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## Green Education for Sustainable Future

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### Abstract

The increasing concern about climate change has heightened the importance of education in fostering sustainability. Green education is a solution that can address the issues of global warming and resource depletion by improving the awareness, responsible behaviour and thinking process. This paper aims to explore the concept of green education, green schools and green curriculum in view of sustainable development. The strategies of green education and challenges faced are also discussed in the study. **Methodology:** A detailed review of research papers, articles and reports was carried out in order to understand the concept of green education and its contribution in saving the planet earth. **Findings:** It was noted that green education is important in order to facilitate the responsible behavior of students. It can be integrated with other subjects at all the levels of an educational institution.

**Keywords:** *Green Education, Green Schools, Green Curriculum*

## INTRODUCTION

*“We need training for sustainable development not to be a privilege but accessible to all people. The success of the Education for Sustainable Development programme for 2030 will bring us closer to all the SDGs.” - Angela Merkel, German Chancellor (2021)*

As the world's ecological environment problems become more critical the need to preserve the environment has gained momentum. Global warming, climate change, the loss of non-renewable resources, population growth, health problems, gender inequality, and other concerns plague our globe today. The only way to preserve a healthy ecosystem, ecological interactions, and lessen the adverse effects of human activity on the environment is through sustainability. Education is the basis for raising public understanding of sustainability. UNESCO proposed *Education for Sustainable Development*, which is defined as educating



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all stakeholders for protecting ecosystem by giving them chances to gain the knowledge, skills, values, and attitudes. These skills will further assist the economy, contribute to societal well-being and environmental integrity. Green education is the need of hour for promoting sustainable development.

Owing to the incredible growth and speed at which various fields have advanced in the twenty-first century, green education has emerged as a viable means of demonstrating the significance of sustainability. It also plays a critical role in developing an environmentally conscious perception in achieving the Sustainable Development Goals (SDGs). 'Going green' is minimizing the wastage of water, pollution, fuel consumption and waste generation. Sustainability science and green principles are disseminated through green education. It is a comprehensive program that provides practical, real-world, hands-on learning possibilities outside of the traditional curriculum. The G20 countries prioritize green growth in terms of sustainability and green education.

### **Green Education: Concept and Goals**

Green education is a pedagogical approach that focuses on teaching people about ecological principles, sustainable behaviours, and environmental challenges. It can also be referred to as *Environmental Education or Sustainability Education*. It is a concept that may be integrated with education as learning is a vital component of raising citizens' awareness related to environmental issues. It further helps in strengthening their capacity to solve problems. Green Education empowers individuals to take action as informed individuals are more likely to engage in activities that promote sustainability. The goal of green education is to help children grow a deep appreciation for the environment and all of its creatures by fostering empathy. This technique gives people the information, abilities, and morals they need to confront environmental issues and help create a more sustainable future by participating in community initiatives, advocating for policy changes, and supporting environmentally responsible activities.



**Fig. 1.1.: Goals of Green Education**

Green education is different from traditional education as

- a) It combines environmental concepts into a variety of educational situations, such as official school curriculum, community workshops, and public awareness campaigns.
- b) It seeks to equip people with the information, abilities, and mindset needed to make wise choices that support a more sustainable environment.
- c) Green education incorporates practical learning, nature walks, field visits, outdoor experiments, and community projects.
- d) People who obtain green education are better able to comprehend the complex structure of ecosystems such as the wider effects of environmental problems on social, cultural,

## **The Significance of Green Education**

1. **Improves Understanding and Awareness:** Environmental challenges like degradation of resources, decreased biodiversity, pollution and climate change are brought to light



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through green education. It assists people in comprehending the origins, effects, and connections between multiple challenges.

2. **Behaviour Modification:**Green education aims at changing the behaviour of people by educating them about environment friendly habits. This can involve making wise shopping decisions, cutting back on waste, conserving water, and forming energy-efficient routines.It empowers people to adopt eco-friendly practices, reduce their carbon footprint, and contribute to building a more resilient and sustainable future.
3. **Develops Critical Thinking:**Green education challenges assumptions, fosters critical thinking and assesses the accuracy of claims made regarding environmental issues. It gives people the ability to actively contribute to creating a world which is more sustainable.
4. **Futuristic in Nature:**It refers to the use of advanced technology and design in relation to nature. A school/classroom setting with nature-inspired modern design and technology is more comfortable, enjoyable, and peaceful.
5. **Policy Formation:** Green education plays a vital role in shaping policies and practices at institutional and governmental levels thus driving positive changes towards creating more environmentfriendly societies.Novitsari et al., (2022) found that green educationplays a vital role in shaping policies, promoting sustainability, and creating a more environmentally conscious society.

### **Green Education and Sustainable Development: A Review**

Green education is a comprehensive program that provides students with opportunities for hands-on, real-world learning outside the traditional curriculum. It helps students to analyse environmental challenges, find solutions to issues, and take action to improve the environment.The development of environmental knowledge,skills, attitudes and values are the focus of green education at higher level. Since the economy and the environment are generally interdependent, it is crucial to link green education to the national economy (Aithal & Rao, 2016).Green education might lead to a healthy environment, boost the economy, embrace energy efficiency, lessen waste and promote awareness (Walaa, 2018). Furthermore, two aspects are covered in the green education- a) providing information regarding green education and b) teaching people to adopt responsible attitude towards environment.



Zunaidah (2022) revealed that green education encompasses several components- a) ethics, b) environmental education, c) critical thinking, d) self-awareness, e) competency, f) knowledge, and g) values. It was further noted that teachers could change the behaviour of students by introducing green and sustainable education. Furthermore, Aggarwal (2023) stated that green education is essential in advancing sustainable development by providing people with the information, abilities, attitudes, and values needed to confront environmental issues. In order to produce environmentally conscious and responsible individuals who are prepared to handle both present and future environmental difficulties, green education is essential. Green education plays a critical role in accomplishing the SDGs and G20 by strengthening the link between ecological, social and economic elements. Consequently, the notion of green education has garnered significant attention in the education sector. Therefore, its principles have been systematically integrated into teaching and learning (Su and Zhao, 2023). To summarize, it can be safely said that green education is holistic in nature which integrates the curriculum with practical and field work in order to improve the student's attitude towards environment.

## Revising the Curriculum

NEP 2020 suggested developing a new curriculum for schools that aims to develop students holistically and provides these individuals with 21st-century skills. This includes emphasizing critical thinking, problem-solving techniques, and experimental learning for maintaining lifelong sustainable learning. According to Rao and Aithal (2016) green education has two important aspects- a) environmental benefits and b) sustainability. In this education model, the course content is arranged and delivered to the students to maximize their awareness regarding the environment.

### 1. Green Schools:

The concept of green education was introduced in 1990s in Europe. The Rio Earth Summit (1992) inspired from this concept recognized the need to act “in every area in which human activities impact the environment”. A school dedicated to environmental sustainability is called a “Green School”. A green school must have these five essential components: a) effective resource management, b) a healthy atmosphere, c) an ecological curriculum, d) balanced meals and e) sustainable community practices. According to Gordon (2010), “Green Schools are the results of the planning, designing, and construction process that takes into

account a building’s performance over its life cycle with a focus on creating an environment that is optimal for learning”. These buildings are constructed in order to provide fresh air, natural lighting, comfortable temperature, minimum noise from outside in order to encourage better learning and innovating ways & means for protecting environment.

### Characteristics of Green Schools:

- a) The green school, must teach about sustainability. These schools have two goals i.e., education and sustainability. The first goal is achieved by utilizing the building itself as a teaching tool. The building must have sustainable and environment friendly features.
- b) To achieve the second goal, it is important to maintain a curriculum for teaching environmental education. According to Somwaru (2016), “The approach of the Green Schools differs from the normal natural science curriculum of the schools in terms of integration of more practical activities such as games or ‘do it yourself’ activities.
- c) The green schools aim to train teachers and students in order to fully utilize all resources present inside or outside the schools. This is not a one-time phenomenon but an ongoing effort in order to improve the environment of schools.
- d) It promotes learning inside and outside the classroom. The field work sites are used as an opportunity for the students to engage in first hand experiences. These experiences help the students to gain perspective, values, life skills, and awareness towards environment.

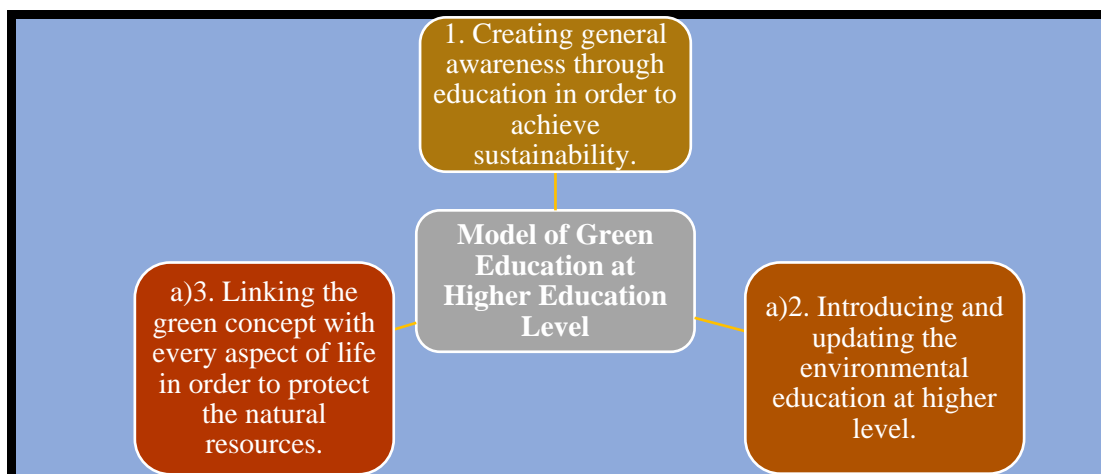


Fig. 2:

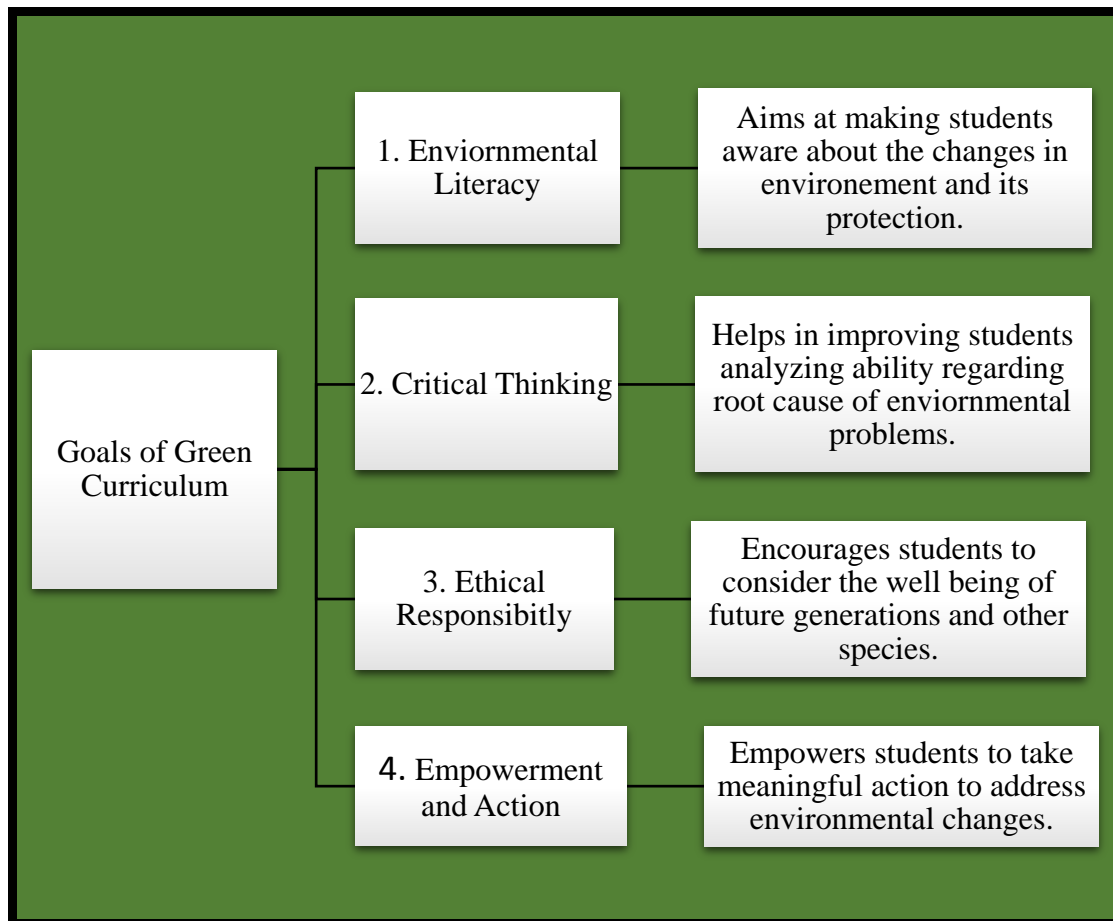
**Model of Green Education at Higher Level**

Such an example of Green School is The Adiwiyata Program (2006) implemented by Indonesian Government. Adiwiyata means ‘Love of Nature’ in Sanskrit. This school focuses

on environmental conservation by integrating environmental education in traditional curriculum. This school is focused on conducting many environment friendly activities such as a) waste management, b) recycling, c) clean ups, d) gardening and e) field trips (Haris and Afdaliah, 2016).

## 2. Green Curriculum:

Sustainable development and green education are encouraged by Green Curriculum. The Green Curriculum encourages students to have a deeper comprehension of ecological challenges. It advocates for curriculum modification through inclusion of environmental education in order to foster skills such as observation, report writing and recording of practical research. It further aims at assisting the students in gaining an understanding of various social, cultural, economic and environmental issues. Green curriculum requires integration of environmental concepts (waste management, biodiversity, renewable energy, climate change) across different subjects such as science, social science and arts.



**Fig. 3: Goals of Green Education**



To summarize, greening the curriculum revolves around the idea of transforming traditional education by adding practical knowledge and skills so that students can take a lead to help change issues like global warming and climate change to a sustainable future.

**Table.1.1: Green Curriculum at Various Levels of Education in Schools**

Level	Curriculum	Activities
<b>Foundational</b>	Nature Bonding	<ol style="list-style-type: none"> <li>1. Taking students outside</li> <li>2. Developing their naturalistic intelligence</li> <li>3. Playing outside</li> <li>4. Express gratitude to natural world</li> <li>5. Understand the importance of agriculture</li> <li>6. Teaching about recycling and reusing</li> </ol>
<b>Preparatory</b>	Ecological Principles	<ol style="list-style-type: none"> <li>1. Teaching about sources of energy</li> <li>2. Teaching about interrelationship between living and non-living things</li> <li>3. Teaching about recycling of material</li> <li>4. Teaching about adaptation</li> </ol>
<b>Middle</b>	Environmental Solutions	<ol style="list-style-type: none"> <li>1. Teaching subjects with environmental examples and case studies</li> <li>2. Use language and arts to communicate problems regarding environment</li> <li>3. Participate in school greening and community projects</li> <li>4. Usage of technology in sustainability</li> </ol>
<b>Secondary</b>	Sustainable Development	<ol style="list-style-type: none"> <li>1. Ethics based ecological concepts</li> <li>2. Teaching about pollution prevention principles</li> <li>3. Using various strategies for teaching sustainability such experiential learning, inviting guest speakers, reflective practices and cross curricular collaboration.</li> </ol>

**Strategies for Achieving Green Education:**





- 1. Collaboration on Projects:**In order to promote green education, schools should partner up with local organizations, businesses, government organizations and NGOs to carry out environmental projects such as neighbourhood clean ups, tree plantation and conservation efforts.
- 2. Educational Workshops and Events:**Schools should regularly organize workshops on methods of energy and environment conservation such as recycling, reusing, energy conservation methods, using environmental friendly methods etc. These hands-on experiences will certainly help in raising the environmental awareness and improving the skills of students.
- 3. Involvement of Students in the Upkeeping of School:** Students should be allotted some work in order to sustainably maintain the school building. They should be encouraged to do activities such as planting flowers and taking care of them. This will serve as a learning tool for students and community members in growing their own food and learning about sustainable agriculture.
- 4. Volunteer programs:** Encourage community volunteers to contribute time and expertise to the school's environmental initiatives, such as helping maintain the school's green spaces or aiding in the development of educational materials. By this demonstration the students will learn about the sustainable practices of green education.
- 5. Student-led campaigns:**Students should be empowered to lead campaigns that reach out to the community on various environmental issues and encourage behaviour changes such as reducing plastic use and e-waste management.
- 6. Long-term partnerships:**it would be beneficial to develop long-lasting partnerships with environment-focused organizations and experts who can provide ongoing support, information, and resources for both the school and the broader community.

### Challenges:

There are numerous issues with implementing green education. For instance, there is no efficient green teacher training programs, the current green education system is flawed, and the value of green education in schools is not easily understood (Su and Zhao, 2023).

- 1. Lack of Awareness:**



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Walaa (2018) in his study found that the majority of students were unaware of green education. It was further stated that there was a need for increased awareness of green education so that people can realize the importance of green education.

## **2. Lack of Experts:**

As the human population has grown, we have started to look for alternatives of natural resources. In order to do that educational institution must carry out professional courses/training in environmental sciences. They should encourage the professional talent for green manufacturing, energy conservation, consumption reduction, and green environmental protection in various fields.

## **3. Lack of Government Support:**

Governments ought to establish an atmosphere that empowers and motivates the education, corporate and other sectors to work on sustainability challenges. The easiest way to do this is to create and put into effect a set of management policies that prioritize sustainability through green education. It is important to understand that it is not possible to install green schools overnight instead this program requires time and proper planning. Funds should be provided for activities such as recycling programs, community outreach programs, field trips, and clean up.

## **Conclusion**

In today's ever-changing world, the importance of an improved curriculum cannot be overstated. The country is facing adverse effects of unsustainable production and consumptions. The curriculum needs to help individuals develop an understanding of environment, social and economic factors. The green schools and curriculum are answers to such issues and can contribute a lot in this direction. They go beyond traditional subjects and empowers individuals to come up with solutions to overcome environmental issues. Green education is important for not just environment but humanity as whole. In conclusion, education for sustainable development helps in reducing the threat of environmental degradation and resource depletion (Chakraborty et al., 2018).



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