been upheld by the Supreme Court through its directive to the Central and State educational authorities to make EE compulsory at the school and collegiate levels (Hon'ble Supreme Court Directive - 2003). Recognising the central role of education in environmental protection and preservation, the National Policy on Education (NPE) states that "There is a paramount need to create a consciousness of the Environment" to all ages and all sections of society, beginning with the child. EE aims at bringing about a change or transformation in the cognitive, affective and psychomotor behaviours of children. It is an action-oriented, project centred, and participatory process. It enables the development of self-confidence, positive attitudes and personal commitment towards environmental protection and improvement of the environment. EE increases one's knowledge and awareness about the environment and associated challenges, helps to develop the necessary skills and competencies to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action (Tbilisi Declaration, 1977). In the last two decades, EE has been synonymously used with many phrases like Education for

Sustainable Development (ESD), Environmental Education for Sustainable Development (EESD), Environmental Studies (EVS), Education for Sustainable Future (ESF) for protection and conservation of the environment (Ravindranath, 2007). The environment plays an immense role in maintaining and supporting the health of all people. Our planet facing serious and complex environmental issues such as climate change, air and water pollution, loss of biodiversity, desertification, deforestation, over population, depletion of natural resources, and many others. These issues have been increasingly recognised over the last twenty-five years. Although the health and protection of the natural environment is important for human beings, there is general acceptance that humans, through our social, political, and economic actions, are largely responsible for causing many current environmental problems. These actions are severely affecting the ecological balance of the environment, therefore, people need to consider their responsibility to protect and preserve the environment for these future generations.

CONCLUSION

Current environmental issues exist due to people's lack of environmental awareness, the absence of a holistic view about the inter-relations between human and the environment, and lack of understanding for the natural world and its phenomena. Awareness is widely used in order to encompass knowledge because it includes sensitivity, knowledge, and understanding of environmental issues. According to the objectives of EE, as outlined by the Tbilisi Declaration, investigating peoples' environmental awareness, attitudes, and behaviour towards the environmental issues could inform educational approaches for a more sustainable future. Environmental Education is an important and effective tool supporting people to address environmental issues and a successful EE programme should contribute to the development of people's ability to consciously take positive action for their natural environment. Through EE, people can also learn to be sensitive to the natural environment. Importantly, EE is generally seen as a lifelong process that promotes people's critical thinking skills to recognise environmental issues, make decisions, and contribute to bring innovative methods and tools to protect the environment. The effective implementation of EE is needed to world-wide to enhance the environmental awareness and sensitivity, attitudes and motivations, and pro-environmental behaviour of people. While EE is a life-long process, environmental educators have widely agreed that school students are an important group among whom EE needs to be implemented. Developing environmentally aware and sensitive students, along with positively changing their attitudes and behaviours towards the environment, through EE, is argued to be an effective strategy for taking care of the environment for the long term. Furthermore, these young people will be the citizens, leaders, and policy makers in future societies. Finally, because teachers often act as role models for students, and

what and how they teach in the classrooms is important for students' environmental learning, their personal and professional environmental awareness, attitudes, and behaviour play significant roles in an effective EE programme. This study attempts to build a green governance framework in school education system for the sustainable development among school administrators, teachers, students, enterprises, governments, social organizations, the public and the nature. This study examines the synergy between human and nature by presenting a framework, including related theories of green governance, innovation subjects, innovation mechanisms and innovation mode. Each country and region could use the suggested framework to develop green governance guidelines at school level that are suitable for the environmental carrying capacity which leads to the sustainable development. Educational organizations could use the suggested framework to develop environmental administration strategies to coordinate the social, economic and green values among different target groups. Environmental problems such as global warming, emission of green house gases, tight resource constraints, deforestation, ground water pollution, environmental pollution and ecological or habitat degradation have become increasingly serious threat. Hence, prompting different group of people or stockholders including students and teachers is very essential to rethink and understand the status of mankind in nature and the relationship between industrial or economic development and the environment.

REFERENCES

1. D N Sarkar. (2014) Environmental Policy in India. ARSS, 3(2):17-20.
2. D V Prabhu. (2018) Indian Initiatives for Environment Conservation. Green Chemistry & Technology Letters, 4(1): 1-5.
3. M J Ravindranath. (2007) Environmental education in teacher education in India: experiences and challenges in the United Nation's Decade of Education for Sustainable Development. Journal of Education for Teaching, 33(20): 191-206.
4. NPE. (1986) National Policy on Education (1986), Government of India, Department of Education, Ministry of Human Resource Development, New Delhi, pp.47.
5. Post C, Rahman N, and Rubow E. (2011) Green governance: Boards of directors' composition and environmental corporate social responsibility. Business & Society, 50(1):189-223.

6. Tbilisi Declaration. (1977) First UNESCO-UNEP Intergovernmental Conference on Environmental Education, Tbilisi, USSR. pp.101.

7. U Kulsum and M Shankarappa. (2018) Environmental Ethics among Secondary School Students of Kolar District of Karnataka State. International Journal of Current Research and Modern Education, 3 (1):334-337.

8. UNCED. (1992) United Nations Conference on Environment and Development Report, Rio de Janeiro, Brazil.

9. UNESCO. (1997) Educating for a Sustainable Future: A Transdisciplinary Vision for Concerted Action, Paris.

10. Weian Li, Jian Xu, and Minna Zheng. (2018) Green Governance: New Perspective from Open Innovation. Sustainability, 10:1-19.