AN ANALYSIS OF THE NATIONAL CURRICULUM FRAMEWORK FOR SCHOOL EDUCATION 2023 IN THE CONTEXT OF ENVIRONMENTAL EDUCATION

Chong Shimray
Department of Education in Science and Mathematics
NCERT, New Delhi
Email: cshimray@gmail.com

The much-anticipated curriculum framework for school education—National Curriculum Framework for School Education 2023 (NCF-SE 2023)—was finally brought out in August 2023. Unlike the previous four curriculum frameworks, it is a 600-paged comprehensive document elaborating on different aspects of school education. This article will focus on how Environmental Education (EE) has been envisaged to be implemented in the school curriculum by bringing out the highlights or positive points of the document. It will further explore the possible gaps and challenges that could be encountered by stakeholders in the process of implementation—development of syllabus, resources materials, training modules, etc.—which could come in the way of achieving the aim of EE as laid down in the document. Although the document is final and in public domain for consumption and implementation by stakeholders, the article proposes a framework for EE which has been modified from the one presented in the NCF-SE 2023. The proposed framework, focusing on the curricular goals and competencies, is conceived to be more holistic and simple from the point of view of the stakeholders. The concerns, curricular goals and competencies envisaged for EE in the document has been taken care in the proposed framework.

Keywords: Environmental education, National Curriculum Framework, NCF-SE 2023, NEP 2020, Curricular Goals and Competencies

Introduction

The National Curriculum Framework for School Education 2023 (NCF-SE 2023) developed by the National Council of Educational Research and Training (NCERT) in the light of the National Education Policy-2020 (NEP 2020), is a 600-paged comprehensive document elaborating on different aspects of school education (NCERT, 2023). The document was prepared by experts from all over the country and beyond with inputs from all stakeholders. As one would expect, the concerns, the aspirations, the challenges of the country have been attempted to be brought out in the document. Environmental concern being one such area, a good section of the document has been dedicated to Environmental Education (EE). The document centres around competency based learning which are derived from different curricular goals (CGs) for different grades and subject disciplines. This paper analyses the views and perspectives of the document with respect to EE, while there are largely positive takeaways, there are perceived gaps and there are possibilities to improve which are discussed in the paper.

Definition of Environmental Education in NCF-SE 2023

Before proceeding further, it will be crucial to first agree on the definition of EE since

the content, prospects and the extent of EE will be guided by this. Definition of EE, or in other words, what EE includes or excludes, has been a debate as old as EE itself which never got resolved (Disinger, 1997) and hence EE is defined by the implementers or the stakeholders. For example, Monroe *et al.* (2007) consider hit an approach to education, a philosophy, tool and a discipline while Lahiry *et al.* (1988, p. 17) considers it a new approach in education which not only gives a few pieces of information on environmental concerns but also brings about a new personal and individualised behaviours based on a 'global ethic'. Several other definitions can also be found (Shimray, 2016, pp. 12–14).

The basic contention in the definitions arises from the question—whether EE also includes purely social issues which have nothing to do with the bio-physical environment? According to NCF-SE 2023, "Environmental Education (EE) is a balanced process of developing cognitive understanding, emotional connectedness and behavioural change towards environmental issues that concern both humans and the natural system. The goal is to enable individuals to find equitable, just and sustainable solutions that maintain a dynamic equilibrium between human and environmental well-being (NCERT, 2023, p. 170). It further says, "Environmental Education critically addresses both social and natural concerns. Social concerns include issues of gender and marginalisation, equity, justice and respect for human dignity and rights..." (NCERT, 2023, p. 412). From this, it appears that every concern in the society including those which are purely social are included in EE. However, it is interesting to find that the contents laid down for different stages in the same NCF-SE 2023 are found to be limited to nature or natural events and phenomena or bio-physical environment alone. When social aspects are included, it is with respect to the bio-physical environment (NCERT, 2023, pp. 177–179). In this context, two views of EE could be derived—(i) EE includes both social and natural (bio-physical) concerns irrespective of whether they impact each other and (ii) EE includes all social and natural (bio-physical) concerns which impact each other. Given the nature of the subject, the first view is applicable for EE at the preparatory stage, i.e., world around us where even purely social aspects, such as family unit, bank, post office, rituals, etc., are included, whereas, the second view is applicable from middle stage onwards where only social aspects (including economic aspects) that impact or are impacted by the bio-physical environment is considered. For example, domestic violence (social) and poverty (economic) arising from crop failure or loss of job due to climate change (bio-physical) is included in EE. However, issues which are purely social or economic in nature, such as domestic violence (social) and poverty (economic) arising from alcoholism is not considered under EE. This clarity on the two views is crucial for curriculum developers so that EE is addressed in the curriculum for the intended purpose, meaningfully and effectively.

Inclusion of Environmental Education in NCF-SE 2023

Having understood what EE fundamentally includes or excludes, the following discusses how EE has been included in NCF-SE 2023. Table 1 broadly presents the nature of inclusion of EE in the document. The details

provided under 'mechanism' is based on an analysis of the document to identify curricular goals, competencies and topics which can be considered under EE.

Table 1: Inclusion of Environmental Education in NCF-SE 2023

S. No.	Stage	Mechanism
1.	Foundational	As a cross-cutting theme 'Learning about and Caring for the Environment' (NCERT, 2023, p. 177)
2.	Preparatory	1. As a cross-cutting theme 'Learning about and Caring for the Environment' (NCERT, 2023, p.178) 2. Through the curricular area 'World Around Us' (NCERT, 2023, pp. 390-398)
3.	Middle	1. As a cross-cutting theme 'Learning about and Caring for the Environment' (NCERT, 2023, p. 178) 2. Science Education CG-3 Explores the living world in scientific terms • C-3.1 Describes the diversity of living things observed in the natural surroundings (insects, earthworms, snails, birds, mammals, reptiles, spiders, diverse plants and fungi), including at a smaller scale (microscopic organisms) (NCERT, 2023, p. 300) • C-3.3 Analyses patterns of relationships between living organisms and their environments in terms of dependence on and response to each other (NCERT, 2023, p. 300) CG-5 Understands the interface of science, technology and society • C-5.1 Illustrates how science and technology can help to improve the quality of human life (healthcare, communication, transportation, food security, mitigation of climate change, judicious consumption of resources, applications of artificial satellites) as well as some of the harmful uses of science in history (NCERT, 2023, p. 300) 3. Social Science Education CG-6 Understands the spatial distribution of resources (from local to global), their conservation, the interdependence between natural phenomena and human life and their environmental and other implications

		• C-6.1 Explains key natural phenomena such as climate, weather, ocean cycles, soil formation, the flow of rivers and how they are spatially distributed (NCERT, 2023, p. 326)
		• C-6.3 Analyses Indian perspectives on and efforts towards conservation and sustainability in society and advocates the importance of the same, and what more needs to be done in these directions including in the context of global climate change (NCERT, 2023, p. 326)
		• C-6.4 Correlates the existence of different patterns of livelihoods with different types of landforms, availability of resources and climatic conditions and changes (in local, regional, national and global contexts) (NCERT, 2023, p. 326)
	Secondary	Science CG-4 Explores interconnectedness between organisms and their environment • C-4.3 Analyses different levels of biological organisation from organisms to ecosystems and biomes along with interactions that take place at each level (NCERT, 2023, p. 303) Social Science Education Classes IX and X CG-4 Develops an understanding of the inter-relationship between human beings and their physical environment and how that influences the livelihoods, culture and the biodiversity of the region • C-4.3 Draws inter-linkages between various components of the physical environment, such as climate and relief, climate and vegetation, vegetation and wildlife (NCERT, 2023, p. 329) • C-4.5 Critically evaluates the impact of human interventions on the environment, including climate change, pollution, shortages of natural resources (particularly water), and loss of biodiversity; identifies practices that have led to these environmental crises and the measures that must be taken to reverse them (NCERT, 2023, p. 329)

		CG-8 Evaluates the economic development of a country in terms of its impact on the lives of its people and nature
		• C-8.5 Appreciates the connections between economic development and the environment and the broader indicators of societal well-being beyond GDP growth and income (NCERT, 2023, p. 330)
	Class IX	As a cross-cutting theme 'Learning about and Caring for the Environment' (NCERT, 2023, p. 179)
	Class X	1. As a cross-cutting theme 'Learning about and Caring for the Environment' (NCERT, 2023, p. 179) 2. As a separate subject—Environmental Education CG-1 Understands key issues and challenges related to climate change, pollution and biodiversity collapse • C-1.1 Explains how climate change, pollution and biodiversity collapse affect human well-being (economic activity, migration, cultural practices) and the well-being of plant and animal species • C-1.2 Understands connections between and the causes underlying pollution, climate change and biodiversity collapse CG-2 Appreciates the need for interconnectedness, balance and harmony between human society and nature—the essence of 'Vasudhaiva Kutumbakam' • C-2.1 Describes the place of humans within ecosystems, and illustrates how humans and natural ecosystems are interconnected and must co-exist • C-2.2 Illustrates actions at the individual, local, community, national and international level towards mitigation of issues related to environmental damage • C-2.3 Identifies actions that can be taken at the level of the school or local community to counter environment-related concerns

	Classes XI and XII	1. As a cross-cutting theme 'Learning about and Caring for the Environment' (NCERT, 2023, p. 179) 2. Through 'Sustainability and Climate Change' which is one of the choice-based disciplines (NCERT, 2023, p. 504) Related to sustainability and climate change discipline, the document provides certain principles for designing the course which is provided provided below: The aim of teaching sustainability and climate change is to enable in students a deeper engagement with environmental education and explore the interconnectedness with sustainability and climate change grounded in the Indian context. The courses for sustainability and climate change must be designed keeping the following in mind: • Students will engage with complex environmental problems without being overwhelmed by them. • They will describe and summarise environmental challenges linking society and the environment. • They will understand trade-offs and ethical dimensions of sustainability and climate change challenges. • They will develop environmental literacy, enabling them to engage in environmental action. (NCERT, 2023, p. 504) 3. Biology Content Area 1—Biodiversity and biogeography of India students will engage with units on the impact of climate change and the importance of conservation efforts. (NCERT, 2023, p. 483) content Area 3—Organismal biology...Food production, food security (including challenges of climate change and diseases, the role of biotechnology) and sustainability (resource use, environmental impact) will be discussed. (NCERT, 2023, p. 484) 4. Philosophy Content Area 5—Environmental Philosophy Through this content area, students will be able to think abstractly about questions related to environmental issues, such as — Who is to blame for climate change, and are current solutions ethical (NCERT, 2023, p. 478)

As the table reveals, the document has put in sincere efforts to address EE. However, as in any national document meant to cater to millions of students, there will be gaps that needs to be filled in the process of implementation. Those are discussed in the following:

I. Highlights of NCF-SE 2023 w.r.t. EE

There are largely positive take aways from the NCF-SE 2023 w.r.t. EE which are discussed below:

1. Importance of EE Strongly Reflected

The world is going through unprecedented times especially, when it comes to the health of the environment. Taking due recognition of this warning, what is most encouraging about the document is that, the importance of EE is strongly reflected in it. It brings out the challenges facing India and the world.

2. Balanced Approach to EE Projected

One of the questions that teachers teaching EE face is regarding how to talk to students about the overwhelming environmental issues that is seen in the world. Studies have already established the impacts environmental issues such as climate change can have on the mental health of kids and young people (Clayton *et al.*, 2023). Therefore, the curriculum should be such that it does not contribute to eco-anxiety, climate-anxiety, etc., amongst students. In this context, the document is commendable in that it takes a balanced approach. It advocates that students should be made aware about the pressing environmental issues facing us. At the same time the document also advocates to ensure that students are not alarmed by environmental issues. The document also emphasises that neither should students be held responsible to fix the issue, but instead hope should be infused in the students through examples of success stories and at the same time provide them the necessary skills and competencies to contribute in the resolution of environmental issues individually and collectively. (NCERT, 2023, pp. 176, 409)

3. EE Included as a Cross-Cutting Theme

The document identified six themes on critical areas of high priority that cut across all aspects of the curriculum framework. As the document mentions, "The themes discussed here must be seen as extremely vital and highly pervasive across school education. They are considered here and given a special focus because they do not fall into any one curricular or administrative area simply and neatly."(NCERT, 2023, p. 142) One of those six themes is 'Learning About and Caring for the Environment.' This theme has been included in order to promote environmental literacy amongst students, sustainable practices, positive regard and respect for the natural environment.

This consideration of including environment as a cross-cutting theme is not only important but necessary since awareness and knowledge about environment can be enhanced through different disciplines. At the same time, skills and competencies to solve environmental issues can be developed through different disciplines. One may recall that, barring the introduction of EE in Class X, the previous National Curriculum Framework 2005 (NCERT, 2005) also advocated for the same approach for EE (where the term infusion approach was used instead of cross-cutting theme).

4. Historical Practices related to Environment Discussed

The document highlights the nature conservation traditions across India. It brings out the various environment-friendly lifestyle, values and practices, conservation strategies, etc., that were prevalent in India in ancient times based on several ancient Indian literature, such as Yajurveda, Rigveda, Subhasitas, etc. For example, mountains, rivers, forests, trees, animals and plants are considered sacred, portions of forests were protected, etc. (NCERT, 2023, pp. 171-172). Many of such practices continue even today, for example, we continue to find sacred groves maintained in different parts of India. Such sustainable practices need to be revisited, revived, reintroduced, reinforced and renovated so that it can be applied in the present context and issues. This is the need of the hour in order to build a sustainable society which is crucial to achieve the sustainable development goals. It also highlights the contributions of people from different walks of life who have stressed the inextricable link between nature and human society in more recent times. Recognition of such committed people will motivate students and encourage them to contribute in possible ways. The document also reiterated the fundamental duty of citizens to protect and improve the natural environment, including forests, lakes, rivers and wildlife, and to have compassion for living creatures as enshrined in the Constitution of India.

5. Aims of EE Clearly Defined

Successful implementation of EE will, to a large extent, depend on the clarity of its aims. This aspect has been taken care by the document by listing the following as the aims of EE:

(i) Create a strong foundation of environmental literacy, which includes understanding the interlinkages between ecological, social, economic and political factors.

(ii) Develop a more compassionate attitude towards the natural environment, drawing upon teachings from ancient Indian traditions and practices, the Indian Constitution, as well as scientific research on the effects of modern human activity on the environment.

(iii) Develop an action-oriented mindset and skill set so as to promote environmental causes, with a solid understanding of how individual, societal, national and global actions can help us restore the balance between humans and nature and thereby save our planet and ourselves. (NCERT, 2023, p. 34)

6. Some examples to Incorporate EE Across Stages Provided

The document provided some examples of how EE can be implemented in different stages by providing some concepts for different stages along with the strategies to be adopted. Such detail provided will be useful for curriculum developers (NCERT, 2023, pp. 174-179).

7. Inclusion of Different Courses Related to Environment

In addition, considering EE as a cross-cutting theme, the document also included EE as a separate subject in Class X under Education in Interdisciplinary Areas (NCERT, 2023, pp. 179, 408-416). If EE as a cross-cutting theme is seriously implemented, this inclusion of EE as a separate subject in Class X could

strengthen EE. In addition, the document also recommends the introduction of 'Environmental Conservation' as one of the course under the Indian knowledge Systems (NCERT, 2023, pp. 156–157). Sustainability and climate change has also been included as one of the choice-based disciplines in Class XI and XII (NCERT, 2023, pp. 504–505).

The highlights provided above reveal that the document has sincerely attempted to promote EE in the school education. However, it is but natural that any document can never be fool-proof. As such certain gaps and drawbacks have been found in the document which are elaborated below.

II. Limitations

1. Lack of Clarity on How to Cut Across in Different School Subjects

The document included EE as a cross-cutting theme but do not elaborate on how it will cut across in different subject disciplines. Whenever it mentions, it is in the context of science and social science only. This falls short of the view presented in the document itself which says, "Environmental Education, therefore, requires a holistic mix of content from the science as well as the social science, including biology, chemistry, physics, mathematics, geology, ecology, history, economics, psychology, sociology and anthropology" (NCERT, 2023, p. 170) and that it will be discussed in "multiple areas of the curriculum" (NCERT, 2023, p. 142). Keeping this in view, a direction or guideline in the document on how these subject disciplines should incorporate EE components would have greatly helped the curriculum developers and other stakeholders during implementation. However, somehow this aspect was missed out in the document.

It may be noted that, the same issue existed during the implementation of the NCF-2005 which also recommended infusion approach of EE. Educators and teachers for different subject disciplines lacked clarity on what is to be infused and where and how (Shimray, 2015). Other issues pertaining to infusion was also pointed out by Sonowal (2009).

2. No Separate Curricular Goals and Competencies

Although EE is a cross-cutting theme, it is different from other cross-cutting themes, such as values and dispositions, inclusion in schools, etc., since it has a content (concepts and concerns) of its own to be included in the curriculum. Keeping this unique nature of EE in view, a separate set of curricular goals and competencies should have been prepared for EE just like the document prepared for other school subjects or as it was done in the case of EE in Class X. This would have helped curriculum developers tremendously while preparing the curriculum for different school subjects. The document details pretty much about the 'accessories' such as the pedagogies to be employed, the TLMs, etc., but without providing the set of curricular goals and competencies envisaged to be achieved through such teaching-learning process.

Though the document listed some of the curricular goals in Foundational Stage, Preparatory Stage (The World Around Us) and Middle Stage (Social Science) to illustrate the cross-cutting nature of EE (NCERT, 2023, p. 177), it would have been more appropriate to have all the curricular goals and competencies for EE listed separately as mentioned earlier. After this, linking it with the relevant sections in other school subjects could have been done.

3. Abrupt Introduction of EE in Class X

The introduction of EE as a discipline in Class X though is appreciated, it is anybody's guess as to why such abrupt and haphazard introduction of EE happened without any visible systematic link with the content of the previous grades or the subsequent grades, for that matter. A better approach would have been a uniform pattern throughout—EE as a separate subject in each class along with cross-cutting theme, or EE as a cross-cutting theme in all grades and subjects.

4. Little of Everything but None Enough

Although many aspects have been covered for the implementation of EE in the document, there is no clarity on how one can systematically incorporate those in the curriculum of different school subjects.

Keeping in view the above gaps and drawbacks found in the document, the following framework is proposed which could guide curriculum developers in implementing EE.

A Framework for Road Ahead

A framework consisting of a set of curricular goals and competencies are being proposed are provided in Table 2. The curricular goals and competencies which are laid down in NCF-SE 2023 are also covered under this. Since EE is dealt differently in world around us as mentioned earlier no change is being proposed for the preparatory stage. The proposed framework will cater to Middle Stage onward. It may be mentioned that the framework encompasses all the crucial aspects of EE necessary for environmental literacy as laid down in the aims of EE in the NCF-SE 2023. However, in line with international practices, the framework do not provide stage-specific competencies. For example, the eight key sustainability competencies published by UNESCO, such as systems thinking competency, anticipatory competency, normative competency, strategic competency, collaboration competency, critical thinking competency, self-awareness competency and Integrated problem-solving competency, which are generally agreed in international discourse are not stage or grade-specific (Leicht, Heiss and Byun, 2018, pp. 44–45). Similarly, the content mentioned in the suggested framework is also not stage- or grade-specific. The same concept can be included in different grades and stages but at varying depth which is left to the syllabus developers to decide.

It is envisaged that the framework will enable curriculum developers while developing the curriculum in the following ways:

1. Systematically include EE
2. Cover all crucial aspects of EE (including the concepts, skills and competencies)
3. Cater to the aims of EE as laid down in NCF-SE 2023

Table 2: Framework Indicating Curricular Goals and Competencies for Implementation of EE in School Education

Curricular Goals	Competencies	
CG-1 **Understands the components of environment—physical and biological**	C-1.1	Appreciates the diversity that exists in the biological world in different habitats (biological diversity, habitats, etc.)
	C-1.2	Recognises the different components of the physical world (air, water, soil, energy—solar, biomass, gas, etc., renewable and non-renewable natural resources, etc.; weather, climate)
	C-1.3	Appreciates the different systems operating in environment—climate system (Atmospheric circulation; biogeochemical cycles; chemistry of ocean water; heat absorbing capacity ocean; thermal expansion; water cycle; ocean circulation – density-driven ocean currents, thermohaline circulation; solar radiation; palaeoclimate (interglacial period; ice age); weather; climate; climate feedbacks; global energy balance; albedo effect; greenhouse effect, etc.), ecological system (biotic and abiotic factors, their interactions, ecological niche of different organisms, ecological pyramids, energy flow, etc.), etc.
	C-1.4	Appreciates the various tools and techniques used to observe and measure environmental conditions, processes and changes (tools and techniques for air quality monitoring, water sampling and analysis, noise level testing, soil quality testing, measuring temperature, etc.)
CG-2 **Explores the interconnectedness of the biological and physical environment with the social aspects (including economic aspect)**	C-2.1	Recognises that biological and physical environment are influenced by social aspects and vice versa (culture and traditional practices are influenced by the environment; environment is manipulated by society to meet their need and greed)
	C-2.2	Describes the place of humans within ecosystems, and illustrates how humans and natural ecosystems are interconnected and must co-exist
	C-2.3	Illustrates that sustainable environment is necessary for a sustainable society

CG-3 **Evaluates and draws linkages between human activities and environmental issues**	C-3.1	Identifies faulty developmental models, environmentally damaging practices at different levels and how they cause environmental problems and issues (in terms of bio-physical environment degradation such as deforestation, biodiversity loss, waste generation, ozone layer depletion, global warming, air, water and soil pollution, flood, ocean acidification, etc., and societal issues and conflicts, impact on health, livelihood, economy, etc.)
	C-3.2	Appreciates the connections between economic development and the environment, and the broader indicators of societal well-being beyond GDP growth and income of a country (common good, limits to growth, sustainable production and consumption, equitable sustainable development)
	C-3.3	Predicts future state of the environmental based on the current trend (mathematical modeling, satellite imagery, review of literature, etc.)
	C-3.4	Recognises the need for sustainable developmental models (inclusive laws and policies, EIA, community participation in decision-making, etc.)
CG-4 **Understands the trans-national nature of environmental issues**	C-4.1	Recognises that environmental issues have no political boundary (issues such as climate change, ozone layer depletion, etc., impact every country)
	C-4.2	Traces the route of environmental issues—from the source(s) to the destination(s) (drawing maps/ using maps)
CG-5 **Explores solutions for environmental issues**	C-5.1	Recognises or illustrates sustainable solutions at the individual, local, community, national and international level (application of modelling techniques, waste management, bioremediation, sustainable energy, sustainable transport, sustainable production and consumption, minimalism, resource and energy-efficient technologies, circular economy, indigenous and traditional practices, customary laws, in-situ and ex-situ conservation strategies, GM crops, maintaining seed bank, sustainable lifestyle, etc.)

	C-5.2	Appreciates Indian knowledge systems including traditional and indigenous knowledge towards environmentally sustainable practices (Indian systems of agriculture, water, medicine (Ayurveda), urban planning, conservation practices, etc.) and illustrates their application in the present context
	C-5.3	Recognises or illustrates use of appropriate strategies for communication to promote environmental awareness (appropriate messaging, use of art, such as models, paintings, photos, etc., and literature)
	C-5.4	Designs strategies to solve environmental issues individually or collectively—from local to global (framework, blueprint, models—static or working)
CG-6 **Develops awareness about and appreciation for ecological and environmental justice**	C-6.1	Appreciates the intrinsic value of every organism (ethical treatment of all organisms)
	C-6.2	Analyses the disparity in terms of environmental impacts and benefits on different sections of the society (a section of people, those who least contribute to the problems, are more vulnerable to the negative impacts of environmental problems, for example, air pollution, temperature rise, disaster, diseases, displacement or migration, water scarcity, etc., impacting them more either because of their vulnerable health or due to economic conditions; benefits of development are more advantageous or affordable to a section)
	C-6.3	Recognises the need for equitable solutions for environmental problems and issues (equitable preparedness, adaptation and mitigation strategies)

Conclusion

Meaningful and effective implementation of EE is what all stakeholders associated with the area of EE look forward to. However, as pointed out in the article, there are gaps in the document which need to be addressed in order to achieve environmental literacy through EE in the curriculum. The gaps mainly pertain to the lack of clarity on the curricular goals, competencies and the concepts to be included in the EE curriculum and what curricular goals, competencies and the concepts should be included in different grades and different school subjects. In an attempt to address the gaps, a framework has been presented in the article which takes care of the curricular goals and competencies envisaged for EE in general. In addition, the concepts or topics to be taken into consideration for each competency has also been provided in the framework with every competency (within parenthesis). Stakeholders and curriculum developers will have to figure out where the particular curricular goal, competency or topic can fit into which school subject and grade. During this process, it has to be ensured that the contents are addressed spirally from Class VI–XII. For example, environmental justice or environmental laws and policies should not be introduced to students before they understand how an ecosystem functions. Similarly, mitigation of environmental issues should not precede the understanding about environmental issues. At the same time, no topics should be introduced as a passing statement in the curriculum. For example, a passing statement, such as greenhouse gases cause global warming should be avoided. The topic or concept should be introduced only when they are mentally prepared to learn about it, i.e., it should be age-appropriate.

Although the NCF-SE 2023 is out in the public domain, the proposed framework could be a useful resource for consideration by the stakeholders during the process of curriculum development as it will ensure that all the concerns (awareness, knowledge, skills, competencies) that is necessary to inculcate environmental literacy amongst students are addressed systematically and holistically.

The proposed framework will also serve another very crucial purpose. We know that environmental science or environmental studies are subjects offered in the undergraduate and post-graduate level. Hence, EE should not simply be treated as a concern but also as a curricular area just like other school subjects. Implementation of the proposed framework will prepare students to be college-ready to opt for the said courses.

There will be other challenges which are beyond the purview of this paper but critical for successful and effective implementation of EE, such as those related to teachers and teacher education and training.

References

Clayton, S., C. M. Manning, A. N. Hill and M. Speiser. 2023. *Mental Health and Our Changing Climate: Children and Youth Report 2023.* American Psychological Association and ecoAmerica Washington, D.C.

Disinger, J. F. 1997. Environmental Education's Definitional Problem. Reprinted from: ERIC Clearinghouse for Science, Mathematics and Environmental Education Information Bulletin No. 2, 1983. An Epilogue EE's Definitional Problem: 1997 Update. Columbus, OH: RIC/SMEAC.

Lahiry, D., Savita Sinha, J.S. Gill, U. Mallik and A.K. Mishra. 1988. Environmental Education: A Process for Pre-service Teacher Training Curriculum Development. UNESCO-UNEP International Environmental Education Programme Environmental Education Series No. 26, edited by Patricia R. Simpson, Harold Hungerford and Trudi L. Volk. Paris: UNESCO.

Leicht, A, J. Heiss and W. Byun. 2018. Issues and trends in Education for Sustainable Development. UNESCO Publishing, Paris. Available at: http://unesdoc.unesco.org/images/0026/002614/261445e.pdf (Accessed on December 5, 2023).

Monroe, M.C., E. Andrews and K. Biedenweg. 2007. A Framework for Environmental Education Strategies, Applied Environmental Education and Communication. Vol. 6. pp. 205–216.

NCERT. 2005. National Curriculum Framework 2005 (NCF-2005). National Council of Educational Research and Training, New Delhi.

———. 2023. National Curriculum Framework for School Education 2023. National Council of Educational Research and Training, New Delhi.

Shimray, Chong. 2016. Teaching Environmental Education—Trends and Practices in India. Sage Publications.

Shimray, C. V. 2015. Meeting of DIET Functionaries to Assess the Status of D.El.Ed. Syllabus in the Context of Environmental Education—Report (Unpublished). NCERT, New Delhi.

Sonowal, C. J. 2009. Environmental Education in Schools: The Indian Scenario. *Journal of Human Ecology.* Vol. 28, No. 1. pp. 15–36.